"LUCIAN BLAGA" UNIVERSITY OF SIBIU
FACULTY OF HISTORY AND PATRIMONY
INSTITUTE FOR THE STUDY AND VALORIFICATION
OF THE TRANSYLVANIAN PATRIMONY IN EUROPEAN CONTEXT

ACTA TERRAE SEPTEMCASTRENSIS

VIII

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CONTENT

ART AND PREHISTORY

(Visiting the Gaydarska and Chapman's Answers to Why were Prehistoric Persons Interested in Rocks, Minerals, Clays and Pigments?)

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Keywords: *aesthetic, aesthetics, aesthetical, art, Balkan prehistory, black pottery, carnelian beads, enculturation, gold, graphite, origin of art, prehistory, socialization.*

Abstract: *This reflection on art and prehistory introduced several author's anthropological concepts on origin of art and its function in prehistory. Initial conceptual construct is the difference between aesthetic and aesthetical cultural views, respectively of aesthetic as a scientific theory (= aesthetics in singular) and aesthetics (plural) as the pleasing appearance or effect of things. The aesthetic view empowers and liberates culture while aesthetical view may limit it. The aesthetic view can be destructured while the aesthetical view needs to be proved.*
From the perspectives of prehistory, the socioanthropological power-prestige model does not allow to analyze the aesthetic view in its completeness and connectiveness as an essential enculturational construct. It may better explain the interrelation between socialization and aesthetic/aesthetical view. The cultural relation to rocks, minerals, clays and pigments was in fact relation of artists (understood as creative people) to nature in order to interact and create cultural products that in turn connected the people and nature. The art was invented in particular, to connect the gradually self-developing social world with the nature and in such way to make the world look united and complex.

Introduction

On 29 August 2009 I attended a jewelry workshop with my anthropology students. It was absolutely exiting, not because the art students, with their creativity, made the workshop an event, but because I tried by memory to make an Ur-like necklace including especially a red colored bone/horn, to look like with a carnelian beads. And as a surprise, next day, reviewing the new publications on Balkan archaeometallurgy online, I saw the question of Gaydarska and Chapman (2008). Just glimpsing such big thing as the problem of the aesthetic and aesthetical views in the prehistoric Balkans made me turn to the publication and forget about

everything else. Below I will share my reflection on the Gaydarska and Chapman's thoughts from the perspectives of my social and academic experience.

Aesthetic versus aesthetical

First we will make a difference between **aesthetic** and **aesthetical**. The former will relate to the pleasing appearance or effect of things, while the latter - as related to aesthetic (or aesthetics in singular), respectively "the science which treats the conditions of sensuous perception" (Maddox, online). On its side, the cultural relation to rocks, minerals, clays and pigments was in fact relation of artists (understood as creative people) to nature in order to interact and create cultural products that in turn connected the people and nature (Nikolova, 2009). The art was invented in particular, to connect the gradually self-developing social world with the nature and in such way to make the world look united and complex. But prehistoric art was always functional. Although the archaeological or archaeological-anthropological view on Balkan prehistory (e.g. Nikolova, 1999; Bailey, 2000, 2005) in many cases do not describe the materially as an art, the artistic, respectively aesthetic function, is embodied in any cultural activity because the culture of people was created upon the model of nature and the nature was a mirror of harmony, beauty, symmetry and balance. So, the tangible question is not about the aesthetic view in Prehistory but how to understand this aesthetic view, while when it comes to the system aesthetical view on the world as a steady and complex system of philosophy and theory of the conditions of sensuous perception, it needs first to be proved before analyzed.

In more strictly academic sense, the aesthetics as pleasing appearance or effect characterize not only the material expression but also any human behavior and its results. On its side, the aesthetic relation to rocks, minerals, clays and pigments was in fact relation of artists to nature in order to interact and create cultural products that in turn connected the people and nature (Nikolova, 2009). This understanding shows that my answer to the article's question generally differs from the Gaydarska and Chapman's aesthetical approach. Also, I doubt that it is possible an aesthetical approach before providing proofs that such existed as cultural universals, and steady prehistoric philosophy and theory.

The art was invented in particular, to connect the gradually self-developing social world with the nature and in such way to make the world look united and complex (Figures 1 & 2). Although the archaeological or archaeological-anthropological view on Balkan prehistory (e.g. Nikolova, 1999; Bailey, 2000) in many cases do not describe the materially as an art, the artistic, respectively the aesthetic function, is embodied in any cultural activity because the culture of people was created upon the model of nature and the nature was a mirror of harmony, beauty, symmetry and balance. So, the question is not about the aesthetic of prehistory but how to understand this aesthetic – as an artistic creativities and connectivities and expression of the liberate function of culture or as a norm and rule expressing the limitation function of culture.

Social anthropology's parameters

Gaydarska and Chapman (2008: 63) understand social anthropology as a formal expression of power and status. However, social anthropology is a gigantic research field of positioning of the individuals and social groups in a variety of cultural contexts and analyzing their responses and interactions. Social anthropology always models personalities and identities that can be tested against different context but never limits to only one model since the context creates always more opportunities of explanation. The problem of power-status model is based on the presumption of absence of for instance, leading pure aesthetic, entertainment, memory or exotic functions of the prehistoric objects. Even if they exist, they would have secondary and dependent function (see the brilliant analysis of D.W. Bailey (2005) on prehistoric figurines).
Then, Gaydarska and Chapman (2008) have limited their research approach to aesthetics within the power-status social model of understanding of the prehistoric objects, but at the same time in the following text even this determination is not explored because of the method of eclectically selected arguments.
From the perspectives of Prehistory, the socioanthropological power-prestige model does not allow to analyze the aesthetic view in its completeness and connectiveness as an essential enculturational construct. It may better explain the interrelation between socialization and the aesthetic view.

Art, aesthetic view and materiality

It is impossible to follow the authors' structure of arguments since they preferred a diachronic view on Balkan community but actually in the different selected periods are discussed different themes. Then, I will try to understand at least the main points as theoretical and not cultural-historical constructs.

1. People and their environment

According to Gaydarska and Chapman (2009: 65), "object-colors were as important as environmental colors in the creation of significance and meaning". Unfortunately, I could not find any arguments in the body text of Gaydarska and Chapman that would be applied to the cited thought in the conclusions.
My understanding is that this statement read in the conclusions is key for our perception of the prehistoric culture as a process that included art created to connect the people's social life and nature but as an aesthetic and not as an aesthetical view (Nikolova, 2009; for the connectivity between art and archaeology see Bailey, 2008; cp. Iseminger, 2004, Parker 2005). I had shared with my students that when I was undergraduate student I spent an enormous time to try to understand the origin of art. As more as I read, more troubles I had in my understanding. Finally, even Dr Ivan Marazov in his lectures concluded that there are just many theories.
The problem was that I read at that point about the origin of art in the library of the Art Academy and not in a library of Social Anthropology. In the former the

authors of the existed books searched for origin of aesthetics, while I easily prepared my presentation a week ago, because I thought as an anthropologist. The most helpful was the research project of my student, Jennifer Manitoken (Manitoken, 2009), who came to the Art Institute with a group of Native Americans and their dances were in fact imitation of nature – colors, costumes and sound. So, in my most recent definition, from the perspective of origin "Art is a creative human expression that connects people's culture and nature" (Nikolova, 2009). This approach could be possibly described as holistic understanding of human culture (Ferraro, 2008: 15), although understood not as self-evolution and self-expression but only in the context of nature and from the perspectives of culture-nature interrelations. In other words, the art is the main holistic construct that makes possible to think about nature and human culture as entity. Classical instance is the global theme of the tree of life that can be documented probably in all local cultures and especially archaic cultures.
The cultural universals include not only artistic expressions but also the simple way in which the different arts were incorporated in the human life according to the models represented in Figures 1 & 2.

2. Black pottery and art

The first distributed pottery in Balkan Prehistory was under an Anatolian influence and it relates mostly to red and brown. When we think about real black pottery as archaeologists, we need probably to refer mainly to black- firnis-ware from classical Antiquity. However, there are periods in Balkan prehistory in which the dark brown and grayish-black, brownish-black pottery was more popular than or equally popular with the pottery that had brown reddish, beige or other lighter colors. My on-site experience is from Early Bronze Age when in Early Bronze I dominated the grayish-black or brownish-black, while in Early Bronze II together with the development of the encrusted style, the reddish and lighter brownish pottery began to be wide distributed.
My understanding is that in Balkan Prehistory the color of the pottery primary depended on the technology. If the pottery was mainly household activity, then, the household followed the technological traditions or changed the technological traditions upon influence. Secondary artistic, mythological and even religious meaning could have been applied but the aesthetic and aesthetical functions were subordinary. The obsidian on the whole was an exotic material in the Balkans and for this reason it does not look likely that it had considerable or even any influence in the development of the aesthetic values of Balkan prehistoric population (cp. Gaydarska & Chapman, 2008: 64).

3. Graphite and art in Balkan prehistory

Graphite distribution in the artistic activities of Balkan population relates to the emergence of the copper industry. The recent discussion about the origin of graphite pottery (see Vajsov, 2007; Bojadziev, 2007) is as a matter of fact most

probably a discussion about the origin of metallurgy in Southern Balkans. The graphite was the one that divided the Eastern and Western Balkans, so graphite ornamentation was by nature highly attractive and aesthetic but it could not create any effect of silver motifs (contra Gaydarska & Chapman, 2008: 64) in the context of Balkan Copper Age since the Copper Age population of the Balkans still did not know silver at that point. The graphite ornamentation may have somehow related to gold, since the sources of graphite were not everywhere and its distribution probably was a complex networking with many cultural, economic and artistic consequences.

4. Carnelian beads and Balkan Prehistory

Again coming back to the jewelry workshop, I recalled how strongly wanted to include red beads in my necklace. Just because they look like carnelian – those exotic small objects that were not native for the Balkans and that for sure created a huge circle of emotions regarding how to obtain them and from whom to get them. So, the last what can be thought in my opinion about the carnelian beads discovered in the Varna cemetery is that "The close association of the body of the person with the flashing beads that they wore, presumably on special ceremonial occasions, created a lasting aesthetic bond between person and thing" (Gaydarska & Chapman, 2008: 64). For the Balkan population carnelian was a rare and exotic mineral that may connected some with people from distance, may recalled a journey, successful exchange, expensive gift, but by all circumstances something much more than pure aesthetical pleasure. In other words, evaluation of art is always hierarchical classification of values and context.

5. Gold and Balkan Prehistory

I always was wondering how gold was discovered in the Balkans. The recent deeper research showed that I needed to stop to be so proud that it was first invented in the Balkans. A good candidate is also Egypt. Then, I decided that probably gold was accidentally discovered when the rivers changed their beds and small grains wondered some eyes of our prehistoric ancestors. Later they may have also found gold ores. But as the Balkan records show, the gold was valued as wealth. The color of gold increased the wealth and not the aesthetic value, because if the last was primary, we may have much more gold objects. When there is wealth, there is a competition, visible and invisible self-social regulation and even development of institutions to make the access to the wealth resources limited and as a question of power. The gold invented or invertibly increased in art the role of wealth. The people compared the color with sun and made the gold mythological, religious and aesthetical symbol but first of all a sign of wealth of the developed prehistoric society. Accordingly, the relation of gold to art and aesthetics seems again secondary and not primary. Gold became a sign of wealth because it was rare.

Conclusions

Recently the theoretical prehistoric science has been developed as complex and multidisciplinary attempting to avoid building mythology, sharing archaeological narratives and developing sacred knowledge about our distant ancestors. This prehistoric science is anthropological, but also it should be knowledgeable and transparent. Hopefully, this approach to art, aesthetic and aesthetical views in the prehistoric Balkans would be understood as a piece of a social experience that I share to provoke a dialogue, because art was created for communication and its understanding is possible only in the context of dialogue and communication.

To conclude, my understand is that art was created to connect the human culture with nature (1) while every piece of human culture has a potential for aesthetic function (2). The material culture is multilayered with meanings and functions and in turn asks the researcher not just to reveal some of them, but to understand and discovery them in the hierarchy of meaning presumably in way they were layered or/and incorporated in past (3). Social archaeology offers opportunity to describe the social determination of materiality but never helps a lot if we use only one or more but selective models of interpretation (4). Last but not least, aesthetic view and aesthetical view may relate in different way to the processes of enculturation and socialization in human society.

For further discussion and updates please visit:
http://www.iianthropology.org/anthro_art_aesthetics.html

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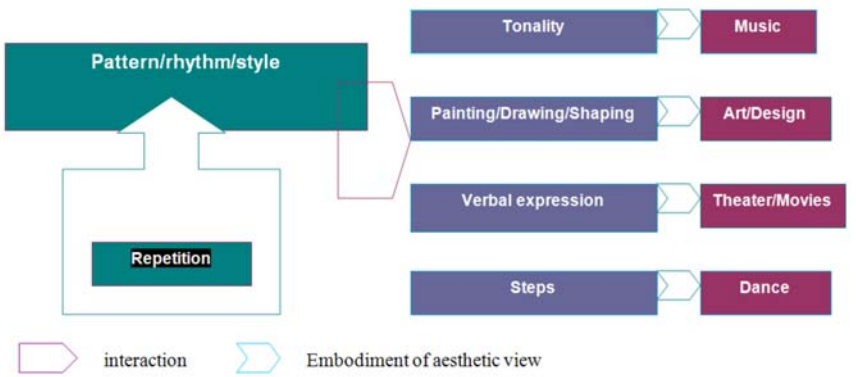

Figure 1. *Scheme of art as a creative human expression that connects people's culture and nature.*

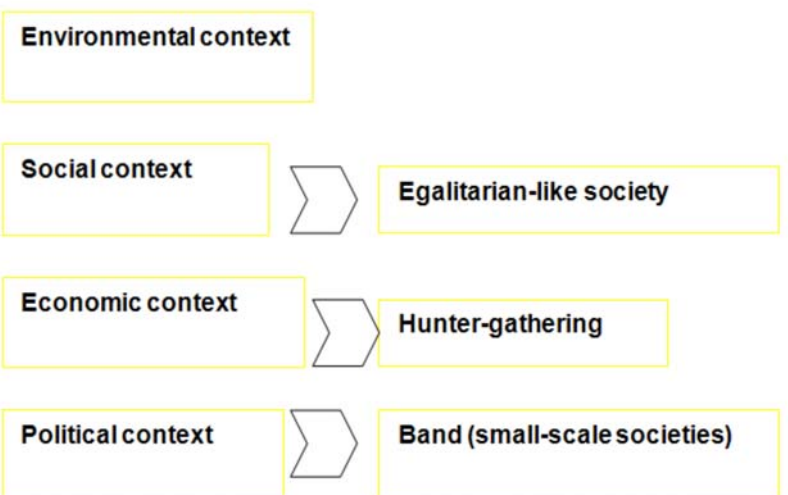

Figure 2. *Art connects people's culture and nature from the perspectives of its origin.*

FEATURE G_{26} / 2005 FROM MIERCUREA SIBIULUI-*PETRIŞ* AND NEW QUESTIONS ABOUT THE LIFE "BEYOND" OBJECTS OF AN EARLY NEOLITHIC COMMUNITY

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Key-words: *Miercurea Sibiului, Early Neolithic, Starčevo-Criş culture, ritual pit.*
Abstract: *During the archeological researches at Miercurea Sibiului-Petriş în 2005 campaign, a ritual pit belonging to Starčevo-Criş culture (phase IB, level Ia at Miercurea Sibiului) was discovered. The ^{14}C data for this archeological complex is 7010±40 BP (GrN-29954). In this feature was identified a deposition formed by approximately 36 cattle's horns from both wild and domestic species. This deposition was overlaped by a stone's agglomeration which was formed by river stones and fragmentary handmills. Due to this aspects connected with hunting, cattle breeding and tillage this pit was considered in connection with the space devotation made by the Early Neolithic communities.*

The site from Miercurea Sibiului-*Petriş*, is already well-known in archeological literature, that's why we will not insist about the data concerning its location and stratigraphy (*Luca et alii* 2006 with literature).

Archeological situation's description

In 2005 the main target of the research was to excavate and analyze the archeological features from levels I and II (this levels belong to Starčevo-Criş and Vinča cultures) in trench SII / 2004-2005. In the south and central-east part of this research sector it was identified a large irregular, dark brown "blur", what made us to consider it as an intersection of several archeological features. Accordingly, we create three control profiles in the areas where we consider that exist the cross-points ("cross-section" method). In the south area of the trench (squares no. 145,

151, 152, 153, 154, 160) it was detected, using this procedure, an intersection between three features (all of them belonging to level I of this site. See Plan I - with red dotted line we mark younger features, in the central-east side of the trench it is possible to observe such of this kind of intersection between several pits. In this article we just sketch their outline, other studies concerning stratigraphy of Miercurea Sibiului site analyze them in detail – see *Luca et alii 2008a*; *2008b*). The oldest (appertaining to level Ia – *Luca et alii* 2008a, pp. 9-10) was placed between two other pits which belongs to an younger sub-level, Ib (*Luca et alii* 2008a, pp. 11) and it was "cut" by them (Photo 1 and Plan I). This feature was named by us as pit G_{26} / 2005 (the feature was presented briefly, in *Luca et alii* 2008a, pp. 9-10; *Luca et alii 2008b*, p. 328; *Biagi et alii 2007*, p. 133, fig. 2).

At 0.20 m depth from the grundriss, whom the feature we speak about was observed, in its east half it was noticed and investigated an agglomeration ("structure") of rocks, some of them from the river, fragmentarily, others being in fact fragmented hand-mills (Photo 2-3). After dismantling of this rock structure, at 10 cm below, it appear, lying on the irregular bottom of the feature, a congestion of 36 bovine horns (Plan II, Photo 4-5).

Three things are very important and, we consider that is necessary to be emphasized:

1. The horns were disposed in to a very interesting manner – in centre of this structure exist a "germene" with 90 cm diameter, composed by approximately 33 horns, being "enframed" by three depositions, of two horns each situated as an isosceles triangle points (Plan III).
2. The rock structure presented above was placed right above the central element of horn's deposition.
3. The filling soil of the pit is uniform, brown, clayish, relative compact, fact which indicate us a quick infilling of the pit (a single moment) after it was used.

The faunal remains found in the pit No. 26 at Miercurea Sibiului (Sibiu county) (Georgeta El Susi)

The faunal remains found in the pit No. 26 claim a special attention among of findings of 2005. We speak about 36 horn cores more or less entirely originating in cattle and aurochs, according to data included in the Table 1. Another thirty-four remainders were found between 0.75-1.35 m depths being associated with the horncores sample. The fragments derive from the next species: cattle-fifteen bones (beside the thirty-six cores), aurochs – one fragment; sheep – three bones, goat – one, pig – one, red deer – five bones, undetermined ribs – six. The thirty-four remnants are not tided with the horn cores deposition, originating in different parts of the skeletons. Maybe in a next phase the complex turned into a rubbish pit.

From the first impression generated by observations during excavations, one can assert that the pieces were entirely aforetime. Unfortunately the sample is in worst state of preservation due to soil acidity; consequently few horn cores are completely, always the base segment preserved. Sometimes fragments of intercornual ridge attached to pedicle were found. In this connection, the measurement and morphological observations are partially.

The **cattle** horn cores sample totals twenty-five fragments (sixteen on the right side, eight on the left part and for one is unspecified the side) and derive from minimum eighteen-nineteen individuals, six females and eleven males. The piece No. 1 is not measurable, morphologically it could be assigned to domestic species; it would represent the eighteenth exemplar. The piece No. 2 could not be designated to right / left side; hypothetically it would represent the nineteenth exemplar. Equally it could made pear with any other of the horns. According to metric data eight pieces belong to females and fifteen to males. The female specimens (two lefts and six rights) derive from five adults and one sub-adult. As to their morphology, the horn cores are small, short, curved, and oval on the cross-section, belonging to "Brahyceros" type. The male specimens (five lefts and ten rights) belong to minimum eleven animals. By morphology, measurements and texture they are of "Primigenius" type. They are large, two of them (No. 24 and 25) fall into the lower aurochs range size. Furthermore, they have thinner walls as compare the aurochs material. Among the male cores some types, expression of the individual variability were identified. The first type includes the pieces No. 11, 12, 17, 18, 19, 20, 22; moderate to large in dimensions, they are not very long, with thin walls and a compact surface. The actual length of the No. 19 horn core could hardly have exceeded 270-300 mm; regularly they are oval on cross-section, point laterally, with their tips twisted forwards and slightly upwards.

Another group includes the pieces No. 14, 21; they are of large proportions, the section of the base is semicircular with their tips twisted forwards, than upwards. The metric data of the piece No. 14 surpass the upper part of the domestic range size; its appurtenance to a metis can't be excluded, even if we included the fragment in Bos Taurus. The piece No. 23 is oval at the base, short, with the tip oriented forwards. Judging from dimensions of the base, it could be assessed that the bovine horn cores at Miercurea Sibiului exhibited a high degree of robustness, typical to Criş populations. Of eleven individuals, three are immature and seven reached the adulthood. Among them the young matures prevail. The male / female ratio is 11/6, suggesting a preference for the male killing, mostly before or sooner after their body maturity accomplished. Obviously, the economic judgment conditioned the culling of the males for killing, keeping the females for secondary purposes.

Nine cores (five rights and four lefts) derive from **aurochs** and belong to minimum six animals. It's difficult to sexing the material; just the piece No. 33 belongs to a male, according to metric evaluations. Fragments of intercornual ridge preserved in case of cores No. 16 and 34. That is flat. The cores of aurochs are robust, with thick walls, around, 5-7 mm (thickness), the tip oriented forwards and upwards. The piece No. 34 preserved a small portion of intercornual ridge (flat). For the core No. 27 we estimated a Gd (Greatest diameter of the base) around 95-100 mm. In case of cores No. 35 and 36 (broken), it is impossible to designate the species; in all probabilities they could make pair with any of the other pieces. The aurochs exemplars were killed to an adult-mature stage. Overall, the morphology and the increased metric data of the cattle horn cores are typical to Early Neolithic materials from Romania and neighboring areas. We envisage similar samples in

Hungary (Endröd 119 – *Bökönyi 1992*, pp. 201-203) and Serbia (*Bökönyi 1992*, pp. 29-43; *Bökönyi 1992*, p. 422).

The appearance of short horned cattle ("brahyceros type") is quite interesting. Such cattle developed not long after domestication. At Çatal Hüyük such horn cores were found in the 7th millennium B.C (*Perkins 1969*, p. 178, apud *Bökönyi 1992*, p. 203); hitherto the earliest find in Europe was noted at Nosa (*Bökönyi 1994*, p. 38). In the earliest Neolithic sites from the Banat Plain we found just one piece of this type at Foeni-*Gaz* (*El Susi 2001*, p. 16), the "Primigenius" type prevailing (*El Susi 2001*, p. 15-39). In Transylvania, a single piece was identified at Cauce (*El Susi 2005*, p. 100) and several at Miercurea Sibiului, evidently. In the Earliest Neolithic site at Cârcea - „Viaduct" (Oltenia) two-three horn cores of "Brahyceros" type were identified (*Bolomey 1980*, p. 20-23). Reverting to Miercurea Sibiului cattle horn cores we specify that, the variation of the Gd (Greatest diameter of the base) is around 70-80 mm, values closed to the Banat Plain materials (*El Susi*, personal data). Concerning the aurochs materials of this epoch, the examples are lesser. So, at Cârcea was identified a piece with GL / Gd / Dd / Circonf of 410/91.5/77/260 mm; the horn core is ascribed to a female of wild species; equally the piece would be originated in a domestic male, according to the faunal analyze (*Bolomey 1980*, p. 21). At Turia was identified another female horn core with Gd / Dd / Circonf of 95 / 90 / 282 mm (*Haimovici 1992,* p. 261). In case of Miercurea Sibiului, the aurochs horn cores metric data, the smaller values prevail. E.g. the Gd' values fall between 91-100 mm. A single one of 122 mm (Gd) characterizes a male of aurochs. At Endröd 119, smaller values of 87-91 mm (Gd) were estimated.

Unluckily from the zoo-archaeological bibliography, we have no acquaintance with this type of pits, at least at this chronological sequence. A similar complex belonging to Precucuteni III Culture was dug into the site at Târgu Frumos-*Baza Pătule* (*Haimovici-Coroliuc 2000*, p. 169-206). That pit (No. 26 / 1998-1999), contained 1,312 bones from 14 taxa (*Haimovici-Coroliuc 2000*, pp. 172-173). 48 cattle horn cores and 5 pieces from aurochs were identified. Moreover, at least four *bucrania* (one from male/aurochs and three from cattle: a geld, a female and a male) were determined. Concerning the pit character the authors specify: "the remains coming from Bos Taurus and Bos Primigenius being connected with the well-known cult for bull…because of this the fragments coming from the two species have a higher than usual frequency… For some of the Bos Taurus and Bos Primigenius fragments as well as the other discovered species the pit is a common rubbish pit" (*Haimovici-Coroliuc 2000*, p. 169-206.). Consequently in both cases the pits would have had earlier a ritual character, turning during time into waste ones, as the faunal analyses outline.

Conclusions

Pottery was the main artifact what help us to determine the relative chronology of this feature and it have all the characteristics from the first phase of Starčevo-

Criş cultural complex[1], more precisely IB-C phase (*Luca et alii 2006,* p. 17). Appears also a very characteristic element of this early stage, namely brown-reddish and brown pottery, slipped, with very well polished surface, painted with white oval spots, placed in horizontally, alternative rows (Pl. I/1-2)[2].

Beside all this elements from relative chronology determination of pit G26 (stratigraphical relation with other features and the pottery from its filling) we have a C_{14} data from this feature: 7010±40 BP (GrN-29954) (*Luca et alii 2006*, p. 17).

As a conclusion, taking in consideration the fact that pit G26/2005 it's part of the earliest moment of Neolithic habitation of *Petriş* terrace (also feature B10 belong to this sub-level) and also judging the apart character of this discovery, we are tempted to consider this deposition as a ritual one, most probably being connected with the consecration of the space which "hosted" the settlement of the community, because we have here elements in very strong connections with the main occupations of an Early Neolithic group of people: fragments of hand-mills (connections with early agriculture), cattle horns (connections with stock breeding) aurochs horns (connection with hunting). We think that the large number of horns doesn't represent a large quantity of meat available for the community in a specific time, as we are tempted to consider on the first view and rather are the result of keeping this anatomical parts as characteristic element connected with the bull's cult, specific for the Neolithic era.

Of course that our scenario is a presumptive one, the questions connected with this kind of archeological feature didn't receive all the answers, the real purpose of this deposition being still a dilemma.

[1] We use for the internal structure of Starčevo-Criş Culture, the system promoted by Gheorghe Lazarovici (see *Lazarovici 1979*).

[2] Detailed analyze of the pottery from level I of Miercurea Sibiului will be a future target for another article.

BIBLIOGRAPHICAL ABBREVIATIONS

AAASH	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
ActaTS	Acta Terrae Septemcastrensis, Universitatea „Lucian Blaga" Sibiu
AnB(SN)	Analele Banatului (serie nouă), Timişoara
Angustia	Angustia. Arheologie, Sfântu Gheorghe
Apulum	Apulum. Acta Musei Apulensis, Alba Iulia
Carpica	Carpica, Muzeul Judeţean de Istorie "Iulian Antonescu", Bacău
CCA	Cronica cercetărilor arheologice, Bucureşti
CCDJ	Cultură şi civilizaţie la Dunărea de Jos, Călăraşi
Istros	Istros, Muzeul Brăilei, Brăila
Oltenia	Oltenia. Studii şi comunicări(arheologie, istorie, etnografie, artă)
PB	Patrimonium Banaticum, Timişoara
Sargetia	Sargetia. Acta Musei Devensis, Deva

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Photo 3 G_{26}/2005. Stone's aglomeration which overlaped the depostion of horns with the indication of fragmentary handmills.

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Photo 5 Deposition of horns. View from the north-east.

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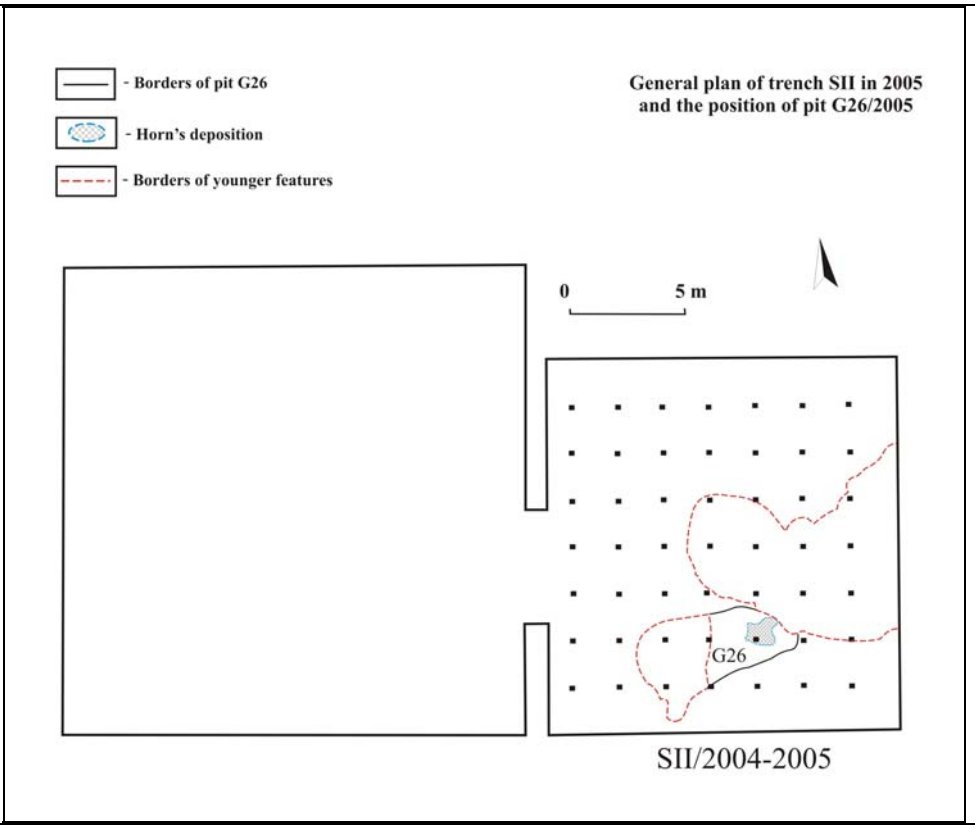
Figure 1 Dimensional diagram of the horns (Sd – small diameter of the base; Gd – large diameter of the base)

Figure 2 Sex distribution on age at cattles.

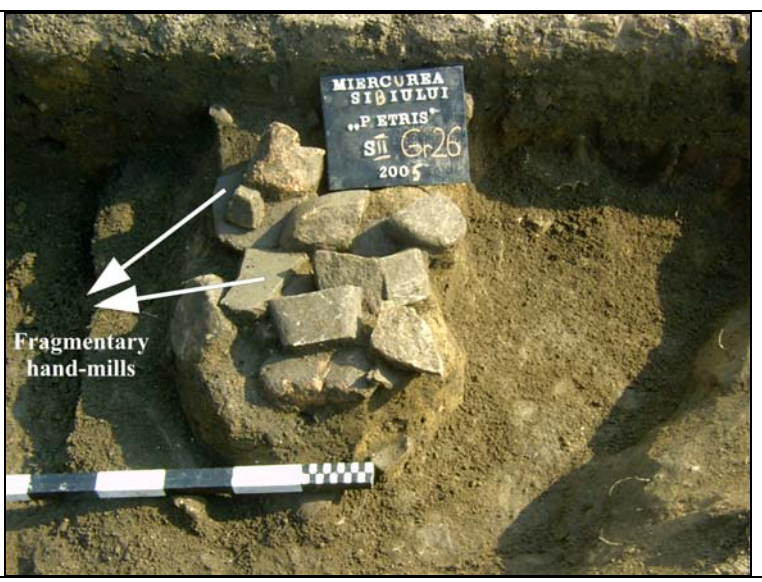
Table 1 Horns distribution on species.



Plan I

Photo 1

Photo 2



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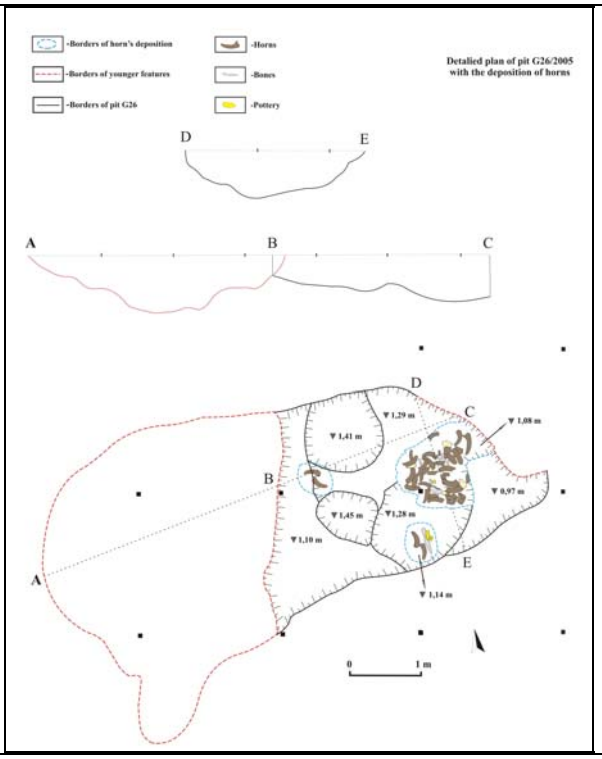
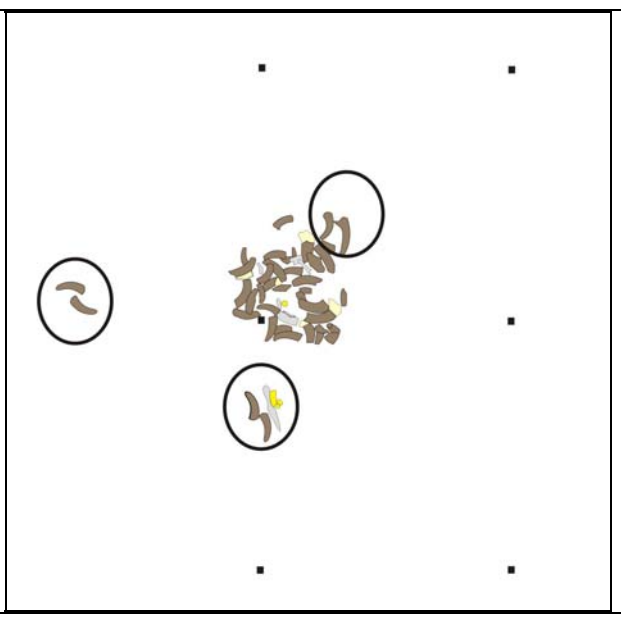


Plan II

Photo 4

Photo 5



Plan III

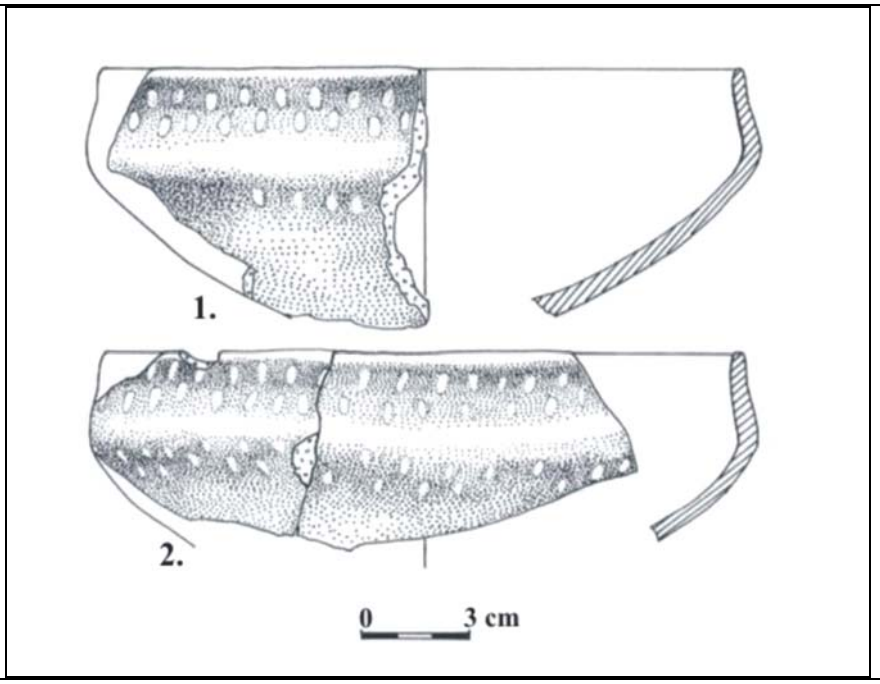


Plate I

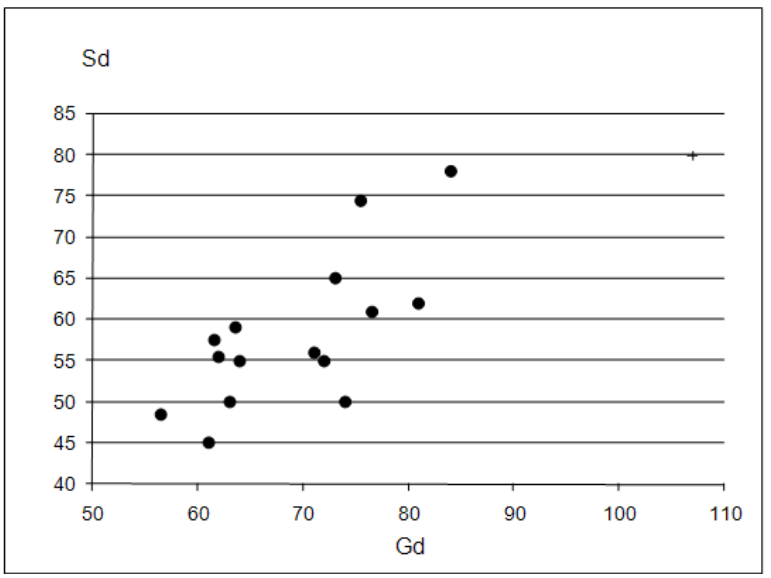


Fig. 1: Dimensional diagram of the horns (Sd – small diameter of the base; Gd – large diameter of the base)

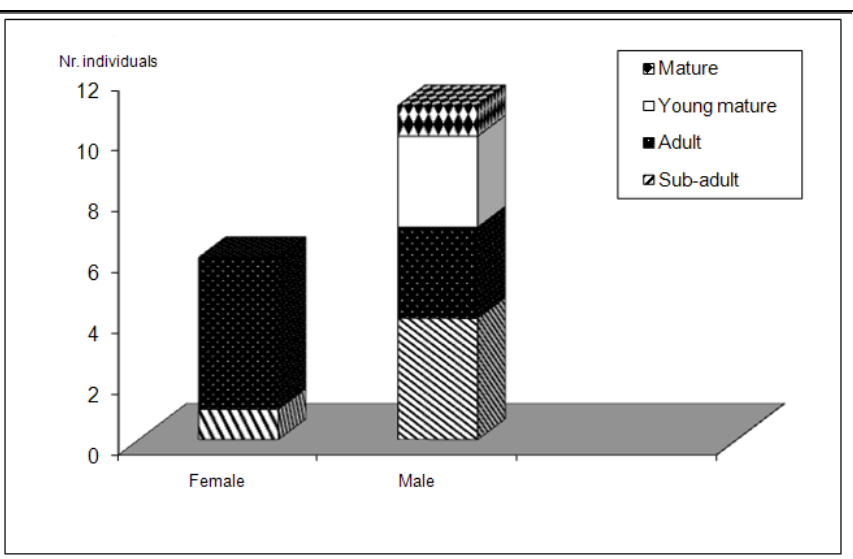


Fig. 2: Horns distribution on species.

Table 1

Nr.	Specia	Drept/ stâng	Sexul	Vârsta	Măsurători/ Lg. maximă (mm)	Măsurători/ Diam. mare/ Diam. mic/ Circomf. Bază
1	Bos taurus	S	?	Imatur		
2	Bos taurus	D/S?	?	?		
3	Bos taurus	S	Femelă	Adult		56.5/48.5/167
4	Bos taurus	S	Femelă	Adult		64.5/-/-
5	Bos taurus	D	Femelă	Adult		55.5/-/
6	Bos taurus	D	Femelă	sub-adult		61.5/57.5/189
7	Bos taurus	D	Femelă	Adult		61/45/175
8	Bos taurus	D	Femelă	Adult	184	63.5/59/192
9	Bos taurus	D	Femelă	Adult		63/50/184
10	Bos taurus	D	Femelă	Adult	248	64/55/192
11	Bos taurus	S	Mascul	Adult		70/-/-
12	Bos taurus	S	Mascul	matur tânăr		71/56/207
13	Bos taurus	S	Mascul	matur tânăr		77/-/-
14	Bos taurus?	S	Mascul	Matur		84/78/268
15	Bos taurus	S	Mascul	Imatur		
16	Bos taurus	D	Mascul	sub-adult	340	62/55.5/198
17	Bos taurus	D	Mascul	Adult		70.5/-/-
18	Bos taurus	D	Mascul	matur tânăr		72/55/206.5
19	Bos taurus	D	Mascul	Imatur	(270)	73/65/227
20	Bos taurus	D	Mascul	Adult		74/50/208
21	Bos taurus	D	Mascul	matur tânăr		75.5/74.5/242
22	Bos taurus	D	Mascul	matur tânăr		76.5/61/226
23	Bos taurus	D	Mascul	adult		81/62/230

24	Bos taurus	D	Mascul	adult	maximum 320	/68.5/
25	Bos taurus	D	Mascul	imatur		
26	Bos primigenius	S	Femelă	matur		91/-/
27	Bos primigenius	S	Femelă	matur		95(100)/-/
28	Bos primigenius	S	?	matur tânăr		108/-/
29	Bos primigenius	S		?		
30	Bos primigenius	D	Femelă	matur		91/-/
31	Bos primigenius	D	?	matur tânăr		107/80/302
32	Bos primigenius	D		?		
33	Bos primigenius	D	Mascul	matur		122/-/
34	Bos primigenius	D	?	matur		104/-/
35	Bos sp.	D/S?		?		
36	Bos sp.	D/S?		?		

SOME KEY FEATURES OF THE DANUBE *HOMO SCRIBENS* BASED ON THE DATABANK *DATDAS*

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From a regrettable error, this article has not appeared in the volume *Signs and Symbols from Danube Neolithic and Eneolithic***,** published in Bibliotheca Brukenthal No. XXXV / 2009. We print it here, with our apologies to the author.

Key-words: *Neolithic, Danube script, databank.*
Abstract: *This presentation provides documentary and statistical evidence concerning the inventory, fabric, pattern of features and organizational principles of the Danube script established upon the results of the databank DatDas (Databank for the Danube script), especially created to document it. DatDas is set up on 818 objects, 953 inscriptions (some artifacts have more than one inscription), and 4,408 actual signs. As a main feature, DatDas records not only general and archaeological data concerning objects bearing signs (the site, information on the discovery, museum documentation data, relative and absolute dating, formal and techno-morphological information on the object, and so on), but above all, distinct semiotic information on the inscribed artifacts, the inscriptions, and the signs.*

The Danube civilization, the Danube script, and the Danube communication system

At the end of the nineteenth century and during the early decades of the last century, the presence of an ancient script in the middle and lower Danube basin was seriously maintained by distinguished archaeologists, historians, linguists, epigraphists, and philologists who spent much energy on this issue. Shards and objects found at Turdaş, Vinča and other Danube-Balkan settlements were clearly inscribed with signs of some sort of writing which led scholars to search for links between Southeastern Europe and the more "civilized" regions of Mesopotamia, the Levant, and Eastern Mediterranean areas. This assumption was consistent with their classical education and with the ideas prevailing at that time about the spread of cultures from the southeast to the north and west.

In the last decades, the appearance of reliable dating methods fixed these signs to the Neolithic and Copper Age. However, the concept of such early European writing was so unthinkable that the simple possibility of it was ignored and its evidence was given very scanty attention. Nowadays, the issue is up to date again in the form of an archaic, mainly logographic, script in use in Southeastern

Europe throughout the Neolithic and Copper Age time-frame (Haarmann 1990, 1995, 1998, 2002a, 2002b, 2008a, 2008b; Merlini 2001, 2002a, 2002b, 2004, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2008c, 2008d, 2009; Merlini and Lazarovici 2008; Winn 2008; Haarmann and Marler 2008).

The *Danube script* originally developed in the *Danube civilization* with its hub in the Danube valley and beyond. This study addresses some key features of the Danube script based on the databank of its inscriptions that the author is developing (*DatDas*, Databank of the Danube script). The term "civilization" is used by the author to indicate a complex society with overarching ideologies that possesses a high cultural core (see Yoffe et al. 2005: 253). "Danube Civilization" is an over-arching term for the Neolithic and Copper Age societies of Southeastern Europe that flourished from c. 6400 to c. 3500-3400 BCE (see Childe 1929; Haarmann 2002b: 17ff.; Merlini 2003). This terminology is coherent with the acknowledgment that the Danube River and its tributaries favored the emergence of an institutional, economic, and social network of developed cultural complexes, cultures, and cultural groups that shared several features over a wide territory. They were characterized by extended subsistence agrarian economies and lifestyles, urbanism, refined technologies (particularly in weaving, pottery, building and metallurgy), long distance trade involving status symbol artifacts, complex belief systems, sophisticated patterns of religious imagery, and effective systems of communication by means of symbols and signs (the *Danube Communication System*) which included the technology of writing.

The cultural horizon of the "Danube Civilization" is consistent with the challenge to demonstrate that "early civilization" status can no longer be limited to the regions which have long attracted scholarly attention (i.e. Egypt–Nile, Mesopotamia–Tigris and Euphrates, the ancient Indus valley), but has to be expanded to embrace the Neolithic and Copper Age civilization of the Danube basin and beyond. The script is an important mark of the high status of the civilization that flourished in Southeastern Europe (Merlini 2007b; Haarmann 2008a:12-13).

The over-arching terminology of "Danube script/Danube signs" includes what has been called the "Vinča script" and "Vinča signs" which has to be strictly limited to the Vinča culture that developed in the core area of the great Danube basin (Winn 1973, 1981, 2008: 126; Merlini 2004: 54). The connection of the inscribed signs with the Vinča culture that developed in the Middle Neolithic within the core area of the great Danube basin has a reasonably long history. However, it categorizes only a specific period of the Neolithic and Copper Age time frame, has provincial boundaries and does not evoke a clear geographical region. The Danube script has to be extended in time (from Early Neolithic to Late Copper Age) and in space (embracing the whole Southeastern Europe).

In particular, the area involved by the Danube script extends in Southeastern Europe from the Carpathian Basin south to the Thessalian Plain and from the Austrian and Slovakian Alps and the Adriatic Sea east to the Ukrainian steppe. It includes (in order of contribution to the experiment with writing), the modern-day countries of the Republic of Serbia, Kosovo, Romania, Bulgaria, Greece, Hungary, Republic of Macedonia (F.Y.R.O.M.), Ukraine, Czech Republic, Albania,

Germany, Slovenia, Slovakia, Bosnia and Herzegovina, Republic of Moldova, Croatia, Montenegro and Austria. This macro-region forms a relatively bounded and cohesive unit—although the geographic layout consists of several small and discrete micro-regions exploiting a distinct set of local resources that encouraged regional differentiation among the early farming societies (as well as among the lexicon and interpretations of the archaeologists).

The "Danube script" is an operational term that does not designate a unity of literacy that lacks documentary evidence. When *DatDas* reaches the needed critical mass of information, further investigation is required to assess the unitary frame called "Danube script" dealing with the distinct paths taken in the development of writing in the regional Neolithic and Copper Age traditions of Southeastern Europe. For example, both Hooker and Owens refer to the occurrence of "Balkan scripts" (Hooker 1992; Owens 1999: 116). Comparing the signs from the Gradešnitsa culture with those from the coeval cultures of Thrace or northwestern (former) Yugoslavia, Bogdan Nikolov expressed the conviction that just a few of them were alike. He concluded that every separate ethno-culture produced its own sign system responding to its tradition (Nikolov 1984: 7). Nevertheless, the veracity of this statement has to be demonstrated based on the understanding of the interconnections of sign use in the different cultural regions.

Up until now, regional and cultural subdivisions have been successfully, although prototypically, tested by the author in the creation of several sub-databanks. *DatTur* is established from the signs utilized by the Turdaş group (Merlini 2008c); *DatVinc* registers data on writing from the Vinča culture; *DatPCAT* records inscribed finds and inscriptions from the Precucuteni–Cucuteni–Ariuşd–Trypillia cultural complex evidencing a late script related to the Danube script (Merlini 2007c, 2008d).

However, criticalities are not only from the side of the cultural and territorial articulation of the script. The concept and trajectory of the Danube civilization have to be more suitably substantiated and it is vital to respond to scholars who negate the presence of a civilization in the Southeastern European Neolithic and Copper Age. It is first necessary to elaborate a clear definition of what 'civilization' means, in archaeological or anthropological terms, as well as to chose criteria and benchmarking indicators capable of testing the label of 'civilization' for the network of the farming communities in European prehistory.

Cycle of life and the territorial spread of the writing system

Although it is quite probable that the Danube script will remain undeciphered, it is possible to detect some features of its historical framework and semiotic code thanks to statistical work made practical by the dedicated databank *DatDas*. This databank organizes a catalogue of 5,433 actual signs recorded from a corpus of 1,178 inscriptions composed of two-or-more signs and 971 inscribed artifacts (some finds have more than one inscription) compared, when possible, to the original. Between 2001 and 2009, the author had the possibility to visit and examine many Neolithic and Copper Age collections of the Danube Civilization in the modern-day countries of the Republic of Serbia, Romania, Bulgaria, Greece,

Hungary, Republic of Macedonia (F.Y.R.O.M.), Ukraine, Czech Republic, Slovenia, Croatia, Germany, and Austria.

DatDas records c. 194,000 significant statistical data. It is the largest collection of inscribed artifacts belonging to the Danube Civilization and the most numerous corpus of inscriptions of the Danube script thus far assembled. The system consists of a database structure related to an interface software that makes it possible to view and query archaeological and semiotic information in an integrated fashion, including photographs and drawings.

The databank *DatDas* also records 219 settlements containing artifacts bearing inscriptions, substantiating the wide spread of the Danube script. With reference to geographic distribution, the signs of the Danube script are presently primarily found in the region bounded by Romania, Republic of Serbia, and Bulgaria concentrating together 80.55% of the total occurrences. Greece and Hungary follow. Due to the small territory, the contribution from the Republic of Macedonia (F.Y.R.O.M.) has been significant, although limited. The same, at a lesser scale, is for Kosovo. Findings from Ukraine, Czech Republic, and Albania are less numerous. Residual data comes from Germany, Slovakia, Bosnia and Herzegovina, Republic of Moldova, and Croatia. The input from Montenegro and Austria is quite insignificant.

The structured and statistically acquired set of data from *DatDas* leads to an original overview of the Danube script by setting up its cycle of life in sync with Neolithic and Copper Age cultural complexes, cultures and cultural groups of Southeastern Europe. Based on the chronological distribution of the corpus of the signs, one can outline the cycle of life of the Danube script according to six stages: *Formative stage* (c. Early Neolithic); *Accumulative stage* (c. Developed and Middle Neolithic); *Blooming stage* (c. Late Neolithic) when the script reached the peak; *Stamina stage* (c. Early Copper Age); *Fall stage* (c. Middle Copper Age), and *Eclipse stage* (c. Late Copper Age).

The Formative stage of the script

The Danube script was eminently a Neolithic affair. According to *DatDas* evidence, the earliest experiments with literacy originally appeared in the central Balkan area and had an indigenous development starting in Romania around 6000-5900 BCE in the Starčevo–Criş (Körös) IB, IC horizon—some two thousand years earlier than any other known writing. It happened within the frame of the classical white painted pottery-making communities characterized by a demographic boom, and spread over a broader region of the Balkans (Starčevo–Criş (Körös) horizon IB, IC, IIA and early Karanovo I). Remarkable examples from Gura Baciului, Bucova, Ostrovu Golu, Trestiana, Cenad, and Gornea (Romania) show how linear decorative incisions on early Starčevo–Criş (Körös) ceramics could have evolved in a short time into a linear writing (even if linear ornaments are only one of the start-up springboards of the Danube script). The experiment with literacy quickly spread along the Danube valley northward to the Hungarian Great plain, southward to Thessaly, westward to the Adriatic coast, and eastward to Ukraine. The script propagated quickly during the Starčevo–Criş (Körös) IIA phase, which changed

the evolution of the first stages of the Early Neolithic. This phase is characterized by a complex economy with dynamic agriculture, cattle and sheep farming, hunting and fishing, settlements made of surface dwellings (not only pit-houses), the development of pottery with complex shapes, such as cups and bucranium idols, and a variety of painting.

During the Early Neolithic, the signs of the Danube script are concentrated in the Starčevo–Criş (Körös) cultural complex for 76.9% of the total occurrences (including data when the distinct Early Neolithic culture is not specified). The Starčevo–Criş (Körös) cultural complex was not only the incubator of the script, but gave a significant contribution to it clustering 7.1% of the total amount of signs of the writing system. Another prominent Early Neolithic culture, Karanovo I (Bulgaria), accounts for 8.4% of the total frequencies. Anzabegovo–Vršnik III, in F.Y.R.O.M., reaches 1.8%. Limited is the involvement of Banat I (1.4%) in Romania, Sesklo III (1.0%) in Greece and Danilo (1.0%) in Croatia. The input to the formative stage of the Danube script from the Gălăbnik group (0.7%), of Bulgaria, is narrow. Developing as a successful social reproduction strategy for the communities, the Danube script progressed in sync with a gradual increase in social complexity and interaction among micro-regional settlement systems.

DatDas evidence connects the earliest stages of the Danube script to magic-religious liturgies and expressions of identity/affiliation. The sacral root is documented by miniaturized altars for worship belonging to the earliest stages of the Starčevo–Criş (Körös) (Paul 1990: 28, 1995, 2002 online; Gimbutas 1991: 313, figs. 8-9; Ciută 2001; Merlini 2004, 2005; Lazarovici Gh. 2006; Lazarovici and Gumă 2006) and Karanovo cultures. They possibly imitate the shape and inscriptions of monumental communitarian altars or shrines (Lazarovici C-M. 2003: 86: fig. 1.7). The expression of identity/affiliation is rendered by seals ascertained to be the more or less contemporary with Starčevo-Criş (Körös) IIA (Banner 1935: 9, pl. VIII 3-4, 1942: 24-25, pl. XVI: 3-4; Kutzián 1947: 83, pl. XLVI, 3a-b; Makkay 1984: 28, fig. 101) and Karanovo I cultures (Georgiev 1967: 97, fig. 17; Makkay 1984: 12-13; Kalchev 2005: 57; Lazarovici 2006: 341-366; Lazarovici and Lazarovici 2006). The twofold earliest occurrence of the script poses the possibility of a contrasting double function since its earliest phase—one in rituals, in order to support and convey communication with the divine sphere, and the other in daily life. Alternatively, are the seals carriers of magic-religious messages, too?

The pivotal role of the Vinča culture

If the experiment with literacy started mainly in the Starčevo–Criş (Körös) and Early Karanovo communities, it was subsequently developed in the Early Vinča culture which became the main gravitational center of the Danube script. The Accumulative stage of writing was carried by polychrome and dark burnished pottery communities, which, in order of literate significance, are: Vinča A, A/B and B in Serbia and Romania; Starčevo–Criş (Körös) IIIB-IVA and IVA-IVB; Banat I in Romania; Alföld in southern Hungary; Karanovo III in Bulgaria; LBK I

in Slovakia and Germany; Anzabegovo–Vršnik IV in F.Y.R.O.M.; Szákalhát in Hungary; and Linear pottery–musical notes in Hungary and Germany.

With a large spreading area, long duration, and dynamism, the Late Starčevo–Criş (Körös) and Early Vinča communities influenced the cultural and social evolution of a vast territory and contributed to the appearance of many other cultures, cultural groups, or local variants. It is not insignificant that the other two cultures with significant input for the Danube script experienced a long coexistence with them: the Banat I cultural group and the Gălăbnik II cultural group.

Throughout the Middle/Developed Neolithic, literacy improved its role as a key tool in social reproduction. For example, it developed as an important component of social reproduction strategies supporting the ancestry ideology of the kinship-based Neolithic society. This role is evidenced by the deposition of three inscribed tablets as the only intact artifacts among a pile of fragmentary objects in the ritual grave that consecrated an elderly and ill woman as a revered ancestor at Tărtăria-*Groapa Luncii* (Transylvania, Romania). In this instance, the script is strictly connected with cult and the social memory of a novel forebear, linking generations and possibly communities.

Concerning the utilization of writing technology, the Vinča culture was the most developed, the most lasting and territorially the largest in Southeastern Europe. Within the Vinča culture, an extensive number of settlements employed the Danube script. Literacy had its peak during phase B (5200–5000 CAL BCE), although a significant role was also played during phase A. Phase A is dated—according to stratigraphy, pottery typology and radiocarbon data—between c. 5400 and 5200 CAL BCE (Schier 1996: 150; Gläser 1996: 177; Mantu C.-M. 2000: 78, Lazarovici and Lazarovici 2003, 2006). Makkay and other scholars have stated that the Vinča culture applied pottery signs from the end of phase A until the very end of B2 phase (Makkay 1969: 12). This, however, is not verified due to the appearance of pottery signs in the earliest Vinča A stages, and their presence also in the C and D phases.

During the Accumulative stage of the script, the protagonism of the Vinča B and Vinča A cultures is followed by Banat II that settled in Romania (9.8%) on the high plains area of the actual region of Banat (Lazarovici and Lazarovici 2006). The radiocarbon data are placed in the interval of c. 5300–4950 CAL. BCE (Mantu C. M. 2000: 79), consistent with those established by R. Gläser (1996: 86) for the Vinča B culture (5200–4850 CAL. BCE)

The accumulative spread of the Danube script within a culturally interconnected core region is also documented by the significant presence of the Alföld culture in southern Hungary and Romania (6.3%). To a far lesser degree are contributions from Sitagroi II (4.7%) in Greece, Karanovo III (3.8%) in Bulgaria, and the Vinča A/B (3.7%) in the Republic of Serbia and Kosovo. They are followed by LBK I culture (2.6%) in Slovakia and Germany, Anzabegovo-Vršnik IV (2.1%) in F.Y.R.O.M., Szákalhát (2.1%) in Hungary, and Linear pottery-musical notes (1.9%) in Hungary and Germany, and Satmár I (1.6%) in Romania and Hungary. and the Vinča A/B (4.3%) in the Republic of Serbia.

The Blooming stage of the experiment with writing

Throughout the Late Neolithic, far-reaching changes occurred in the social, cultural, and even ethnic makeup of Southeastern Europe with the emergence of new cultural complexes and groups. In the Vinča C, Turdaş, Gradešnica, and Karanovo IV and V horizon, literacy progressed and assumed the role of a key tool for social reproduction, reaching the greatest variety and richness.

The Blooming stage of the Danube script was sustained at first by Vinča C settlements, which concentrated about one third of the signs belonging to this period. In addition, the pivotal role of Vinča C revolutionized the spreading model of the script settled during the previous stages with a resolute extension towards the south, substantially involving the Bulgarian and Greek territories. This trend is connected to the social, economic, and cultural upheaval that some scholars call "Vinča shock" due to successive migrations from the south with several intermediate stages (Lazarovici Gh. 1979: 118, 137, 1987, 1994; Kalmar 1991: 124 ff.).

The second gravitation center of writing was the Turdaş culture, with a 22.8% concentration. It had its genesis on a Vinča B foundation implanted with Vinča C1 elements established in southwestern Transylvania and in the basin of the medium course of the river Mureş. *DatDas* provides evidence that the Turdaş settlement participated in a leading position in the development of the system of writing during its booming period.

The input from the third pillar in the flowering of the system of writing was much more limited: the Karanovo IV–Kalojanovec culture in south-central Bulgaria (10.5%), which has exhibited correspondences in Precucuteni I from Moldavia and Eastern Transylvania (C.-M. Lazarovici and Gh. Lazarovici 2008). The fourth developing column was the Tisza–Herpály–Csöszhalom complex, settled principally in Hungary, but also in Romania (5.1%).

The wide territorial distribution of the Danube script, the differentiation in function with occurrence also beyond the sacred sphere, and the growing capability to connect and distinguish communities through regional gravitations of writing are strong indicators of increasing complexity in the Southeastern Europe throughout the Late Neolithic.

The Stamina stage of the script

The Stamina stage (c. Early Copper Age) was a resistance period for the system of writing within an economic socio-cultural framework that reached a high degree of civilization equal to that one of the Eastern Mediterranean basin. However, the peripheral position and the beginning of attacks and intrusions from the less advanced neighboring populations from the eastern steppe led to a decrease in the rhythm of evolution (Luca 2006a: 45). If it was a declining phase, however it was still vital, with 18.8% of the totality of the signs.

During the Stamina stage, the main gravitational center of the Danube script was the Bulgarian Gradešnica–Brenica, which settled in northwestern Bulgaria. This culture was characterized by extensive utilization of the script as well as

engraved abstract geometric ornaments forming spiral-meander motives often incrusted with white or red paint. The Gradešnica "tablet or plate" and coeval artifacts have been considered by Bulgarian literature to be the first written record in human history: the "Gradešnica–Karanovo writing" (Georgiev 1969: 32-35; Nikolov and Georgiev 1970: 7-9, 1971: 289). However, even if most of the authors consider the famous Gradešnica find as a tablet or a plaque, dazzled by a first view of its shape and aligned signs along reading rows (Winn 1981: 210; Renfrew 1973: 177; Masson 1984: 108), nonetheless it is actually a little, rounded shallow receptacle with evident lips and two holes for suspension (Gimbutas 1991: 313 fig. 8-12). My semiotic investigation—which revises the published signs and publishes the totality of the signs occurring on the internal and external lips of the little Gradešnica tray (Merlini 2005, 2006a)—establishes that the outside face of the artifact appear to contemporaneously employ two communication channels: the iconic symbolism of a stylized pregnant Moon which is "oranting through dancing with movements directed toward the four corners" (Merlini 2006a) and an inscription surrounding it depicting constellations.

The inside of the Gradešnica flat receptacle bears a long inscription that, according to the majority of scholars, is divided into four horizontal registers (Nikolov 1974; Masson 1984; Todorova 1986). However, if one looks at the stylized humanoid on the outside of the vessel and turns it, one can see that the signs on the inside are actually aligned vertically and not horizontally (Čohadžiev 2006: 72.)[3] The large majority of the signs incised on the front of the Gradešnica platter can be included in the inventory of the Danube Neolithic and Copper Age script. The author accepts with reserve V. Nikolov's interpretation that they make up a schematic model of the lunar circle (not a lunar calendar), where its four phases are embodied in the four columns (V. Nikolov 1990).

The Gradešnica–Brenica culture was followed by the Gradešnica–Slatino I-III culture (11.0%). Therefore, the Vraca region was the leading centre of the Stamina stage of writing technology. The Gradešnica–Slatino I-III culture developed the script in parallel to an exceptional variety and elegance of ceramic forms (such as the amphorae with plane handles and fruit-dishes on high legs) and rich graphic ornamentation. The system of writing spread in southwestern Bulgaria along the river Struma as well into northern Greece. S. Čohadžiev connects the emergence of the need to encode information in a "pre-script" form to intensive contacts in western Bulgaria and the inception of primitive pre-state formations, an institutional configuration likely born through the union of tribes (Čohadžiev 2006: 71).

At a lesser extent, throughout the Early Copper Age writing technology was spread in other leading cultures. It was first present in the Precucuteni–Trypillia A of Romania, Republic of Moldova and Ukraine (9.0%), where a related script

[3] The in column layout has been strangely judged by several scholars as a written text structured with supposed guidelines for a literate religious adept. The author's studies provide documentary evidence on how the vertical alignment of the signs was employed in other inscriptions of the Danube script following a widespread feature of other ancient writing systems.

possibly developed (Merlini 2004, 2007c). The number of recorded script signs and their combinations is nearly 100. They are enough to postulate the presence of a script, but not enough to detect the complete sign inventory. However, the inscribed objects are sufficient to refute the hypothesis that the Moldavian populations reproduced imported signs of writing just for magical purposes, without reading them or realizing their communicative value. The prominent use of script signs on cultic objects implies their association with a belief system and religious ceremonies. The Precucuteni–Trypillia A (18.2%) was established in Romania, Republic of Moldavia and Ukraine. About 79% of the Precucuteni–Trypillia A signs are correlated with those from the Danube script. Any parallelism with early Mesopotamian writing appears weak for chronological and graphic reasons. First, the Precucuteni–Trypillia A sign system predated similar trends in Mesopotamia by almost a millennium. Second, there is no substantial convergence in sign shapes. Preliminary statistical evidence on the script supports the Balkan origin of the Precucuteni–Trypillia A phenomenon in Boian III-IV and Mariţa I-III communities, which merged with the Linear ceramic tribes of Moldavia and the Starčevo-Criş (Körös) cultural complex. These were subjected to significant influences from Vinča and Hamangia cultures and sporadically from the southern Bug culture.

To sum up, the working hypothesis is that the Precucuteni–Trypillia A script was cognate of the Danube script and originated from it. Through time and according to a drift from west to east, two active centers with strong connections developed close and related sign systems in the Danube basin and in the Moldavian–Ukrainian region. The subsequent Cucuteni A1-A2 phase is correlated with the Precucuteni III and Gumelniţa A1-A2 (C.-M. Lazarovici and Gh. Lazarovici 2006).

Writing technology is an attribute that can easily fit in well with the type of civilization that flourished in Copper Age times on the eastern border of the Danube civilization. Distinctive attributes of the Precucuteni–Ariuşd–Cucuteni–Trypillia cultural complex are a highly productive mass farming system, a large number of proto-cities (i.e., fortified and mega-size settlements with a planned layout),[4] an elaborate architecture for community dwellings and cult buildings, a semi-hierarchical organization of society, a sophisticated religion, the smelting and the forging of metal, the mass movement and control of raw materials such as salt, flint and copper, strong trade over long distances, a system of calculation, a careful observation of the movement of celestial bodies, and messages on pottery through multicolored symbols. These communities used clay tokens—the same as in Mesopotamia.

The fourth pivotal role was played by the Vinča D culture (7.8%), settled mainly in the Republic of Serbia and partly in Romania as the evolution of Vinča C and the final phase of the Vinča group at a reasonable date of 4700-3500 CAL BCE. Nearly half of the inscribed objects are anthropomorphic statuettes. All of them are from the eponymous settlement of Vinča. In most cases, they have an

[4] See Šmagli 2001 concerning the settlements of the Uman area.

unknown gender. When it is known, it is female. The Vinča D culture was followed by the Gumelnița A (6.0%) and the Boian Giuleşti plus Boian–Poljanica (4.5%) in Romania. They have been distantly followed by the Petreşti culture (3.3%) in Romania, Lengyel in Hungary (3.3% resulted by Lengyel I 2.2% and Lengyel II 1.1%).

The cultures of the Fall and Eclipse stages of *ars scribendi*

The Danube script flourished up to about 3500 BCE, when a social upheaval took place. According to some, there was an intrusion of new populations, whilst others have hypothesized the emergence of new elites. At that time, the Danube script was eclipsed and was later to be lost. The drop in the magnitude of sign use was articulated by two stages. The first was represented by a general Fall (c. Middle Copper age). In the second, the Eclipse stage (c. Late Copper age), the collapse was actually quite abrupt. The Fall stage records around 3%. In the Eclipse stage, the collapse was actually abrupt: 1.7%.

During the Middle Copper Age, the Danube script appears in three horizons: The Karanovo VI–Gumelnița–Kodžadermen cultural complex (mainly in Bulgaria, but also in Romania), the Cucuteni A3-A4–Trypillya B (in Ukraine), and Coțofeni I (in Serbia). The first, rates 68.6% of the frequencies; the second, rates 24.2%; and the third, rates 7.6%.

In the Late Copper Age period, known as transitional to the Bronze Age, the Danube script endured principally in the Cucuteni AB-B–Trypillia C culture (38.8%) in Romania and Ukraine. The other three resisting "Fort Alamos" were the Coțofeni II (17.5%) in Serbia, the Kostolac culture (15.6%) in Serbia and, between c. 3500-2600 BC in central and southern Romania, and the Varna II-III (10.7%) in Bulgaria.

The Danube script fits a network model of civilization

DatDas records 219 settlements where the Danube script is present. Data suggest different production intensities of literacy and the positioning of settlements in the circulation of the script. The Southeastern European script has been developed through a model of civilization far from the traditional state-bureaucratic political centered prototype, being based on a network of nodes composed of settlements (within micro-regions) that shared the same milieu with different levels of authority keeping the social systems stable.

The state-bureaucratic model is well known from the Mesopotamian tradition since Sumerian times. It is a system of hierarchal and centralized authority hinged on state organization, urban agglomerations with a centered layout acting as cultural centers, social class stratification and the presence of an elite, temple economy, and bureaucratic affairs. This was the environment of the distinctive pictographic script in ancient Sumer (Crawford 1991: 48 ff.; 193 ff.). Therefore, the traditional perspective considers statehood, centralized political leadership, hierarchies of authority, and a stratified society to be essential and general features for achieving civilization, i.e., a higher organizational level of

cultural development that includes writing technology. Within this model, *ars scribendi* does not guarantee statehood, however it is an obliging ingredient and supportive device. Traditionally the Mesopotamian state-bureaucratic model is believed to be the original setting for the dawn of civilization and literacy to which all the other regions had to conform. See, for example, the Indus civilization which "because of its scale, urbanism, iconography and other attributes . . . has been forced into the classificatory straightjacket of 'state' or even 'empire'" (Maisels 1999: 220). Alternatively, see the narration of the dawn of writing technology in Minoan society (Godart 1992).

Crossing territorial and chronological data, *DatDas* provides documentary evidence that in the Neolithic and Copper Age of Southeastern Europe a civilization emerged that was organized as a network of nodes along political-institutional, socio-economic and cultural spheres. In contrast to the state-bureaucratic model, the historical situation that produced the Danube script was similar to the Harappan civilization in the ancient Indus valley. Maisels (1999) utilizes the term *oecumene* to define a society that is the opposite of a "territorial state" and synonymous with a commonwealth in the sense of an "economically integrated commerce-and-culture area." The Danube civilization qualifies as an *oecumene* in the sense that the interconnected cultures within Southeastern Europe composed a "disparate, overlapping and interactive sphere of authority: economic, political, religious and, only derivatively, territorial" (See Maisels 1999: 236-7, see also 224, 226, 252 ff.). Haarmann was the first to utilize this concept for the Danube civilization (Haarmann 2003: 154 ff., 2008a: 26-7).

What do we know about the synchronic and diachronic relationship between settlements in the Danube civilization? Some paradigms taken from social network analysis can be usefully applied to describe, analyze, and explain the relations between them. A social network is defined as a specific social structure, community, or society made of linkages among a definite set of nodes or *actors* (i.e., discrete individual or collective social units linked to one another by social *ties*) (Mitchell 1969: 2). The social network perspective focuses on structured connections among entities and not on the attributes of the units assumed to be independent actors. The aim of this kind of analysis is to discovery and explain the structure of a given network indicating the ways in which actors are connected (Schweizer 1996: 166; Wassermann and Faust 1994: 17; Scott 2000; Speck 2007).[5]

Utilizing correspondence analysis of territorial spread and chronological sequence of the Danube script, a civilization emerged which was organized as a hierarchical and multi-mode network of nodes along three spheres: political-institutional, socio-economic and cultural. The network or oecumene model of the Danube civilization—as appearing from the standpoint of the script within the frame of social network analysis—centers on features of (a) a web of politically ranked urban centers and micro-regions; (b) a socio-economic oecumene, i.e., an economically integrated commerce-and-culture area (see Maisels 1999: 236-7,

[5] See Classen 2004 in terms of the application of this analytical approach on communication networks between settlements of the Bandkeramik in the Rhineland.

224, 226 for the general concept; Haarmann 2003: 154 ff., 2008a: 26-7; and 2008c), a common cultural koine.

The five-range hierarchical and decentralized network of literacy

The first feature, the political-institutional frame, was based on a network of political authority, piloted by leading settlements as well as cultural macro- and micro regions. Settlements are the key actors; macro- and micro regions are the groups and subgroups that collected all actors on which ties are to be determined from the point of view of literacy. The Danube script developed along a five-range hierarchical network based on exchange relationships for mutual political advantage. Pivotal settlements, such as Vinča (Republic of Serbia) and Turdaş (Romania), elaborated the innovation and had a wide area of radiance, while intermediate settlements may have developed regional variants**.** Micro-regional settlements were nodes at a district level. Local sites were likely regular users of the sign system, and subsidiary nodes may simply have been sporadic exploiters of the sign system.

The script developed and spread according to a model where major centers from the region, using the Danube River as a backbone for water-based mobility, elaborated the innovation and then irradiated it into the hinterland. The primary nodes of the script network were (in order of importance) Vinča and Turdaş, which were also pivotal in connecting trade routes and technological development along the Danube and its tributaries.

The regional sites were (in order of signs production) Gradešnica (Bulgaria), Jela (Republic of Serbia), Parţa (Romania), Nova Zagora–*Hlebozavoda* (Chlebozavoda) (Bulgaria), Sitagroi (Greece), Slatino (Bulgaria), Vršac–*At* (Republic of Serbia), Borovan and Kurilo (Bulgaria), and Donja Branjevina (Republic of Serbia).

Sites of micro-regional relevance were Brenica (Bulgaria), Dimini and Paradimi (Greece), Trestiana and Rast (Romania), Dispilio (Greece), Gornea, Măgura, and Ostrovu Golu (Romania), Ovčarovo (Bulgaria), Zorlenţ (Romania), Čoka-*Kremenyák* and Mezőkövesd-*Mocsolyàs* (Hungary), Banjica (Republic of Serbia), Glăvăneştii Vechi and Vităneşti (Romania), and Lepenski Vir (Republic of Serbia).

The most significant sites of local relevance are listed by country:

Rep. of Serbia: Medvednjak, Potporanj, Selevac, Divostin, and Drenovac;
Romania: Daia Română Tărtăria, Târpeşti, Ocna Sibiului, Isaiia, Balaci, Fratelia, Pişcolt, Scânteia, and Iclod;
Bulgaria: Chelopechene–*Obreshta*, Baurene, Capitan Dimitrievo, Slatina, Sapareva banya, Lukanovo darvo, Hotnitsa–*Kaya Bunar,* Durankulak, Azmashka, Kovačevo, Karanovo, and Samovodene;
Greece: Dikili Tash, Giannitsa, Dimitra, and Sesklo;
Hungary: Kökénydomb, and Öcsöd–*Kováshalom*.
F.Y.R.O.M.: Anzabegovo and Osinchani.

Ukraine:	Čapaevka and Aleksandrovka.
Czech Republic:	Mohelnice.
Kosovo:	Fafos.

Some final sites of local relevance are Vésztò–Magor, Lozna, Bazovets, Gorna Beshovitsa, Suplacu de Barcău, Cífer–Pác, Drama–Merdzhumekja, Ballenstedt, Suceveni, Hotărani, Gomolava, Bina, Butmir, Hotnitsa–*Orlovka*, Kisunyom–Nàdasi, Sé, Aszód, Valač, Ribnjak–Bečei, Vršnik, Battonya, Gyor Szabadret, Szegvàr–Türköves, Kisköre, Valea Nandrului, Tangâru, and Lepenska potkapina. The other settlements were sporadic exploiters of the sign system.

Expanding upon the subject of the hubs of the Danube script, a corpus of 704 signs is attributed to Vinča. These signs belong to the long period spanning the Accumulative stage to the Stamina stage.[6] The Blooming stage and the Accumulative stage provided the most evident, and equivalently significant, contributions. During the Stamina stage, the script concentration declined, subsequently leading to an abrupt eclipse. At Vinča the most frequently inscribed objects are human figurines: 29.4% of the total. About 51.3% of them belong to the Late Neolithic, 25.0% to the Middle/Developed Neolithic and 23.7% to the Early Copper Age. In 50% of the cases, the anthropomorphic representations are asexual or have not distinct gender features. In 33.1% of the instances, gender is unknown. Only 15.1% of the figurines show clear female attributes. The contribution from potshards is 21.5%. The number of findings for mignon altars/offering tables is also significant: 16.2%. The signs are usually inscribed on their walls. The input from miniaturized vessels, which are mainly inscribed on the rim/upper body, is 9.0%. A fourth kind of inscribed artifacts are vessels, 6.1%, which are always inscribed on the rim/upper body. Residual contributions have come from animal figurines (2.9%) and plate-tablets (1.7%). *DatDas* has no record of any altar, spindle-whorl or amulet bearing signs from Vinča.

Turdaş lists 537 signs (9.9% of the *montant global)*, all concentrated in the Blooming stage of the script. In the Late Neolithic, Turdaş acquired a starring leading role, accounting for 22.2% of the signs, whereas Vinča was subjected to an evident crisis and fell to 7.9%. The Turdaş culture played a pivotal role in the blossoming and spread of literacy in Neolithic and Copper Age Southeastern Europe, but was not in the genesis of it.

A comparison of the occurrence figures of the Turdaş and Vinča signs yields significant results, because at Turdaş, the range of the inscribed artifacts is much wider than at Vinča although 41.3% of the signs are concentrated on potshards. The contribution from spindle-whorls is 20.9%. The input from anthropomorphic figurines is 8.2%. In 29.6% of the instances, they are asexual or without distinct sexual attributes; in 27.3%, they have obvious female features; in 15.9%, they show a male aspect. For the remaining figurines, sex is unknown. Signs have been found to a lesser degree on mignon altars/offering tables (4.5%), mignon vessels (4.3%), those with inscriptions on their walls (54.2%) and legs (45.8%). Less

[6] *DatDas* inserts the Vinča A stage in the *Accumulative stage* of the Danube script.

numerous are the contribution from amulets (3.9%), vessels (3.9%), and zoomorphic figurines (3.2%). At Turdaş, the presence of the Danube script on weights (1.7%) and altars (0.4%) is residual.

Concerning the sites of regional significance, Gradešnica has contributed a corpus of 250 signs. They are all from the Stamina stage of the system of writing and belong to the Gradešnica–Brenica (4800-4700 BCE) and Gradešnica–Slatino I-II (4800-4600 BCE) cultures. About 34.6% of the signs are clustered on potshards (half way between Vinča and Turdaş). The number of findings for mignon altars-offering tables is also significant (19.6%). About 75.5% of the signs are present on their walls; 24.5% on the upper surface. The input from spindle-whorls (14.0%) is also significant, while human figurines rate 7.6%. All the figurines have obvious female features and bear signs on chest (41.1%), arms (31.6%), and neck (26.3%). Less numerous is the input from vessels (7.3) which bear signs on the rim/upper body area At Gradešnica, significant is the contribution in sign of a single artifact: the famous shallow receptacle bearing a synodic and sidereal lunar cycle calendar: 19.2%

Jela represents a corpus of 231 signs. All were present exclusively in the Blooming stage of the Danube script. About 32.9% of the inscribed artifacts are potshards. Human figurines accumulate 10.8% of the frequencies. In 88.0% of the instances, they have a clear female gender and are inscribed mainly on the chest, while the input from spindle-whorls is 8.7%.

The input from Parţa is less copious, with a corpus of 164 signs. Their range of occurrences is found remarkably from the Formative stage of the Danube script until the Blooming stage. Their distribution in time occurs 48.2% in the Accumulative stage, 32.9% in the Blooming stage, and 4.9% in the Formative stage. At Parţa, the Danube script has deep roots and a long-lasting utilization of literacy, especially considering the fact that here it was restricted to the Neolithic. Vessels contribute about 40.1% of the signs. In the Middle Neolithic Banat II, signs are inscribed mainly on the area near the base. In the Late Neolithic Banat III, if they are still engraved on this part, most of them cluster on the rim/body area. Potshards record 13.1%. Less numerous are tablets-plates (10.2%).

Nova Zagora–*Hlebozavoda* has 149 signs. Here the Danube script has deep roots, too. The distribution in time of the signs is 69.8% in the Blooming stage of the script (Karanovo IV–Kalojanovec culture),[7] 15.4% in the Accumulative stage (Karanovo III), and 14.7% in the Formative stage. Peculiar of Hlebozavoda are cultic artifacts oval in shape and with an oval section or almost rectangular to slightly trapezoid shape with an oval or elliptical section. They gather 55.7% of the signs. Significant are also anthropomorphic figurines (20.1%). About 73.3% of them have a female gender and bear signs on the front and abdomen-belly. About 26.7% are male and are inscribed only over the front. The script was also massively present on cultic discs: 12.1%. About 10.1% of the artifacts that are bearing signs regard zoomorphic representations, engraved on the chest and neck.

Sitagroi has a corpus of 129 signs, all from the Blooming stage of the Danube script. About 38.0% of the signs are clustered on mignon altar/offering

[7] See 9.C.d "The script on the Karanovo IV–Kalojanovec figurines."

tables, with walls that are always inscribed. They are followed by spindle-whorls (24.0%). Inscribed cylinders (16.3%) constitute a distinct feature from Sitagroi. Anthropomorphic figurines represent 15.5%. When the gender is known, it is female. However, the presence of statuettes without clear gender attributes is high. The contribution from dwelling models and potshards is marginal.

Slatino lists 127 signs from the Stamina stage of the Danube script. Human figurines are the most frequently inscribed artifact (35.4% of the totality of the signs). They are concentrated in the Gradešnica–Brenica culture and have mainly asexual features. In 95.6% of the instances, they are inscribed on the front. The remaining figurines are inscribed on the hips. The Danube script was also massively present on mignon altars–offering tables (24.3%), even if restrictedly to the Gradešnica–Slatino I-III assemblage. In all the cases, they bear signs on their walls. Inscribed potshards rate 14.8%. They occur only in the Gradešnica–Slatino I-III assemblage and are always from the base-bottom of the pots. The presence of the script on ovens (7.8%) and mignon vessels (6.1%) was much less. They occur only in the Gradešnica–Brenica culture and are always from rim/upper body area. The input from seals (4.3%) and spindle-whorls (3.5%) was much more limited.

Vršac–*At* gathers a corpus of 117 signs, which occur mainly in the Blooming stage of the script, in the Vinča C culture. There is additional sporadic evidence during the Formative stage of the script, in the Starcevo–Cris (Körös) IIIA phase. Signs occurred primarily on potshards (63.2%). In 48.6% of the instances, they are inscribed on the rim/upper body area, in 36.1% on the area near the base, and in 15.3% on the base/bottom. The Danube script was also massively present on mignon altars–offering tables: 21.9%. They all belong to the Late Neolithic Vinča C culture. About 76% of the signs are incised on walls, and 34% on legs. Vessels cluster 8.8%. They all belong to the Vinča C culture and their inscriptions are restricted to the base-bottom. The contribution from zoomorphic figurines (6.1%) is less numerous.

The archaeological site located 3 km. northeastwards from the village of Borovan gathers 111 signs, occurring restrictedly in the Blooming stage of the script (Gradešnica–Brenica culture). They are massively clustered on human figurines: 92.8. In 68.0% of the instances, human representations have obvious female features. In the last instances they are without distinct gender attributes. The signs occur over a wide range on anatomic parts: chest (28.6%), back (21.4%), legs (20.0%), abdomen-belly (10.0%), front (10.0%), and hips (2.9%). The human representations of unknown gender are inscribed restrictedly on legs and hips.

Kurilo contributed 100 signs, all from the Blooming stage of the Danube script. They are concentrated in the Karanovo IV–Kalojanovec culture of south-central Bulgaria. According to Todorova, Kurilo yielded Middle and Late Neolithic pictograms (Todorova 1986: 210, Pl. 115). The signs are clustered on human figurines (63.0%). About 60.3% of them have a female gender. The signs occur over a wide range on anatomical parts: back (44.7%), legs (23.7%), chest (21.0%), abdomen-belly (5.3%), and sex (5.3%). Anthropomorphic representations are followed by plate/tablets (17%). Potshards record 15.0%, and are always inscribed on the rim/upper body area. The input from zoomorphic figurines (4%) is limited.

Donja Branjevina gathers 90 signs, all clustered in the Formative stage of the script. C. 92.2% are concentrated on miniaturize altars. At Donja Branjevina the presence of the script occurs only in the Early Neolithic. Parța, Nova Zagora–*Hlebozavoda* and Vršac–*At* are characterized by continuity in literacy throughout the Neolithic. Vinča and Sitagroi have script signs throughout the Developed/Middle and Late Neolithic. During the Blooming stage of the Danube script, the production of signs was most significantly associated with the hub of literacy that became Turdaş. Besides, the roles of Jela and Kurilo came to be increasingly important. However, all these main centers assembled signs exclusively in the Blooming stage of the script. Even Sitagroi reached the peak in sign production during this period. Gradešnica, Borovan and Slatino are the key literate settlements of the Stamina stage.

DatDas provides documentary evidence for the assertion that—even if the pivotal role in the coinage of literacy was played by major cultural centers—the Danube script was not confined to these centers due to intense cultural networking. The influence of pivotal cultural agglomerates irradiated far into adjoining regions, identifying a wide literate wave that had the Danube valley as its axis. This wave of sign use propagated northward to the Hungarian Great plain, southward to Thessaly, westward to the Adriatic coast, and eastward to Ukraine. Writing was also a highly decentralized experiment, spreading in peripheral areas and communities. The average presence of signs was even high in non-central villages (see some observations in Haarmann 2008a: 26). Any settlement that participated in the collective experiment with writing gathered, on the average, 24.9 signs as units of two or more sign inscriptions. This trend makes it evident that, within such settlements, the writing system was not a vacillatory "candle in the wind," but sent down strong roots and had a strong local power base. However, few settlements played an enduring role in the development of the Danube script.

Gravitational centers of literacy: rapid turnover vs. consistency

To summarize, the model of literacy networking based on the Danube script was hierarchical, intense, broadly used in a wide area, decentralized, and strongly rooted. However, as documented below, few settlements played an enduring role in the development of the Danube script. Expanding upon the subject of the continuity/discontinuity among the influential settlements, the Danube script was present throughout the Neolithic only at Parța and Nova Zagora–*Hlebozavoda*. However, at Parța the main concentration of signs was in the Developed/Middle Neolithic, whereas at Nova Zagora–*Hlebozavoda* it was in the Late Neolithic. Throughout the Neolithic, *ars scribendi* occurred with some gaps at Vinča, Sitagroi, Vršac–*At*, Dimini, Paradimi, Zorlenț, Čoka–*Kremenyák*, Banjica, Tărtăria, Slatina, Anzabegovo, and Sesklo. Literacy was present at none of these during the Copper Age. Azmashka is the only site of significant size with writing technology in the Early Neolithic and Early Copper Age.

DatDas substantiates Donja Branjevina, Lepenski Vir (Republic of Serbia) and Gornea, Ostrovu Golu, Trestiana, Glăvăneştii Vechi, and Ocna Sibiului (Romania) as key sites for the start-up of the system of writing. Nonetheless, after

the Early Neolithic there were no more traces of the script at these settlements and in many cases of the village itself. Sesklo in Greece, Kovačevo[8] in Bulgaria, near the Greek border, and Ribnjak–*Bečei*, Republic of Serbia, are other sites that concentrated significant occurrence of the script exclusively during the Early Neolithic. Between the Early Neolithic and the Developed/Middle Neolithic the script was continuously utilized only at Parța, Nova Zagora–*Hlebozavoda*, Anzabegovo, and Porodin.

From the Developed/Middle Neolithic and the Late Neolithic the script seems to have had A stronger center of gravity, maintaining permanence at Vinča and Banjica in Serbia, Parța, Zorlenț, and Tărtăria Pişcolt, and Zorlențu Mare in Romania, Nova Zagora–*Hlebozavoda* and Samovodene in Bulgaria, Sitagroi, Dimini and Paradimi in Greece, Čoka–*Kremenyák* in Hungary, and Fafos–*Mitrovica* in Kosovo (which continued also in the Copper Age).

During the Accumulative stage of the Danube script, the pivotal role was played by Vinča, where the system of writing lasted until the Stamina stage. This feature is coherent with the archaeological record according to which in the areas with presence of carriers of the Vinča A culture this civilization had a longer life, until the Copper Age. At Parța the script reached its acme during the Accumulative stage, however it was present during the previous and subsequent stages. At Nova Zagora–*Hlebozavoda* the script reached its peak during the Blooming stage, however it was present during the previous stages. The script remained continuous from the Developed / Middle Neolithic through the Late Neolithic in a limited number of settlements. Vinča, Parța and Nova Zagora–*Hlebozavoda* apart, in order of significance they are Sitagroi, Dimini, Paradimi, Zorlenț, Čoka–*Kremenyák*, Banjica, Tărtăria, Pişcolt, and Samovodene. However, while at Tărtăria the presence of the Danube script was higher in the Developed and Middle Neolithic than in the Late Neolithic, at Zorlenț the presence of the script remained continuous. At Sitagroi, Dimini, Banjica, Pişcolt, and Samovodene the script was more performing in the Blooming stage than in the Accumulative stage. Paradimi and Čsoka clustered the script during the Late Neolithic, but it also occurred to a lesser degree during the Developed and Middle Neolithic.

Paradimi and Čoka–*Kremenyák* clustered the script during the Late Neolithic, but it occurred to a lesser degree also during the Developed / Middle Neolithic. Among the long-running settlements, Vinča apart, during the Blooming stage of the Danube script there is little evidence at Azmashka, where signs are concentrated in the Formative stage of the script. At the third level for magnitude, there are some settlements where the script occurred only during the Developed/Middle Neolithic. In order of the number of signs, they are Dispilio, Lukanovo darvo and Mezőkövesd–*Mocsolyàs*. They are followed by Giannitsa, Fratelia, Selevac, and Ballenstedt (Germany).

Minor centers of the script that concentrated the signs in its Accumulative stage were Osinchani (F.Y.R.O.M.), Bina (Slovakia), Butmir (Bosnia and Herzegovina), Battonya (Hungary), and Kisköre (Hungary). Few sites played an

[8] The earliest C14 date from Kovačevo is 6159-5926 BC.

enduring role from the Accumulative of the Danube script through the Blooming stage. Most of them were subjected to replacement.

Among the influential settlements in this period of the system of writing only Parța and Vršac-*At*, apart from Vinča, had occurrences of signs in the Formative stage as well. However, at Parța the main concentration of signs was in the Developed and Middle Neolithic, whereas at Vršac–*At* it was in the Late Neolithic. Among the settlements from the local range, Paradimi concentrated signs primarily in the Late Neolithic, however, it also had a modest presence during the Middle Neolithic. Dimini and Nova Zagora–*Hlebozavoda* exhibit similar figures, but with a more consistent presence in the Middle Neolithic. The system of writing had a long cycle of life at Banjica, with a peak of concentration in the Late Neolithic as well as a significant presence in the Developed/Middle Neolithic. Zorlenț had equal occurrences in the Late Neolithic and in the Developed/Middle Neolithic. Samodovene, in Bulgaria, concentrated signs in the Late Neolithic with little evidence in the Middle Neolithic. Slatino script production peaked in the Early Copper Age, but also illustrated notable occurrences during the Late Neolithic.

The Vinča settlement maintained a key position during the Blooming stage of the Danube script, as indicated by the concentration of signs and their sustained presence. However, as mentioned above, during this period the production of signs was most significantly associated with the hub of literacy that became Turdaş. Over time, the roles of main centers that assembled signs exclusively in the Blooming stage of the script came to be increasingly important (Turdaş. Jela, Kurilo, Rast, Magura, and Kökénydomb). This booming period of the system of writing was characterized by a widespread production and use of literacy, as well as by the presence of well-structured proto-cities. Such centers interpreted it and eventually developed regional variants, but script use subsequently declined at the end of the period.

Other crucial nodes where sign use was present exclusively during the Blooming stage include (in descending order of number of signs): Chelopechene–*Obreshta*, Kapitan Dimitrievo, Öcsöd–*Kováshalom*, Sapareva banya, Medvednjak, Dikili Tash, Hotnitsa–*Kaya Bunar*, Potporanj, and Dimitra. The most obvious concentration of sign use in minor centers occurred in the Blooming stage. These include: Mohelnice (Czech Republic), Iclod (Romania), Divostin (Republic of Serbia), Drenovac (Republic of Serbia), Chelopechene–*Obreshta* (Bulgaria), Čoka–*Kremenyák* (Hungary), Vésztő–Mágor (Hungary), Suplac (Romania), Hotărani (Romania), Hotnitsa–*Orlovka* (Bulgaria), Vallač (Kosovo), Szegvar Türköves (Hungary), Valea Nandrului (Romania), Sadievo (Bulgaria), Pločnik (Republic of Serbia), and Kačica (Romania).

In the Blooming stage, among the long-running settlements with the script, there is little evidence of signs at Azmashka (where signs are concentrated in the Formative stage of the script), at Tărtăria and Čoka-*Kremenyák* (where signs are concentrated in the Accumulative stage of the script). Continuity in the presence of signs from the Neolithic to the Copper Age is illustrated only at Vinča, Slatino and Durankulak.

During the Stamina stage of the Danube script, Gradešnica was the most important node of literacy. Slatino, Borovan and Brenica were other key centers of the Stamina stage of the Danube script. They all belong to the same area and culture and in all of the script occurred only during the Early Copper Age. Another significant center continued to be Vinča, although with reduced relative contribution during this period. Daia Română (Romania), Baurene (Bulgaria), Târpeşti (Romania), Isaiia (Romania), Aleksandrovka (Ukraine), Suceveni (Romania), Sé (Hungary), Kisunyom-Nàdasi (Hungary), Aszód (Hungary), Tangâru (Romania), Deve Bargan (Bulgaria), Djakovo (Bulgaria) were settlements yielding signs exclusively during the Stamina stage of the Danube script.

Vităneşti was the most significant settlement in the Fall stage of the Danube script, approximately corresponding to the Middle Copper Age. However, Ovcharovo was a key site because of size in production of signs and continuity from the previous stage. Karanovo was the third settlement of local range. Scânteia (Romania) had a presence of signs concentrated in the Fall stage of the Danube script. All the other sites involved in the experiment with literacy during the Middle Copper Age were less significant nodes with sporadic exploitation of the sign system. They were Chitila–Fermă, Drăguşeni, and Putineşti (Romania), and Rousse (Bulgaria). Marginal was the production of signs at Greaca (Romania). They are all concentrated through this stage.

Considering the previously examined features, a distinct geo-political profile of the development of the Danube script emerges. It is characterized by few larger agglomerations that assumed roles as gravitational centers of literacy within a milieu of disseminated writing technology as part of an extremely dynamic, and sometimes dramatic, historical framework. This feature is consistent with a more general frame of cultures that do not have an isolated and conservative character but present many connections (Luca 2006a: 24) and the absence of traditional statehood. However, the cesuras between the Early Neolithic and the Developed/Middle Neolithic and between the Developed/Middle Neolithic and the Late Neolithic document that the Neolithic was not a monolithic period, but an era characterized by multiple discontinuous ebbs and flows of sign use. In the life cycle of the script, the passage to the Copper Age evidences on one hand the social, economic and cultural upheavals that occurred at the end of the Late Neolithic, and on the other hand, a sort of relative continuity in a number of distinct areas.

Some results applying the social network analysis to address issues of change and stability

The strong breaks during the Neolithic and evidence of discontinuous usage from the Late Neolithic to the Copper Age substantiate the already mentioned warning: The term "Danube script" solely has an operational value used to indicate the original experiment with writing technology of these ancient populations. This expression is not intended to contend an extent of unity of literacy that extends beyond the support of existing documentary evidence. When *DatDas* reaches the needed critical mass of information, further investigation will be required to assess

the unitary term "Danube script." It has to be determined in which proportion the different main sites shared a homogeneous inventory of the signs, if within time they developed (weak or strong) regional variants, or if they elaborated a distinct, even if related, script based on their own traditions. The setting of the amount of uniformity in the list of signs has to settle actor-by-actor matrices at three levels: at a general level, within a macro-region and cultural complex, or limited to a micro-region and culture/cultural group. This three-fold exercise can explain at which level a strong traditional background was at play and which may have been watched over by a particular settlement within a distinct geographic and cultural frame. The establishment of consistency or discrepancy in the sign repertory, and the speed of change, also indicates if conflicts and population movements were given or not among settlements and cultural regions, and at which degree and mobilizing effects. Conformity of inventory in time can be interpreted as indicative of direct exchange or contact within the context of continuity or increasing authority of the settlements, and the groups within them, that developed literacy in the earlier stage. At the opposite, a growing discrepancy in inventory can be interpreted as a loss of their authority and traditions. Dealing with relational data within the frame of the social network analysis, archaeological facts such as certain similarities or differences in the material record (such as, for example, the spectrum on pottery decoration or the matrix of exchange for status symbol artifacts) can indicate nondirectional and dichotomous or, at the opposite, directional and valued relationships among settlements. To what extent does the influence of the single macro-prominent or regional-scale actor differ? Which potential does it have in triggering and controlling literacy flow within the network?

For example, the comparison between the sign list belonging to the Danube script in general (recorded by *DatDas*), the sign list of the Danube script employed at Vinča B and C levels (recorded by the database *DatVinc*), and the sign list of the Danube script at Turdaş (recorded by the database *DasTur*) and the comparison of the related matrices and graphs with archaeological data give significant insights. According to this framework, the "Turdaş script" has to be ascribed to the Late Neolithic, new cultural impulse due to the collision and merge between Vinča C1 communities of immigrants from Serbia to Transylvania (through the Mureş river Valley or the Poiana Ruscă Mountains) and an indigenous Vinča B foundation.

It is still under investigation and discussion if the Turdaş culture, as well as the "Turdaş script," resulted from a migratory wave from Serbia that implanted Vinča C1 elements on a native Vinča B2 foundation (Gh. Lazarovici 1987; Draşovean 1996: 93-100) or if the Turdaş cultural phenomenon was already formed when the first Vinča C1 immigrants arrived to modify it (Luca 1997: 73, 2006b: 349). According to Draşovean, the earliest layer at Turdaş is Vinča C1. Significant is the still unpublished analysis on Vršac–*At* pottery (Republic of Serbia) carried out by Gh. Lazarovici and Draşovean. At the oldest Vinča C level, identical pottery and artifacts (ceramic, statuettes, cultic house models) from Turdaş appear; at the subsequent horizon (Draşovean 1996: 273), only Vinča C material occurs and none is identical to the Turdaş material (C.-M. Lazarovici and Gh. Lazarovici 2006: 569). The conflicting hypothesis that the Turdaş cultural

phenomenon was already formed when the first Vinča C1 immigrants arrived to modify it can be substantiated by the discoveries from Mintia–Gerhat (Draşovean and Luca 1990).

According to the social network analysis applied to the spread of literacy and the archaeological record at Turdaş culture (multiple, overlapping networks described by different forms of material culture such as architecture, representational art, and decorative motifs), it is more probable that—even if the oldest cultural stratum predated the southwestern migration—the *ars scribendi* was brought to Transylvania by Serbian migrants and then developed as a slight regional variant with its own identity, as documented by the wide overlapping of sign inventories.

Coherently, the sudden appearance of a system of writing at Turdaş could be explained by the start-up of the Vinča C phase due to strong cultural transformations taking place all over Southeastern Europe (including migration phenomena from southwestern regions of the central Balkans to Transylvania). It was not, as believed traditionally, an abrupt introduction of Near Eastern influences.

The "Turdaş script" developed as a light regional variant under the framework of the Danube script, having 137 signs in common with the Danube script and only 14 exclusive to the "Turdaş script." It is not yet known if the evolution of the regional variant only affected the outline of the signs, or if there were changes in the organizing principles with consequences for their meaning. It would be significant to investigate if the eventual changes in the script were in some way synchronized with the three phases along which the Turdaş group evolved while occupying central Transylvania.

A common koine for an integrated commerce-and-culture area

In the socio-economic sphere, from the viewpoint of the script, the Danube civilization is made up of scattered agrarian settlements focused on the exploitation of their ecological niches. On the other hand, through commerce and cultural interaction, these settlements shared strong common socio-economic interests within an economically integrated area. The Danube and its tributaries were the backbone of trade relations in the wider region. The Danube may be seen as the Great-Mother-River who triggered the emergence of this ancient civilization. It symbolized, with the meandering course and the slow and trickling current, the then revered divine feminine: a liquid horizon, womb of the mythical ancestors, lush water, moist and fertile silt, protective current, commercial artery, immigration pathway, but also an escape route. Beginning in the seventh millennium BCE, and lasting three and a half millennia, along this immense European river, thousands of rural villages gave home to farmers, religious adepts, warriors, merchants, and artisans. All of these people were united by the same cultural matrix.

The water-born trade network became the foundation for a complex networking society characterized by semi-egalitarian social relations. This was a

society in its occupational and socially-stratified embryonic stages, characterized by an observance of reciprocal economic interest and mutual conveniences. Villages were built with the same layout and developed for successive layers up to urban scale, however urbanism that did not rob the countryside. The necessity for defensive structures was limited. The development of a script was mainly associated with the religious sphere and not with the economy; it was often linked to images of divinities (frequently female)[9] and had a highly decentralized spread out of the main urban agglomerates.

Finally, the evidence for common cultural roots has been strong enough to designate an intellectual koine. The culturally interconnected background included, in addition to the writing system, religious beliefs, a religion that guided the community, the form of housing, style of artifacts and artistic production, funerary rites, and cultural symbolism. Symbolism was a complementary and possibly more important system for communication. One of the still numerous key points we have not yet comprehended is why the Danube communities preferred to transmit packages of information and even to express themselves in symbols through stylized, highly abstract, and representations that are difficult for us to understand and interpret. What did they want to communicate with spirals, meanders, linear symbols all over the surface of vessels? Why did they frequently employ all kinds of apotropaic motifs, as if asking constantly for protection against malevolent forces? These ancient communities possibly shared the same language, with more or less pronounced dialectal differences, or even compatible languages. The communication of abstract packages of information by means of writing and the practical skills involved in the knowledge of literacy required shared linguistic grounding or linguistic mediation and not merely an exchange of artifacts and repeated contacts.

Conclusions

To sum up, the Danube civilization evidences that there were major civilizations of the ancient world where statehood was either unfeasible or a marginal factor. Consistently, the Danube script developed through a network of five-range hierarchical nodes according to a model of civilization far from the state-bureaucratic prototype, having the features of a political ranking web of centers, an economically integrated commerce-and-culture area, and a common cultural koine. If the pivotal settlements elaborated the innovation of literacy, it was not confined to them, but was a pattern of high-grade decentralization (Haarmann 2008a: 26). There is no evidence that this network of political authority fit into traditional statehood.

The network model of society was present also in the horizon of the ancient agricultural society of the Indus valley, where "the absence of palaces and temples

[9] For example, most of the scholars agree in seeing a ritual, religious or at least a spiritual function for anthropomorphs (Gimbutas 1974 [1982]; Todorova 1986; Todorova and Vajsov 1993; Comşa 1995).

. . . makes it strikingly different from its counterparts for instance in Mesopotamia and Egypt. Another reason is the Harappan concern for civic amenities such as wells and drains, with the result that their cities attest to considerable social egality. It is thought that the political power was less centralized and more corporate" (Parpola 2005: 30-31; see also Maisels 1999: 220 ff). Some violence most likely did exist at the individual small-scale group level. However, warfare was almost completely absent in the Indus civilization and fighting was not used to wage military campaigns for territorial dominance (Wheeler 1968; Cork 2005). Artifacts designed specifically for the "professional" killing of other humans are almost completely absent in the archaeological record of the Indus civilization (Green 2006). The Indus system of writing took the form of complex steatite and clay seals to mark pots and walls. Some were arranged into long lines of script that adorned city entrances and other architecture (Green 2006). Writing technology spread widely and was not restricted to the main cities such as Mohenjo-Daro and Harappa, although these agglomerations assumed a role as centers of literacy (Haarmann 2008a: 26).

In conclusion, the features concerning the origin and development of the Danube script point in the direction of abandoning the universalistic claims that assume a "standard model" (the Mesopotamian experience) for the trajectories from foraging/gathering to complex agrarian societies, assuming on the contrary a model of civilization with variable geometry: a civilization based on cultural relativity and conceived as broken down into regional paradigms (Haarmann 2002b). Each ancient world civilization is an experiment with civilization in its own right associated to a specific geo-cultural profile that depends on local socio-economic patterns, institutional configuration and cultural traditions. Concerning the patterns of how literacy emerged, spread, developed and functioned in the ancient world, there is at least a primary model other than the statehood framework from the Mesopotamian prototype: *the network model*.

The civilizations organized as a network resemble a system of nodes (central settlements and regional cultures) linked by common cultural roots, exchange relationships of mutual political advantage and shared socio-economic interests. The network model identifies a complex society characterized by semi-equality in social relations, observance of reciprocal socio-economic interests, absence of the state, the rise of urbanism through expansion (analogous to the spread of an oil spot) from villages to towns with thousands of inhabitants, with the absence of too heavy defense structures. In early agrarian societies, organized according to this model, the villages were not oppressed by a centralized political authority and their local economic surplus was not monopolized by the inhabitants of urban centers. An efficient, although not centralized, relationship linked the urban agglomerates. The distribution of goods and resources was based on interregional trade, not just practiced on local scale. The network society was a relatively tranquil confederation of strongly regionalized cultures with common roots and mutual interests.

In the instance of the Danube civilization, the network model is consistent with new archaeological records and interpretative paradigms that deeply change the idea concerning the historical mechanisms of the genesis and development of

homo scribens. In sharp synthesis, the experiment with writing technology that matured over thousands of years was not an *ex nihilo* act. Literacy was an original apparition throughout the Neolithic period and was not a Bronze Age achievement. This invention originated in several regions as an autonomous and independent innovation and was not a brilliant idea developed once under lucky conditions in a single incubating region (Mesopotamia) and then copied over and over again. *Ars scribendi* was triggered mainly by magic-religious communicational needs and not by economic, administrative and commercial affairs. The practical use of writing was secondary (Winn 1973, 1981, 1990, 2004; Gimbutas 1974, 1991; Haarmann 1995; Gh. Lazarovici 2003; Merlini 2002b, 2004). The script employed an inventory of mainly abstract logographic signs, i.e., it fixed necessary thought and optionally sounds, whereas the canonic interpretation reduces writing to a sequence of signs aimed to faithfully reproduce the sounds of a spoken language.

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CONSIDERATIONS ON THE TOPOGRAPHY, TOPONIMY AND SECTORS OF THE COMPLEX OF PREHISTORIC SETTLEMENTS FROM LIMBA[10]-OARDA DE JOS (ALBA COUNTY)

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Keywords: *Neolithic, Copper Age, Bronze Age, Iron Age, Limba, archaeological excavation*
Abstract: *The paper deals with the complex problematic of the results of the more than 50 years of researches on the prehistoric settlements existing between Limba and Oarda villages, situated along the first terrace of the Mureş River, around 2000 x 50m. After 8 years from the last excavation, the author is decided to reopen the scientific researches in this ensemble of prehistoric archaeological sites, rich in the deposits of the human activities during from the early Neolithic to the medieval times. The medium thickness of the archaeological layers is around 2,5 m, proving a very intensive human habitation, especially in the Neolithic and Copper Age, but also in the Bronze and Iron Age period. After the description of the geo-morphological characteristics, the author presents all the sectors (points) of the ensemble, the topographic coordinates, particularly the stratigraphic successions of the cultural layers. At the end, is presented a brief history of archaeological researches, field and systematical, the actually stage of knowledge's about the evolution of the human communities and the general coordinates of a new archaeological project, using modern methodologies and techniques of research.*

Argument

The imminent debut of some large investment projects in the infrastructure of Alba County (like the construction of the Sibiu-Arad highway, of the Sebeş-Cluj expressway etc.) the sprawling of areas destined to housing constructions and the necessity to update the *List of Historical Monuments* (2004), require the release of some necessary clarifications related to some of the archaeological sites that are being systematically investigated and which, under the present circumstances, are situated in the way of the above mentioned investments, and therefore require

[10] At the time of the first archaeological researches the name of the locality was the original one: Limba (Berciu, Berciu 1949). From reasons that are not worth mentioning in the present paper, starting with the seventies and until 1989 the place was named Dumbrava, and after this year it regained its former name. Therefore in the Archaeological Repertoire of Alba County (1995) and in the List of Historical Monuments (LMI 2004), the place (and the archaeological site) can be identified under the name of "Dumbrava" (RepAlba 1995, 92-93; LMI 2004, Monitorul Oficial al României, year 172 (XVI), nr. 646 bis, 16 July, 2004, page 8 – nr. crt. 66, cod LMI AB-s-B-00035).

archaeological research in the form of preventive excavations with the aim to clarify their archaeological status[11], according to Romania's current law[12].

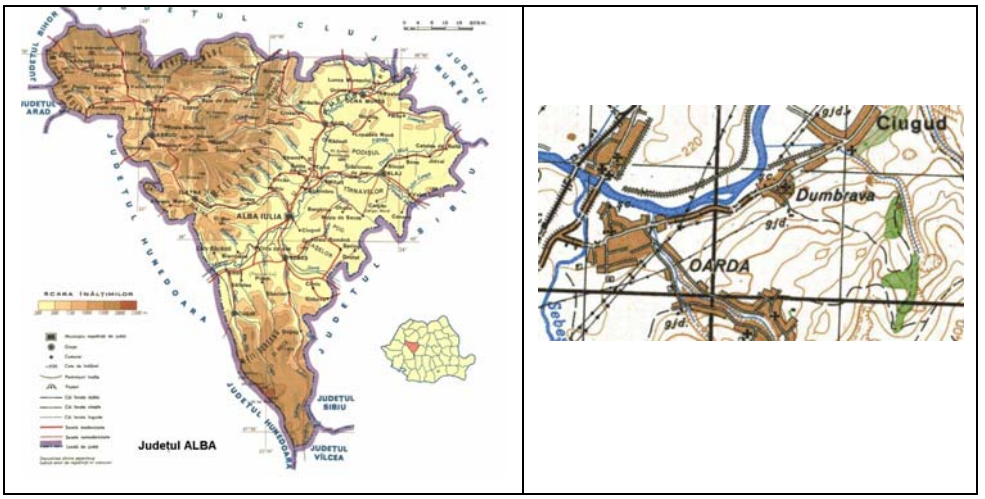

Fig. 1. Localisation of the area of the localities Limba *Dumbrava* (Ciugud commune) and Oarda de Jos (Alba Iulia) within Alba county (a) and a detail of the physical and administrative map of the county (b).

The prehistoric (Neolithic) site from Limba, as it is known in the specific literature[13], will definitely be one of them. Therefore, in the following we shall try to introduce some punctual specifications which are necessary in order to understand the actual on site situation (as it is currently known, almost 8 years

[11] That is why, as a researcher who was responsible for 7 consecutive campaigns (1995-2001) for the coordination of the on-site research (in the frame of the general systematic investigation of the archaeological site from *Limba*), we feel obliged to add these new specifications related to the topography, toponymy and delimitation of the complex of archaeological sites that is generically known as *Limba*. Even more so as, in spite of the release of numerous research reports as well as studies and articles (see the bibliography of the present article), there are still regrettable confusions in the specific Romanian literature related to the delimitation and cultural affiliation of those archaeological deposits.

[12] Ordinance 43 from January 30th 2000, republished, *concerning the protection of the archaeological patrimony and the declaration of some archaeological sites as areas of national importance* (art. 5, paragraphs 4-6, 14-15). Law 422 from July 18th 2001, republished, *concerning the protection of historic monuments (*art. 3, 7-11) and Law 182 from 2000, republished, *concerning the protection of the mobile cultural patrimony.*

[13] An error that needs correction from, the very beginning is that during the systematic archaeological investigations of the last decade, some sectors of the ensemble mentioned were designated as belonging to the locality of *Limba* (*Bordane, Vărăria, Şesu Orzii*), while the later thorough analysis of the administrative organization proved that they actually belong to the boundary of the locality of Oarda de Jos (at that time still a separate locality) (see the bibliography of the 90s.).

since the completion of the last systematic investigations done from 1995-2001[14]). They are determinative for the way the large area of this *ensemble of archaeological sites* will be approached thorough the means of archaeological investigations, irrespective of their character[15].

Location and morphological and geographical characteristics

The station known generically under the name: *the archaeological site of Limba*, is situated in the south-west of Transylvania, on the middle course of the Mureş river, in the area delimitated by the river's thalweg. The area of the previous archaeological investigations lies on the left bank of the Mureş river, between the localities of Limba (Ciugud commune) and Oarda de Jos (suburb village of the town of Alba Iulia), on both sides of the county road (D.J. 107C) that links the two localities, at about 3.5 km south-south-east from the administrative centre of Alba Iulia. The sites, as we are speaking of several distinct sectors (points) of the archaeological ensemble – individualized by toponimy but also by the distinct characteristics of the successive archaeological deposits, conferring them therefore the status of proper sites – occupy a vast area, the entire surface of the 1st terrace of the Mureş river actually, in the place where the river changes its general flowing direction from south to the west in an ample meander. (fig. 1).

In a broader meaning, the perimeter of the prehistoric settlements lies on the 1st terrace, having a wide and smooth aspect, situated in the interior of the area of confluence of the Mureş and Sebeş rivers, in the "contact zone" of the Secaş Plateau and the Mureş Valley, in its most western sector, delimitated by the two above mentioned rivers, between the western extremity of Limba (Ciugud commune) and the eastern part of Oarda de Jos (today a district of Alba Iulia).

Having the aspect of a wide plain, slightly precipitous to the north and north-east, the area is characterized by the fundament of a relatively high and well profiled non-floodable terrace, on the east-west direction, fully exposed to the sun, fragmented by numerous creeks and/or torrents that cross it radially, by strong water springs which are to be found especially in the contact area with the river meadow and the alluvial plain of the two large rivers, by very fertile soils, and also by the presence of the western hills and knolls of the Secaş Plateau (*Coasta Barbului and Hoanca Chişoii*), which dominate it in smooth slopes from the south to the east (image 2).

The course of the Mureş river, strongly pushed back to the east and south-east in this sector by the Ampoi river – which runs downstream from the west, from the Trascău Mountains and Ore Mountains, bringing with it massive quantities of alluvial

[14]Done under the coordination of Prof PhD Iuliu Paul by researchers from the Department of History and the Centre for Pre- and Protohistoric Researches of the University "1 Decembrie 1918" from Alba Iulia, within C.N.C.S.I.S. projects of scientific research. For the preliminary results see the research reports from the bibliographical list of the present paper.

[15] Starting with 2009, the responsibility of coordinating the scientific investigations in the *ensemble of prehistoric sites from Limba-Oarda de Jos* was assumed by a team from "Lucian Blaga" University in Sibiu, under the coordination of Senior lecturer PhD Marius-Mihai Ciuta.

deposits and flows into the Mureş river near the north-eastern extremity of the archaeological site – and to the north by the course of the Sebeş river, influenced by the slightly slope of its alluvial plain, cause these two rivers to "dig" (erode) permanently the basis of the terrace, shaping it more and more clearly profiled, due to its geological fundament of sandstone and clay, typically for the entire western frame of the Secaş Plateau, made out of gravels and wind deposits of the *loess* type.
Its excellent position, as well as the advantages given by the above mentioned characteristics and by the abundance of fertile soils and useful mineral resources (gravels, sand, wood, clay etc.) turned this wide, fragmented terrace since the earliest times into an extremely favorable ecosystem for the human habitat. In pre- and protohistory, the terrace proved to be a true area of concentration of human inhabitance, which is proved by the systematic archaeological investigations done here in the last years and by discoveries, accidental or following surface investigations, done in the last 50 years[16].
The administrative delimitation among the localities containing the sectors belonging to the ensemble of archaeological sites we are interested in lies on the thalweg of the "Pârâul Şcoalei" creek (fig. 6).

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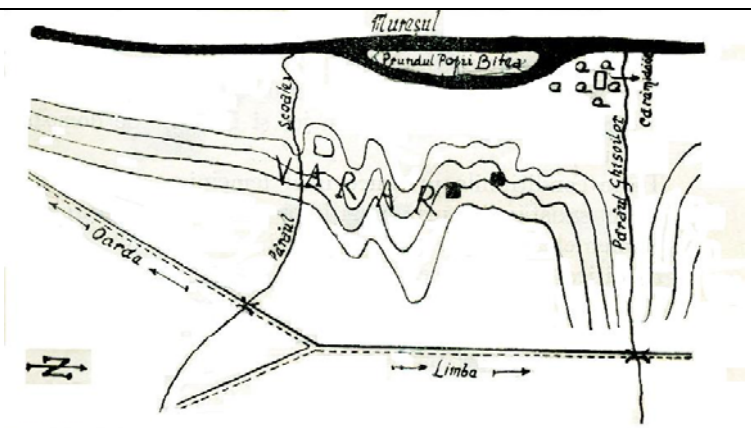

Fig. 2. Topographical blueprint of the ***Vărar*** sector publiched by D. and I. Berciu (Berciu, Berciu 1947). The orientation of the north is wrong by approx. 60 degrees to the east.

As we mentioned earlier, the ensemble of archaeological sites generically named in the specific literature as "Limba", is divided into several distinct sectors, built as fragments of terraces along the exterior area of the active meander of the Mureş river, delimitated by the presence of some distinct geological and morphological elements – usually small creeks – as well as by anthropic, artificial elements (the county road, bridges etc.), and is reflected by the specific toponymy (see fig. 3). Even more, being so wide, it overlaps the boundaries of several localities (Limba,

[16] RepAlba 1995.

Oarda de Jos), which confirms once again the generic character of its "official" name.

From the administrative and territorial point of view, the entire area which is characterized by prehistoric, protohistoric, classical and medieval archaeological deposits belongs to the locality of Limba, and therefore to the commune of Ciugud (sectors: *În Coastă, Vărar, Coliba Barbului*), and to the locality Oarda de Jos as well, the later belonging to the town of Alba Iulia (sectors: *Vărăria, Bordane, Şesu' Orzii, Şesu' Orzii-Balastieră*), therefore the term "*the archaeological site of Limba*" is an improper one, but, we repeat, a generally accepted one by convention.

The successive sectors (points), following the course of the Mureş river downstream, from north-east to the west, are as follows:

Limba - *În Coastă* (code RAN 1106.05, latitude: N 46^0 $02^{'}$ $333^{''}$, longitude: E 23^0 $35^{'}$ $530^{''}$, altitude: 238 m; date of first investigation: August 1997, I. Paul, M. Ciută).

At the western exit point from Limba, near the road that leads to Oarda de Jos (D.J. 107C), before the bridge across the Ghişoilor (Chişoilor) creek, that flows to the north into the Mureş river, lies an upper promontory (fragment of a terrace) relatively triangular in shape (with sides of approx. 30x50x50m and a peaked top to the south-west), having the aspect of a relative plane terrace, slightly inclined to the north and north-west, dominating the entire Limba-Oarda de Jos sector (the relative height against the Mureş river is about 18-19m), advancing slightly towards the Mureş river, like a spur, called by the locals: *În Coastă*.

The toponymy is due to the high aspect of this terrace fragment, as well as to the very abrupt slopes to the north, towards the Mureş river meadow, to the south and west, along the creek and the road that leads down, in parallel, towards the river's meadow.

The point *În Coastă* lies on the first terrace of the left bank, in the exterior area of the active meadow, being the most upstream situated point from the entire ensemble of sites. To the west, south-west, it meets the terrace fragment (sector) called "*Vărar",* being delimitated from it by the Ghisoilor creek, dominated to the south and east by the high crest of the Secaşelor Plateau (*Coliba Barbului* şi *Hoanca Chişoii*). Right beneath the terrace, to the west, across the Chişoilor creek, in the flood plain, lie the ruins of an old brick factory, from the 40s and 50s of the last century[17].

The terrace fragment containing the archaeological deposits from the point *În Coastă* was used exclusively for agriculture. Considering how it looks like today, it seems that the entire perimeter has been parceled and will be occupied by constructions, requiring therefore archaeological discharge.

On the occasion of the archaeological investigation done here, with the help of a probing of control and stratigraphic information (SI/1997), a distinct archaeological layer was found, having a single level of inhabitancy, belonging to

[17] Berciu, Berciu 1949.

the late Eneolithic, more precisely to the Coțofeni[18] culture (second evolution phase), followed by modern deposits[19].
II. Limba - *Vărar* (code RAN: 1106.01; latitude N: 46^0 02' 256'', longitude E: 23^0 35' 413'', altitude: 236 m). Date of first site investigation: December 1944 - Șt. Munteanu; August 1947 – probing of control and stratigraphic information D. and I. Berciu[20]; systematic investigations I. Paul, M. Ciută 2000. Sector (site) included in the *List of Historical Monuments of Romania*[21] (2004).

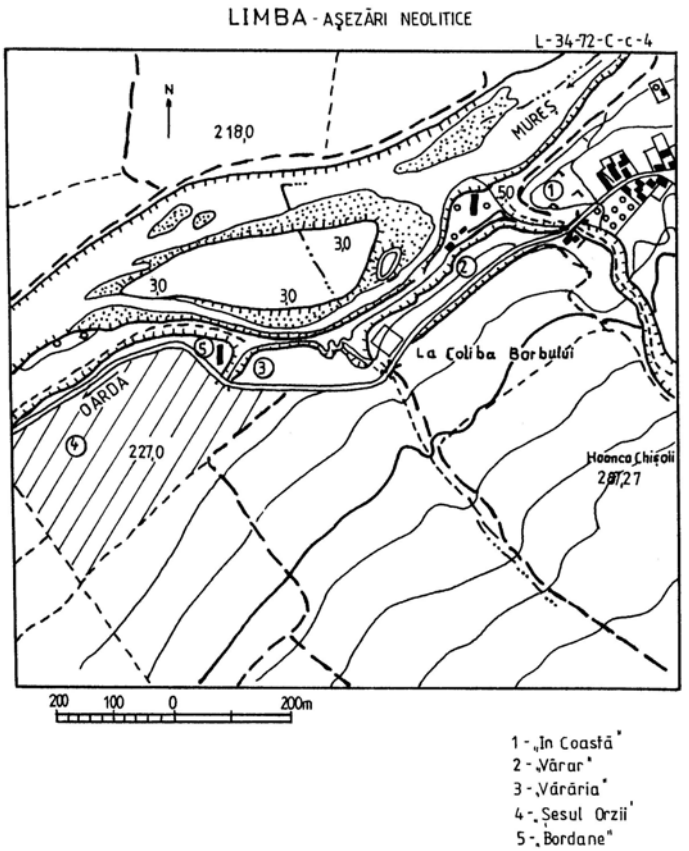

Fig. 3. Topographical blueprint with the areal designated for the investigations of the years 1995-2001 (Paul, Ciută 1996).

To the south-west and downstream from the sector *În Coastă,* on a lower terrace fragment (with an average height of 16 m above the river), having a triangular,

[18] Paul, Ciută 1998; Ciută, Gligor 1999.
[19] Acording to the locals, these are the rests of the stable and dependencies from a local nobleman's farm, from the 18th or even 19th century.
[20] Berciu, Berciu 1949.
[21] Vezi nota 1.

prolonged shape, approximately 300 m long and 25-30 m wide, oriented north-east and south-west, delimitated to the south-east partially by the road and partially by the *Coliba Barbului* sector, to the north-west by the Mureş meadow, to the east by the Ghişoilor creek and to the west by the Şcoalei creek, lies the sector of site called *Vărar*. The point's toponymy can be explained by the possible presence in this place of some pits used to slake the lime. It is the best known sector, because the first archaeological investigations from the areal[22] were done here (image 2). From the study of the topographic draught published in 1949 we can notice some morphological modifications that have happened, as well as the places where the investigation units were set[23] . Right beneath the terrace there is the eastern end of the former *Prund al Popii Bitea,* formerly an island delimitated by a southern arm of the river Mureş, presently clogged up. O first conclusion, presented initially by D. and I. Berciu, would be that it is possible for a part of the station to have been destroyed here by the river Mureş[24]. It is not excluded also a later anthropic intervention, in order to straighten the terrace's sides, which were much more fragmented at the time.

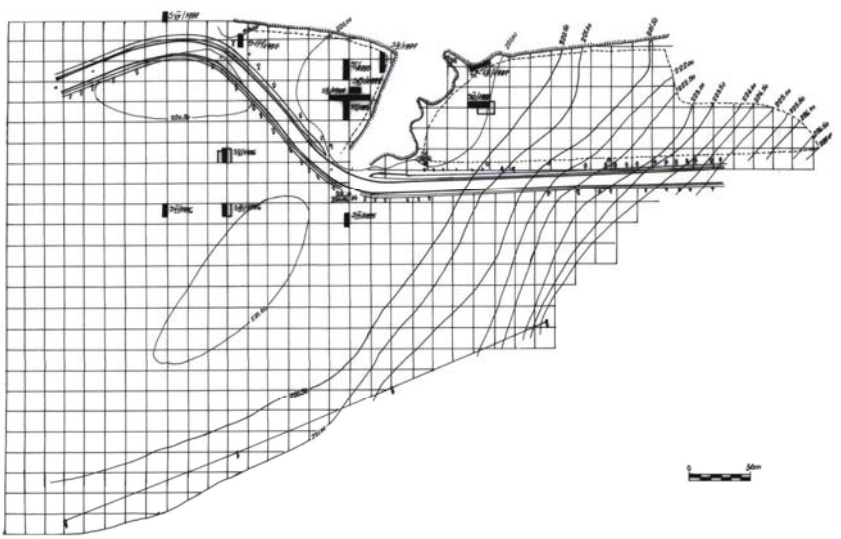

Fig. 4. Topographical mapping of the sectors *Sesu Orzii* (east area), *Bordane* (T), and *Vărăria* (L), (1:500), mapping, landmark system and the investigation units of the 1995-1999 campaigns. The research units of the 2001 campaign are missing.

[22] Berciu, Berciu 1949

[23] According to the information offered by some of the inhabitants of Limba, the sections executed by the brothers Berciu and St. Munteanu in the 1940s, were done in the western extremity of the terrace fragment, in the place where now stands a private farm.

[24] Berciu, Berciu 1949.

The Vărar place is a plain terrace, slightly inclined towards north, north-west (towards the river Mureş), crossed by the county road from north-east to south-west and dominated by the crest of the Secaşelor Plateau (*Coliba Barbului* şi *Hoanca Chişoii*). Beneath the terrace there are strong water springs originating in the geological deposits. In the place of the southern arm of the river Mureş that delimitated the island in the past (*Prundul Popii Bitea*), there are now two ponds that are currently clogging up too.

Fig. 5. Satellite image of the surrounding area of the complex of arcaheological sites from Limba-Oarda de Jos, with the delimitation of the area of arcaeological sites (source Google Earth).

Confirming the reports of the brothers Berciu, there are rests of archaeological materials discovered also left to the county road 107C, suggesting that such extensions of the Neolithic inhabitance lie to the south and east, across the county road, on the *Coliba Barbului*[25]. The terrace fragment on which the settlement from *Vărar* lies was used for agricultural purposes. Nowadays, in its south-western extremity there is a live-stock farm[26]. Four houses were built in the year 2008, in the north-eastern half of the sector, and considering the current situation, it seems that the entire perimeter of the sector will soon be covered by such constructions[27].

[25] Berciu, Berciu 1949; Ciugudean 1978.

[26] The farm was built in the year 1955, from July to September, without archaeological discharge.

[27] In this context, we mention that we are waiting for the reports concerning the preventive investigation of the perimeters occupied by these constructions, especially as the probing done in the year 2000 indicated there the layer of a culture of about 1.5 – 1.8 m thick

Fig. 6. Detail of the satellite image of the surrounding area of the complex of archaeological sites from Limba-Oarda de Jos, indicating the main archaeological sectors known and investigated as well as the delimitation of the boundry for the two localities (source Google Earth).

According to the older investigations (1944), the slope, slightly inclined towards north-west, led to land sliding, which makes the culture layer to appear under a level of almost 1 m of slid land, brought probably by the waters. The culture layer is thicker to the north-west, going from 0.75 m near the county road to more than 1.6m at the terrace's margin, near the river Mureş. The culture layer begins at -1.2 m and is 1.6 m thick, reaching occasionally to 3 m depth[28].

In the profile of the stratigraphic probing from the year 2000 (6x2 m oriented NV-SE[29]), which was done to verify the vertical stratigraphic situation, two strata were found, each one with two inhabitance levels. Chronological placement: High Neolithic (Vinča culture, phases B1 and B1-B2).

The stratigraphy was as follows:

0-0.25 m, vegetal/arable layer with black-grey soil, compact aspect of clay;

0.25 – 0.65 m (profile ESE) / 0.8 m (profile WNW), layer of deposits resulted from the sliding of the land. The ceramic material was in secondary position and mixed (Vinča and Coţofeni culture);

archaeological deposits – Paul – Ciuta et alii 2001. In the same context it is worth mentioning that across the road, to the south-east, in *Coliba Barbului*, less than 150 m far, a new series of houses are being erected, requiring according to the law, at least a strict specialized supervision.

[28] The situation was revealed by the probing in 1947 (Berciu, Berciu 1949, p. 29, fig. 23) and cinfirmed in the 2000 probing (Paul, Ciută et alii 2001).

[29] The section (S.I/200) was drawn perpendicularly to the terrace's margin, approximately 5 m from it (Paul, Ciuta and collaborators 2001).

0.65 / - 0.8 – 1.6 /– 1.9 m, layer identified with the culture layer, probably with several (2) levels of inhabitance, belonging to the classical phases of the Vinča culture (B1 and B1-B2). There is also a moat shaped at – 1.64 m depth. It is oriented NE-SW and has a maximum width of 0.34 m and reached to -1.83 m in depth.
1.65 / - 1.95 (2.00) m grey-yellowish archaeological sterile.
On the other side of the road and nearby, in the point *La Coliba Barbului*, H. Ciugudean did some surface investigations in the year 1972 and discovered *Turdaş* (Vinča !) *ceramics* but also ceramics from the Hallstatt period and the Middle Ages[30].
III. Oarda de Jos (Limba) - *Vărăria* (code RAN: 1106.03; topographic symbol „L"; latitude N: 46^0 $02^{'}$ $195^{''}$, longitude E: 23^0 $35^{'}$ $160^{''}$, altitude: 232-231 m). First investigation 1996-1997 - I. Paul, M. Ciută, systematic investigations 1998, 2001.
To the south – west and downstream of *Vărar,* being separated from it by the *Pârâul Şcoalei* (which marks also the boundary between the two localities: Limba and Oarda de Jos – fig. 6), delimitated to the south by the road and the Mureş meadows to the north, there is the sector called by the locals *Vărăria,* which has the form of a lower rectangular terrace. Oriented E-W, 200x30 m wide, the *Vărăria* sector has a slight slope from east to west, being delimitated to the west by an unnamed season torrent, and beyond it there is a country road making the link between County Road 107 C and the Mureş meadows, in the western area of the old *Prund al Popii Bitea*, used today by the machines of the upstream ballast querry.
On the other side of the County Road 107 C, following a short plain area belonging to the sector *Şesu-Orzii,* the smoother slopes of the *Coliba Barbului, Coasta Stauni, Dealul Viilor* stream down to the south. The *Vărăria* terrace is destined entirely to agricultural purposes, its eastern extremity being covered with bushes, and there is for now no imminent danger to the integrity of the archaeological deposits here.
To illustrate the stratigraphy, we shall appeal to section SXIII/2001, the one that proved to be the most complete in the western area of the *Vărăria*, investigated repeatedly in the campaigns of 1997-1998 and 2001.
10x2 m wide, it was opened perpendicularly on the north end of the terrace, leaving a stratigraphic witness of 1 m against the southern extremity of the embankment from 1997 (L1-L2/1996-1997).
The stratigraphic situation is as follows:
0 – 0.30 m – vegetal level, dark black, crumbly. The rich ceramic material of this level belongs to the B phase of the Vinča culture and was dragged here from the inferior level by the agricultural works. It is strongly fragmented.
0.30-0.60 m – dark grey level, belonging to the classical (B) phase of the Vinča culture. At its bases the stepping level was found, as well as ceramics agglomeration, river stones, bones, covers of pots, stems of cups and painted ceramics of the *Lumea Nouă* type etc.

[30] Ciugudean 1978.

0.60 – 0.85 m – light grey level, light, belonging to the early phase (A3?) of the Vinča culture, proved by the ceramic material (fragments of black-grey pots decorated with fine pleats and narrow engraved bands, strongly polished, hollow stems of cups etc.)
0.85 – 1.20 m (1.50 m) – brown layer, poorly pigmented. The archaeological material is present only in small quantities: ceramics represented by decorated fragments, short cup legs made of paste with organic material, lithic material represented by pieces of silex and obsidian, river stones etc. This level belongs to the Starčevo-Criş[31] culture.

Fig. 7. Satellite image indicating the areas investigated by archaeological excavations. To be noticed that in 2003 no house was built yet on the *Vărar* sector.

On the *Vărăria* sector the investigations revealed a very intense Neolithic inhabitancy (Starčevo-Criş and Vinča). Large housing facilities from the early Vinča culture were found and investigated here (Vinča B1 and B1-B2?). They were built in the technique of the "stone bed" having massive walls, of which fragments of burned earth with prints of plants are still preserved[32], having a very rich and varied inventory, funerary complexes (2 inhumation graves[33]), complexes

[31] Paul, Ciuta and collaborators 2002.
[32] Paul, Ciută 1999; Ciută, Daisa 2000; 2002.
[33] Under the house there was an agglomeration of grinding mills and rock slabs and nearby a human skeleton was discovered (-0.80 m). The grave, oriented south-west and north-east, represents an oval pit where the crouched skeleton was laid on its left side. The inventory consists of a gross ceramic pot laid on the skeleton's tibia, mouth down, and also shells of clams and snails. Close to the grave, in CI/2001, at 0.70 m depth a sleeked, blanched fireplace was discovered which presented at least two phases of reconstruction, directly

of cultic destination (pits of the *bothroy* type – G2/2001[34]), special materials (a cooper tool with double head[35],painted ceramics of the *Lumea Nouă*, tools of bones and horn pot covers with prosopomorphic representations, objects of silex and obsidian) etc.

The intense inhabitancy of the Mureş terrace by the bearers of the Neolithic cultures is proved also by the thickness of the culture layer that goes down to 1.8 – 2 m deep. Like the case of the *Vărar*, it is supposed that the north are of the terrace was destroyed to some extent by the waters of the Mureş, which builds here an active meadow, but also by the anthropic works of leveling and consolidation of the terrace.

IV. Oarda de Jos (Limba) - *Bordane* (RAN code of the sector: 1106.02; topographic symbol „T", latitude: 46^0 4' 5'', longitude: 23 ^{0} 34' 23'', altitude: 230 m, medium height 8-9 m above the creek). First research 1995 - I. Paul, I. Al. Aldea, Marius Ciută, systematic researches 1995, 1997-1999.

West of *Vărăria*, downstream, half way between Limba and Oarda de Jos, having the aspect of a promontory of triangular shape, of smaller size (approximately 40x50 m) is the point *Bordane*, approximately 9 m above the Mureş. It is delimitated to the south and west by the County Road 107C, which presents in this area two tight curves (across it lies the *Şesu Orzii)*, and to the north by the Mureş meadow. To the east it is separated from the *Vărăria* by the road that follows down along a previously mentioned old torrent towards the Mureş meadow. Generally, the terrace fragment at the *Bordane* presents an easy slope oriented to the south-east, towards the mentioned torrent.

The *Bordane* point represents the lowest part of the entire archaeological complex Limba-Oarda de Jos. The Mureş river eroded stronger the exterior terrace in the 1940s, a fact revealed by the older maps which confirm the existence, right beneath terrace I, in the terrace's *hinge*, the western extremity of a south arm of the

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linked to the grave and the agglomeration of grinding mills. At -0.50 m depth, in the northeastern corner of the CII/2001, there was a compact agglomeration of adobe. After cleaning the adobe the skull of a human skeleton appeared (M2/2001). After digging it out it was noticed that it belonged to an adult (unlike M1 which seems to have belonged to a child), laid crouched on its right side, having an inventory made up of a pot laid at its head and bone tools around it. The dead was laid on a platform made of rests from walls, and pieces of adobe were also laid on the sides giving the impression of an arranged "cista" (Paul, Ciuta and collaborators 2002)

[34] Found from the first layer of inhabitancy, in squares 4-5, the pit goes through all levels down to the sterile to 2.10-2.30 m depth. The pit is circular having a diameter of about 1.5 m. Having the aspect of a bell, it has several levels of successive fillings with several layers of ash. At 1.10 m depth, central, a 5 cm thick smoothed and fragmented fireplace was found, with the head of an ox placed upon it. Fragments of this fireplace were also discovered in the inferior layers of ash. On the bottom of the pit, in the layer of ash, there were discovered an antler, broken ceramic pots and bones from large animals. In the agglomeration of broken ceramic pots to the western wall of the pit there were two groups of four bones each. The rich quantity of ceramic material allows the classification of the complex to the early phases of the Vinča culture (Paul, Ciuta and collaborators 2002).

[35] Paul, Ciuta and collaborators 2002.

river that isolated an elevated river bank (*Prundul Popii Bitea*[36]). Right beneath the *Bordane* point there lies the most western (and largest) of the ponds resulted from the clogging up of the river's arm, easily recognizable in the aerial picture (fig. 6). Nowadays, probably due to regularization works, the morphological configuration of the meadow is radically changed. Until now, the *Bordane* point was used exclusively for agricultural purposes.

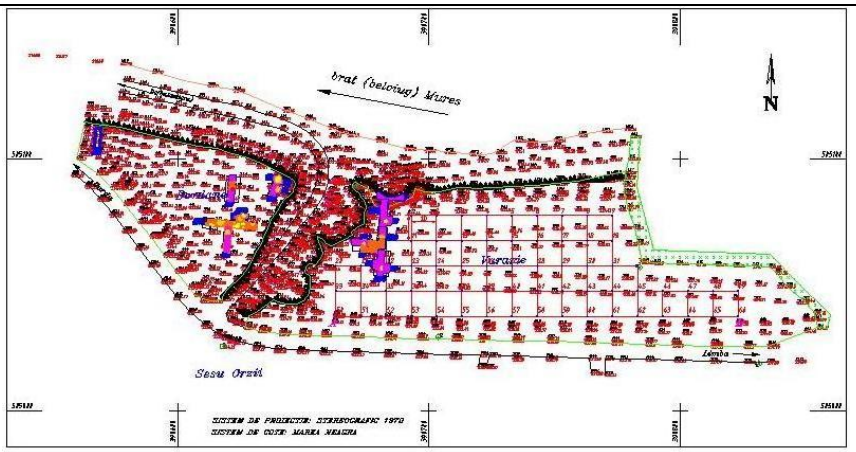

Fig. 8. Recent topographical mapping of the sectors *Bordane* and *Vărăria*, specifying the mapping and indicating the research units carried out.

The stratigraphy of the archaeological deposits found in several investigation units (SI/1995, SII/1995, SVII/2007, SVIII/2007, SIX/2007, SX/1998, SXII/1999), characterized by a considerable thickness of more than 2.5 m (!) in its central area, proves to be, certainly, the most complex and diverse from the entire complex of prehistoric settlements from Limba-Oarda de Jos, and its chronological classification covers a very long period of time: from the early Neolithic (Precriş, Starčevo-Criş phase IIIB), to the developed Neolithic (Vinča, phases A_2 and A_3, B_1, B_1-B_2), followed by a sporadic inhabitancy belonging to the first Iron Age of the Hallstatt (Gava culture), and to the surface there is a mixture of prehistoric (Basarabi culture) and medieval materials.

To illustrate the stratigraphy we shall present the profile obtained in section X/1998, the one that provided the most complex and complete stratigraphy, where the following realities could be found[37]:

- the archaeological sterile from the *Bordane* sector (and practically from all other neighboring sectors) is made up of a thick deposit of the loess type, yellow in color, sandy in its aspect, having a denser and more compact (hard) structure as it goes deeper. In some places it undergoes a process of sand stoning and mineralization, this is a transformation into geological

[36] See Berciu, Berciu 1949, fig. 14.
[37] Paul, Ciută 1999, 66-67.

structure of a higher consistency, similar to that of sand stones and bedrocks. As the repeated sections executed in this sector have confirmed, the loess type sterile rises to the northern margin (edge) of the terrace up to only 1 m depth (presented in SI/1995), which proves that this terrace fragment had a different configuration in the past, being slightly inclined to the east and south-east. This situation also confirms a very important thing, the fact that the *Bordane* sector and the archaeological deposits here have not been eroded by the waters of the river Mureş!

- at approximately 2.50 m depth, going sometimes deeper up to 3 m through the intermediary of some complexes, a yellow-brown layer was found, which was difficult to delimitate from the inferior sterile and even from the upper cultural layer, due to chromatic differences that were hard to notice, and which, from the point of view of the typological and stylistic analysis belongs to the Precriş culture, the first documented early Neolithic culture on Romania's territory[38]. There are few archaeological materials disclosed, and no inhabitance complex was yet discovered. The ceramic fragments with white painting on the red-dark-red background, very well polished, blades of silex and obsidian, bone rests etc. are some of the elements that made possible the definite classification of this level to the level of the Neolithic horizons north of the Danube and from Transylvania.
- above the Precriş level a distinct layer was disclosed of a yellow-brown color but with a darker shade then the previous one, belonging to the Starčevo-Criş culture, more precisely to one of its evolved phases. The basis of this cultural layer was easier to distinguish as it corresponds to the stepping level of a house situated on the surface (L3/1998), which preserved a very rich archaeological material[39]. The typological and stylistic analysis of the ceramic material in the house allowed its cultural and archaeological classification of the entire archaeological level to the IIIB stage/phase of the Starčevo-Criş cultural complex[40].
- in its upper part, the Starčevo-Criş layer is covered on the entire section by an archaeologically sterile deposit, yellow in color, 20-40 cm thick, representing a kind of *hiatus* between the above-mentioned lower layer and the upper one.
- a brown-yellowish layer follows (0.90 – 1.40 m), having frequent limestone deposits and white-grey lens, corresponding to the inhabitancy of the early phases of the Vinča culture (A_2, A_3). The layer's basis was easy to delimitate, based on a strongly burned house on the surface (L2/1998-1999), that preserved a rich archaeological material. The house was built directly on that archaeologically sterile deposit. Later research done in this sector clarified the nature of this deposit, in the sense of its interpretation as an anthropic development having the purpose of thermal

[38] According to some authors the first phase of the Starčevo-Criş (IA-IC-IIA) cultural complex (on this matter see Ciuta 2000).
[39] Ciută 2002.
[40] Ciută 2002.

and water insulation, made by the first groups of the Vinča culture in this place.

- the next culture layer (0.35-0.70 m), corresponds to the developed phases in the evolution of the Vinča culture (B1, B1-B2). The stratigraphy presented two distinct levels of inhabitancy that cannot be distinguished yet from one another typologically. At 0.60 m depth, in the central area of the section, the hole of a Hallstatt pit house (semi-cottage) was found (B1/1999[41]). The upper part of the most recent layer is affected by agricultural works, and archaeological materials can be gathered (in huge quantities!) from the plough-land.
- on the surface, in the vegetal layer (0-0.35m), there are small quantities of ceramic materials belonging to the first Iron Age (Hallstatt), more precisely to the Gava culture, but also to the Basarabi culture together with Neolithic materials.

V. Oarda de Jos (*Limba*) – *Sesu Orzii* (RAN code of the sector: 1106.04[42], Latitude: 46^0 4' 5'', Longitude: 23^0 34' 23'', Altitude: 227-230 m). First investigation of the site: 1996, I. Paul, M. Ciută, I. Al. Aldea.

On the left, southern side of the road between the localities of Limba and Oarda de Jos (D.J. 107 C), that forms there a double curve, beyond the points *Vărăria* and *Bordane,* begins the site area named by the toponymy *Şesu' Orzii,* in the form of plain field stretching on the first terrace up to the locality of Oarda de Jos (image 3-5). Right under the terrace fragment bearing this name flows the river Mureş, just after it leaves the strong meander situated near the locality of Limba. Under this terrace and in its north-western extremity, at the entrance into the locality of Oarda de Jos, in the Mureş meadow, there is a ballast quarry[43].

The terrace fragment is about 10-12 m higher than the river and is plain and relatively flatten, also due to intensive agricultural works, and it is crossed by the county road. It is dominated to the south by the crest of the Secaşelor Plateau (*Coasta Stauni, Dealul Viilor, Bordani*), and delimitated practically to the north by the river Mureş (respectively by the county road)to the east by a season torrent, the same that delimitates also the sectors *Vărăria* from *Bordane,* and to the west by Valea Orzii, at the entrance into the locality Oarda de Jos. Beneath the terrace, which had a forehead with a very abrupt slope, in its hinge, there are strong water springs as well as an alluvial plain – flushing meadow – with an irregular shape[44], and about 400 m long.

The total dimensions of this terrace fragment, identified by the toponymy *Şesu` Orzii*, are of about 700 m long (between the sector *Bordane* and the entrance into Oarda de Jos) and about 60-70 m wide. To be noticed that approximately at the half of this sector there is a slight elevation of the terrace (1-2 m), in the area

[41] Rustoiu, Ciută 2001.

[42] In the report published in 2001, there are also these codes, referring to this sector: *1053.01, 1053.02.*

[43] Property of S.C. Mova S.A.

[44] In this sector there was a mobile bridge, probable the one that is mentioned in L. Blaga's work "Luntrea lui Caron".

where the county road comes closer to the river Mureş. In this sector, the recent rehabilitation works done at the road[45] revealed, in the embankments near the south gutter, a definite continuous stratigraphy.

In the ensemble of the investigated area, during the campaign of 1996, situated right next to the *Bordane* (see image 4, sections IV-VI/1996), a very consistent archaeological layer was found, evolving down to 2.30 m, having three main cultural levels that belong to the early Neolithic (a late phase of the Starčevo-Criş cultural complex), followed by another one belonging to the early Vinča culture (Vinča A2 - Vinča A3), followed by another one belonging to the classical phase of the Vinča culture (phases B1 and B1-B2)[46]. To be noticed the presence of a large V-shaped moat in SVI/1996 (of about 1.2 m deep and a maximum opening of 1.3 m), belonging to the developed phases of inhabitancy of the Vinča culture. This complex, revealed transversally, proves the existence of some large developments, similar to the ones found already in other similar and/or contemporary settlements on the Mureş valley, having a clear destination of protection of the settlement.

On the surface, in the layer affected by agricultural works, archaeological materials belonging to Eneolithic cultures (Petreşti, Coţofeni), to the Iron Age, Hallstatt (Gava, Basarabi), and to the Roman Age, come to light sporadically, indicating the existence of some less intense inhabitancies.

VI. Oarda de Jos (Limba) – *Şesu` Orzii-Balastieră* (RAN code of the sector: 1106.04 - *1053.01, 1053.02),* Latitude: $46^0 4' 5''$, Longitude: $23^0 34' 23''$, Altitude: 227 m. First investigation of site: 2000 I. Paul, M. Ciută 2000[47]).

As the place situated right at the entrance in Oarda de Jos – where a probing was carried out in the 2000 campaign – is nominated by the same toponymy as the point where the archaeological excavations of the 1996 campaign were carried out (see ante), because they belong organically to the same unit of relief, we shall treat them distinctively, without establishing for now a demarcation line between them, adding to the later a distinctive toponymy: *La Balastieră* (At the Ballast Quarry) according to its presence nearby. We are talking about the western extremity of the fragment of wide, plain terrace (hence the name), approximately 2 km long that stretches practically between the two localities, having a relative rectangular and elongated shape evolving parallel to the road that links the above mentioned localities. It is situated on the terrace's margin, which is also parallel to that road.

For a more precise localization of the excavation site, we specify that it is delimitated at about 50 m to the east by the last house at the entrance to Oarda de Jos, 100 m to the south from the above mentioned road, close (5-8 m) to two

[45] It is the enlargement and repair of D.J 107C and its gutter, done in the summer and fall of 2008, when a series of complexes and very rich archaeological materials were discovered.

[46] Paul, Ciută and alii 1997, p. 2-3

[47] A series of later investigations were done in this sector, for instance surface investigations in the year 2000 and an archaeological excavation aiming at an objective from the Roman epoch (*villa rustica*), both in cooperation with Birbeck College in Londra (coord. Ian Haynes), (Paul and collaborators 2005, 246-247).

neighboring high voltage poles. Between the road and the investigated area the archaeological deposits were destroyed when the soil here was used to build the protection dike of the *Valea Orzii.*

The surface researches in this point were carried out in the 1990s when a series of materials belonging to various epochs[48] were identified: Eneolithic (Petreşti phase B, Coţofeni), Early Bronze (Gornea-Orleşti). Middle Bronze (Wientenberg), Early Hallstatt, Roman, post-Roman, early medieval[49].

Systematic investigations were carried out during the 2000 campaign with the help of a single investigation unit: SI/2000 = 6x2x1.5 m, oriented north-south. The positioning was done according to the high-voltage poles nearby. The distance from the section to the Mureş river, to the north, was of about 150 m.

Stratigraphy:

- 0-0.25 m – vegetal layer, with black soil belonging to the Roman Age.
- 0.30 m – 1.10 m – layer of culture, probably with two levels of inhabitancy, belonging to the Petreşti culture, the final A-B phase (B) of this culture.
- 1.10 m – layer of loess type, white-yellowish sterile.
- The richness of the materials that appeared on the surface, in the ploughed land, prove the fact that practically only the Eneolithic deposits remained affected, and they too, were slightly touched in their upper part.

The investigations carried out in the 2004 campaign, this is the surfaces A/2004 – 25m x 10 m – and B/2004 – 20 m x 10 m – revealed a Roman *villa rustica*[50]*,* and an additional probing C/2004 of 2m x3 m *revealed prehistoric ceramics… belonging to a multitude of epochs and cultures… the greatest preponderance being attributed to the first Iron Age (cultures Gava, Basarabi and "protodacian" ceramics – HaD), followed by the Neolithic (Vinča, Lumea Nouă), Bronze Age (early Bronze – BT I, middle Bronze – Wietenberg) and the Eneolithic (Petreşti, Coţofeni)*[51].

From the report's text results clearly that the two large surfaces (A and B) stopped on the Roman level[52] (!), and the probing did not reach the archaeological sterile (!), therefore, it is at least curious to hear the preliminary conclusion of the report's authors, according to which: *... the continuation of works in this points could bring very few supplementary information*[53] … The more curious as the next sentence of the same report states that: *the richness of the discovered material proves the intense inhabitancy of this area in time and the importance the first terrace of the Mureş river had for the human habitat*[54].

History of the investigations

[48] Rustoiu 1999, 70-71. The point is designated as Oarda-*Nord village.*
[49] Rustoiu 1999, 70-71, PLate I- Plate III
[50] Paul and collaborators 2005, 246.
[51] Paul and collaborators 2005, 247. It is not specified though where this probing was carried out, but only that it was *not finished*.
[52] Paul and collaborators 2005, 247.
[53] Paul and collaborators 2005, 247.
[54] Paul and collaborators 2005, 247.

The Neolithic stations of Limba entered the archaeological circuit in December 1944 under the lead of Prof. Stefan Munteanu, in the form of an informative probing of 8 x 6 x 1.80 m, executed in the abrupt slope of the *Vărar*[55] point, leading to the establishing of the stratygraphic situation of that point[56].

For a more precise definition of the stratigraphy and of the cultural and chronological elements, the investigations are continued in 1947, in the same place, by the brothers D. and I. Berciu. The special thickness of the archaeological layer (over 2 m), the variety and complexity of the cultural layers and levels, the richness of the archaeological materials, demonstrated an intense inhabitancy of this point in the Neo-Eneolithic Age, belonging to the " *Turdaş culture"* and to the *west-Dacian circle of painted ceramics"*[57]

Ramifications of this station were signaled since that moment, the periegetic approach, across the county road and in *Vărăria* and *Bordane*[58].

Although the results proved to be remarkable, contributing substantially to the clarification of some important cultural and chronological sequences of the Neolithic and Eneolithic in the Mureş valley, the investigations were abandoned in the year 1972, when the researcher H. ciugudean, from the National Museum of the Unification in Alba Iulia, realized a serried of periegeses in the points *Coliba Barbului, Vărăria* and *Şesu' Orzii,* gathering a rich and diverse archaeological material, belonging to various historical periods[59].

The evolution of systematic investigations

In the year 1994, under the coordination of a team of specialists from the **Center of Pre – and Protohistorical Research,** the investigations of the sites in Limba were resumed, this time in a systematic, planned way, in the perspective of several successive campaigns of excavations corroborated with other forms of research, processing, analysis and determination of archaeological materials and information.

The spotlight, regarding the layout of the points, is constituted by the area *Bordane*, *Vărăria* and *Şesu Orzii*, which offered the best archaeological material, brought to light by agricultural works, following the periegetic investigations done repeatedly by lecturers from the Department of History within the University "1 Decembrie 1918" in Alba Iulia.

A first result was constituted by the topographical measurements for the site area mentioned above, completed by landmarks and mappings of the area's perimeter, together with carrying out some pedological and archeological borings to delimitate the area of the settlements and the thickness of the strata of archeological culture.

The first topographical plan was done in the years 1995-1996, at a scale of 1:500 and comprises the three main sectors of the site, specifying some fixed and definite elements of reference (reporting) and recognition (fig 4). Concomitantly, a

[55] Berciu, Berciu 1949, 39-53.
[56] Berciu, Berciu 1949, 39.
[57] Berciu, Berciu 1949, 26; RepAlba 1995, 92.
[58] Berciu, Berciu 1949, 39-53.
[59] Ciugudean 1978, 39-53.

landmark system for the site was elaborated, in order to place precisely the sections and other research units that were to be practiced, setting up a register and inventory of rectangular coordinates which had to contain also the geographical coordinates of the landmarks, calculated with graphical and/or analytical methods, with the appropriate definitions. The landmarks were in the same time the link between the archaeological and the topographical mapping as well as the link to the geographical coordinates, allowing the mathematical and geographical placing of the elements of archeological interest (fig 4)[60].

The site was approached in the year 1995 through archeological excavations, intending in the first phase to carry out some sounding-sections for control and stratigraphic information, of various dimensions and in different points (as it was not possible to carry out some large sections due to the land proprietorship and the presence of the road that crossed practically the middle of the archaeological station), in order to clarify, even partially, the stratigraphic successions, this means the vertical and horizontal stratigraphy, knowing the fact that we have there several levels and cultural layers.

It is also important to mention that most times, the "approach" order of archaeological objectives was dictated by the situation of the agricultural works[61].

The first sections of the first campaign of systematic excavations from Limba (1995), were carried out in the point called *Bordane*, nominated on the topographic plan with the symbol "T" (from "triangle", as this fragment of terrace resembles with one), oriented north-south, according to the mapping, as follows: SI/1995 = 10x2m şi SII/1995 = 10x2m (image 1). In the same year a smaller section SIII/1995 = 6x2m, was done across the road, in *Şesu' Orzii,* continuing the first two, right near a small bridge built for the evacuation of a season torrent that streams down from the surrounding hills (*Bârc, Bordan,* etc). The goal of the latter was to verify the stratigraphy of the place. It was demonstrated that the present relief differs from the ancient one, as the materials discovered were found in secondary position, rolled probably by a water stream that was once permanent, but has dried up now.

The next year, because the area "T" *Bordane* was cultivated with corn, the sector *Şesu' Orzii* was excavated with three sections of information and stratigraphic control: SIV/1996 = 6 x 2m, SV/1996 = 6 x 2m and SVI/1996 = 6 x 2m, oriented

[60] The topographical mapping and putting landmarks and mapping of the investigated site areas were carried out under the direct coordination of lecturer topographer Valerian Bărbuță. As an archeologist who has always placed his research units using this topographical mapping, I feel obliged to insist upon its remarkable quality, as the precision of spotting these research units on site reaches the highest standards (errors of ±1-5 cm are exceptional for a topographical mapping done in the "classical" way, using theodolite without total station. Unfortunately, the recent works for the renewal of the road and upkeeping of the gutters for the evacuation of water **removed all these landmarks (!)**, making it practically almost impossible to perfectly report the new topographical mapping, this is the new mapping to the old mapping – fig 4.

[61] The situation of land proprietorship had constituted a major impediment for the normal carrying out of the excavations, as the proprietorship is not clearly regulated, and the situations, from this point of view, differs each year (!?).

north-south, following the topographic mapping (fig 1). Following the discovery of some complexes with sizes that exceeded those of the sections, a series of adjacent cassettes were excavated in order to uncover them completely, so that SIV, 1996 was finally 6 X 4 X 1 m and SV/1996 6 X 6 X 1.8 m (fig 1).

The 1997 campaign approached, due to the above mentioned reasons, the marginal areas of area T, *Bordane*, as follows: SVII/1997, in the western extremity of the sector – where the road closes to the margin (forehead) of the terrace and delimitates a narrow strip of 7-8 m – oriented north-south, having the dimensions 6 x 2 m; SVIII/1997, situated 30 m to the east and parallel to SVII/1997, size 8 x 2 m; SIX/1997 , oriented north-south and placed in the north-eastern extremity of sector T, size 8 x 2 m (fgi 1).

In order to clarify the stratigraphic situation of the *Vărăria*, sector, nominated with "L", the topographical mapping suffered a successive alignment of the of the profile into a downfall of the terrace's edge, 12 m long, started in the 1996 campaign and finalized in 1997, nominated LI-LII/1997 (fig 1).

In the same year, 1997, the eastern area of the complex of prehistoric settlements in Limba was also investigated, more precisely the sector *În coastă*, where a section of control and stratigraphic information SIbis/1997 = 10 x 2 m was done in order to detect possible extensions of the neo-Eneolithic settlements up to this point, recommended otherwise at first sight as a very favorable one thanks to its position.

The 1998 campaign allowed finally the reanalysis of the central area of the *Bordane* (T) point, where the most complex stratigraphic situation still required some clarifications after the 1995 excavations. A new section was executed, SX/1998 = 20 x 2m, oriented this time east-west, perpendicularly on the northern end of SII/1995, where the archaeological layer had proved to be the thickest.

In addition to the probe sections done in the previous years, in the sector *Vărăria* (L) was executed a section of control and stratigraphic information, SXI/1998, oriented east-west, about on the same line with SX/1998. A complex (housing) of very large size was found and therefore new adjacent cassettes were opened so, in the end, the section had in its east end the aspect of a surface of 6 x 6 m (fig 1).

The year 1999 meant for the researches in the archaeological station of Limba a relative stint of the investigated area, as a single area section was executed, SXII/1999 = 6x3m, in order to completely reveal some complexes that were partially discovered in SX/1998.

The campaign of the year 2000, lacking consistent funding, focused on detecting the extension of the Neolithic and Eneolithic inhabitancy along the entire terrace between Oarda de Jos and Limba, being characterized exclusively by probings-sections of control and stratigraphic information (as well in Limba – *Vărar* as in Oarda *Şesu Orzii – La Balastieră* – see previous).

In the campaign of 2001 the attention of the researchers was focused exclusively on the sector *Vărăria*, which, together with *Bordane* and *Şesu-Orzii*, proved to be characterized by the most complex and complete stratigraphic and cultural sequence, especially related to the deposits from the early and developed Neolithic.

The campaign of 2004, characterized by the *systematic*[62] periegesis and investigations focused exclusively on the relevance of context of Roman epoch, plays a distinct role within the investigations carried out in the ensemble of sites from Limba-Oarda de Jos, and in spite of the preliminary and slightly demonstrative declarations related to the expected results of the investigations, until now, there is no more exhaustive, *systematic* investigation of them.
Recent topographic mappings, from the years 2008-2009, using the total station and the system Stereo 70, were done by T. Borşan, C. Florescu and I. Maican, with the main goal to extend the measured area, as well as to overlap the odl topographical mapping with a new and modern one, in order to make it compatible and to connect it to the national system of topography and land register.

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It is obvious that the above mentioned stratigraphic successions and their content are not identical, nor resembling for all sectors of the investigated sites. The entire researches detected deposits, archeological contexts and materials belonging to several epochs: early Neolithic (the cultural complex Starčevo-Criş), developed Neolithic (Vinča culture), Eneolithic (Petreşti, Coţofeni); Bronze Age (Wietenberg), early Hallstatt (Gava), middle Hallstatt (Basarabi culture); Roman and Post-Roman, medieval.

Perspectives of research

In the campaigns of the next years, in a first stage, the intention is to extend in a modern way the existing topographical mapping to all archaeological sectors (points) (using also the GPS-GIS) system, followed by land marking and mappings, and in the second phase there will be an investigation using geo-physical prospections and archeological bores (probes), in order to detect the extent and the intensity of inhabitancy of the various prehistoric settlements.
It is intended to make prospections of different kinds (electrical, electromagnetic, magnetometric) followed by drawing some maps and implicitly of some electro – and magnetometric diagrams, needed for the extension of investigations and of the actual excavations in these settlements, as well as for the cultural and chronological connection to their contemporary and/or neighboring settlements.
It is intended to open some large areas (10 x 10 m; 10 x 20 m; 20 x 20 m. etc.) in order to uncover completely some housing complexes, with a permanent relation to the prior detected stratigraphic situations.
Regarding the excavations and processing of the resulted archaeological materials, it is proposed to generalize modern methods and techniques of investigation and dating in archaeology, based on the own endowments and installations, which in their turn will require compulsory selection, promoting and organizing of some complex teams of interdisciplinary research (IMDA study, paleobotanics, palinological, archaeozoological, archaeometric, magnetometric, etc.) with well defined responsibilities for each of the members.

[62] The term used here is most improper and redundant. In the archeology of the third millennium there are *surface investigations* (periegesis) that are by themselves o form of systematic investigation.

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A INQUIRY INTO CLUES OF LITERACY IN NEOLITHIC AND COPPER AGE SOUTHEASTERN EUROPE

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Key-words: *Neolithic, Cooper Age, Danube script, literacy, Southeastern Europe*.
Abstract: *General and archaeological data concerning objects bearing signs, distinct semiotic information on the inscribed artifacts, the inscriptions, and the signs.*

A few inscriptions as sample of more than 1000

A Middle Neolithic female figurine was found in the 1950s by Milutin Garašanin at Supska (next to Cuprite, Republic of Serbia), but he did not comment on the "A," "I," "M," "H," "Y" motifs positioned on a large triangle incised on the chest (Starović 2004; Merlini 2004a). The object bears signs that echo capital letters of the Latin alphabet, which are furthermore aligned in a row and underlined.

Figure 1. A Middle Neolithic female figurine from Supska (Republic of Serbia) with signs that resemble capital letters of the Latin alphabet, are aligned in a row, and are underlined.

Figure 2, an inscribed small clay cup from Ovčarovo tell (Bulgaria), belongs to the Boian-Poljanica culture (Poljanica phase IV) (Bonev 1982, 2; Makkay 1990,

26/2), i.e. Late Neolithic according to my own databank *DatDas* (Databank for the Danube script), Middle Chalcolithic according to the Bulgarian timeline. Chronologically, it is positioned between two famous Bulgarian inscribed artifacts: the Gradešnica platter and the Karanovo seal.
The miniaturize vessel has a height of 2.4 cm and the maximal diameter is 2.2 cm. It was discovered in 1972 during rescue excavations within a burned dwelling of the fifth building level, associated with pottery resembling the one from Boian-Spanțov culture. The cup is biconical with straight rim edge, cylindrical strip in the middle area and slightly bended within the walls in the lower half. It is manufactured from fine purified clay and has polished grayish-brown surface. The firing is uneven.
Nine signs are incised on the middle strip. According to the archaeologist in charge (Bonev 1982: 33), they are:
1) three oblique parallel strokes
2) down opened V
3) combination of one oblique and two vertical strokes
4) an acute angle
5) acute angle with elongated right shoulder
6) three vertical parallel strokes
7) irregular down opened V,
8) X shaped sign
9) acute angle with elongated shoulder

Figure 2. A Late Neolithic vase from Ovčarovo (central Bulgaria).

Bonev finds parallels with signs from Neolithic and Copper Age of Southeastern Europe, insisting that the nine signs from Ovčarovo represent an "inscription" and that Bulgaria is "one of the centers of the most ancient writing" (Bonev 1982: 33). Other semiotic indicators point toward the presence of a script on the Ovčarovo cup. Signs are intentional, identifiable, highly stylized, elementary in form, not

ornamental, similar in size, standardized according to a model. The sign is a ligature between a and a . The tri-lines are marked by a dot. The nine signs are arranged in a horizontal sequence. A linear organization of signs is also found in other pre-classical systems of writing such as cuneiform, Egyptian hieroglyphs, Linear A and B, Cypriot-Minoan and Cypriot Syllabic. Finally, the inscription from Ovčarovo is divided into three segments, which seem to express different concepts of phrases/words.

The linear-elementary shape of the signs and their alignment in a sequential arrangement are evident on a miniaturize vessel belonging to the Turdaş culture (4900-4600 BCE) and recovered at the eponymous settlement. The y, Λ, and X signs are framed within two horizontal lines according to the flow of concepts or words/phrases (Torma *Notebook*: fig. 4.20; Winn 1990: 268, fig. 12.2.i, Winn 2004a).

Figure 3. Linear signs are structured along two registers on a Turdaş mignon vessel. (D. Bulgarelli, *Prehistory Knowledge Project* © 2007).

Numbers of artifacts from the Neolithic and Copper Age time-frame in Southeastern Europe bear strange compound signs. All of the above-mentioned examples have been discovered in a wide area having the Danube basin as axis. My own databank *DatDas* organizes a catalogue of 1091 inscriptions composed of two-more signs (Merlini 2008d) . The system of writing under scrutiny, the *Danube script,* flourished from c. 5900-5800 BCE up to c. 3500-3400 BCE. It is named *Danube script* because it appeared in the central Balkan area and had an indigenous development. It was used only in the core area of the *Danube Civilization* (c. 6400 BCE to c. 3500-3400 BCE), comprised within southern Hungary, Ukraine, central Greece, and the Adriatic see.

The traps on the possible existence of a script in the Danube Basin and beyond throughout the Neolithic and Copper Age time-frame

The absent or retarded acknowledgment of some ancient scripts such as the Indus script, the Danube script or, in the recent past, the Maya script is due to the inadequate definitional approach to writing technology and the still partial establishment of the research on it as an independent domain of cultural sciences.
Harald Haarmann and Joan Marler have recently recalled that studies on the history of writing has remained, to this day, an arena where experts from different fields (mainly linguists and archaeologists) and amateurs alike demonstrate their expertise (or speculations) by making pronouncements about the emergence of ancient scripts and their historical development (Haarmann and Marler 2008). Linguists who are familiar with languages of antiquity and who study the scripts in which they are written may have an understanding of the organization of sign systems and how signs are applied to the sounds of a language in case of phonetic scripts. However, their grasp on the historical mechanisms behind the origins of this invention and on how writing skills unfolded is limited by the widespread relegation of *ars scribendi* to a vicarial role as a more or less truthful mirror of the spoken language and by the lack of comprehension on archaeological insights about the cultural embedding of ancient societies and their motivation to introduce writing. Archaeologists make authoritative declarations about writing systems without even discussing basic definitional approaches to writing technology. They are not engaged in the study of sign systems (language and non-language related) within a network of communication, because that semiotic scientific terrain extends beyond the archaeological sphere. Therefore, they often observe patterns of consensus and adhere to conventional truisms such as, "We all know what writing is".
The state of art is even more problematic concerning the studies on the possibility that Southeastern Europe could have developed an original script in the Neolithic and Copper Age time, i.e. the "Danube script" within the frame of the "Danube civilization" that developed between c. 6400-3500 BCE, because both linguists and archaeologists put at work the entrenched old-fashioned truisms of the other discipline that the proper specialists are in process of discarding.
Linguists discuss about "why" and "how" – and above all "if" - *ars scribendi* came out in the villages of early farmers without becoming involved in archaeological studies, examining assemblages of inscribed objects in museums and in excavation sites, coping with the material and cultural fabric of the Danube civilization, and dealing with the trajectories of institutional-socio-cultural evolution of these communities, cultural groups and complexes as they emerge from the archaeological record. In many cases, their archaeological and historical background is anchored to out of fashion visions limited to contemplate the occurrence of a European archaic script so unthinkable that the simple possibility of it is ignored and its evidence given very scanty attention or to postulate a *from oriente lux* drift for this technology.
Archaeologists make pronouncements about how writing technology came out in ancient societies and its nature and role as an institution of early civilization without proper semiotic methodological tools, intimate knowledge of the infrastructure of sign systems and how various principles of writing apply to different linguistic structures and even without discussing basic definitional

approaches to writing technology. It is not for a case that the archaeological record of inscribed artifacts from the Neolithic and Copper Age of Southeastern Europe is cheapened persistently by many of them as bearing "pre-writing" signs, "potter's/owner's marks", magic-religious symbols, or generically "signs", despite the presence of features that lead clearly versus such a supposition. Indeed, in its comprehensive meaning, the term "Danube script" indicates the original successful experiment with writing technology of these ancient populations and not, for example, a form of 'pre-writing' (see Winn 1981; Masson 1984).

The concept of 'pre-writing' has no firm theoretical or historical basis. A routine of our mind is used to divide societies between "literate" or "illiterate", overestimating the role of writing technology in the advent of "civilization" and utilizing the literate status as watershed line from prehistory to history. However, we are discomfort with the earlier scripts where the value of a sign is not a strict representation of a sound, but a conventional notation that the reader has to fill in for himself and where grammar is a left option. Even the Mycenaean reader of Linear B must have been left a lot of guesswork to understand words out of what he/she read on a tablet. This situation would be quite intolerable if a script was used for correspondence or legislation. However, Linear B has been employed for lists and accounts read only by the writer and his colleagues working in the same administration or archive.

Besides, the common opinion according to which an ancient script is deciphered when every trained person would make the same sense of almost every word of a given inscription is challenged by ancient scripts. Being much more complex and subtle than our modern alphabets, they make reasonable a wide spectrum of opinions between the poles of deciphered-undeciphered. In the case of Mayan writing, for example, most scholars agree that a high proportion, as much as 85 per cent, of the inscriptions can be meaningfully read, and yet large numbers of individual glyphs remain contentious or obscure. Scholars can often decipher the numerical system, the arithmetical procedures, and/or the calendrical scheme of an ancient script without knowing its underlying language. Even a not trained person can sometimes obtain accurate sense merely from the pictographic/iconic feature of certain signs, such as the recognizable humans, creatures, objects and actions in some Egyptian hieroglyphs. In other words, there is not an indisputable shibboleth by which scholarship judges a script to be deciphered or still undeciphered. One has instead to deal with *degrees of decipherment*. The most useful criterion is the degree to which the proposed decipherment can generate consistent readings from new samples of the script, preferably produced by persons other than the original decipherer (Robinson 2002: 18).

In this fluid and complex framework of the semiotic mechanisms of ancient scripts, a hypothesized European 'pre-writing' is a key that does not open any door being conceived to open simultaneously all the doors. In fact, it has been interpreted both as a system of signs that *does not constitute writing* and as a system of signs that *precedes writing* and is a step beyond it. The lexical escamotage makes the idea of a Balkan-Danube script more plausible to scholarship, avoiding challenging traditional notions about the Near Eastern origin

of writing technology during the Bronze Age (Merlini 2008d) and restricting the Danube script to the a stage in which concepts were expressed in ritual usage (Winn 1981: 257). Shan Winn, who launched the idea of a European 'pre-writing' in the eighties, abandoned this approach through an article published in 1990 (Winn 1990; ibidem 2008). Paradoxically, at the same time it became a mainstream viewpoint among the Southeastern European archaeologists exactly because of its ambiguity. In particular, they give status of "pre-script" signs to the incised ornaments that do not follow the known canons (see, for example, Čohadžiev S. 2006: 71). On the one hand, they are acknowledged of the communicational aim of these incisions. On the other, they do not grant the status of writing to the Danube script adhering to the traditional and rigid usage of the terminology in which "true writing" or "full writing" is reserved to mean "phonetic writing" and doubting that the ancient European graphemes are capable to convey linguistic messages setting in space words, syllables or letters.

According to some scholars, the category of "potter's/owner's marks" explains almost all the occurrences of script signs from the Neolithic and Copper Age of Southeastern Europe (Garašanin 1960-1961; ibidem 1973; Tringham, Krstić 1990: 609). Adhering to a traditional standpoint, a mark of this kind cannot be considered a sign of writing, being a mere ensign. The category of the personal markings is supposed do not comprise texts, having the function to directly link a particular object with an individual, a group of persons, a workshop, an institution or a locality. It serves as a identifying mark or unique signature indicating ownership, actual or symbolic possession, authority, responsibility, affiliation, authorship or producership (Kammerzell 2007). A mark of this kind can identify a distinct person, but it is not a true "signature", because it does not carry the phoneticism of its name. It is a "visual mark" that might be abstract, arbitrary, and synthetic, but in any case does not reflect any speech sound.

However, the notion that a personal mark is not "written", not corresponding to discrete linguistic units, collides with the historical fact that in ancient societies *ars scribendi* came out with tracing graphical signs in order to represent ideas that may be not necessarily orally articulated. From the phenomenological point of view, only a limited number of signs can be considered a "potter's/owner's mark". The copious presence of signs on the bottom of vessels, usually hidden to the sight and therefore unbeneficial for utilitarian purposes, and their incision after a period of vessels use or even breaking are argument against the interpretations of the signs as marks identifying the producer, the possessor, the content, or the destination of the pottery. The limited number of marked vases (about 1/3, potshard included) comparing to the wide range of inscribed artifacts, which take into account also human figurines, miniature altars, spindle-whorls, seals and many other typological categories as well as the ritual and not utilitarian function of most of the inscribed artifacts contribute to challenge the interpretation of the signs on pottery as identity trademarks. Occurrence of long inscriptions with more than 10-20 signs, recurrence of the same signs for two millennia and half on a wide territory comprised within southern Hungary, Ukraine, central Greece, and the Adriatic See, their recordability within a distinct and systematic inventory, and

appearance of wide combinations of signs contrast to the interpretation of them as marks that had to have a local and even a personal nature.
In the Danube civilization, there was actually a restrict number of personal identifiers to express individual or collective identities. They include ownership or manufacturer marks, family ID symbols, lineage recognition or community affiliation insignia, glyphic monograms on seals, and tags. However, they belong to the symbolic system of the Danube civilization and not to its writing system. They were not enough common and widespread to be confused with units of a script in use at tens of sites for hundreds of years. The choice to indicate possession or authorship on an artifact through a distinct emblem was a very personal decision that at least involved the family, the household, or the village. Second, personal identifiers were not codified through a general organized system of signs, being in the same situation of the heraldic insignia whose numbers and shapes are not predetermined, but depend on how many aristocrats there are and on the pedigree of their families. Third, these Neolithic and Copper Age marks go beyond some important conventions that rule the outline and the organization of the Danube script signs. For example, even if the identifier of a person can be modified applying to it diacritical markers such as small strokes, crosses, dots and arches possibly in order to express the position within the household, it cannot be reversed or inverted as the script units. The divinity standards, which establish and manifest the identity of a divine being, belong to the general category of the personal marks.

Figure 4. A divinity mark is placed on the vulva of "Lady Vinča". (After Bulgarelli D. © *Prehistory Knowledge Project).*

In conclusion, the category of the Danube identifiers pertains to the symbolic code and not to the writing code, although some of them (in particular those employed to symbolize distinct divinities) might constitute one of the roots for the earliest signs of writing utilized by the Danube civilization, as the *serekh* of Predynastic

Egypt (an emblem carved on ivory labels or ceramic potshard attached to trade goods, which was used to indicate the extent of influence of a distinct regime or identify military allegiances) lead to the development of the earliest hieroglyphs, being replaced by the cartouche (Levy, van den Brink, Goren, and Alon 1995: 26-36; Dodson, Hilton 2004).

A wave of scholars maintains that the strange signs incised or painted on the Danube artifacts are some sort of magic-religious symbols (i.e. marks used as conventional representations of something else in sacral or liturgical sphere). Indeed, in the Danube civilization symbolism was a complementary and possibly a more important means for storing and transmitting messages than literacy. One of the still numerous crucial points we have not been comprehended yet is why these early agrarian-stockbreeding communities preferred transmitting packaged of information and even expressing themselves in symbols behind stylized, highly abstract, and difficult to interpret representations. What did they want to communicate covering the surface of vessels with combinations of spirals, meanders, and linear symbols? Why did they employ frequently all kinds of apotropaic motifs, as if asking constantly protection against malevolent forces?

The entire Danube communicative landscape was imbued by the symbolic code. We are custom to associate emblematic and meaningful design to mobiliary art, such as vessels or anthropomorphic figurines, or to rock art. However, symbolic motifs were even applied in architecture as well as designing and constructing furniture. In several dwellings of the Precucuteni-Ariuşd-Cucuteni-Trypillya cultural complex (which developed in the fertile fields of the sylvan-steppe area between the Carpathians and the Dnieper River from c. 5000 BCE to c. 3500/2750 BCE), the extremities of the poles sustaining the fronton were crisscrossing joined, thus forming a kind of consecration horns, with a protecting and fertility function symbolized by the virile force of the bull.

Figure 5. Symbolic consecration horns formed by crisscrossing joined extremities of the sustaining poles on the fronton of a Trypillya dwelling miniaturized model (Ukraine, c. 4000 BCE). (Photo Merlini 2004. Courtesy Platar collection).

Symbols such as nets, spirals or horns were painted or engraved in relief on the walls of dwellings, especially sanctuaries and temples, as in the instance of Kormandin (Republic of Serbia), Parța (Banat, Romania), or Ariușd (southeastern Transylvania). Prominences resembling horns characterize also the backrest of chairs and thrones for divinities as documented by those recovered in miniaturize cultic scene. Typical are the horn-like protuberances exhibited by ten small clay chairs-thrones and a large throne in the sanctuary structure with a porch from Sabatinovka (in the basin of the Southern Bug, Ukraine). The 13 small clay chairs - found in the area of the fireplace in a Precucuteni sanctuary at Isaiia (Iaši County, Romania) together with feminine statuettes and other cultic items - show small horns in the upper part of the backrest. Special attention was given to the representation of horns on pots rendered as protomes, because it was a stylized symbol of virility placed on a recipient representing the feminine emblem.

Figure 6. A Precucuteni figurine from Isaiia (Iaşi County, Romania) is sitting on a chair-throne characterized by symbolic consecration horns positioned at the upper edge (c. 5000 BCE). (Photo Merlini 2007).

The differentiation between the Danube symbolism and the Danube script is very subtle because they can both be finalized for transmitting messages utilizing marks similar for shape. However, in a subsequent paragraph I will present some indications in order to operate a distinction in case of messages made of two or more signs.

Much more generic and unfixed is the concept of "sign" and "sign system", which constitutes the fourth category according to which part of the archaeological literature downgrades the script that developed in Southeastern Europe through the Neolithic and Copper Age time-frame. The notion of "sign" is simply identified applying a method of exclusive (negative) identification as a mark that is neither a decoration, nor a symbol. Its main appeal consists in its elastic indeterminateness.

Henrieta Todorova and Ivan Vajsov, for example, stated that "the *sign system* appeared (italic is mine) during the Early Neolithic. It can be found in the incised ornaments of ceramics or is independently met on pintaderas and lids or bottom of pots. The latter is especially characteristic of the Late Neolithic... The pintaderas are the basic bearers of the Neolithic sign complex... The Neolithic sign complex developed within the VI millennium BC (and) lasted until the end of the existence of the neo-aeneolithic social system... (around) the end of the V millennium BC. The discussed signs and compositions obviously served for 'recording' and transmitting important information of cult or maybe – social matter" (Todorova and Vajsov 1993: 280, 233). According to this undetermined definition, Todorova and Vajsov published a table with a corpus of basic motifs belonging to the Neolithic pintaderas of Southeastern Europe. Unfortunately, it is useless for the task of establishing an inventory of the Danube script, because it mixes decorations (e.g. ns. 3; 17), symbols (e.g. n. 3), seal marks (e.g. ns. 2; 15; 20), and possible numeric marks (e.g. n. 1; 18) without any semantic and typological distinction. The table of these motifs does not include any sign of writing.

"Pre-writing" supporters, "potter's/owner's marks" activists, magic-religious symbols advocaters, or "signs" proponents are anyway scholars aware of the presence of marks that are neither decorations nor scratches in the Danube communicative scenery.

Instead, one of the troubles when trying to detect marks with semiotic value through the published images is due to the incorrect drawings made by the decoration-addicted scholars. Being not capable to perceive the presence of any sign of writing and considering every irregularity in shape and asymmetry in patterns as hesitant decoration due to unskilled potters, they regularized the shape of the signs and symmetrized their original patterns, when making a replica of an inscribed artifact.

Scholarly engagement on the *possibility* that Southeastern Europe was involved into an original experiment with literacy that is dated earlier than generally assigned is at its first steps. Great efforts are made in order to debug various hypotheses and network different researches on semiotic markers and organizational principles of this script starting from some pioneering studies (Gimbutas, Winn, Todorović, Makkay, Haarmann, Lazarovici, Starović, and Merlini). It is also starting from the basics: searching out the inscribed artifacts in

museum collections and storerooms, controlling the published drawings, refining the methodological *instrumentarium*, building a semiotic framework for this script in relationship with the other communicative codes such as symbols, divinity identifiers, astronomic information, inspecting the semiotic infrastructure of it, building a databank on the inscriptions, etc.

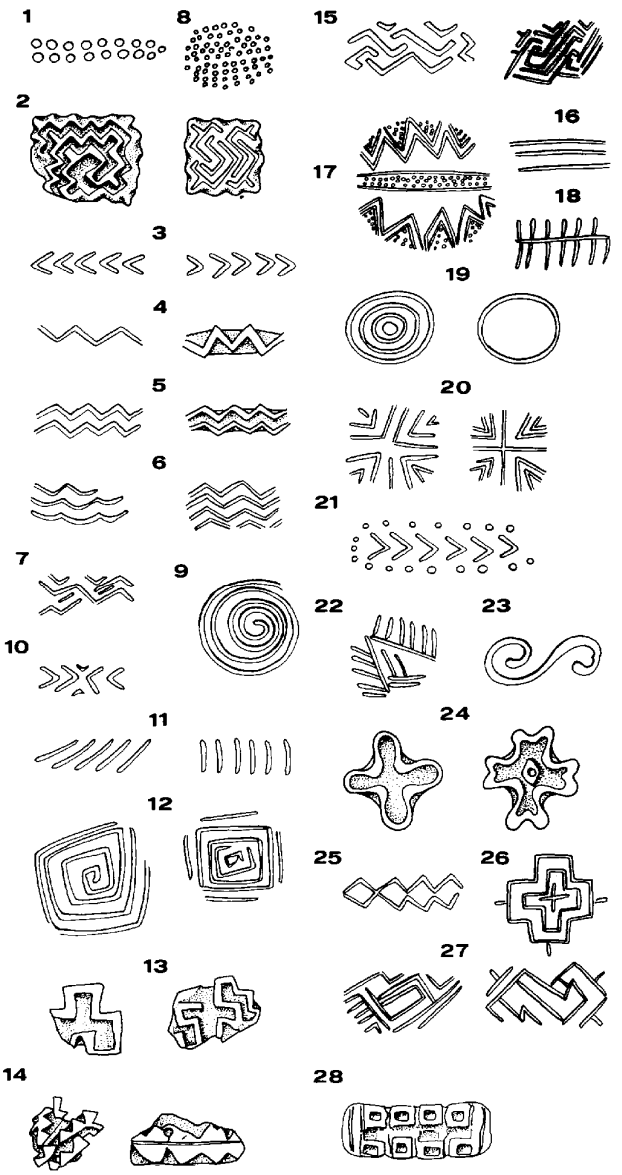


Figure 7. The basic signs from the Neolithic sign systems according to Vajsov and Todorova. (After Vajsov and Todorova 1993: 229, fig. 226).

If the anticipated invention of a European *ars scribendi* is generating controversial and prudent statements in the scholarly field, it is triggering pernicious attention among amateurs and dilettantes who are offering exotic and mass media appealing "readings" based on hazardous associations with other ancient systems of writing. For example, a considerable number of books and articles have been devoted recently to a (para) scientific fiction aimed to "read" the "Vinča documents" as alphabetic texts of this Middle Neolithic culture that had its hub in Central Balkans.
Increasing of the dangerously mythical and romantic attention to a "Neolithic alphabet" rooted in the Balkans is connected to the reinforcing of nationalistic "archaeo-political" pushes in most of the Eastern European countries to create a fictitious past for political ends. The postulated existence of an archaic original script is used in reconstructing the prehistoric past of a golden exclusionary and primordial homeland as crucial resource for addressing contemporary political disputes with other ethnic groups. For example, in the Republic of Serbia Radivoje Pešić is convinced that "the era of the Slavs is coming. For seven decades, the Slav civilization has been living under a heavy pressure, and the world, having accumulated sufferings for so long, could achieve its renaissance for that reason only. Such are the orders of things. The West wanted to throw the East on its knees without any knowledge of the "Slavdom". The Slavdom does not bear humiliations and failure, the Balkans as well" (Pešić 2001b. 28) The starting point of Slavs' renaissance is the acknowledgment that the Middle Danube basin was the epicenter of the early European Civilization and that its "Neolithic alphabet" was one of the main roots of our contemporary alphabet (Pešić 2001a).

Assessing the constitutive features of writing technology

The inspection of the semiotic infrastructure of the sign system developed by the Danube civilization in order to substantiate possible clues of literacy moves in sync with a general reassessment of the essential features of writing technology that distinguish it from other communication channels that employ signs to store and transmit information. According to the author, five essential features define *ars scribendi*. Even if one of these criteria is missing, then one is in presence of another means of communication. They are listened below in sharp synthesis.

A. *The principle of one-to-one equivalence.* A sign stands for a single idea or a sound; an idea or a sound is indicated by a single sign (Merlini 2004a). In pictographic writing, the formula contemplates one iconic sign to render one idea or concept. In syllabic writing, the formula is one sign (iconic as in part of the Mycenaean Linear B inventory or non-iconic as in cuneiform writing) as an equivalent for one syllable of a given language. In alphabetic writing, the formula is one abstract letter representing one sound of a given language (Haarmann 2008a: 24). The most ancient phase of writing technology demonstrates – in Mesopotamian, Chinese and Indus civilizations – the correspondence between a sign and an idea. A sign was not associated with a set of ideas, but with only one.

B. *Writing expresses necessary concepts and only optionally the sounds of a language*. The single idea represented by a sign is not unavoidably the graphic echo of the spoken language; it does not inevitably have a linguistic significance. If the written communication records concepts and not necessarily words, this implies the possibility of reading a text in a visual way, leaving aside its oral translation.

The dismissal of the concept of writing as a mirror of the spoken language, in order to link it to the world of ideas, breaks away from the traditional concept that signs are equivalent to sounds. According to a comparative view of ancient scripts, the earliest experiments with writing were not intended to reproduce the segmental structure of the spoken language (word, syllable, or letter) or to render its grammatical system. The description of writing as a graphic system which replicates the linguistic system is a historically hindsight judgment (Harris 1986).

Even if the elementary principle of writing is not phonetic and assuming that the writer conveys a single concept through a single sign, it is not said that the reader cannot associate that sign to a sound (e.g., a word) of her/his own idiom. In ancient writings, the *representation* can be non-phonetic, but the *reception* can be phonetic. The sender can communicate a nugget of wisdom through signs that express its heart without the necessity to use words. The reader, however, is not mute, conceptualizes ideas while reading, and speaks using language. Concepts communicated by signs can be decoded and articulated according to the reader's orality. Therefore, the sender elaborates and transmits a message in a completely different manner from how the reader can receive and understand it.

If the reader can follow the phonetic principle, why would the writer not have to do the same? Since writing aims to express contents, it is not necessary to employ words and sentences. Signs are directly able to communicate ideas. For example, a pictogram can be used to render the concept of "plow" regardless of the fact that the word for "plow" varies in different languages (*plow/plough* in English, *aratro* in Italian, or *charrue* in French). Similarly, a child understands the concept of mother long before he/she becomes capable to pronounce the word "mom". Consequently, the distinction between "conceptually-oriented writing" (definable as "non-language writing," "visual writing," "pictorial writing," "iconographic writing," or "figurative writing") and "language-related writing" ("language writing," "phonetic writing," or "verbal writing") is neither rigid nor exclusive. In history, human beings – completely uninterested in scholarly categorizations – effectively faced the crucial connection between sounds and signs, inventing systems of writing that combine different types of elements. Neither a 100% logographic, nor a 100% phonetic system of writing existed. Even Western literacy is comprised, not only by fifty-two alphabetic signs, but also by logograms ('whole word' semantic symbols such as +, &, $, £, and so on), numerals and punctuation marks (Robinson 1995: 13). The simple dichotomy of "linguistic" vs. "not linguistic" systems is too abstract to be embedded inside the factual framework of *ars scribendi*. The present work covers a third kind of category where both the logographic and phonetic elements are present: the logographic-phonetic systems. Within this category, one can distinguish among three classes: logographic writing with a marginal phonetic component;

logographic-phonetic systems with a balance between sound and concepts; and logographic-syllabic writing.
In conclusion, the ancient systems of writing originated within a precise cultural and linguistic environment that included, amongst other features, asymmetry according to which the writer mainly represented concepts that could be decoded by the reader into words.
The definition of writing that is detached from its dependence on spoken language has a broad corpus of studies. Linguists like Haas (1976), Cardona (1981; ibidem 1990), Gaur (1984-1992), Twyman (1986), Larsen (1988), Crump (1990), and Haarmann (1995; ibidem 1998a; ibidem 2002c; ibidem 2008b), semioticians like Harris (1995; ibidem 2000) and Rotman (sketching a "semiotic model of mathematics," 1993; ibidem 1995), anthropologists (Aveni 1986; Wrolstad and Fisher 1986), graphic designers (Kress and van Leeuwen 1996), art historians (Elkins 1999; Boone and Mignolo 1994) and scientists (Drake 1986; Owen 1986) are proposing a broader view of writing. This standpoint "focuses more on writing's communicative function and less on its relation to language ... The point being made is that writing should be recognized and studied as graphic communication system rather than solely as a speech-recording system" (Boone 2004).

C. *Writing needs a minimum number of signs*. A single or few graphic elements are not enough to substantiate a system of writing. For example, the discovery in Turkmenistan of four signs on a fragment of ceramic from Gonur (Wilford 2001) and other four on a stamp seal from Annau is still not a sound evidence for the occurrence of a system of writing in the BMAC civilization (Bactria Margiana Archaeology Complex, after the ancient Greek names for the two lands in the region) about 2300 BCE, even if they look like characters of an evolved ancient Chinese (see Mair in Wilford 2001).

D. *Writing is a closed system of signs*. It has a forced systematicity (i.e., signs are associated with different single meanings and are inter-connected) and there is no compositional freedom in the organization of signs. Each type of writing has precise organizational criteria and a set of rules that administers sign use. It has to be noticed that linearity, which is the succession of one sign after another, is not necessary one of these principles. While linearity is often utilized in writing technology, it is not mandatory.

E. *Writing uses an inventory of signs that is limited and defined*. Every system of writing employs a precise and predetermined corpus of characters that are not shaped according to the writer‘s individual expressiveness.

To sum up, writing is a technique for communication that utilizes visual markers for fixing packages of information for reuse independently from any connection with spoken language. Writing is not a means developed toward an abstract optimum to serve the generic universal human need to build a linguistically based script, but a social process of knowledge representation based on human

interaction and historical depth. From an *historical* point of view, it cannot be considered an incidental condition of the early systems of writing either that they represent knowledge in various ways that do not presuppose necessarily the ability to express oral language, or that they were initially used predominantly or even exclusively in specific domains such as to document administrative activities or to communicate with divinities. The use of signs for writing was oriented to the *meaning* of words (not their sounds) and to the distinction between actual ideas and abstract concepts. The restricted context of application, which influenced the formal structure and semantics of the early scripts, is constitutive of their origin. The earliest experiments with *ars scribendi*, when it was utilized to store and transmit ideas rather than the sounds of a language in which ideas were expressed, have to be considered as writing in *statu nascenti* (i.e. in formative stages of development) and not "pre-writing".
In conclusion, the basic requirements by which any form of writing distinguishes itself from other channels aimed to convey information are: a minimum number of signs, each of which corresponds to a single concept, is an unit of an inventory and element of a structured system (i.e. a number N. of signs associated to different single meanings and interconnected). This definitional apparatus is coherent with the acknowledgement that the original writing systems of the ancient world started exclusively or predominantly as logographic scripts.

Hits to a Balkan-Danube script from the comparative history of ancient scripts

The proposed conceptual assessment of *ars scribendi* is not a theoretical utterance, but a historical observation on cultural processes that grounds on a comparative viewpoint. A plethora of historical examples on the genesis of the *homo scribens* can be condensed in eight fundamentals that discard some of the prevailing opinions for a long time.

A. *An invention that matured in thousands of years vs. an ex nihilo act*
The long path towards the innovation of writing and how it was scheduled by gradual progression in signs systems over millennia interrupted by cognitive jumps is documented by occurrence of, at least, computational systems based on tokens dating back 8000 BC, early mark-notch based counting or recording devices, symbolic code inherited from Palaeolithic and Mesolithic imagery, communicational capability of linear decoration that evolved into script signs, and marks employed to transmit information of tribal affiliation or family identity since the Upper Palaeolithic.
Historical evidence makes no longer current today the conventional standpoint according to which the achievement of writing was a sudden, unique, freeing act of discontinuity (although not unexpected) with a long static past; a jump that altered radically the world in a single human lifetime without having examples of "what" people were building (Diamond 1997; Gould 1999: XXII; Michalowski quoted by Wilford 1999; Houston 2004: 6). According to the extreme point of view of Powell, the sudden explosion of signs was the achievement of a single

genius, a citizen of the city Uruk, the "Literatus Sumericus Urukeus" (Powell 1981).

B. *The multi-localized birth of homo scribens vs. a single incubating region (Mesopotamia)*

Even if it is hard to die the belief on the Fertile Crescent as uterus of *homo scribens*, Egyptian writing may have predated the earliest Mesopotamian writing with proto-hieroglyphics from Abydos (Dreyer 1998: 113-145, tables 27-35; ibidem 1999; Mitchell 1999; Davies and Friedman 1998: 35-38; Baines 2004) and Gebel Tjauti (Darnell J.C. and Darnell D. 1998; Darnell J.C., D. Darnell, Friedman, and Hendrickx 2002). Specimen of writing originated independently or partially independently in the Harappa civilization from the Indus valley (Wilford 1999). C. 4,000 years ago the nowadays desert area between northern Afghanistan and Uzbekistan was the cradle of a blooming civilization that acted as intermediary between West and East and archaeologists are now discovering clues of a possibly "Bactria Margiana script" (Wilford 2001). Any dependence of Chinese writing on Near Eastern stimulus is highly unlikely due to the occurrence of signs in Neolithic China at Jiahu (Rincon 2003; Xueqin, Harbottle, Zhang, Wang 2003: 31), Dadiwan, Shuangdun, Banpo (Guo 1972; Li 1974; Boltz 1986; Woon 1987; Keightley 1989), Jiangzhai (Woon 1987), Damaidi, Yangshao, Dawenkou (Woon 1987; Trigger 2004: 50), Chengziya-Longshan, Liangzhu. Evidence of a "Proto-Iranian" script appeared in Halil River Valley (Iran) (Madjidzadeh 2003; ibidem 2007). The emerging of a script in Mesoamerica (in the third millennium p.t.) has to be considered a local conquest (Cahn and Winter 1993; Pohl, Pope, von Nagy 2002; Houston 2004; Saturno, Taube, and Stuart 2005: 41-48; Saturno, Stuart, Beltrán 2006). Formative mechanisms of early literacy in several ancient civilizations indicate that it has been invented *several times,* in *a number of* regions, as an *autonomous* and *independent* innovation in response to *local needs* (concerning Sumer, Egypt, China and Maya see Michalowski 1994: 53).

The multi-localized birth of *homo scribens* questions the canonical viewpoint according to which this innovation was a brilliant idea developed once under lucky conditions in a single region (Mesopotamia) and then copied over and over again under cross-cultural influences (Gelb 1952: 212-220; ibidem 1963; Baumgartel 1955; Frankfort 1956: 129-32; Diringer 1962: 47; Saggs 1989: 72; Spencer 1993: 61-62; Postgate 1995: 56). As underlined by Trigger (2004: 42), the diffusionist scenario concerning writing corresponded with more general Eurocentric beliefs that, while western civilization had begun in Middle East, it had been perfected in Europe (Montelius 1899; Childe 1925), idealized Greece as a font of cultural perfection, and equated major cultural achievements with Aryan, or Indo-European peoples (Bernal 1987).

The Mesopotamian model of civilization was certainly successful and the achievements included the invention of a related writing technique. Nevertheless, it was only *one* of the models historically created and not *the* original model followed by any else civilization. Even other populations were the holders of an original expertise concerning writing and reading.

As a result, it would make sense to focus the analysis on *circumstances* and *internal mechanisms* of the repeated emergence of this technique and not on the supposed *transfer procedure* that induced the variety of different systems of writing emerging one after the other from a hypothetical unique, solitary cradle centre.

C. *Writing technology as a conquest of Near Eastern Neolithic cultures vs. a Bronze Age achievement*

Sign systems discovered in the Fertile Crescent at Early Neolithic sites are significantly different modes to store and transmit information from visual-symbolic representation developed in the Upper Palaeolithic. Notable signs of this type have been recovered at Qermez Dere in Northern Iraq, Nevali Çori, Göbekli, and Çayönü in Southeastern Anatolia (Huebsch 2001), Jerf el Ahmar (Stordeur, Jammous 1995: 129-130; Cauvin 1994: 10-11; Talon, Van Lerberghe 1998: 10, fig. 2, 187, notes 1-2; Stordeur 1999; Aurenche, Kozlowski 1999: 45, pl. 2-7, pl. 2-12; Glassner 2000: 119-121; Marangou 2001: 23), Djaadé, Tell Qaramel (Mazurowski, Jammous 2001, fig. 8 in the middle; Mazurowski 2002; ibidem 2003; Badisches Landesmuseum Karlsruhe 2007: 107), and Mureybet in Syria (Cauvin 1994: 43, fig. 7.1; Schmandt-Besserat 1998: fig. 12; Hansen I 2007: 58; ibidem II fig. 7.4), as well as Kfar ha-Horesh in Israel (excavation lead by Prof. Nigel Goring-Morris of Hebrew University, Institute of Archaeology). Archaeological evidence compels backdating the roots of the earliest experiments with literacy to the phase of transition from hunting to farming, from foraging to agriculture and from nomadic to partially sedentary life. Under certain aspects, the Neolithic revolution in the method to acquire food was preceded by a mental transformation based on new beliefs and religious symbolisms, in addition to the advent of experiments with an incipient writing technology.

Recent discoveries and re-examination of conditions and circumstances that produced the earliest texts lead to a modification of the traditional canon according to which only the autocratic and mercantile Bronze Age societies of the Near East (Mesopotamia and Egypt) become "literate" *motu proprio* thanks to a sudden and brilliant act that happened in discontinuity with the past.

D. *Literacy from civilizations organized as network vs. tool for state bureaucracy*

The absence of statehood and centralized political authority and, instead, the presence of a considerable social equality and corporate political power in the Indus Civilization, as well as in others where original systems of writing appeared, challenge the most favored version among scholars of writing research according to which the genesis of this technology has to be connected necessary to the bureaucratic needs of centralized authoritarian city-states administered by a powerful king who was surrounded by elite of ministers and priests and supported by administrative bureaucracy (Crawford 1991: 48 ff.; 193 ff.).

E. *Development of the written code exploited two "engines" (magic-religious beliefs/liturgies and economic-administrative needs) vs. literacy driven exclusively by budgetary necessity*

Sumerian, Egyptian, Cretan, Chinese (oracular bones), Tibetan, and Mesoamerican ancient experiments with writing technology evidence that a magic-religious matrix for them stood beside or foremost the economic-administrative matrix. Some of the earliest written texts record sacred and ideological information rather than administrative one: a way to create and describe the world as the religious elite of the time wanted it to be. The narrations about a supposedly mythic divine origin of writing was used by ancients to highlight the fact that it was, amongst other things, the vehicle of communication with the gods or at least the test paper of the supernatural origin of the power of the monarchs (who in general did not know how to write or read).
Conversely, the traditional canon restricts to a categorical and exclusive must for writing technology: storing and organizing economic-administrative data – such as accounting and accountability, recording income, disbursement, and transfers - under the requests placed from the monarch, the bureaucratic authority, merchants, landowners and the clergy elite who managed the temples (Chiera 1938; Bernal J.D. 1954: 119; Toynbee 1958; Margueron 1965; Goody 1987; Coulmas 1989: 9; Cooper 1989; ibidem 2004: 72; Schmandt-Besserat 1992a and 1992b; Nissen, Damerow, Englund 1993: chapter 4; Pittman 1993; Pollock 1999: 172; Englund 2004).

F. *Visible concept vs. visible speech*.
As stated above, ethnological and historical evidence documents that a written representation fixes necessary thought and optionally sounds, whereas the standard interpretation reduces writing to a sequence of signs aimed to faithfully reproduce the sounds of a spoken language (de Saussure 1915; Bloomfield 1933; Coulmas 1989; Daniels, Bright 1996: 8), as reflected in the title of DeFrancis' (1989) book: *Visible Speech: The Diverse Oneness of Writing Systems*. The term 'true writing' is used as synonymous of 'writing language' in order to draw a clear boundary line between strictly language-related 'writing' and 'proto-writing'. However, it is an awkward term since its opposite would be ‘false writing’ (Haarmann 2008b: 21). The traditional neglect the cognitive and social significance of writing to propagate the spoken language as primary code of communication on one hand is theoretical, abstract and a-historical, on the other hand is historically rooted in the westerns’ penchant to alphabet considering to have developed the *optimum* system of writing.
Even in the Sumerian “prototype”, scribes did not attempt to render the language phonetically correct, exactly as it was spoken, still after the introduction of the cuneiform technology of writing (c. 2700 BC) (Thomsen 1984: 20). Throughout the period of Sumerian literacy, writing was never predominantly phonographic. On the contrary, the use of logographic signs abounded constituting 60.3% - 42.8% of the *montant global* of signs (Civil 1973: 26). Scribes redacted texts according to the “catchword principle”, writing the key words of a sentence and often ignoring even vital grammatical elements and syntactic markers that native speakers could supply from context (Bottéro 1992: 80; Cooper 1996: 37, 43; ibidem 2004; Nissen, Damerow, Englund 1993: 123; Sampson 1985: 50). If the later history of writing in Mesopotamia had its hub in a gradual process of

reconciling sign sequences with the sound sequences of Sumerian (Haarmann 2008a: 22), Cooper highlights a paradox: Sumerian is an agglutinative language in which nouns take suffixes and verbs both prefixes and suffixes. No trace of these affixes can be found in the early archaic texts. They began appearing after 2900 BC, but in a selective way lacking in detail and this skeletal technique endured for centuries. Curiously, they started to be fully expressed only in the early second millennium, when Sumerian was probably extinct and spoken only in the scribal schools (Cooper 1996: 43).

In the other ancient scripts too, early graphic representations were simple signs recalling units of a conceptual whole that the reader/narrator knew by heart (Février 1948: 17). Everything expected to be known by the reader was omitted (Nissen, Damerow, Englund 1993: 20). Therefore, in the beginning, the written messages did not correspond exactly to the forms of speech language and could be 'read' in several different ways, even in several languages (Gelb 1963: 14; Marangou 2001: 24). Only in a second phase, the graphic representation merged with the sound structure of a given language (Damerow 1999; Trigger 2004: 47).

G. *Pictographic and abstract roots of writing vs. descriptive-figurative starting point*.

In Neolithic and Copper Age of Southeastern Europe, mnemonic devices and magic-religious symbols were two major incubators of writing. They were based mainly on abstract geometries, contradicting the traditional approach according to which writing technology followed an evolutionary trajectory starting from the figurative language and proceeded from an ever-growing stylization-simplification of elementary iconic drawings.

Manuals still now popular among researchers on writing follow the late nineteenth century proposal of Isaac Taylor regarding an evolutionary trajectory of *ars scribendi* in five steps: from pictorials to pictograms, to logography as first verbal forms, to syllabicity and, finally, to the absolutely efficiency of alphabet (Taylor 1883: I: 5-6; Gelb 1952; ibidem 1963: 205, 252; Goody 1987). According to this assumption, the itinerary of the Sumerian script is “exemplar”, evolving from painting of “things” (more or less realistic or essential), to embedding abstract concepts and, finally, to putting oral language in writing. This linear path towards writing is extended to other geographic areas and different periods. It is more or less directly inspired by the semiotic of Aristotle according to which an object conveys a concept, which gives rise to an oral sign, which produces a written sign, which is by necessity derived from the categories of imitation (pictogram/ideogram) or convention (abstract sign).

The descriptive-figurative starting point for writing is evidently inspired by a minimalist definition of this technology as a mere derivative graphic transcription of oral utterances and by the misconception that “primitives” can only imitate nature. Concerning the first point, it is difficult today to accept the approach founded on a reductive perception of *ars scribendi* as an essentially not creative tool, i.e. as “a disguise". (Ferdinand de Saussure), “a dead trail" (Claude Hagège), "a dead letter" (Jacques Derrida), "a tracing" (Anne-Marie Christin), "a purely passive instrument of the pronounced word" (Eric A. Havelock), or even "a by-

product of orality" (Marcel Detienne) (collection in Glassner 2000: 54). Jack Goody has stressed with sufficient force the cognitive function of writing and its capacity to create and develop means of communication in a conscious and thoughtful manner that serves not only to elaborate an original cultural order, but also to enlarge systematically human intelligence (Goody 1977).
Concerning the traditional supposition that primitive mind is incapable of abstract thought and to conceive abstract shapes, only Greeks are credited to be the origin of abstract mind with the invention of philosophy and meditation on language. Sumerians, who came out of a long prehistoric night and being still "primitive", could only have been ignorant of such concerns. Their language lacked terms to express concepts; they did not have a noun to indicate, for instance, animal as a general term. "Innocence" and poverty of mode of thinking were two linked cognitive features of these primitive Sumerians and limited their capability to replicate what they saw. According to this view then, the first written signs were necessarily sketches that imitated forms, beings or real objects that surrounded them. The primitive signs could only have their foundation in nature. An example from Glassner is sufficient to contradict the presumed Mesopotamian inability to express concepts and abstractions. It is the expression *me.nì.nam.ma*, "quality intrinsic in every state," which indicates the universality of the concept *me*, i.e. the essence of objects and beings, their ability to act as translation and effects of the powers of the gods (Glassner 2000: 8, 55-56).
The theoretical postulate concerning the inevitable pictographic origin of *ars scribendi* and its progressive evolution into a phonological system has become increasingly criticized since the 1960s (Leroi-Gourhan 1964: 268 ff.; Harris 2000). However, it is so deep rooted that still now it produces unexpected short circuits. For example, the Neolithic inscriptions from the Chinese site of Banpo (Yangshao culture 4770-4085 BC) are not pictographic, but rectilinear in shape. This evidence contradicts the traditional principle according to which writing characters are derived only from pictographs. Therefore, some scholars prefer to liquidate Banpo signs as mere marks or symbols (Boltz 1986; Keightley 1989), instead to conclude reasonably that the postulated theory is not always applicable to Chinese writing, which characters have dual origins: one pictographic, and the other ideographic, especially with respect to abstract counting (Lu 2004).

H. *The beginnings of writing and alphabet do not coincide and the alphabet is only one of the many written codes vs. the triumph of the alphabet as tool for thought par excellence and historical fulfillment of writing technology*.
Writing preceded the alphabet by thousands of years and cannot be reduced to its recent alphabetical phase. Paul Bouissac arrives to propose that even the Upper Palaeolithic parietal and mobiliary art could actually encode articulate language rather than form loose symbolic configurations. According to him, it the plausible that at least some Palaeolithic engraved and painted graphisms could be early forms of scripts, that is, systematic representations of verbal messages (Bouissac 2007). Besides, the alphabet is not the benchmark to evaluate and classify the other (judged imperfect and limited) forms of writing (Cardona 1981).

Conversely, the mechanically evolutionistic paradigm narrates the development of literacy as a universal process ordered along a path of growing perfection from a crude representation of words through pictures to the more efficient representation of words dismembered into phonemes through syllabic signs and, finally, to the alphabetic approach (Sethe 1939; Gelb 1952). Often the terms "writing" and "alphabet" are used as synonyms.
However, there is no sense in creating a hierarchy of writing systems giving to them the titles of "more or less evolved", because each society generates directly or adopts from the outside the types of writing that are considered suitable and necessary. The amount and the variety of the messages are not in relation to the intrinsic richness or poverty of a script, but of what it is considered important to transmit.

In conclusion, accumulated phenomenological evidence and recent studies discard the pillars of the traditional vision on how, when and why writing came out. They put forward for consideration an approach rooted in the history of writing and based on a comparative view of the ancient scripts that allows exploring the *possible* existence of the *Danube homo scribens*. It had original apparition in Neolithic time, employed an inventory of mainly logographic abstract signs, and was triggered by magic-religious communicational needs emerging from a society characterized by networking and semi-equality paradigms. This possible ancient system of writing is called *Danube script*.

Archaic traits of the Danube script and difficulties in distinguishing it from other communicational codes

Writing technology did not emerge and function in isolation in any incubator region. It played within a cultural milieu that was based on a complex and historically determined communication system consisting – script apart - of gestural code, spoken language, symbols of identification (e.g. divinity marks, household logos), magic-religious symbolism, emblematic decoration, numerical systems (e.g., calendrical notation, measures and weights), and sign systems devoted to specific uses such as, for example, the musical notation. The networking of the channels belonging to the communication system was the common means to construct and convey culture. The distinctive profile of the channels and their interactively operate individualize communication systems and cultures throughout human history.
The changeover from a culture without writing technology to one with writing technology is an intricate and long transitional process. Having the Danube script pre-dated the other ancient scripts by up to two millennia and having been "frozen" at an early developing stage by the collapse of the Danube civilization, it is a laboratory case of this socially dramatic and semiotically unlinear landing to literacy.
A script can be identified in terms of operational technology even without and before being deciphered. The history of research on writing aligns several prominent cases of scripts whose nature of writing system was not disputed before

the crack of their codes (Haarmann 2008a: 14; viz. Pope 1975 and Robinson 2002 for the analysis of successful decipherments). It is the instance of ancient Aegean scripts such as the Linear B prior to Michael Ventris' decipherment and the Linear A, even if the decipherment is not yet complete. The Mayan graphemes acquired the status of writing system even before Michael Coe's decipherment and establishment that it was a logographic script with a syllabic component (Coe 1992). The ancient Indus script is generally acknowledged as a form of writing, although its decipherment has not yet achieved success, despite initial progress (Parpola 1994), and the reserves maintained by some scholars about the nature of its signs (Maisels 1999: 343; Farmer 2003a; ibidem 2003b; ibidem 2004).

When inspecting the internal structuring of the communication conveyed by the Neolithic and Copper Age communities from Southeastern Europe, evidence of a sophisticated semiotic system becomes noticeable. The *Danube Communication System* was comprised by ritualistic markings, emblematic decorations, symbols, divinity identifiers, schematic but naturalistic representations of objects, structures or natural events, calendric and chronographic annotations, sky atlases, representations of constellations and motions of celestial bodies (sun, moon, and planets), terrestrial maps, household identification marks, lineage recognition or community affiliation logos; and markings representing bio-energetic points of the human body. Within the Danube Communication System, clues of a system of writing are apparent, too.

The Danube Communication System was composed of several channels. Even the decorative canon did not function as pure aesthetic ornament, but carried a symbolic meaning and transmitted messages. "In the time before the alphabet, the pottery ornamentation was a main visual channel to hand out the tradition (specially speaking)" (Nikolov and Karastoyanova 2004: 174). "The whole world outlook of prehistoric farmers was expressed in the ornament: the Land and Underground World, the Sky, the Sun, the Moon, the Stars, the Plants, Animals and People… Observant people can see complete 'texts' composed in ornaments: it is raining, the grain is falling on the ground, it is sprouting..." (Videiko 2004).

As mentioned above, the entire communicative landscape was informed by the symbolic code. If the Danube civilization employed both symbolism and writing technology, the two modalities of treating information did not possess equal salience and value. Even if our modern literate mind is excited from the discovery of such an ancient European writing, this communicative channel was less important and less frequently used than the symbolism to the point that, in the occurrence of a single mark, it is more probable that it has to be framed within "the figured language of the symbols" rather than within the Danube script.

Having the Danube script been frozen *in statu nascenti,* sign outlines and organization of the reading space are not always confidently distinguishable from marks and spatial arrangement of the other communicational means. I am focusing below on three possible fonts of equivocation: a) some signs of the script share the same geometrical roots (at times, employing alike outlines) with ritual marks, decorations, symbols, divinity identifiers, chronographic representations, and astral renderings; b) can coexist on the same artifact with them; and c) can have similar space exploitation.

I will discuss below these points, in order to illustrate how difficult is settling writing technology in an archaic cultural milieu to the point that many scholars do not recognize it. However, although characterized by primitive traits, among which a weak association with phonetics, the Danube script should not be confused with other informative channels used by the Danube civilization. After the exploration of how subtle are the confines between a written text and marks from other informative codes in case of this archaic and uncracked script, I will provide some semiotic guideline in order to make the distinction achievable.

Concerning the first source of misunderstanding, depending on the semiotic context some marks can be either units of the inscriptions or elements of other communicational codes (Gimbutas 1991). In particular, a number of signs show the same outlines of sacred symbols because they had origin as elements of the religious-mythical frame and share the same silhouettes of the geometrical and abstract symbols from which they had derived.

This close relationship between symbolic system and writing system could originate uncertainty into the researchers employed to catch the semiotic code and possibly to decipher the Danube script. However, it witnesses at the some time that signs of this system of writing have their origin from the sacred language of symbols.

Secondly, signs of writing could co-exist on the same object with marks from other informative codes. Sometimes more than one channel of communication was in use at the same time on the same vase, figurine, or spindle whorl. A standing flat statuette of a bird from Hlebozavoda (a site westwards from Nova Zagora, Bulgaria) (Kynchev 1981; Todorova and Vajsov 1993: 200 fig. 181/2a-2b) is a case of study because it puts simultaneously on play three communicative channels: symbolic, written and decorative. Symbolic marks occur on the head: tri-lines instead of the eyes, tri-zigzags over the temples, and four horizontal lines on the neck. Then looking downward one can note two inscriptions arranged horizontally. The text under the neck is made-up of five aligned signs and divided in two reading areas by a diagonal line. The other text is incised on the chest. It is composed of at least 13 discernable signs (their script nature is much more detectable from the photo than from the published drawing). Afterwards there are two ornamental layers: vertical lines aligned to compose a belt-like and a garment design based on vertical zigzags. It is significant that symbols and ornaments are comprised of linear motifs exploiting the same geometric roots of the units of the script. The decorative nature of the two lower patterns is revealed by the symmetric arrangement of the marks that have also identical size, equal silhouette, and tendency to saturate completely the available space. The zoomorphic figurine is considered a “clay idol” in Bulgarian literature (Kynchev 1981: 84) and belongs to the Karanovo IV-Kalojanovec culture (5300 – 4800 BCE).

In the Danube civilization, the script was fixed (alone or associated with other communicational channels) not on rectangular, white, smooth, “odorless and tasteless” leafs of paper, but on highly symbolic objects made of clay and bone (human statuettes, seals, anthropomorphic pots, etc.) and their emblematic parts (vulvas, chests, buttocks, etc) (Winn 1973; ibidem 1981; Merlini 2004a). In general, the signs have been engraved when the clay was still wet. Therefore, the

intentional positioning of signs on a distinct object and in a specific location of it was an important element of the communicative act. This was not a technical choice, but an essential phase of the writing process. The emblematic objects themselves, on which signs were engraved (e.g., miniaturized altars – offering tables, dwelling models, ritual vessels, seals, zoomorphic statuettes, and human figurines), functioned as essential components of the messages as well as the position of the signs on the mail-artifact (legs, transition leg-wall, wall, upper surface concerning miniaturized altars, and so on).

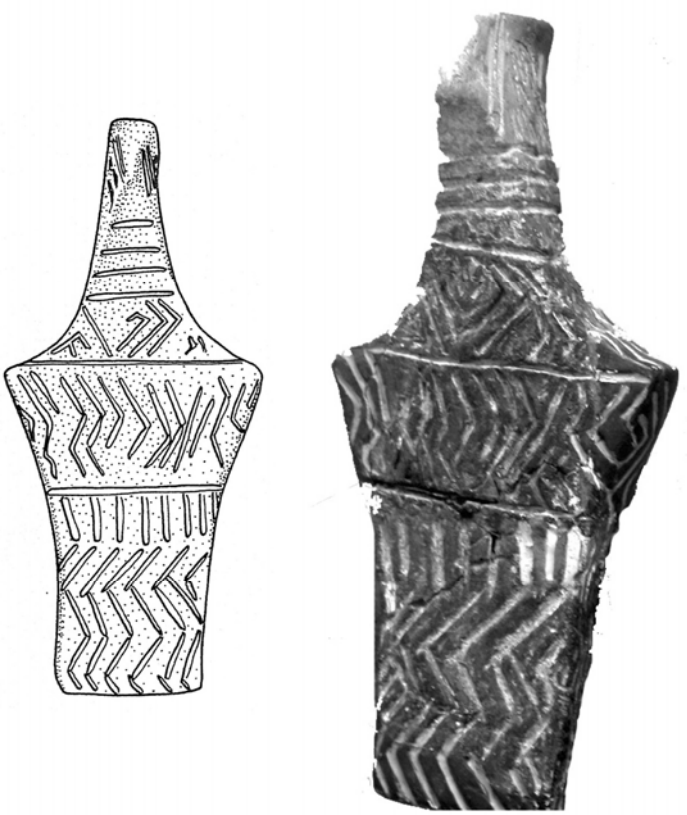


Figure 8. Symbolic, written and decorative codes are simultaneously on play on the body of a statuette in shape of a bird from Hlebozavoda (Bulgaria). (After Todorova and Vajsov 1993: 200, fig. 181/2a on the left; photo Merlini M. 2005 on the right).

When the writer decided to communicate a certain package of information, she/he selected an appropriate artifact — such as a human statuette — with a specific typology (e.g., female/male/androgynous/without evident gender; young/mature/old, naked/dressed, etc.). Inscriptions were made only on the anatomical areas considered "strategic" for the targeted message (e.g., the vulva,

belly, buttocks, throat, and forehead). The particular silhouette of a figurine, a special necklace or garment, a distinct design on the dress or an anatomical peculiarity (such as "divine eyes," for example) were additionally significant elements to the meaning of the signs.

It is not for a case or due to absence of available reading space that the potter decided to incise a long inscription around the belly and hips of a Vinča C (Late Neolithic) corpulent and pregnant anthropomorphic statuette from Vinča (Republic of Serbia). It has possibly an apotropaic meaning connected to the gestational condition of the personage. The V around the neck, the bi-lines on the shoulders and the three long horizontal lines at the end of the attire have a decorative nature. Was it a special garment utilized for birthing? The perforations on the shoulder indicate that the statuette has been conceived to be suspended. Was it utilized as amulet during the giving birth to a child?

Figure 9. The potter decided to incise the long inscription around the belly and hips of a Late Neolithic pregnant anthropomorphic statuette from Vinča (Republic of Serbia).

The delivery of a message utilizing contemporaneously a range of informational channels is not an antiquate and primitive feature when writing technology was not yet entirely separate from the symbolic code and in some ways still subordinate to it. It was an effective communicational method as documented, among the others, by a fragmented figurine from Rast (Dumitrescu 1980: 64, Fig. LXVIII), a Karanovo VI cylindrical four-sided figurine from Bereketskaja Mogila (Stara Zagora, central Bulgaria) (Gimbutas 1989: 68. fig. 108), a Trypillya B female statuette from Aleksandrovka (Ukraine) (Pogoževa 1985: P. 142, Abb. 85,

88; Lazarovici C.-M. 2005: 148, fig. 4.7), and a statuette in shape of a bird from Chlebosavoda (Bulgaria) (Todorova and Vaisov 1993: 200 fig. 181/2a-2b).
A holistic communication employing writing in association with other communicative codes is widespread in the history, being powerful, complete, and able to cope with nuances. Some examples from different periods and cultural milieu can help us to comprehend the mind of the Danube literates.
A tablet from Knossos has the depiction of six horse heads two of which are without manes. The Minoan world "polo" (resembling the same classical Greek word) was added on the left of the maneless pictograms to make clear that they are foals and not adult animals. The merge between iconic and script codes evidences that the Minoans spoke and wrote an archaic form of Greek and conveyed Ventris' decipherment of Linear B (Robinson 2002: 83).

Figure 10. Tablet from Knossos after Evans with the drawings of two foals and the term "polo" (foal) in Linear B.

A Southern Netherlands wool arras of 1500-1530 BC hold at the MET Museum of New York depicts a shepherd couple entertaining themselves with music while their flock frolics in the *millefleurs* background. On the left side, the shepherdess holds up a sheet of music with the phrases she is singing (Let's sign, on the grass / with your bagpipe / a tune for two). The shepherd plays a bagpipe and responds with a verse sprouting out from the instrument (When she signs / her voice is fair / but I do the work). The arrangement of written poetry and iconography is essential to understand the sexual double sense of the action.

Figure 11. The arrangement of written poetry and iconography conveys the sexual double sense of a shepherdess and a shepherd making music in a flowers and leaves scenario.

Any angel on the bridge of Castel Sant'Angelo at Rome - used to expose the bodies of the executed - holds a specific instrument of the Passion added by a distinct written caption ("In flagella paratus sum", "Potaverunt me aceto", etc.), in order to make indubitable what it represents.

Figure 12. An Antonio Raggi's angel on the bridge of Castel Sant'Angelo at Rome holds the Column of the Passion added by a distinct written caption in order to make certain what it represents. (Here, "Tronus meus in columna", i.e. "My throne is upon a column"). (Photo Merlini 2007).

In 1930, the logo of *Le Cyclo* was composed depicting a bicycle. It recalls the technique of the Arabic calligraphy that - coping with the Islamic tradition of cautioning against the "representation of living beings" (Schimmel, Islamic 11) - uses the composition of a bird shape, specifically a stork, to incorporate the *Basmalah* ("*Bismillah al-Rahman al-Rahim*" = "In the name of God, The Compassionate, The Merciful"). In these instances, letterform, figurative appearance, ornamental configuration and symbolic content merge. Any boundary between writing and not-writing floats.

Figure 13. The logo of *Le Cyclo*, 1930.

A famous photo of captain Fabio Cannavaro holding the Soccer World Cup won by the Italian national team in 2006 shows the name of his son tattooed in Gothic looking font on the inside of his upper right arm: "Andrea". The name of the other son "Christian" is tattooed, with the same characters, behind the back. His right forearm is marked by "Daniela" (his wife) in Gothic, too. The name of the daughter "Martina" is tattooed on the right ankle in Chinese ideograms. The Tattoo Man exploits his skin to be surrounded by all the family during the long travels around the world for matches. As the Neolithic figurines, has he associated a message (the name of a specific relative) with a part of his body? Is the selection of the writing fonts not for a case, but fitting his feeling with the different members of the family?

The name of kinfolks engraved on the body, wife and children, is actually a fixation for the transgressive, but family-driven, Italian soccer players. Marco Materazzi has tattooed "Daniela I belong" (the wife) on the right wrist, along with a butterfly (which symbolizes the idea he has of her). The names of the children are imperative also for him: "Anna" (on the neck); "David" and "Gianmarco" on the left arm, positioned next to a tattoo with "Lion" and his birth date in Roman numerals. Materazzi has indelibly marked both arms with his philosophy of life "If a problem can not be solved, that need to worry?"

Antonio Cassano is unmarried. Waiting for wife and children, he has tattooed his own name on right arm. This is a Chinese ideogram, which is very fashionable nowadays and has to help him never to forget how he is called.

For apotropaic reasons, calf and thigh are the areas usually filled by the soccer players for the first. The messages marked on them are personal, confidential, not made to be viewed by other people, being covered by shorts and knee sock. The indelible signs assure protection without any need to be "read", but though good luck power.

Figure 14. The soccer Cannavaro exploits his skin to have all the family with him during the long journeys around the world for matches.

The third reason for the not always easy distinction between the Danube script signs from marks belonging to other communicational channels is that they are not inevitably arranged in linear sequence, whereas sometimes decorations, symbols and calendrical marks are. Most of the inscriptions are aligned along a horizontal row. Other inscriptions arrange the signs into a column, into a circle or diagonal bands. However, the linear order of the signs is not a mandatory criterion.

Our Western-acculturated inclination to associate writing with signs that follow a sequential organization is wrong-footed by the acknowledgment that the Danube script can arrange signs haphazardly, whereas decorations or symbols can bee aligned in succession (divinity identifiers can be positioned along a line according to the divinities hierarchical position, bioenergetic marks can appear according to symbolic patterns able to render the progressively stimulating energy and life, etc.).

A potshard from the upper body of a vessel, belonging to the Turdaş culture and recovered at the eponymous site, provides evidence for the presence of writing. It bears the following signs: ✕ , ⁄ , ⊤ , ⩚ , and § . Some of them are connected by ligature. However, their organization lacks any linear order (Torma *Notebook* tab 30.4; Winn 2004a online, fig. 9b).

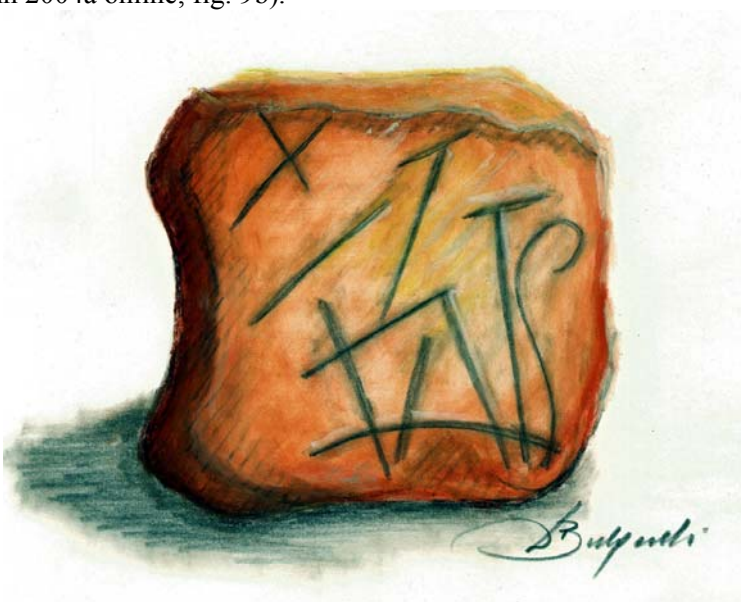


Figure 15. Signs are unsystematically arranged in on a Turdaş potshard from the eponymous settlement.
(D. Bulgarelli, *Prehistory Knowledge Project* © 2007).

Contrariwise, symbols can be aligned in linear sequence when this arrangement is part of the meaning. An unpublished little figurine from Cucuteni A culture (dated circa 4300-4200 BC) hold by the Botoşani museum (Northeastern Romania, next to Iaşi) is incised through a design of symbolic marks progressively stimulating energy and life. They are a couple of opposing spirals contained within a series of Λ on the legs, a double belt over the waist which is surrounded by Vs connected to a giant triangle holding a cross in high relief within, Λ chevrons, triangular motifs that remark the silhouette of the clavicle, and asymmetric marks of evident symbolic nature punched on an emblematic mask. On the figurine, symbols are clearly placed following a linear, logical, and energetic sequence from bottom to top.

Figure 16. On an unpublished Cucuteni figurine from Moldavia (Romania) symbols are placed following a linear, logical sequence ascending from bottom to top. (Photo Merlini M. 2005).

A Matrix of semiotic rules and markers for inspecting the sign system of the Danube civilization and checking evidence of a script

Although the Danube script was frozen by the collapse of the related civilization when it was still in an archaic phase and probably had a weak association with phonetics, it should not be mixed up with the other communicational channels composing the Danube Communication System. However, for the above-synthesized reasons the distinction is not always evident. Coping with this complexity, the author propones a "Matrix of semiotic rules and markers for inspecting the sign system of the Danube civilization". It is acknowledged of the high communicative skills of these ancient populations, attested by the presence of a sophisticated semiotic system (the Danube Communication System), and plays in accord with a conceptual and historical revision of the definition of what "writing" is and which its origins are throughout a comparison with the other scripts of the ancient world. The matrix is intended:

a) To investigate the internal structuring of the sign system developed in Neolithic and Copper Age time-frame in Southeastern Europe to verify the possibility that these cultures might have expressed an early form of writing, i.e. the Danube script.

b) To distinguish inscriptions of the Neolithic and Copper Age system of writing composed of two or more signs, of course without knowing what each of them stands for, from compound marks associated with other communicational channels utilized by the Danube civilization. In the present phase, the matrix

includes the distinctive criteria for ritual markings, decorations, symbols, and divinity identifiers. In progress is its improvement concerning: schematic but naturalistic representations of objects, structures or natural events; calendric and chronographic annotations; sky atlases, constellations and motions of celestial bodies (sun, moon, and planets); terrestrial maps; family identity, lineage recognition or community affiliation; and markings representing bio-energetic points of the human body.
c) To establish organizing principles that the Danube script shares with other ancient scripts as well as distinct proprieties, even if it is far to be deciphered.
d) To input into the databank *DatDas,* developed by the author, inscribed artifacts, inscriptions, and signs that have got through the filter of the Matrix.
On other occasions, versions in progress of the "Matrix of semiotic rules and markers" have been published (Merlini 2005b). An extended edition concerning the distinguishing guidelines between signs/inscriptions of the Danube script and decorative motifs/patterns is available (Merlini 2007a). The "Matrix" was tested according to a number of facets (typology of inscribed objects; category of marks; geographical patterns, cultural subdivision) in order to improve its reliability. Up to now, it was tested on marks from the core area of the Danube civilization (Merlini 2005b; 2007a; 2008b; 2008c), the Turdaş culture (Merlini 2008c; forthcoming), the Precucuteni, Ariuşd, Cucuteni, and Trypillia cultural complex (Merlini 2007b; 2008c; in press), and some icons of the Danube script such as the Gradešnica platter (Merlini 2005a; 2006a; 2008c) and the Tărtăria tablets (Merlini 2004a; 2004b; 2006d; 2008c).
The achieved result is fixing the fundamentals to settle the Danube script within the Danube communication system. Of course, instructions and indicators of the Matrix are in progress and under continuous test. It will be possible to distinguish without errors when a sign or a combination of signs is unit of a written message or, alternately, is a ritual marking, a decoration, a symbol, a divinity identifier, etc. only when we will be capable to read the script. However, it will not even be possible to read the script if we are not able to isolate its signs from the others. It is really a loop that needs to be broken step by step and by progressive approximations.

Semiotic guidelines to discern between ritual marks and Danube script signs

The first distinction established by the "Matrix of semiotic rules and markers" is between Danube script signs and ritual marks: incisions or paintings not necessarily associated with recognizable specific meanings, but with the energy and emotion of cultic actions and magical purposes, including divine manifestations or interventions. The ritual marks appearing on objects or in rock art are connected to an emotional or mystical experience that is at the foundation of a liturgy or has surfaced during it. They do not necessarily express a "literary" message, which aim is to transmit structured packages of information. Another indispensable distinction is between these marks, which are output of liturgies, and erratic graffiti by confused artists, desecrating scratches, and fortuitous lines made after firing.

In the Neolithic and Copper Age time-scale, ritualistic marking were differentiated into four distinct modes: *empathic action-graffito, psychogram, repeated testimony,* and *writing-like copy*. They are correlated to diverse spiritual moods and sketched during religious or magical acts of completely different types.

The empathic action-graffito is the most frequent category of graphic depiction within an emotional context. In fact, emotional outbursts are very compelling. Most of the ceremonies are centered on words and gestures (not only prayers and invocations, but also curses, viz. Draşovean 1997). Therefore, the energy that arose from these liturgical acts was much more important than the distinctive marks generated by them on an artifact, the wall/floor of a shrine or the wall of a cave. As "derivate" mark, the "empathic" graffito has often indefinite and confusing shape, since it fixes a graphic burst of energy, a private drawing that carries pure desire, an emotion, acts of adoration, a promise, or other strong spiritual feelings. An empathic action-graffito does not transmit packages of information to either divine or human beings, nor does it guarantee a contact with divinity. Rather it fulfills precise psycho-emotional and spiritual needs emerging during ecstatic devotional acts and is a part of that activity.

Figure 17. An empathic action-graffito on a fifth millennium BC statuette unearthed at Grădiştea-Coslogeni (Romania). (After Neagu 1998: 221, Pl. 16; 1999, fig. 9).

After having examined a series of Neolithic and Copper Age empathic action-graffiti incised on artifacts from Gomolava-Hrtkovci, Vinča-*Belo Brdo*, Petnica, Vršac-*At*, Potporani Kremenjak (Republic of Serbia), Cerje-Govrlevo (F.Y.R.O.M.), Gradešnica, Obreshta and Tsarevets (Mezdra, Bulgaria), Isaiia (Romania), the author proposes a semiotic matrix to distinguish between this kind of ritual marks and signs of the Danube script. Guidelines are hinged on the acknowledgment that an inscription attempts to express an intelligible message,

whereas an empathic action-graffito is the concrete result of ecstatic religious activities. The matrix can be synthesized as follows.

Contraposition	**Signs of writing**	**Empathic action-graffiti**
Global and social vs. local and private	The script and its inventory were in use in numerous sites over a wide area.	An empathic action-graffito is unique.
Distinctness vs. indistinctness in shape	An inscription might be executed imprecisely and carelessly, but the silhouettes of the signs are distinct and identifiable.	The graphic elements assembled to create an empathic action-graffito are in general quite indistinct.
Following a geometric code vs. free from any geometrical code	Geometric, abstract, high schematic, linear, and not very complex signs could belong to the script framework and in fact, in many cases they do.	The shape of empathic action-graffiti does not follow any geometric code.
Occurrence of an inventory vs. absence of any standardized set of marks	Signs of writing can be collected in a precise and systematic inventory.	Empathic action-graffiti cannot be gathered in a repertory being each of them unique.
Homogeneity vs. heterogeneity in depth of incision	The signs of an inscription in general are incised with a homogeneous grade of pressure.	Empathic action-graffiti are usually incised or too hesitantly or too vigorously.
Techniques and restrictions in modifications	Signs of writing can be modified applying to them diacritical markers such as small strokes, crosses, dots and arches as well as duplicating-multiplying them or reversing them as in a mirror, inverting them, reversing and inverting them at the same time.	*Empathic action-graffiti* are not subjected to the technique of the multiple variations.
Use of naturalistic depictions vs. their absence	An inscription can mix both abstract and naturalistic signs.	*Empathic action-graffiti* are motifs that never directly derive from or imitate real life or nature.
Speed of	Signs of an inscription are	Empathic action-graffiti are always

execution	made sometimes quickly and sometimes slowly.	made rapidly.
Space organizational principles	Signs of writing compose an inscription through an asymmetric co-ordination and preferable linear alignment, even if a sequential arrangement is not an absolute prerequisite of a writing system.	In general, the graphic elements comprising an empathic action-graffito are arranged without any order and often overlay one another.
Superimposition of scratches and fingerprints	Inscriptions are only *sometimes* superimposed by scratches or maker's fingerprints.	Empathic action-graffiti are *normally* superimposed by scratches or maker's fingerprints.
Presence of ligatures vs. their absence	Signs of writing can be combined by ligatures (compound signs formed from the merger of two or more elementary signs).	Ligatures are absent in the field of the empathic action-graffiti in which graphic elements can be overlaid, mingled, scrambled.
Presence of dots and vertical strokes vs. their non-appearance	The use of dots and vertical strokes to separate signs or groups of signs is strong evidence of an inscription.	Dots and vertical strokes generally are not utilized in an empathic action-graffito; in the remote case of their appearance, they are not employed to separate marks or groups of marks.
Independent of firing vs. after firing	A text is often incised before firing, but it might also be made after firing.	In general, an empathic action-graffito is scratched after firing.

In conclusion, semiotic indicators rotate around an axis according to which an inscription of the Danube script attempts to *express* an intelligible message that has often a magic-religious meaning, whereas an empathic action-graffito is the concrete *result* of ecstatic liturgical activities.

Therefore, usually empathic action-graffiti appear shapeless or misshapen, made of indistinct graphic elements assembled without an evident order and/or overlapping even if sometimes they seem to have script-like shape at a first glance. They are hurriedly made and scratched too vigorously or too irresolutely. In fact, this kind of marks has been made not to broadcast information to a divinity or to human beings, but as output of distinct psycho-emotive and devotional feelings. Empathic action-graffiti are output of ceremonies where words, gestures, feelings, and energetic actions play a much more important role than scratches derived from them on a statuette, an altar or the wall of a cultic dwelling.

Cases where sacred incisions and even liturgical artifacts have been made very rapidly, probably during a highly emotional ritual are key test for the section of the "Matrix of semiotic rules and markers" that distinguishes between script signs and *empathic action-graffiti*. It is the instance of a human-zoomorphic altar discovered at Tărtăria (Transylvania, Romania), composed of the body of a four legs animal and a human face. The cultic hybrid is not very well done, not finished and with a not very polished surface. The right side is broken. Similarly, the signs are not careful made, even if their selection and arrangement appear to be full of meaning: a double V under the neck, a bi-line inserted into a V on a hip, a triple and a quadruple V on the side, and a little chevron on the shoulders. The "writer" wanted to trace a V on the neck. Therefore, started to move a sharp tool in diagonal from the left, but he/she changed mind and incised a new diagonal. Regarding the sign on the hip, the "writer" closed a V with two vertical strokes engraving a sign very close to a hand with three fingers. The tree-V is composed by a V above a close bi-V. Scrutinizing the piece, it is easy to image a ceremony centered on invocations and gestures – among which the incision of a sacred inscription - that arose devotion, emotion and energy that were associated – and perhaps much more important - than the distinctive signs generated by them on the cultic artifact (Merlini, Lazarovici Gh. 2008). Literacy had the role to fix permanently and precisely the sacred formula.
The archaeo-semiotic analysis of the inscribed miniaturized altar shows that it bears an inscription of the Danube script and not an *empathic action-graffito*.
Signs are intentional and, even if executed imprecisely and carelessly, have distinct and identifiable silhouette according to the expression of a meaning.
Signs are geometric, abstract, high schematic, linear, and elementary.
Signs can be collected in the inventory of the Danube script, which was in use in numerous settlements over a wide area.
Signs are incised with a homogeneous grade of pressure.
Signs are modified applying to them diacritical markers as well as duplicating-tripling them.
Signs show an asymmetric co-ordination and a linear alignment.
Signs have been made before firing.

In conclusion, even if the ritual action to model the artifact and engrave sacred signs was in a rush and more important that the aesthetic and the clear rendering of the inscription as well as the skilful finishing of the object, the human-zoomorphic altar from Tărtăria does not bear an amorphous and personal *empathic action-graffito,* but a still undecipherable text of the Danube script.

Figure 18. An emblematic, inscribed human-zoomorphic altar discovered at Tărtăria is incised with a rapidly and puzzling inscription of the Danube script and not with an *empathic action-graffito*. (Photo Merlini 2005).

Contrasting ornamental motifs with the Danube script signs

The second series of guidelines established by the "Matrix of semiotic rules and markers for inspecting the sign system of the Danube civilization" is to distinguish between signs/inscriptions of the Danube script and decorative motifs/patterns. If the Danube writing possesses peculiarities that differentiate it from ornament, when working on the field the dividing line is not always confident. To accomplish the task, a distinct matrix of semiotic guidelines can be summarized as follows. As one can note, inscriptions and ornamentations have different purposes, rule of composition and organizational principles.

Contraposition	**Signs of writing**	**Decorations**
Inventory of the script vs. corpus of the ornamental motifs	If one sets apart for a moment the exception of the ambivalent signs that can be involved in writing messages as well as in ornamental design, signs of writing can be collected in a precise and systematic inventory.	If one sets apart momentarily the exceptionality of signs that can be inserted in an ornamental design as well as in a writing message, artistic marks can be gathered in a specific corpus.
Sign outlines	Geometric, abstract, high schematic, linear, and not very complex signs belong, with more probability, to the script framework.	When dealing with geometric, abstract, high schematic, linear, and uncomplicated signs one is with less probability inside the decorative framework.

Techniques and restrictions in modifications	Signs of writing can be modified applying to them diacritical markers such as small strokes, crosses, dots and arches as well as duplicating-multiplying them or reversing them as in a mirror, inverting them, reversing and inverting them at the same time.	The decorations are in general not subjected to the technique of the multiple variations. They can be varied – and not often anyway - only by duplicating-multiplying them or turning them round as in a mirror, turning them upside down, turning them round and upside down at the same time.
Balance between isolation and grouping vs. inclination to grouping	Signs of writing occur singly as well as in groups.	Ornaments occur preferably in groups.
Linear alignment and asymmetric co-ordination vs. symmetrical gravitation and rhythmic repetition	When in groups, signs of writing prefer a linear alignment (even if a linear alignment is not an absolute prerequisite of the Danube script) and show an asymmetric co-ordination producing visually random compositions. Sometimes they are positioned along different registers, in columns or in lines.	An ornamental element is in general arranged with others in order to capture the symmetrical balance able to exalt the aesthetic value of the object. The rhythmic and symmetrical repetition of a geometrical motif in picture friezes is the principal feature of the Danube decorative system.
Presence vs. absence of ligatures	Signs of writing can be combined by ligatures.	Ligatures are absent in the field of decoration.
Functionality/ aesthetics	An inscription assembles signs in a functional way (although signs of writing are sometimes positioned in an aesthetic way).	The main purpose of the decorations is aesthetic as exemplified by the use of slight variations in the framework of general homogeneity.
Dots and vertical strokes	The use of dots and vertical strokes in separating signs or groups of signs is a strong marker of the occurrence of an inscription.	In a decorative design, dots and vertical strokes are in general not used to separate signs or groups of signs. If so, they are positioned in a symmetric way.
Abstract and	An inscription can mix both	In general, in

naturalistic mix	abstract and naturalistic signs.	ornamentation there is no mix between abstract and naturalistic motifs.
Horror vacui	Signs of writing never saturate the entire available space, because they carry a specific message.	It is non infrequent that a decoration saturates the entire available space.

To sum up, the system of artistic motifs and the system of writing were viewed as separate codes in the mind of the Danube literates, even if strictly connected. Observing in-group marks that are disposed in order to capture the symmetrical balance able to exalt the aesthetic value of an object, have the tendency to saturate the entire available space, are not modified by diacritical marks and are not connected by ligatures, one has high probabilities of dealing with a decoration and not with an inscription. Artistic signs can also be gathered in a specific corpus. Contrariwise, observing geometric, abstract, high schematic, linear and not very complex signs that have been modified by diacritical marks, are joint by ligatures and are organized in an asymmetric way, one has high probabilities to be within the script framework.

One can note clues of the Danube script, applying the "Matrix of semiotic rules and markers" to an Early Neolithic cylinder from Parța (Romania), which belongs to the Banat IB cultural group that developed between ca. 5400-4900 BCE.

The engraved signs are all insertable within the inventory of the Danube script signs.

Geometric, abstract, high schematic, elementary, linear, and not ornamental signs occur as representative of a script.

Concerning the organization of the inscription, signs are assembled in a functional way and not in an aesthetic way. Signs appear in groups. Signs are organized according to a linear alignment. Within any cluster, they show a spatial asymmetric co-ordination producing a visually random composition that is antithetical to a harmonious design, but is functional to store and transmit messages. Signs are organized at least in two different groups as to express different packages of information. Finally, signs do not saturate the entire available space, because they have not a decorative function, but carry a specific message.

Briefly, the signs engraved on the Early Neolithic cylinder belong, with more probability, to the writing framework than to the ornamental framework, because they are consistent with most of the indicators related to the occurrence of the Danube script.

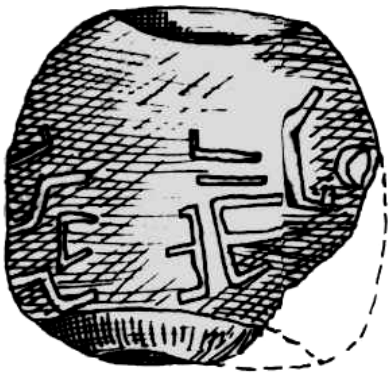


Figure 19. Clues of the script occur on an Early Neolithic cylinder from Parța (Romania).

Distinguishing symbols and Danube script signs

A distinct matrix of semiotic guidelines is provided to discern between Danube symbolism and Danube writing system in case of messages made of two-more signs. Being the symbolism often a blend language to express the visible unreality of the sacred sphere, it was more important and frequently used than the script. However, it had a natural and close association with the script being the main source in shape as well as in significance of it, to the point that some marks have the possibility to be a symbol and a writing unit as well, depending on the context. The matrix can be synthesized as follows.

Contrapositions	**Signs of writing**	**Symbols**
Inventory of signs vs. repertoire of symbols	There are signs that are used solely in the Danube script. Therefore, one can build an inventory of signs exclusively employed in the written messages.	There are marks that are used only in symbolic messages. For that reason, one can build a repertoire of pure symbols.
The identification of the nature of the marks that can be both writing units and symbols	When "ambivalent signs" (those which can be script units or symbols as well) are associated with signs of writing, one is dealing with an inscription.	One is confident enough to assume to be outside the symbolic framework when signs of writing are associated with "ambivalent signs" (those that can be script units or symbols as well).
Accuracy in making	Sign of writing can be scratched.	Symbols are in general accurately made.

Divergent inclination regarding the location on objects	Signs are not necessarily in prominent position.	Symbols are often in prominent position.
Different role associated to the inscribed/painted artifact or its parts	In several instances, there is a restrictive utilization of the signs on distinct typology of artifacts and their portions.	Symbiotic relationship between symbols and an object and/or a strategic part of it, because the former can melt with them and even become a substitute of them.
Not emphatic vs. oversized shapes	The signs of the Danube script have outlines that are modest in size.	The symbols are outsize oriented.
Techniques and restrictions in outline modifications	Signs of writing can be modified applying to them diacritical markers as small strokes, crosses, and arches.	Symbols do not vary their basic outline.
Ligatures	Signs of the script can be combined from ligatures.	Ligatures are absent in the symbolic communication.
Abstractness	Abstract signs of writing are in greater numbers than abstract symbols.	Naturalistic symbols are much more than signs of writing with a picture-like character.
Spatial rules vs. possibility of a haphazard arrangement	A text arranges the signs according to spatial rules aimed to organize its readability.	It is not infrequent that a compound symbol disposes haphazardly its units
Systematization of the space and linearity	A linear sequence of the signs, when it occurs, is voted to organize the process of reading. In the Danube script, this instance is much more frequent than in the Danube symbolism.	In case of a group of symbols, their linear arrangement, when it occurs, is aimed to express a logical progression or hierarchy. In the Danube symbolism, this instance is much more frequent than in the Danube script.
Dots and vertical strokes	The presence of dots, horizontal lines and vertical strokes in separating signs or groups of signs is a strong indicator of the occurrence of an inscription.	In the symbolic language dots, horizontal lines and vertical strokes are not employed to separate signs or groups of signs.

Independent of firing vs. before firing	A text is often made before firing, but it might also be made after.	In general, symbols are made before firing, very rarely after.

In brief, the symbolic language and the system of writing were considered distinct informative channels, even if composing strictly connected key codes of the Danube Communication system. Observing in-group marks on an artifact, at first one has to check if they belong to the repertoire of pure symbols or to the inventory of the Danube script signs. If an answer is not practicable, there are more probability that the marks under scrutiny belong to the symbolic channel than to the system of writing if they do not present any variation of their basic outlines; are not connected by ligatures; are deeply incised with well rendered shape; have a prominent position on the object; have oversized outline; show a naturalistic root; are not separated by dots, horizontal lines and vertical strokes; and are arranged haphazardly or according to a logical progression or hierarchy. It is not required the simultaneously presence of the whole range of indicators to state the presence of a compound symbol; the co-occurrence of three or four markers is in general enough.

Contrariwise, one has more probability to be within the framework of the Danube script if the marks under analysis show a simple, abstract silhouette, have small shape, are modified applying to them diacritical marks, are incised on a peripheral location, and are organized according to spatial rules aimed to convey their readability (a linear alignment in sequence, the division of a text in different sub-inscriptions through dots, horizontal lines, or vertical strokes, etc.). As in the case of compound symbols, it is not necessary the concurrently occurrence of all the indicators to maintain the presence of a written text.

A clay spoon from Kisunyom-Nàdasi (County Vas, Hungary) can test, among other inscribed artifacts, the section of the "Matrix of semiotic rules and markers" that points out difference between Danube symbols and Danube script signs. It belongs to the western group at the end of the Lengyel II–Early Lasinja culture (mid-fifth millennium BC) and was found in 1981 in a pit in association with other fragmented finds inscribed with signs.

The discoverers maintained the written and not ornamental nature of the incised signs due to their distinctive shapes and aligned order (Kàrolyi 1992: 24, 29; ibidem 1994: 105; Makkay 1990: 72, who considered it to be the only piece bearing signs of writing from the late Lengyel culture). The spoon is bigger than the ones utilized in daily life and exhibits a peculiar shape having a round oval handle with a wide opening and a flat bottom. A circular chain of signs has been incised before firing on the leveled surface of the bottom, all around the hole. Unfortunately, the writing sequence is not complete, but seven signs are identifiable: five are compound signs and two are basic elementary signs. It is significant to note that *all* of the five composite signs are arranged by juxtaposing, interweaving, or merging elementary signs through the writing technique of the ligature. All of the signs are present in *DatDas* inventory of the Danube script.

Some signs occur repeatedly: one sign (X) recurs three times in the inscription and another sign ( ) reappears twice. This is a strong indicator of the existence of early literacy in the Danube basin.
Other semiotic indicators evidencing the occurrence of the Danube script and not the symbolic code on the Hungarian spoon are the following.
Signs are intentional, identifiable, highly stylized, elementary in form, not ornamental, similar in size, standardized according to a model.
These signs are employed exclusively in the written messages of the Danube script, not in other communicational codes.
Sign are scratched and not accurately incised as symbols are.
Signs are not in outstanding position, but on the bottom.
Signs are not only combined from ligatures but also modified applying to them diacritical marks as small strokes, crosses, and arches.

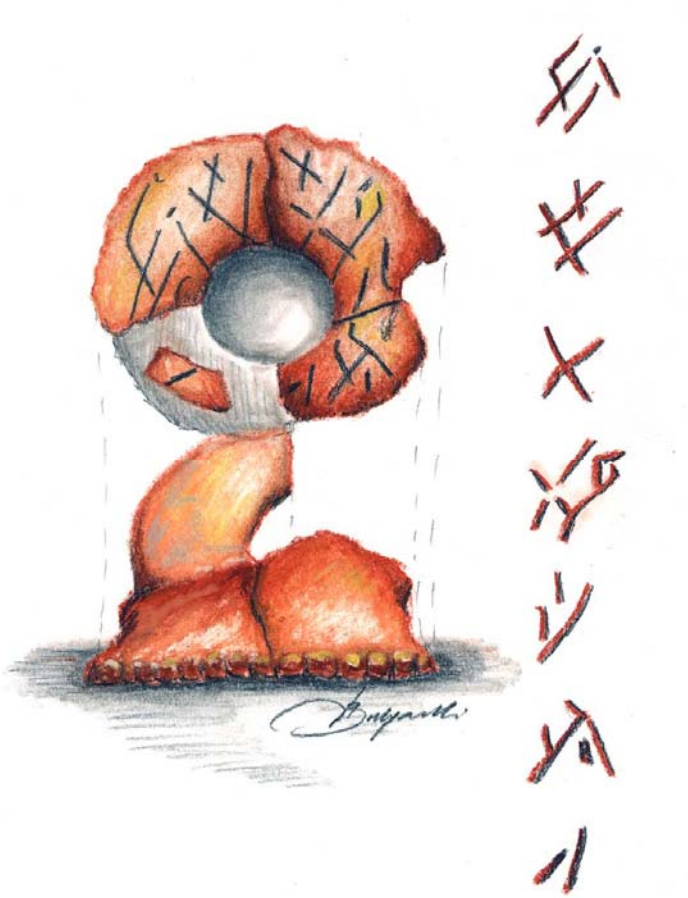


Figure 20. The inscribed Lengyel II spoon from Kisunyom-Nàdasi (County Vas, Hungary) and its inscription. (D. Bulgarelli, *Prehistory Knowledge Project* © 2007).

Addressing the Danube civilization and the Danube script

According to *DatDas* evidence, the earliest experiments with literacy started around 5900-5800 BC - at Starčevo-Criş (Körös) IB, IC horizon - some two thousand years earlier than any other known writing. The Danube script quickly spread along the Danube valley northward to the Hungarian Great plain, southward down to Thessaly, westward to the Adriatic coast, and eastward to Ukraine (Merlini 2001; ibidem 2004a). A later, related script developed in Precucuteni-Cucuteni-Trypillya area (Merlini 2004b; ibidem 2007c). The experiment with writing technology developed up to about 3500-3400 BC, when a social upheaval took place: according to some, there was an intrusion of new populations, whilst others have hypothesized the emergence of new elites. At that time, the Danube script eclipsed and was later to be lost.

As mentioned above, the term "Danube Civilization" refers to the Neolithic and Copper Age societies of Southeastern Europe that flourished from c. 6400 BCE to c. 3500-3400 BCE. This terminology is coherent with the acknowledgment that the Danube River and its tributaries favored the emergence of an institutional, economic, and social network of developed cultural complexes, cultures, and cultural groups that shared several key features over a wide territory.

They were characterized by extended subsistence agrarian economy and lifestyle, urbanism, refined technologies (particularly in weaving, pottery, building and metallurgy), long distance trade involving also status symbols artifacts, complex belief system, sophisticated patterns of religious imagery, and an effective system of communication using tallis, marks, symbols and signs (the Danube Communication System) that included writing technology. The origin of writing was evidently linked to the quantitative growth of the information that had to be recorded and transmitted in the dynamic societies that comprised the Danube civilization (Merlini 2005a; ibidem 2008b).

The term "Danube Civilization" is consistent also with the challenge to demonstrate that "early civilization" status can no longer be limited to the regions which have long attracted scholarly attention (i.e., Egypt-Nile, Mesopotamia-Tigris and Euphrates, the ancient Indus valley), but has to be expanded to embrace the Neolithic and Copper Age civilization of the Danube basin and beyond (Merlini 2004a; Haarmann 2008a: 11).

The Danube civilization was organized as networks of nodes (central settlements and regional cultures) linked by common cultural roots, exchange relationships of mutual political advantage and shared socio-economic interests. It was a complex society characterized by semi-equality in social relations and lack of evidence for hereditary social ranking. However, it was increasing hinged on segmented social relationships as documented by the layout of settlements (subdivided into smaller and discrete social units of quite independent houses and groups of houses) and the social ranked organization of burial practices at various sites. The Danube civilization is also characterized by rise of urbanism and limited necessities of defense structures, although there was a substantial and time-resources consuming investment in systems of surrounding ditches and walls that

may have served not only as fortifications for defense, but also as symbolic boundaries that separated the site from its hinterland.

Most socioeconomic activities - from subsistence practices to pottery making - seem to have been carried out by the members of individual households. The family circle composed the vital social unit of the community. A "domestic and communitarian mode of production" was on play, typical of tribal societies, within which social status and political power usually are based not on inherited relationships (ascribed ranking), but on the proven ability of each potential leader to earn that status (achieved ranking) within a communal and inclusive network

In the present author's view, the "Danube Civilization" is not a synonymous with the term "Old Europe" coined by Marija Gimbutas, because she identified under this blanket-expression an extended area that she described as the common home of an ensemble of pre-Indo-European cultures (Gimbutas 1974-1982; 1989; 1991; 1999). Sometimes, "Old Europe" expanded from the islands of the Aegean and Adriatic, as far north as Czechoslovakia, southern Poland, the western Ukraine (Gimbutas 1974-1982: 17). Other times, it enlarged "from the Atlantic to the Dnieper" (Gimbutas 1989: XIII). However, Gimbutas broadly documented the richness of these cultural traditions, which included writing technology as one of the major resources.

The development of an original script is an important mark of the high status of the civilization that flourished in the Neolithic and Copper Age of Southeastern Europe. In its comprehensive meaning, the term "Danube script" indicates the original successful experiment with writing technology of these ancient populations. The over-arching terminology of "Danube script/Danube signs" includes what has been called the "Vinča script" and "Vinča signs" which has to be strictly limited to the Vinča culture that developed in the Middle Neolithic in the core area of the great Danube basin (Winn 1973; 1981, 2008: 126; Merlini 2004a: 54). The connection of the inscribed signs with the Vinča culture has a reasonably long history. However, it categorizes only a specific period of the Neolithic and Copper Age time-frame, has provincial boundaries and does not evoke a clear geographical region. The Danube script has to be extended in time (from Early Neolithic to Late Copper Age) and in space (embracing the whole Southeastern Europe).

Other scholars use "Danube script" as synonymous with the "Old European script," coined by Gimbutas (Gimbutas 1991; Haarmann 2002: 17 ff.; ibidem 2008a: 12; Haarmann and Marler 2008: 1). However, this designation is based on the vague concept of "Old Europe" conceived by the same author (Gimbutas 1974-1982; ibidem 1991) and elicits a distinct connection with Southeastern Europe. In particular, the area involved by the Danube script extends in Southeastern Europe from the Carpathian Basin south to the Thessalian Plain and from the Austrian and Slovakian Alps and the Adriatic Sea east to the Ukrainian steppe. It includes (in order of contribution to the experiment with writing), the modern-day countries of the Republic of Serbia, Romania, Bulgaria, Greece, Hungary, Republic of Macedonia (F.Y.R.O.M.), Ukraine, Czech Republic, Albania, Kosovo, Germany, Slovenia, Slovakia, Bosnia and Herzegovina, Republic of Moldova, Croatia, Montenegro and Austria. This macro region forms

a relatively bounded and cohesive unit although the geographic layout, consisting of several small and discrete micro-regions that exploited a distinct set of local resources encouraging regional differentiation among the early farming societies (as well as among the lexicon and interpretations of the archaeologists).

"Danube script" is an operational term that does not designate the unity of literacy that lacks documentary evidence. Further investigation is required to reach the needed critical mass of information for *DatDas*, in order to evaluate the blanket term "Danube script" and to deal with distinct paths within the cultural institution of writing in the regional traditions of the Danube civilization. Although Owens refers to the occurrence of "Balkan scripts" (Owens 1999), his statement has to be demonstrated based on the understanding of the interconnections of sign use in the different cultural regions. Up to now, regional and cultural subdivisions were successfully, although prototypically, tested by the author creating some sub-databanks. *DatTur* is established from the signs utilized by the Turdaş culture (Merlini 2008c; forthcoming); *DatVinc* registers data on writing in the Vinča culture; *DatPCAT* records inscribed finds and inscriptions from the Precucuteni-Cucuteni-Ariuşd-Trypilla cultural complex evidencing a late script related to the Danube script (Merlini 2007c; in press).

The inventory of the Danube script signs

The presence of an inventory of signs is one of the five essential elements of any system of writing which distinguish *ars scribendi* from other communicational channels, such as calendars, symbols, accounting systems, heraldic markings, etc. An inventory is a precise corpus of standardized signs and not a list of marks drawn according to the writer's individual expression. Every system of writing employs a catalogue of signs that is distinct, defined, and limited.

The presence of an inventory is a key element for the script that developed in Southeastern Europe during the Neolithic and Copper Age time-frame, too. Signs were not invented "on the fly", but shaped according to a model that was shared and utilized for a long period over a wide area. The reoccurrence of the same signs and groups of signs on artifacts of the Danube civilization evidences that they included precise standard outlines and that scribes may have made use of a common inventory. Though this system of writing is now lost and it is unlikely it will ever be possible to decipher it, one can try to identify some elements of its semiotic code and particularly shapes and typological categories of signs.

Therefore, a preliminary step in deciphering an ancient writing system as the Danube script is to compile a catalogue of all the apparently different characters occurring in the texts, and to identify the variations each character may undergo. If one takes an article of a newspaper printed in English, it would be a straightforward matter, through careful study and comparison of the thousands of characters in the text, to work out that they could be classified into a set of signs. However, in ancient scripts a text was incised on irregular surfaces of clay, rocks, or bone which rough and restricted surfaces conditioned and limited the graphic expression. The task of isolating and detecting the signs is made far more difficult

by the penmanship variability and the possibility to represent the same sign in dissimilar ways as allographs, which are the alternative forms of a letter in an alphabet or another unit in a different writing system (Hawthorn 2000).

Signs were also joined up by ligatures and positioned in spatial association with symbols or other kinds of marks. A key challenge for the decipherer - who cannot be sure in advance that different-looking signs are in fact allographs of the same sign - is how to distinguish signs which are genuinely different (such as 'I' and '1') from signs which are probably allographs (for example, X, x, X, X, X, X, x, **X**, **X** are all variations of an X due to different fonts*),* without knowing the conceptual or phonetic values of the signs under examination.

Based on practice in known writing systems, the Danube script may contain several allographs of the same basic sign. Unless epigraphers became able to distinguish the allographs with a fair degree of confidence, generally comparing their contexts in many very similar inscriptions, they can neither correctly classify the signs in the Danube script in order to build an inventory of them; neither establish the total number of the signs. However, in decipherment the number of signs utilized by a script can be a clue to establish its type without revealing the phonetic or conceptual values of the signs. Based on the number of Linear B signs, Michael Ventris was convinced that it was a syllabic script, rather than an alphabet or a logosyllabic script, which was an important historic step for decipherment.

The in-progress inventory of the signs employed by the Danube script is provided by *DatDas* statistics. It lists 286 sign types. Emerging from a catalogue of 4,509 actual signs, it means that each inventoried sign has an average frequency of nearly 16 times. The inventory of the Danube script is in a manageable form and is conceived to permit the reader to have a rapid overview of it.

The inventory of the abstract signs is articulated in two sections: abstract root-signs + variants and abstract unvaried signs. Concerning the first section, the opening column is devoted to lists the root-signs, which are displayed according to a decreasing order of frequency.

The subsequent columns are devoted to the derived signs, if any, of the root-sign, which are divided into positional variants, variants from multiplication, and diacritic variants.

The positional variants are sub-divided into rotated variants, reverse variants, specular variants as in a mirror, and reverse and specular variants.

The derivations of root-signs are split up into simple diacritic single variants (basic forms modified by a single auxiliary marker) and complex diacritic variants (basic forms modified by manifold additions).

Building an inventory of the signs, their shapes (incised or painted on artifacts) of the Danube civilization have not been forced, by rebuilding them at the computer according to a normalized outline and aligning them along an abstract space. *DatDas* rendering simply follows the conventional and standardized silhouette of basic sign types according to which writers incised the markings. 'Writers' conformed the production and transmission of packages of information to a precise repertory of signs and definite organizational rules that

had to deal with lack of space, constraint from the material or, sometimes, simply inexperience.

The benchmark would be to identify the signs of the Danube script with the same precision of Emmett Bennett jr., student of Blegen at the University of Cincinnati, for the Linear B. Coping with thousands of text characters in the Pylos tablets written by many different scribal hands and still unable to read them, he produced a list of 87 signs figuring out which of them were actually different and which were mere idiosyncratic variations of the same sign. Core signs - presumably (but not yet provably) phonetic in function - and allographs have been logically distinguished by Bennett one from the other and from a second class of signs, pictographic/iconic, which were apparently used as logograms. Bennett's list is almost definitive and identical to the one used today.

The main partition of the 286 inventoried signs is between 197 abstract signs, 50 pictograms/ideograms, and 34 numerical signs. The categories of signs operate in an integrated way. The boundaries of the tri-partition are in progress. Since the Palaeolithic assemblage, there is evidence of the human capacity to produce figurative images (depicting natural phenomena, living beings and objects in representational style) as well as abstract signs and geometrical motifs such as rows of dots and grids. Concerning the Danube script, *DatDas* categorizes as abstract signs the basic geometric forms that lack any recognizable visual association with natural or artificial objects and phenomena (V, X, Y, lozenge, triangle...). *DatDas* identifies as pictograms/ideograms signs depicting occurrences resulting from natural forces, living creatures or objects that can be recognized in association with the figurative sense of that time and although the high degree of stylization (e.g., the depiction of a sledge or a flag). The author does not exclude the possibility that the refining of the analysis in light of the tendency of the Danube civilization toward the stylization of sign forms will lead to a reevaluation of some signs from the abstract field to the pictographic/ideographic field, or reversely.

The proportions of abstract signs that render information outnumber iconic signs. Abstractness and schematization of sign shape are among the prominent features of the Danube script, in tune with the marked propensity toward abstraction and stylization in symbolism and decoration. The culturally specific sense of abstractness poses questions concerning the nature and function of the Danube script. Messages transmitted by a system of writing with plenty of pictograms and ideograms can be in a relevant part understood also by illiterate people. Even in the Aegean Linear A and Linear B, it was enough to be familiar with the decimal system and the meaning of the ideograms depicting objects, products, animals and human beings to catch most of their information. The high number of abstract and arbitrary signs belonging to the Danube script identifies literacy for an elite or a shared elevated educational level. This figure is apparently incongruent with the widespread distribution of the script. However, it developed according to a model of civilization far from the traditional state-bureaucratic political centered prototype, being based on a network of nodes composed of settlements and micro-regions that exchanged relationships for

economical and political mutual advantage, sharing the same milieu with different level of authority.

Crossing territorial and chronological data, *DatDas* provides documentary evidence that in the Neolithic and Copper Age of Southeastern Europe a civilization emerged which was organized as a network of nodes along political-institutional, socio-economic and cultural spheres. The Danube script envisages also a historical situation similar to the Harappa one in the ancient Indus valley, for which Maisels utilizes the term *oecumene* in order to define a kind of society as opposite to "territorial state" and synonymous with commonwealth in the sense of an "economically integrated commerce-and-culture area." The qualification of *oecumene* as consisting of "disparate, overlapping and interactive sphere of authority: economic, political, religious and, only derivatively, territorial" (Maisels 1999: 236-7, see also 224, 226, 252 ff.) could be applied to the Danube civilization. Haarmann was the first to utilize this concept for the Danube civilization (Haarmann 2003: 154 ff.; ibidem 2008a: 26-7). In particular, the network or *oecumene* model of the Danube civilization, as appearing from the standpoint of the script, centers on features of: a) a political ranking web of urban centers and micro-regions; b) a socio-economic integrated commerce-and-culture area (Maisels 1999: 236-7, 224, 226 for the general concept); and c) a common cultural koine.

The abstract signs are organized in 31 root-signs (or font-signs), which are subjected to the technique to vary the basic forms for creating 162 derivative signs. The root-signs express most of the fundamental geometric outlines that are subjected to formal variations (V, Λ, <, >, X, y, Π, Y, +, Δ...), but not to the extent that one sign becomes confused with another. Only four abstract signs are invariable.

The root-signs can be varied in three ways to enlarge their repertory (see Winn 1981: 60 ff.; Gimbutas 1991: 309; Haarmann 1995: 38 ff.; Merlini 2001; 2002b; 2003c; 2004a; 2008c). First, they can be rotated (Rotated variant), turned upside down (Reverse variant), turned round as in a mirror (Specular variant), and turned round plus upside down at the same time (Reverse and specular variant). According to this variational rule, a root-sign such as  can be turned round to become  or a  , reversed as  , mirrored as  , and reversed and mirrored as  . In the section of the abstract signs of the Danube script, the positional variants of the root-signs are 60.

Second, the root-signs can be duplicated or multiplied. These derivative signs are 17.

Third, the root-signs can be varied by the application of diacritical markers (auxiliary markers added to a basic sign), such as small strokes, crosses, dots, and arches. Based on the last technique (multiple variations), a V can be transformed, for example, into a V+, a V/ or into a \I/. There are 54 simple variations (when applying only one diacritical mark to the root-sign). The complex variations (when applying simultaneously two or more diacritical marks to it) are 31.

The sophisticated technique of systematic variations of basic signs using diacritical markers characterized other archaic systems of writing such as the

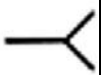
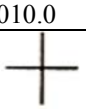
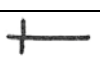
Indus script, but it was used for the first time in the Danube script (Haarmann 1998b). Although less recognizable, it is at work also in the ancient Sumerian pictography and in the Proto-Elamite script (Haarmann 2008a: 33).

ABSTRACT ROOT-SIGNS							
Root-sign	***Positional variant***				***Variant from multiplication***	***Diacritic variant***	
	Rotated variant (A in a).	Reverse variant (A in a).	Specular variant as in a mirror (A in a).	Reverse and specular variant (A in a).		**Simple diacritic Variant**	**Complex diacritic variant**
 DS 001.0					 DS 001.1	 DS 001.4	 DS 001.13
					 DS 001.2	 DS 001.5	 DS 001.14
					 DS 001.3		 DS 001.15
						 DS 001.6	 DS 001.16
						 DS 001.7	
						 DS 001.8	 DS 001.17
						 DS 001.9	 DS

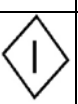
							001.18
						 DS 001.10	
						 DS 001.11	 DS 001.19
						 DS 001.12	 DS 001.20
							 DS 001.21
 DS 002.0					 DS 002.1	 DS 002.4	 DS 002.12
					 DS 002.2	 DS 002.5	
					 DS 002.3	 DS 002.6	 DS 002.13
							 DS 002.14
						 **a**  **b** DS 002.7	 DS 002.15

						 DS 002.8	 DS 002.16
						 DS 002.9	 DS 002.17
						 DS 002.10	 DS 002.18
						 DS 002.11	 DS 002.19
 DS 003.0					 DS 003.1	 DS 003.3	 DS 003.6
					 DS 003.2	 DS 003.4	
						 DS 003.5	
 DS 004.0					 DS 004.1	 DS 004.3	
					 DS 004.2	 DS 004.	

						4	
 DS 005.0						 DS 005. 1	
						 DS 005. 2	
						 DS 005. 3	
						 DS 005. 7	
						 DS 005. 4	
						 DS 005. 5	 DS 005.6
 DS 006.0		 DS 006.1					 DS 006.2
 DS 007.0	 DS 007.1	 DS 007.3	 DS 007.4	 DS 007.5		 DS 007. 6	
							

	DS 007.2					DS 007.7	
 DS 008.0	 DS 008.1					 DS 008.2	
 DS 09.0	 DS 09.1	 DS 09.3			 DS 09.4	 DS 09.5	
	 DS 09.2					 DS 09.6	
						 DS 09.7	
 DS 010.0	 DS 010.1		 DS 010.2				
 DS 011.0						 DS 011.1	 DS 011.2
						 DS 011.3	
 DS 012.0	 DS 012.1	 DS 012.3					
	 DS						

	012.2						
 DS 013.0	 DS 013.1	 DS 013.3			 DS 013.4		
					 DS 013.8		
	 DS 013.2				 DS 013.5		
					 DS 013.6		
					 DS 013.7		
 DS 014.0				 DS 014.1			
 DS 015.0	 **a**  **b** DS 015.1		 DS 015.3			 DS 015. 4	
	 **a**  **b** DS 015.2					 DS 015. 5	
						 DS 015. 6	
							

						DS 015.7	
 DS 016.0	 DS 016.1	 DS 016.4	 DS 016.5	 DS 016.6		 DS 016.7	
	 DS 016.2						
	 DS 016.3						
 DS 017.0	 DS 017.1	 DS 017.3					
	 DS 017.2						
 DS 018.0					 DS 018.1	 DS 018.2	 DS 018.5
						 DS 018.3	 DS 018.6
						 DS 018.4	

 DS 019.0	 DS 019.1		 DS 019.3			 DS 019. 4	 DS 019.7
	 DS 019.2					 DS 019. 5	 DS 019.8
						 DS 019. 6	
 DS 020.0	 **a**  **b** DS 020.1					 DS 020. 2	 DS 020.3
 DS 021.0			 DS 021.1		 DS 021.2		
 DS 022.0	 DS 022.1	 DS 022.4	 DS 022.5	 DS 022.6		 DS 022. 7	
	 DS 022.2						
	 DS 022.3						
 DS	 DS	 DS				 DS 023.	 DS 023.4

023.0	023.1	023.2				3	
 DS 024.0		 DS 024.1					
 DS 025.0		 DS 025.1	 DS 025.2				
 DS 026.0	 DS 026.1	 DS 026.3	DS 026.4	 DS 026.5			
	 DS 026.2						
 DS 027.0	 DS 027.1		 DS 027.4	 DS 027.5			
	 DS 027.2						
	 DS 027.3						
 DS 028.0		 DS028. 1					
 DS 029.0		 DS 029.1				 DS 029. 2	 DS 029.5
						 DS	

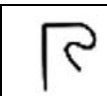
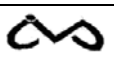
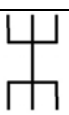
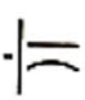
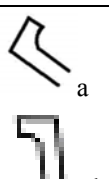
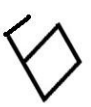
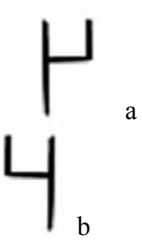
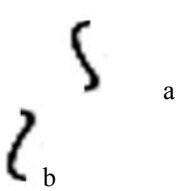
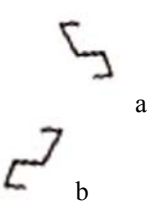
						029.3	 DS 029.6
						 DS 029.4	
						 DS 029.7	
 DS 030.0		 DS 030.1					
 DS 031.0	 DS 031.1						
 DS 032.0						 DS 032.1	 DS 032.2
							 DS 032.3
ABSTRACT UNVARIED SIGNS							
 DS 033.0	 DS 034.0	 DS 035.0	 DS 036.0				

Figure 21. The list of the abstract signs of the Danube script.

Pictograms and ideograms employed by the Danube script are not "schematic drawings," but distinct signs of the writing system. Pictograms are not stylized and simplified pictures of things, animals or natural phenomena as well as ideograms are not representations of abstract ideas through iconic outlines. Both are not draft images schematized by the arbitrary inventiveness of a "scribe", but signs that, even representing real objects and phenomena, have three properties: i) show silhouettes in accordance with a standard; ii) are inserted in a precise inventory of writing signs; and iii) have definite meanings. In conclusion, pictograms and ideograms are not simply "images", but *those* distinct images that settle in the inventory of the Danube script as signs of writing with a naturalistic root. *DatDas* subdivides the typology of pictographic/ideographic signs as depicting: animals; human beings and parts of the body; plants; tools, utensils, implements with different functions, vehicles; dwellings and structures; natural phenomena; S-shapes; Meanders; and Miscellanea.

<table>
<tr><td colspan="5">ICONIC SIGNS</td></tr>
<tr><td colspan="5">Pictographic/ideographic signs depicting animals</td></tr>
<tr><td> 
DS 040.0</td><td> 
DS 041.0</td><td> 
DS 042.0</td><td> 
DS 087.0</td><td></td></tr>
<tr><td colspan="5">Pictographic/ideographic signs representing human beings and parts of the body</td></tr>
<tr><td> 
DS 043.0</td><td> 
DS 044.0</td><td> 
DS 045.0</td><td> 
DS 046.0</td><td> 
DS 047.0</td></tr>
<tr><td> 
DS 048.0</td><td> 
DS 049.0</td><td> 
a
b
DS 050.0</td><td></td><td></td></tr>
<tr><td colspan="5">Pictographic/ideographic signs rendering plants and trees</td></tr>
</table>

 DS 051.0	 DS 052.0			
Pictographic/ideographic signs depicting tools, utensils, implements with different functions, vehicles				
 DS 053.0				
 A B DS 054.0	 DS 055.0	 DS 056.0	 A B DS 057.0	 D S 058.0
 A B DS 059.0	 DS 060.0	 DS 061.0	 DS 062.0	
 a b DS 063.0				

 DS 064.0	 DS 065.0			
 DS 066.0				
 DS 067.0	 DS 068.0			
Pictographic/ideographic signs related to dwellings and structures				
 DS 069.0	 DS 070.0			
Pictographic/ideographic signs connected to natural surroundings or phenomena				
 DS 071.0	 DS 072.0	 DS 073.0	 DS 074.0	 DS 075.0
S-shape				
 a b	 a b	 DS 078.0		

DS 076.0	DS 077.0			
Meanders				
 DS 079.0	 DS 080.0	 DS 081.0	 DS 082.0	 DS 083.0
 DS 084.0				
Spirals				
 DS 087.0				
Miscellanea				
 DS 085.0	 DS 086.0	 DS 088.0		

Figure 22. The list of the pictograms/ideograms of the Danube script.

Statistical evidence leads to identify some sign that functioned as numerals, although the detection is still rather putative. The inventory of the signs that may be assumed to function as numerals is sub-divided in five categories: vertical lines, diagonal lines, horizontal lines, strokes, and dots. If these shapes have a high probability to be signs representing quantities, future semiotic research has to test if also other signs with shape not intuitive as numeral express arithmetical values (as for example O = 1 hundred in the Linear B).

Under investigation is also the question if the above-presented signs are units of a number system or if they have only a numerological value. Having the inventory listed up to six vertical lines and up to eight horizontal lines (but with nine "on bench" being a singleton), one can hypothesize that there was a simple

numeral system. Is it decimal as the Linear B? If the Danube scrip possesses a numbering system, the distinction between the numerical system and the system of measurement will be necessary as well as the explication how the system of measurement worked.

POSSIBLE NUMERIC SIGNS

Vertical lines			**Diagonal lines**		**Horizontal lines**		**Strokes**	**Dots**
DS 100.0	DS 100.1	DS 100.2	DS 106.0	DS 106.1	DS 111.0	DS 111.1	DS 119.0	DS 123.0
DS 101.0			DS 107.0	DS 107.1	DS 112.0		DS 120.0	DS 124.0
DS 102.0			DS 108.0	DS 108.1	DS 113.0		DS 121.0	DS 125.0
DS 103.0			DS 109.0	DS 109.1	DS 114.0		DS 122.0	
DS 104.0			DS 110.0	DS 110.1	DS 115.0			
DS 105.0					DS 116.0			
					DS 117.0			
					DS 118.0			

Figure 23. The list of the possible numeric signs of the Danube script.

This systematic structuring of the signs of the Danube script documents that nearly two hundred literate settlements shared an organizational asset of the inventory characterized by signs that were conventionally conceived, standardized, applied, typologically organized in a systematic way (with outlines not haphazardly selected and developed), and applied according to accepted conventions coherently designed for readability. This organizational infrastructure alone would be enough as a benchmark to classify the Danube script as a writing system.

It is also noteworthy that, despite the high occurrence of mono-sign inscriptions, longer texts comprised of two-more signs prevail and most of them align several signs (in one instance 45 signs).

Due to the wide geographic area and long period under investigation, the recorded inscriptions and inscribed artifacts are not definitive enough to complete the inventory of signs. However, only a small number of new signs are expected to be found. In particular, the discovery of new inscriptions will allow the insertion into the databank of signs that now are kept out as being singletons (i.e. signs that appear just once). If the critical mass of information gathered by *DatDas* is not enough to attempt a decipherment of the script based on a computerized statistical analysis of the signs, it is definitely as much as necessary to determine that it was actually a system of writing. For example, a statistical test concerns the quota of singletons and very rare signs over the total number of known signs (n/N). Even with the mentioned limitations, the critical mass of information gathered by *DatDas* is enough to determine that the ratio of singletons over the total number of known signs (n/N) is decreasing. As the number of known inscriptions grows (N), the percentage of singletons and very rare signs diminish (n). This statistical test provides a challenge to the critics who argue that the Danube script is not a linguistic system of writing at all, claiming that the percentage of singletons and very low-frequency signs is going up, not down, over time – something that is inconsistent with any known writing system (Farmer 2003a: 17; 2003b: 39 referring directly to the Indus script and indirectly to the Danube script). Conversely, the figure evidences that even if the Danube script is mainly non-linguistic in nature, it has some phonetic elements at least marked marginally or occasionally

The same feature of a logographic system with some phonetic components is evidenced by the number of the inventoried signs. All ancient scripts are composed of a high number of signs (from hundreds to thousands of signs), because the logographic principle of writing demands individual signs for rendering individual concepts or ideas. In a comparative view, the more than 300-350 signs of the Danube script, documented in the inventory, are much less than the 760 individual signs of the Egyptian hieroglyphic in the second millennium BC, the 770 signs operated by the Ancient Sumerian pictography (of the Uruk III and IV periods) or the nearly 1000 signs belonging to the repertory of the Proto-Elamite script. The analogous number of signs listed by the Danube script and the ancient Indus (410) is not a coincidence, but indicate similar functions according to a networking oecumene society.

The amount of signs employed by the Danube script poses the question of the function and developing path of this system of writing. Was the relatively low number of signs due to the specialized nature of the script as a sacral tool mainly utilized in liturgies? Alternatively, are they in limited figures because the system of writing was "frozen" by the collapse of the Danube civilization when it was in transition from a primarily logographic system, which neglected the sound sequences of spoken words in favor of the transmission of concepts?

In conclusion, the inscriptions are composed in terms of a logically coherent system of signs targeted to the readability of the text, although in a very archaic and rudimentary way. Metabolizing and summarizing semiotic information from the corpus of inscribed artifacts, according to the *DatDas* databank, the traits of an archaic script become apparent.

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CULTIVATORS OR SHEPHERDS? NEW ARCHAEOBOTANICAL DATA REGARDING PLANTS CULTIVATION WITHIN AENEOLITHIC-BRONZE AGE COMMUNITIES, LOCATED IN THE ROMANIAN INTRACARPATHIAN AREA

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Key-words: *plants cultivation, Aeneolithic, Bronze Age, Romanian Intracarpathian area, Coțofeni culture.*

Abstract: *The article presents new archaeobotanical data regarding the plant species, which were included in the human diet of the communities from Aeneolithic-Bronze Age, located in the Romanian Intracarpathian area. The archaeobotanical data have been sampled from four archaeological sites dated in the period mentioned above. Our results are extremely important in the attempt of reconstructing the vegetal diet of these prehistoric communities, especially because, until now, these data did not exist. The lack of these archaeobotanical data made many archaeologists release the hypothesis according to which the main occupation of these communities was animal breeding rather than plants cultivation.*

Introduction

The so-called Intracarpathian area is located into the arc made by the Romanian Carpathian Mountains. The area is dominated by the mountain chain and has the character and quality of a basin. The plateau image results from the difference of altitude between the bottom and the surface of the valleys. The valleys are 300-400m deep. There are some controversies in geographical literature about the identity of Transylvania basin. Some people say that this area overlaps with the Transylvanian Plateau, while others see it as being just the area circumscribed inside the diapir folds (Badea et al. 1983).

In this paper we will refer to the sites located within Romanian Intracarpathian area. The archaeological interdisciplinary researches from the last years had offered new data regarding the daily existence of the communities belonging to the Aeneolithic-Bronze Age (Fig. 1).

One of the cultures with unpainted ceramics, characteristic for Aeneolithic-Bronze Age in the Intracarpathian area was the Coțofeni culture (Roman 1976; Gogâltan 1999; Laszlo et al. 2001). As mentioned above, the archaeobotanical analysis, which help the reconstruction of the human vegetal diet is scarce for this chronological period. But, in the last years, there were collected soil samples from

archaeological sites, in order to determine which plant species were included in the human diet. Thus, now, we can present the first archaeobotanical data resulted from archaeological contexts belonging to Coţofeni culture, recovered from Seuşa-Gorgan, Cetea-Picuiata, Cheile Turzii-Peştera Ungurească archaeological sites. Another set of new data comes from an archaeological context belonging to Carei-Bobald site, which belonged to the cultural group of Koszider (Hungary), dated in the middle Bronze Age (Nemeti and Roman 2003).

The sites

The archaeological site Şeuşa-Gorgan is located on the top of a hill, at 463m altitude above the Black Sea. From morphological and geographical point of view, the site is situated within an area, which is connected with the Mureş Corridor River and also with the Secaşelor Plateau (Badea et al. 1983) (Fig. 1). In prehistoric times, this high position has provided the populations with an excellent view of the entire valley, starting from Vinţul de Jos and ending with Teiuş. This means over 30 km of screening. The toponym's etymology of the area where the archaeological site is located, respectively *Vârful Gorgan,* together with the morphological configuration of the area, had determined the archaeologists to presume that there exist a *tell* settlement type (Ciută et al. 2006). The presumptions were also based on the archaeological materials found on the surface of soil, belonging to the Coţofeni culture. The systematically archaeological excavations have started in 2000, in order to establish which the prehistoric communities that inhabited that area were.

During the 2005-2006 excavations, within a surface dwelling belonging to IIIb-IIIc phase of Coţofeni culture, was revealed a huge quantity of charred seeds. The depth where these charred seeds were revealed was about 1 m. The charred seeds looked like a small level of intense dark carbonized material. The next operation was to sample very carefully the level containing the charred seeds, in order to gather all the significant data from the context. The archaeological complex named D1/2005 (D from deposit) has proved to be very rich in charred seeds, most of them being picked with the help of a palette knife (Ciută et al. 2007).

The second archaeological site, Cetea-Picuiata, is situated in a piedmont area of the village surroundings (Fig. 1). The village Cetea is located 20 km north of Alba Iulia, being a mountain village with the centre developed over the course of the upper Cetea stream. The place called *La Pietri* includes three neighbouring limestone formations which dominate the area, the left side of the Cetea valley, downstream, starting from the place called *Băile Romane*. The archaeological excavations were concentrated in three distinct locations, respectively *Picuiata*, *Ierboasa* and *Măriuţa* (Moga et al. 2005).

During the 2004-2006 seasons were carried out archaeological excavations in the north-eastern quarter and with that occasion was discovered valuable information regarding the Coţofeni habitations. Then was discovered a tumulus. After dismantling, inside the tumulus, three hearths were revealed. Additional information was brought by the discovery and partial research, in southwest

quarter, of a small circular pit. Besides ceramic, belonging to Coţofeni culture, phase III, this pit also contained charred cereal seeds. The distribution and character of these structures is not a common find for the Coţofeni habitation (Ghenescu et al. 2007).

The third archaeological site is located in a mountain area, respectively in Cheile Turzii, inside a cave called *Peştera Ungurească*. Cheile Turzii is part of Trascău Mountains, which, as geographical locations, form the eastern side of Apuseni Mountains (Badea et al. 1983) (Fig. 1). In this context, it is worth mentioning that all the area is full with caves where archaeological materials were revealed. *Peştera Ungurească* is the largest cavern from Cheile Turzii, going deeply in the mountain for a distance of 75m, being orientated towards north, north-east-south and south-east. The cave's entrance looks like a portal of trapezoidal shape, 11 m high, with its large side of 19 m down. The cave was used since prehistorically times and the archaeological excavations carried out here revealed human habitation belonging to different cultures from Aeneolithic and Bronze Age (Bărbulescu et al. 1992).

Fig. 1 Map showing location of the archaeological sites within Intracarpathian area.

In the 80's and 90's Gheorghe Lazarovici carried out important archaeological researches. They were interrupted until 2003 when they started again up until now (Lazarovici and Meşter 1996; Băltean et al. 2004). During the 2006 campaign,

from the levels belonging to Coțofeni culture, were recovered and analyzed samples containing charred macro remains (Arpad et al. 2006).

The last archaeological site we analyzed was Carei-*Bobald*. The point Bobald is a tell type settlement, being located 5 km southeast of the city of Carei, on the left terrace of Mergheşului river (Fig. 1). In the Carei-*Bobald* settlement, during the excavations carried out in 2002 (section VII, pit 7), in a context belonging to the middle bronze age, more specifically to the Koszider cultural group (Hungaria), was found, inside a pot, a large quantity of charred acorns (Nemeti and Roman 2003).

Materials and methods

The materials of this study consist of charred seeds collected from sites in different seasons of excavations. During the 2005-2006 excavation from euşa-*Gorgan* site were sampled 11 soil bags weighting almost 100 litters. The soil has been floated. After the flotation were recovered almost 3.1 kg of charred seeds.

From Cetea-*Picuiata* archaeological site were collected 2 samples consisting in soil bags weighting 10 litters.

Also, from Cheile Turzii-*Peştera Ungurească* were collected soil bags consisting of charcoal seeds. The soil from the cave has been washed with the help of sieves of 1.6 and 0.8 mm, using river water from nearby.

The sample from Carei-*Bobald* was picked during the 2002 seasons of excavation from a ceramic pot.

All samples were fully sorted using a magnifier lamp and were determined under a low power microscope, both by comparison with a modern reference collection (Systemic Archaeology Institute). Seeds were separated from wood charcoal and small fragment bones. All the preserved plant remains were charred.

For species verify we used the relevant identification literature (Grințescu et al. 1957; Beldie et al. 1972; Renfrew 1973; Hopf and Zohary 1988).

Results

Şeuşa-*Gorgan* (jud. Alba).

Applying a complex approach and sampling strategy of the archaeological contexts, allowed the recovery of significant quantities of charred macro remains (Ciută et al. 2007). The archaeobotanical analyses of the samples revealed the prevalence of wheat *emmer*, *Triticum dicoccum* (about 80%) (Fig. 2) followed by wheat *einkorn*, *Triticum monococcum* (about 20%) (Fig. 3). The importance of the discovery of this kind of contexts is worth to be mentioned.

Basically it is the first discovery of such silos containing cereals from the Coțofeni culture. The question to be asked is related to the position of this settlement and also the functionality of these contexts in which the silos were revealed. Why were there no other similar cases revealed until now?A single discovery does not allow us to generalize. So, the silos from Seusa-Gorgan will remain, until further reports, a single discovery, which provides a piece (a very

important one!) from a huge *puzzle*, which recreates the subsistence way of the Coțofeni inhabitants.

Cetea-*Picuiata* (jud. Alba).

The soil samples came from a pit named G2, precisely from a *tumulus*. The researchers wonder if this is a context with a ritual deposit (Ghenescu et al. 2007). From this context there were recovered about 500 caryopses of wheat *emmer* (Fig. 4). Also, it is worth mentioning the fact that the sample does not have intrusions of other species. As we have already mentioned, the reports with discoveries of charred seeds from Coțofeni culture, are quite rare. The more as they appear in a context with a possible ritual deposit.

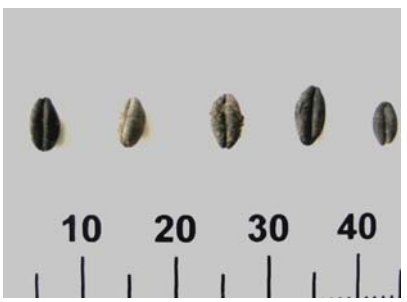

Fig. 2 *Triticum dicoccum* (Şeusa-*Gorgan*)

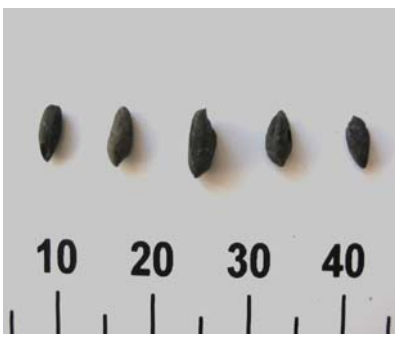

Fig. 3 *Triticum monococcum* (Şeusa-*Gorgan*)

Cheile Turzii- *Peştera Ungurească* (jud. Cluj).

From the levels belonging to Coțofeni culture, more specifically from quadrant F6-G6, pit 5, were recovered 7 cereal caryopses. Three of them belong to *Triticum monococcum*, two belong to *Triticum dicoccum* and the other two belong to *Cerealia* family. The samples recovered during 2007 campaign are on the way to be analyzed. We hope that they will provide additional information regarding plants cultivation by Coțofeni inhabitants. It is important to mention that in all the caves from the neighbouring area were found archaeological materials belonging to Coțofeni culture (Lazarovici and Meşter 1996), resulting that the area was intensively inhabited during the Aeneolithic-Bronze age.

The archaeobotanical analyses of the samples recovered from the Coțofeni levels, which otherwise are quite poor quantitatively, reveals an initial conclusion, namely that agriculture has not been a main concern for cave inhabitants. Probably this was due to the geographical conditions.

In order to reconstruct the picture regarding the cultivated species within the site from Cheile Turzii we also referred to the plant species recovered from the

levels belonging to late Neolithic and Aeneolithic, respectively from the levels belonging to Zau, Petresti and Bodrogkeresztur cultures. The inhabitants of these cultures lived in the same cave and exploited the same area. However, the most numerous botanical macroremains were recovered from the levels of Bodrogkeresztur culture (phase II and III) from a gold processing workshop. (Arpad et al. 2006). Thus, from the *Cerealia* family were identified 194 caryopses, whole or fragmentation, followed by the species of wheat *Triticum monococcum* with 95 cariopses and by *T. dicoccum* with 55 cariopses. From *Triticum aestivum* specie we determined only 3 grains and the species *Hordeum vulgare*, *Secale cereale* and *Panicum miliaceum* were represented, each of them, by a single grain.

The leguminous plants were represented by 4 seeds of *Vicia* sp. From the fruits category, most common were the seeds of black elderberries (*Sambucus nigra*) and cornelian cherry stones (*Cornus mas*) (Fig. 5).

A first conclusion is the one according to which these communities have preferred the *emmer* and *einkorn* wheat species. The data complete the theory already known, namely that these two species were cultivated together or separately (Hopf and Zohary 1988), but, also, are the most common species encountered in Neo-aeneolithic settlements from Romania.

Carei-*Bobald* (jud. Satu Mare)

The macro botanical analysis, carried out to determinate the species, has established that the acorn fruits belonged to the oak species, *Quercus robur*. This oak tree was widely spread in our country, in the *Atlantic phase* (the 5000-2250 BC), during the stage of *Picea abies*, with mixed hazelnuts and oaken (Cârciumaru 1996). There were recovered around 300 acorns and fragments of cotyledons belonging to *Quercus robur* (Fig. 6, 7). Some of them are in a good state of preservation, while others shatter at simple touch.

Fig. 4 *Triticum dicoccum* (Cetea-*Picuiata*)

Fig. 5 *Cornus mas* stones (Cheile Turzii)

Fig. 6 *Quercus robur* acorn (Carei-*Bobald*)

Fig. 7 *Quercus robur* cotyledons (Carei)

Discussion and Conclusions

During Late Aeneolithic and Bronze Age were registered oscillations of the climate, which were not proper for plants cultivation. Also, the graphic with temperature values simulation, of the last 10.000 years, shows an average of low temperatures for the period between 6000-5000 BP (Schweißen 1996).

The palynological analyses carried out on samples recovered from Coţofeni levels from Băile Herculane-*Peştera Hoţilor* have revealed a dry climate with a shade colder. In this period the percentages of mixed oak were much lower while those of *Carpinus* evidenced a significant increase (Cârciumaru 1996, p. 98-99).

Also, the palynological analyses for the Late Aeneolithic phase show that forest advanced again in the detriment of areas allocated for plants cultivation. Throughout this period, the process of forest's expansion continued, meanwhile, the cereals were kept at a lower rate (Cârciumaru 1996, p. 138).

The main process of wheat *emmer* and *einkorn* cultivation during the Coţofeni culture may show the fact that both wheat species were planted because they were species adapted to that type of climate. Both species are resistant in cold climate conditions. It is presumed that the economy of the Coţofeni inhabitants was linked to the geomorphologic conditions. Petre Roman launched the hypothesis according to which there was a predominance of plant cultivation in the lowland areas, and the growth of cattle in the mountain and hill areas (Roman 1976). But, there are few reliable data to support this theory. The fauna analyses carried out in several sites from Transilvania and Banat showed the prevalence of goats, followed by cattle. This may reflect a pastoral transhumance economy for those areas (Ciugudean 2000).

Because of the scarcity of systematic researches it cannot be draw a certain picture regarding the subsistence strategies and natural resources exploitation.

The hypothesis, according to which these culture inhabitants were communities with a pronounced trend of mobility, is revealed by the large number of seasonal settlements. These seasonal settlements are attributed to groups of

nomadic or semi nomadic shepherds. But P. Roman contests this theory in his monographic book dedicated to Coțofeni culture (Roman 1976, p. 16-34). The archaeo-zoological analyses are irrelevant because they exist only for a few sites (Ciugudean 2000). The archaeobotanical analyses that could provide important data regarding the type of Coțofeni communities' economy were missing entirely until now.

In 1996, Marin Cârciumaru, one of the few Romanian archaeobotanist researchers, has pointed out that a large part of archaeological sites, belonging to transition period, was not the subject of intense archaeozoological and archaeobotanical research. And the few sites analyzed are far from covering the main area of interest. Until now, the situation is not changed, although some small steps towards the involvement of the interdisciplinary methods were already made (Cârciumaru 1996, p. 142).

The archaeobotanical data obtained from our analyses carried out on samples recovered from Coțofeni levels proved that plant cultivation was a part of the subsistence economy of these communities. The plant cultivation was made on small plots around the settlement. The main wheat species cultivated were *Triticum dicoccum*, followed by *Triticum monococcum* (Fig. 8). In order to complete their diet, they gathered wild fruits from surrounding area, as was revealed by the *Cornus mas*, *Sambucus nigra* and *Quercus* fruits, discovered in the archaeological contexts (see Table 1).

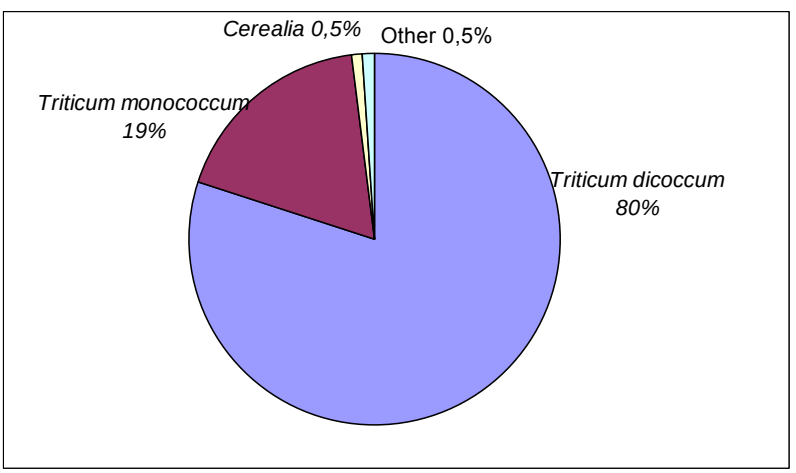

Fig. 8 Graphic with species percentages from all archaeological sites

Tabel 1 List of identified taxa, with the number specimens from each archaeological site

Taxa (charred remains)	*Seusa-Gorgan*	*Cetea-Picuiata*	*Cheile Turzii-Pestera Ungureasca*	*Carei-Bobald*
Triticum monococcum	20 % from all samples		103 caryopses	
Triticum dicoccum	80% from all samples	500 caryopses	55 caryopses	
Triticum aestivum			3 caryopses	
Hordeum vulgare			1 caryopse	
Secale cereale			1 caryopse	
Panicum miliaceum			1 caryopse	
Cerealia			208 caryopses	
Vicia sp.			4 seeds	
Sambucus nigra			108 seeds	
Cornus mas			52 stones whole/fragments	
Quercus robur				300 fruits
Corylus avellana			4 nut fragments	

There is still a debate regarding the subsistence way of Coțofeni culture communities. Were these populations predominantly shepherds? As the quantities of fauna materials discovered in their settlements are very few. Or plant cultivation was the prevalent way of life? So far none of these assumptions was confirmed by the interdisciplinary analysis. Moreover, the researchers of this period claim that these activities depend largely on the area where the settlement was located. If it was a lowland area it is very likely that they were communities cultivating plants, while the peoples located in highland area had, as their main occupation, the animal breeding (Ciugudean 2000; Laszlo et al. 2001).

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BRONZE AGE BIXAD-"VÀPAVÀRA" A FUNCTIONAL TYPOLOGY OF THE POTTERY AND A STUDY OF THE ARCHAEOLOGICAL LANDSCAPE OF SOUTH-EAST TRANSYLVANIA[63]

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Key-words: *pottery, landscape archaeology, Wietenberg culture, south-east Transylvania.*

Abstract: *In this paper we analyse the ceramic material belonging to the Wietenberg culture from the site of Bixad-"Vápavára", from a typological and functional perspective. Furthermore, we place this site in the broader context of Middle and Late Bronze Age settlements through a reconstruction of the archaeological landscape of south-east Transylvania.*

Introduction

This article presents the analysis and results of our research on the Bronze Age pottery belonging to the Wietenberg culture from the site of Bixad-"Vápavára". As we intend to offer a spatial context for the site in this period, the results of an attempt to create an archaeological landscape in south-east Transylvania will form the second part of this paper.

The presence of this material and the possibility of working with it were suggested to the authors by the staff of the Muzeul Național Secuiesc of Sfântu Gheorghe, county Covasna. The archaeological material mainly consists of pottery sherds and some other ceramic and lithic material. This has been collected through several surveys and excavations carried out in the middle of the past century.

South-east Transylvania is a region in which the so-called classical archaeological Bronze Age cultures of Romania meet each other in a single space, thus creating a distinctive mixture at a morphological and structural level, while they still preserving many of their main characteristics. The publication of the present material should be placed in this context, as a contribution to a bigger puzzle of this amalgam of cultures. For the sake of the present study, the geographical space of south-east Transylvania is roughly defined as the area of three counties: Braşov, Covasna and Harghita.

[63] The authors of the article would like to thank the staff of the Muzeul Național Secuiesc of Sfântu Gheorghe for their support; further we would like to thank Profs. A. Harding and J. Maran, Drs. N. G. O. Boroffka and Florin Gogâltan, also drd. L. Recht for all of their suggestions to the present work. Any errors remain the responsibility of the authors.

We will start by presenting a history of research on the Wietenberg culture. Due to the fact that the archaeological material published in this paper was collected through several different methods, it was considered useful to present a brief research history of the work carried out on this site and on the material coming from here, in order to review our present knowledge and limitations. The chronological framework for the site will be discussed by relating it to the main phases and divisions of the culture. Following this, the spatial framework will be suggested by a reconstruction of the archaeological landscape of the area in the given temporal boundaries. Furthermore, it was thought to be useful to present the contextual limitations of the material by creating a short overview of the excavations carried out on the site. The description and analysis of the ceramics at a morphological level will be placed in a wider context of the culture in order that the criteria used will be transparent and understandable to the reader. At the end of the paper two catalogues will be appended to offer the actual background for the statements and transparency for the conclusions: a catalogue for the pottery from Bixad-"Vápavára" and one for the Bronze Age sites of south-east Transylvania. The pottery catalogue includes the inventory data of the Muzeul Național Secuiesc, the description of every object, accompanied by not only the technological data (diameter, height, thickness, firing and so on), but also by the morphological information (form, decoration and so on). Each entry includes the literature for already published pieces and / or the best analogies found for them. The site catalogue has the name of the nearest modern-day settlement and the toponym, the type of the site (settlement or cemetery/burial), the main geographical feature on which the site is placed, the absolute elevation, brief descriptions of the most important finds, literature and additional remarks.

Research history

It is rather difficult to establish when the research of the Wietenberg culture began. Some finds which today are unequivocally considered to belong to the culture were retrieved before the chronology or even the name/concept of this culture was established. The name of the Wietenberg culture was introduced into the literature by H. Schroller, and he found that placing the culture within the Bronze Age was appropriate (Schroller 1928, 90). A second name (Kolozskorpád II) was given in 1944 to this same culture by M. Roska, based on the finds in Cluj county (Roska 1944, 22). From this double denomination of the same archaeological culture, the earlier one became more established in the literature. The first mention and field research of a site belonging to the Wietenberg culture from south-east Transylvania is from 1926. It was made by V. Pârvan, who published, among other finds, a sherd belonging to the culture, from the site of Sfântu Gheorghe-"Avasalja/Avasalja Gémvárgerincze" (Pârvan 1926, 22/02). In the mid-1920's Al. Ferenczi investigated the site at Bixad-"Vápavára" and published the results by 1929. A few years later, in 1933, H. Schroller published the first repertoire of the Wietenberg culture, cataloguing 44 sites out of which 14 are located in this region (Schroller 1933). By the end of the same decade Al. Ferenczi added two more sites (Păuleni-Ciuc-"Cetate / Dealul Cetății / Movila Cetății" and Racul-"Dealul Bogat-Câmpul Cetății"), which later turned out to be important for the research of the culture (Ferenczi 1938, 238ff). The first

monographic work of the culture saw the light of the day one year later; it was written by K. Horedt and it mentioned 25 sites from south-east Transylvania (Boroffka 1994, 20ff-note on Horedt 1939a, ms). In 1940, Al. Prox noted a few sites of the Wietenberg culture in Braşov county, two of which were unknown till this time (Prox 1940, 87ff). In the 1940's, M. Roska on several occasions discussed sites with archaeological materials belonging to the "Kolozskorpád II" cultural aspect. In his monographic work dedicated to this culture from 1944 he recorded 80 sites for all of Transylvania, with 19 from our study region (Roska 1941; Roska 1942; Roska 1944, 22ff). After the Second World War the archaeological research in the area was only carried out on a limited scale and the first published results appeared at the beginning of the 1950's. In this background appeared the first publication of Z. Székely, on Bixad-"Vápavára" (Székely 1955c, 7ff; Székely et al. 1951). This archaeologist became a figure who marked the research of the next half century of field work and publications in south-east Transylvania and other places (Székely 1953; Székely 1955a; Székely 1955b; Székely 1955c; Székely 1959a; Székely 1959b; Székely 1959c; Székely 1959d; Székely 1960; Székely 1962; Székely 1965; Székely 1966; Székely 1970a; Székely 1970b; Székely 1970c; Székely 1971a; Székely 1971b; Székely 1973; Székely 1979-1980; Székely 1980-1981; Székely 1984; Székely 1988; Székely 1990). Others like M. Macrea, R. Vulpe and K. Horedt continued their work in the field and publications as well (Horedt 1956, 5ff; Macrea 1951, 285ff; Vulpe 1955, 559ff). The first comprehensive work on the Wietenberg culture had K. Horedt's signature, and he identified 182 sites with 29 in the south-eastern part of Transylvania (Horedt 1960, 107ff). The apparently small proportion of sites in our study area was to increase with the work carried out in the following decades, especially that by Z. Székely, whose contribution significantly changed this picture. The 1970's showed an intensification in field research, which had its main or secondary objectives in the Wietenebrg culture, through the skilful activity of scholars like K. Horedt, P. János and D. Kovács, V. Vasiliev and S. Sereş, G. Ferenczi, Z. Cserey (Boroffka 1994, 36-note G. Ferenczi u. a. 1968:ms; Cserey 1969; Horedt et al. 1962; János and Kovács 1967; Vasiliev and Sereş 1967). As the field research continued and the raw materials started to build up, the first works of theoretical nature, which made use of this valuable source of information, appeared in the form of shorter articles (Bichir 1964; Crişan 1961). The 1970's is the period of full blossoming for the research of this culture in south-east Transylvania. The field research was taken to a higher level of competence in terms of the quantity and quality of work carried out by archaeologists like Z. Székely, A. D. Alexandrescu, and G. Ferenczi (Alexandrescu et al. 1973; Ferenczi and Ferenczi 1976; Ferenczi and Ferenczi 1978). The next decade profited from the research experience of the previous periods and took the study of this culture to what could be called the beginning of its classical period. Scholars like Z. Székely and A. D. Alexandrescu took the study of the Wietenberg culture even further, and others making their appearance at this time contributed by examining new aspects like cave habitats (Emödi 1980-1981), or new theoretical areas (Boroffka 1994, 87-note Zs. Székely 1983a:ms; Székely 1988; Székely 1989). In the last decade of the last century, N. G. O. Boroffka synthesised a monographic work on the

Wietenberg culture which presented 592 sites, out of which 86 are located in south-east Transylvania (Boroffka 1994).

The geographic landscape of Bixad-"Vápavára" (Map 1)

The site is located south of the Bixad train station, on the right-hand side of the Olt River, in the shadow of the Murgul Mic Mountain, on a promontory of a terrace situated between the above mentioned river and the Răchitaş (Rakottyás) stream. The site and the geographical feature have been heavily damaged by stone quarry exploitation. One has a good view from the site to the south and east. The areas next to it are used even today for agricultural activities. A few kilometres upstream the Olt emerges from the narrow gorge, created by the mountains of Bodoc and Baraolt, which is the only access way to the Ciuc Basin to the north. It dominates the eastern exit of another pass to the west, which connects it to the Depression of Baraolt through the Răchitaş Valley. Beside these one has a direct view to the east to another pathway which connects the area of the site with the Depression of Târgu Secuiesc (Cavruc 1998, 96).

Even based on this brief description of its geographical location, we can conclude that the site is dominating the Depression of Bixad, which in itself is a node in the micro-region of the area. The depression and the river terraces may have been used in prehistory for agricultural needs. Husbandry could also have been a major concern; especially ovi-caprids could have adapted very well to the extreme and alternating climatic conditions of the mountainous part of the Olt Valley.

Research history of archaeological exploration at Bixad-"Vápavára"

The first literary mention of the medieval fortification on this site is made by Balázs Orbán, who describes its general placement in the landscape (Orbán 1868-1873, 59ff). In the last decade of the 19th century, László Kővári, in an extended Transylvanian repertoire, describes the general placement of the site again and mentions its prehistoric habitation (Kővári 1892, 54f). The first published evidence of prehistoric finds coming from the site is by Ferencz László in a paper entitled "*Háromszék vármegyei praemykeneai jellegű telepek*", where its placement is once again described (László 1911, 115ff). Shortly after this publication Ferenczi investigated the site through an archaeological excavation, the results of which were published in 1929. This was followed almost 20 years later by a survey conducted under the guidance of Z. Székely in 1946 (Székely 1955c, 13). The most extensive archaeological fieldwork at the site was conducted in 1949 through a collaboration of the Regional Museum of Sfântu Gheorghe and the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca. They found that the earliest settlement on the site belonged to the Ariuşd culture, which was followed by a Wietenberg and later by a Dacian habitation (Daicoviciu et al. 1951, 120; Székely 1955c, 8). A few years later Z. Székely published some information on the Bronze Age habitation and some of its finds made during the two excavations (Székely 1955a, 842ff). Other unpublished materials were presented by N. G. O. Boroffka in his monographic work on the Wietenberg culture in 1994 (Boroffka 1994, 23). The most recent references to the prehistoric site were made in 1998 in the Archaeological Repertoire of Covasna county (Cavruc 1998, 96).

Description of the archaeological excavations at Bixad-"Vápavára" – 1949 campaign

The results of the excavation conducted in 1949 were never fully published and the reports on the Bronze Age finds were only brief and vague. We will be using the personal journal of Z. Székely (Székely 1949), which was written during the excavation, and is currently archived in the Muzeului Național Secuiesc of Sfântu Gheorghe, county Covasna.

The fieldwork conducted in 1949 had the nature of a rescue excavation due to the quarry which was opened in 1948 on the southern and south-eastern part of the promontory, thus severely damaging the site and endangering the remaining portion of it (Daicoviciu et al. 1951, 13; Székely 1955c, 120). As a result of this destruction of some parts of the site, the stratigraphy was made visible (Ariuşd-, Wietenberg culture, La Téne and Middle Ages) and therefore the succession of the different cultures was already known even before the beginning the excavation (Daicoviciu et al. 1951, 122; László 1911, 177; Székely 1955c, 9). This stratigraphy of the different archaeological levels had a depth of 1.5 m, which rested on a 0.5 m thick alluvial deposit mainly formed by sand and pebbles, in turn resting on the andesitic bedrock (László 1911, 177; Székely 1955c, 14).

The notes on the Bronze Age layer, specifically the one belonging to the Wietenberg culture, are very sparse. This leads us to assume that the layers were not present on the entire site and that they were thin in comparison to other layers. Also, it is likely that the later, more intensive, habitations of La Tène and/or Medieval period would have severely damaged these layers. These factors would account for the spread out nature and relatively low number of Bronze Age finds from the site.

As mentioned, the notes on the Bronze Age finds and contexts in the personal journal of Z. Székely are far less than those referring to the other periods at hand. These are as follows: "egy geometrikus diszítésű, pontozott darab" (Székely 1949, day 25/VII. 1949) (a sherd decorated with geometric shapes and punctation) and "o ceşcuță mică în formă de jucări pentru copil" (Székely 1949, day 29/VII. 1949) (a small cup in the shape of a child's toy). The depth and the section from which the Wietenberg material originates are rarely mentioned. We can safely state, based on the journal, that trenches IV and X yielded Bronze Age material (Székely 1949, days 25 and 29/VII. 1949). Also we may conclude, based on the entries made into the finds register of the Muzeului Național Secuiesc of Sfântu Gheorghe, county Covasna, that section II also produced some of the materials presented in this article (inventory numbers 13248-13251).

Analysis of the archaeological material belonging to the Wietenberg culture from Bixad-"Vápavára"

We here present the results of our study material; furthermore we will try to fit it into the periodisation created by N. G. O. Boroffka, based on the forms and decoration of the pottery, hoping to date them as precisely as possible. It is to be noted that all the materials in the museum inventory are diagnostic, presumably because of the sampling methods used on-site. Due to this selection the conclusions of the present study will be limited and the reconstruction of a general picture of the Bronze Age habitation will only be possible to a certain extent.

Most sherds are undiagnostic in terms of shape but have well preserved decorative elements which allow for a reasonably exact dating. The most commonly encountered shapes are those of medium and small sized bowls (**Pl. I-III**). Their profile varies from the "S"-shaped ones to the ones with spherical body and cylindrical neck. They are closely followed by large and medium sized pots (**Pl. VII, VIII/1-7, XI/6**), which are more scarcely decorated. This decoration especially occurs on the upper part of the vessel as incisions or stamps, plastic bands and projections/buttons. The third largest group in term of shape is made up of lobed (**Pl. IX, X/1, XI/1, 4**) and simple dishes (**Pl. VIII/8, X/2-6, XI/2, 3, 5**); these are richly decorated, in most of the cases with incisions. The lobed dishes are almost entirely covered with decoration, while the simple dishes are only decorated on the upper part and rim of the vessel. The least common shapes are cups with a simple profile (**Pl. V/1-5**) and juglets (**Pl. XIII**). The assemblage is further made up by different types of handles (**Pl. XII**). Most common of them are vertical, ear-shaped loop handles, but the more robust, vertical pot handles are also present. We may also mention six ceramic spoons of different shapes (**Pl. VI/3-8**), some of which may have had detachable handles (**Pl. VI/6, 8**).

Single items are also present, and we take note of a spindle whorl with vertical incised lines (**Pl. IV/4**), one half of a miniature clay chariot wheel (**Pl. IV/5**) and a small sceptre head (**Pl. IV/6**). Special attention should be given to the lids (**Pl. IV/1-3**), particularly to the one with incised and concentric motifs (**Pl. IV/1**).

The majority of the vessels are open shapes with the intended use of serving solid or liquid food (dishes, bowls, cups, loop handles). We have a comparatively small amount of vessels which could have been used for distributing the liquids served from the above mentioned vessels (4 juglets). The pots and large sized vessels suggest storage and food preparation activities at the site. The fragment of the chariot wheel and the small sceptre head suggest a higher level of social interaction and provide some evidence for religious activities.

Based on this assemblage we can only make limited assertions about the nature of the activities and habitation at this site in the Bronze Age. The members of the excavations do not record any osteological material (neither zoological nor anthropological) associated with the Bronze Age finds or layers, which would lead us to conclude that we are dealing in the case of this site with a habitation rather than a funerary context. Also some features of the pottery, such as ear-shaped loop handles, carinated profiles and some everted rims, could remind us of some metal counterparts, which in turn would suggest a social differentiation and a certain level of prosperity of the Bronze Age inhabitants. The thickness of the Bronze Age level would suggest a short and moderate habitation of the site, but we must keep in mind that pottery presents a slightly different view of the site, indicating some level of well-being (see below). Future field research on this site may be able to elucidate these uncertainties.

The pottery offers some evidence for contacts with contemporary cultures. A bowl (*cat. no. 10*) showing some influences of the Otomani culture, and an unpublished handle with a knob having a circular cross-section (inv. no. 14589 of the Muzeul Național Secuiesc din Sfântu Gheorghe) indicating contacts with the Noua culture are the most obvious examples.

The most important information that we can extract from the pottery, given its state of sampling, concerns chronology. Based on some specific shapes and decoration we can define, within the Bronze Age, the period of activity on this promontory. Very few elements allow us a dating in the early period of the culture; therefore we would like to suggest the beginning of the activity on this site in the later A phase, **A2-Boroffka**, of the Wietenberg culture (Boroffka 1994, 249). The nearest parallels in our assemblage for such a dating are, in terms of shapes, the following vessels: *cat. no.* – 9, 13, 15, 16, 17, 20, 30, 50, 51, 52, 54, 55, 67, 72(?), 77 and for decoration: *cat. no.* – 25, 57, 64, 72, 73, 103, partially 107. The second phase, **B-Boroffka** (Boroffka 1994, 250), is represented more strongly by the following shapes: *cat. no.*– 5, 8 and 27 in particular, but also by 14, 18, 28, 32, 44, 61, 64, 87 and decoration: *cat. no.* – 24, 26, 45, 56, 68, 75, 98, 102, 105, especially 107, 110. The second last phase, **C-Boroffka** (Boroffka 1994, 250), is under-represented, having only four shapes, which are securely datable to this stage: *cat. no.* – 24, 43, 47, 68, 73, 75, 80 and only three decorative motifs: *cat. no.*– 62, 71, 74, 113. There is a slight chance that some of the elements which could be attributed to the later C-phase belong to the last, **D-Boroffka** (Boroffka 1994, 251), of the culture. In regards to shapes, we are referring to: *cat. no.* – 6, 11, 12, 19, 22, 63, 65 and motifs as: *cat. no.*– 91, 107. This vague dating of the last stage is due to the fact that at the only site where the documented stratigraphy of the Wietenberg culture was made, the site of Derşida, the last stage, phase D, is missing. For this reason a more exact division of the material belonging to each of the periods was not possible. For the same reason, a more secure dating into the last phase is elusive, as some shapes are present throughout the evolution of the culture (e.g. *cat. no.* – 23, 69). The same is true for certain other shapes (e.g. *cat. no.* - 6, 22), although these tend to appear in larger numbers in the later stages. Moreover, we have some shapes (*cat. no.*– 5, 8, 9, 20, 57) which, although they may appear in phase D, are more specific to previous stages of the culture. Relying on the above observations and analysis we would like to suggest a Middle Bronze Age dating for this site. In terms of the inner division of the Wietenberg culture it would be placed within the late A (A2) and the (probably) early D phase, with the most intense habitation in the A2 and B phases.

Chronology of the Wietenberg culture in south-east Transylvania

We will here present the evolution of the culture in order to suggest a chronological background for the Middle Bronze Age settlement landscape in south-east Transylvania.

The time of the emergence of the Wietenberg culture in this region is still a widely disputed topic in the literature. The main points of disagreement and polemic concentrate around two main problems; the first concerning chronology and the second concerning the synthesis of the culture. Although the inner chronological division of the culture is based on stratigraphic contexts, the actual division is done by pottery percentage and relative proportions. This is the reason why we cannot state with certainty, based on the present state of research, when the culture began in this area, although we tend to accept a beginning in the later A phase (A2) (Boroffka 1994, 258), right after the Ciomortan group, as the newest evidence from Păuleni – Ciuc (county Harghita) tends to indicate (Cavruc 2001,

47). The following two phases, B and C, are present at almost every known site from the area (see the settlement catalogue below). The existence and nature of the last, D-phase, is widely disputed and still unclear.

The problem of chronology of the Wietenberg culture, and for that mater for all the Transylvanian prehistory, is further deepened by acute, and in some cases the total, lack of C14 datasets. The main reason for this hiatus is to be sought in the relatively high costs of such dating procedures and the lack of retrieved samples from the field research, as this at best only constitutes a secondary objective of such projects. Hopefully we will see in the near future a change in attitude and an increase in such information.

The settlements of the Wietenberg culture in south-east Transylvania

The south-eastern part of Transylvania can be divided into two major geographical units: the mountains of average heights (800-1200 m), and depressions and mountain corridors. There are two major depressions: the Ciucului in the south and the Gheorgeniului in the north. In these two depressions run the two rivers Olt and Mureş, separated by a watershed which functions as a natural border between the two low topographical features of the area. Smaller topographical units are the Braşovului Depression in the south and the Târgu Secuiesc Depression in the east.

Based on the catalogue at the end of this paper, we may say that at the present state of research we know of 86 sites belonging to the Wietenberg culture in south-east Transylvania. Almost half of these sites (36) could not be incorporated into the settlement landscape analysis of the region - the reason for this is mainly the lack of published information on the micro-regions of the sites. Some of the sites in need of general placement descriptions have been visited by the authors, and hence have been made the subject of the present analysis. Another difficulty dealing with the sites of this culture in this region is the unsatisfying manner in which they were researched and published, in most of the cases not even allowing for a general dating based on the phases of the culture or for discerning the dynamics of their evolution. Thus, we do not know the research method of 28 sites, and 27 sites were only investigated by survey (which were also not systematic), and only 31 sites have been researched through archaeological excavations (preventive/rescue or systematic). We can recognise from these factors that our database is relatively limited, due to the present state of research, and this should be kept in mind when considering the conclusions.

The area has five burial grounds of various sizes, most of which are single graves and in two cases (Mereşti-*Peştera Almaşului*, *cat. no.* 44 and Rotbav-*La Pârăuţ*, *cat. no.* 61) we have an attested multiple-grave cemetery with an associated settlement. 61 sites can be regarded as settlements, while the nature of 19 sites is uncertain. The latter are those sites which have an uncertain geographic location and/or their archaeological data is scarce and vague. Although, based on this data, it would appear that almost ¾ of the sites are settlements (fig. 1), we stress that, without extensive field research, most of the funerary sites could have eluded us and a handful of sherds does not necessarily indicate a habitation.

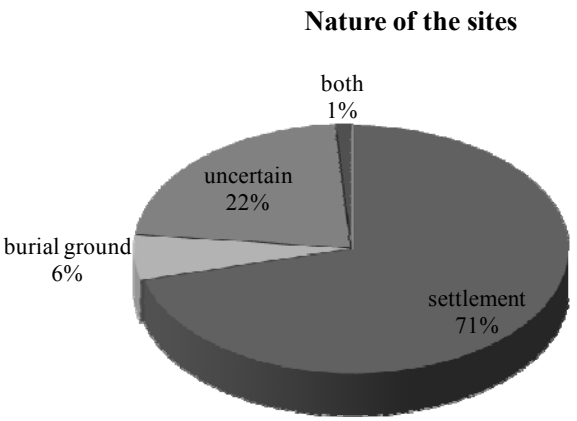


Fig. 1

The analysis of the relationship between settlement location and geographical features may complement and further elucidate the rough landscape image that we have so far on the Wietenberg habitations of south-east Transylvania. The division of the geographical features is basic, since a more elaborate one based on groups and subgroups would be far too complicated for the present stage of development of research. From the 86 sites presented in this catalogue it was only possible to collect the required information from publications or through personal fieldwork for 40 sites. Three of these are located in caves of the Vârghişului gorge and twice as many on hill-tops; it is worth noting that the highest lying Wietenberg settlement has an absolute elevation of 940 m (Odorheiu Secuiesc-*Dealu Cetatea Macului*). One quarter of the 40 sites is placed on promontories and more than half (21) are in valleys, with 16 of these on river terraces. The site of Bixad-

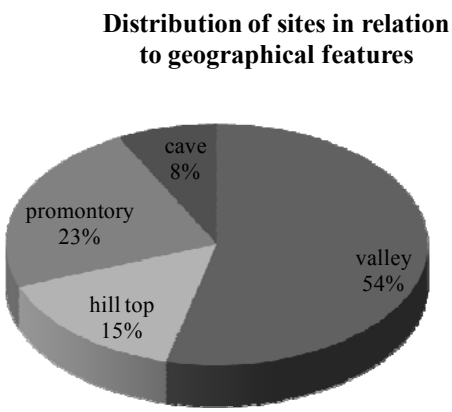


Fig. 2

"Vápavára", studied in this paper, fits into the group of the ones found on promontories; with such a location these sites dominate and control their own micro-region.

We need to stress that the present analysis of settlement landscape is only to be viewed as a preliminary research step, and the conclusions presented here should not be generalised nor extended outside the defined region of south-east Transylvania. This article highlights areas where further research is strongly needed; the study of the Bronze Age in this region would benefit from more theoretical and contextual analysis, as well as publication of previous fieldwork and new systematic excavation and surveys. The methodology and theories applied in this paper will hopefully show how even archaeological information of apparently "lesser" quality can contribute to the understanding of the prehistoric past.

The catalogue of the archaeological material belonging to the Bronze Age from Bixad-"Vápavára"

Every find has, as a main part of its catalogue entry, the shape type, the fragment type, the inventory number and the institution where it is stored. The finds are ordered alphabetically based on their shapes. The collection method and the year of its donation are stated, based on the registry information of the institution/s, in the cases where this is at hand. The technical information consists of the diameter (Dm), height (H) and thickness (Th) of the vessel. The shape is also described, but only in the cases where the profiles are at least partially reconstructable. The decoration of the finds is described as well. The technological information is presented after this morphological description: clay (fine, medium-coarse and coarse), tempering (fine/small, medium, big), firing (very good, good, medium, weak), colour. As a last note the analogies or in some cases actual material, in terms of shape and motifs, are presented for each entry. For doing this we will be favouring the types established by N. G. O. Boroffka. A few of the finds have already been published; in these cases the entry includes a bibliographical reference.

1) **Bowl**, fragment

Inv. nr. 11401; Pl. II/1

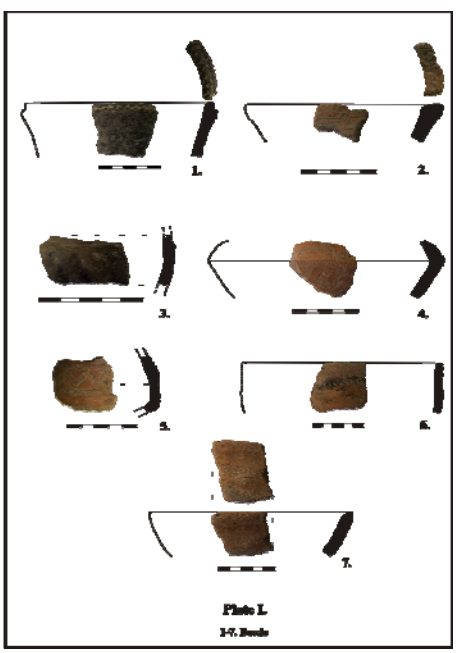
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=18 cm; Th=0.5-0.9 cm

Fragment from a medium sized bowl with "S"-profile and flaring rim. At the point where the neck meets the shoulders a horizontal incised ledge was created (0.35 wide). It has fine tempering with a dark black colour and the outside of the bowl is burnished.

Analogies: shape - (Boroffka 1994, 152-TD3d.k.)



2) **Bowl**, fragment

Inv. nr. 11403, Pl II/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=16 cm; Th=0.6-0.9 cm

Fragment from a medium sized bowl with "S"-profile and flaring rim. The central part of the sherd is decorated with a horizontal, continuous border of two incised bands. These border-bands are created by two horizontal and parallel incised lines and space in between them is filled up with a row of slightly overlapping incised "X"-s. The register is filled up with diagonal bands of the identical sort as the border-bands. It has a fine sand and small stone tempering. Its firing is good and it has a black colour with a burnished surface on the outside as well on the inside.

Analogies: shape - (Boroffka 1994, 150-TD3g.k.)

Bibliography: (Székely 1955a, fig. 3/2)

3) **Bowl**, fragment

Inv. nr. 11414; Pl II/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=27 cm; Th=0.9-1.3 cm

The sherd belongs to a deep bowl. Its decoration consists of a narrow, horizontal band placed on the shoulder of the bowl. This consists of two incised and parallel lines with the space in between them being filled up with overlapping incised "X"s. It has a fine sand and small stone tempering. Its firing is good and has a black colour with a burnished surface on the outside.

Analogies: shape - (Boroffka 1994, 188-VD4)

4) **Bowl**, fragment

Inv. nr. 11415; Pl. II/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=12 cm; Th=0.4-0.6 cm

The sherd belongs to a small bowl. It has a slightly flaring rim. The lower body is decorated with diagonal fluting; these are bordered on their upper parts by roughly incised and sometimes overlapping upside down "V"s It has a fine sand temper, good firing and a black

colour. The outside as well the inside is burnished.

Analogies: shape and decoration - (Boroffka 1994, 146-TD3d)

5) **Bowl**, fragment

Inv. nr. 11417, 11418; Pl. II/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=20 cm; Th=0.3-0.5 cm

The sherd belongs to a large bowl with "S"-profile. The edge of the flaring rim is slightly thickened. The outer side of the rim is incised with closely overlapping and incised "X"s. The shoulder is decorated in a similar manner only that they are placed between two incised, horizontal and parallel lines. Beneath this incised shoulder band the bowl is decorated with diagonal and wide flutings. It has a fine sand temper and a good firing. The colouring varies from creamy-brown to black and it is burnished on its outside.

Analogies: shape - (Boroffka 1994, 149-TD3f.mg.)

6) **Bowl**, fragment

Inv. nr. 11446; Pl. II/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=16 cm; Th=0.4-1.2 cm

The sherd belonged to a medium sized bowl with an "S"-profile. It is decorated with a simple knob. It has been fine sand tempered. It has a good firing and a blackish-grey colour. The outside as well as the inside surfaces have been burnished.

Analogies: - Otomani culture import (personal communication of N. G. O. Boroffka)

7) **Bowl**, fragment

Inv. nr. 11498, Pl. II/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=10 cm; Th=0.4-0.7cm

The sherd belonged to a small bowl with an "S"-profile. The rim is slightly flaring. The body of the bowl is decorated with narrow and diagonal incised lines, which are delimiting slightly convex areas. It is fine sand tempered and has a good firing with a creamy-brown colour. The outer surface is burnished.

Analogies: shape - (Boroffka 1994, 139-TC3e)

8) **Bowl**, fragment

Inv. nr. 11504; Pl III/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=12 cm; Th=0.4-0.6 cm

The sherd belonged to a small bowl. It has a flaring rim. It is fine sand and small stone tempered. It has a good firing and a dark black colour. The outer surface is burnished.

Analogies: shape - (Boroffka 1994, 139-TC3e)

9) **Bowl**, fragment

Inv. nr. 11535; Pl III/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Béla Steinberger

Dm=12 cm; Th=0.3-0.7 cm

The sherd belonged to a small bowl and is undecorated. It is fine sand tempered and has a very good firing. It has a brownish-grey colour.

Analogies: shape - (Boroffka 1994, 144-TD2a)

10) **Bowl**, fragment

Inv. nr. 11578, Pl. III/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

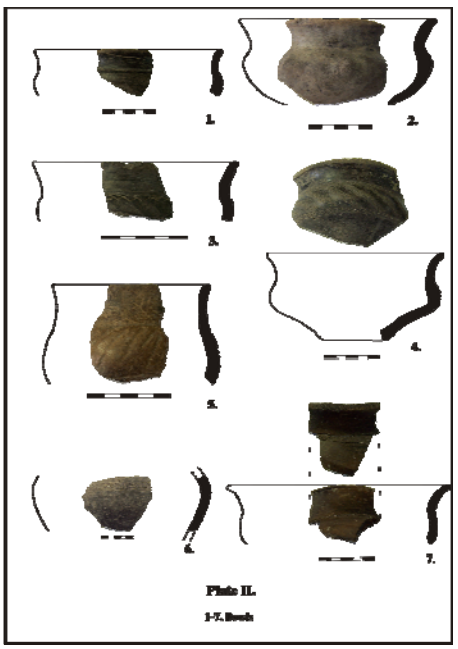
Dm=12 cm; Th=0.4-0.7 cm

The sherd belongs to a small, slightly squashed bowl with an "S"-profile and handles. The rim of the bowl is vertical. It is decorated with diagonal flutings on its lower part, below the handles. It is fine sand tempered. Firing is good and it

has a black colour and a polish on both outer and inner surfaces.

Analogies: shape - (Boroffka 1994, 144 -TD2b)

decoration - (Boroffka 1994, 182-VA11)



11) **Bowl**, fragment

Inv. nr. 11804; Pl III/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Tamás Kisgyörgy

Dm=20 cm; Th=0.7-0.8 cm

The sherd belongs to a medium sized, slightly squashed bowl with an "S"-profile and handles. The handle has two vertical rills. It is tempered with medium sized grains and medium-coarse sand. Firing is good and it has brownish-black colour. It is burnished on the outer surface and inner side of the rim.

Analogies: shape - (Boroffka 1994, 126-TA3c)

12) **Bowl**, fragment

Inv. nr. 11816; Pl III/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Tamás Kisgyörgy

Dm=12 cm; Th=0.4-0.6 cm

The sherd belongs to a small bowl. The lower body of the vessel is decorated with diagonal, shallow flutings; the upper part of these is bordered by elongated punctations. It is fine sand and small stone tempered. It has a very good firing and a greyish-brown colour.

Analogies: shape - (Boroffka 1994, 144-Td2a)

decoration - (Boroffka 1994, pl. 18/16)

13) **Bowl**, fragment

Inv. nr. 11817; Pl III/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Tamás Kisgyörgy

Dm=14 cm; Th=0.4-0.6 cm

The sherd belongs to a small bowl with the maximum diameter at the half of its height, with a cylindrical upper part. The sherd's only decoration is a single incised horizontal line at the meeting point between the shoulder and the cylindrical neck. It is fine sand tempered and it has a very good firing. It is of dark black colour and is burnished on both the outside and the inside.

Analogies: shape - (Boroffka 1994, 144-Td2a)

14) **Bowl**, fragment

Inv. nr. 11819; Pl III/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Tamás Kisgyörgy

Dm=12 cm; Th=0.5-0.7 cm

The sherd belongs to a small bowl with a slightly squashed spherical body with loop handles; these are slightly raised. It is fine sand tempered and has a very good firing. The outer side is creamy-brown in colour as opposed to the inner part, which is deep red. The outer surface is matte and burnished, as is the inside of the rim.

Analogies: shape - (Boroffka 1994, 144-TD2b)

15) **Bowl**, fragment

Inv. nr. 11998; Pl. III/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=10 cm; Th= 0.5-0.8 cm

The sherd belongs to a small bowl. It has a spherical body and a slightly flaring rim. It is decorated on the rim with diagonal incised lines. The body of the vessel is decorated with diagonal flutings bordered on the upper side with a horizontal, incised line; the latter is placed at the meeting point of the shoulder with the neck. It is fine sand and small stone tempered. It has a very good firing. It is of black colour and on the outer surface it is burnished.

Analogies: shape - (Boroffka 1994, 139-TC3e)

16) **Bowl**, fragment

Inv. nr. 12243; Pl I/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=18 cm; Th=0.5-0.7 cm

The sherd belongs to a medium sized conical bowl. It is decorated with three horizontal incised bands, each of which is made up by two parallel horizontal, incised lines and the space in between them is filled up with cross-hatched, incised lines. In some places white lime paste which was pressed into the incisions is still recognisable. It is fine sand tempered. It has a very good firing and a creamy-brown colour.

Analogies: shape - (Boroffka 1994, 142-TD1b)

17) **Bowl**, fragment

Inv. nr. 12246; Pl. I/4

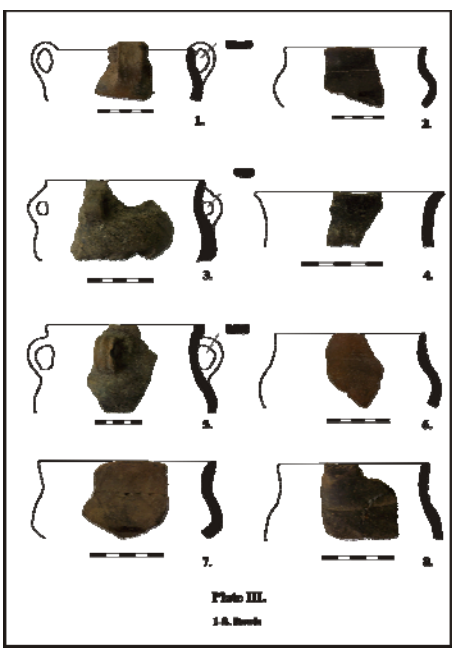
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=18 cm; Th=0.6-0.7 cm

The sherd belongs to a bi-truncated bowl with a roughly carinated maximum diameter. The decoration consists of incised hooks which are filled up with diagonal and incised lines. It is fine sand tempered and has a light and matte red colour.

Analogies: shape - (Boroffka 1994, 154-TD4e.mk.)



18) **Bowl**, fragment

Inv. nr. 12453; Pl. I/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

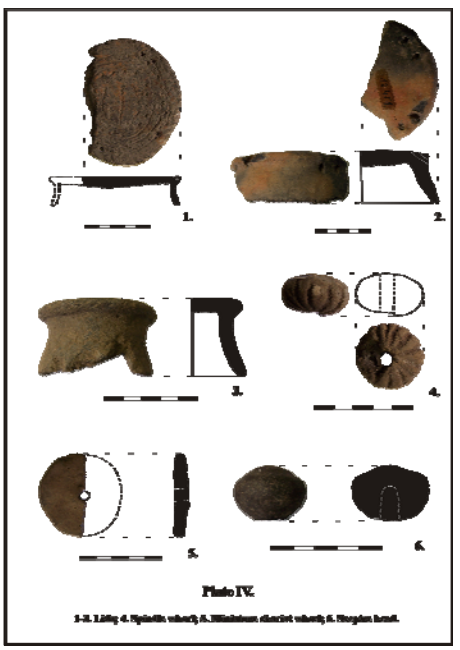
Dm=20 cm; Th=0.5-0.6 cm

The sherd belongs to a small bowl. The sherd is decorated on the shoulder

with a single row of punctations. Beneath these the body of the vessel is decorated with diagonal flutings. It is fine sand tempered. It has a very good firing with a creamy-brown colour and a burnished outer surface.

Analogies: shape - (Boroffka 1994, pl. 53/54-TD3g.mk.)

decoration - (Boroffka 1994, pl. 18/16)



19) **Bowl**, fragment

Inv. nr. 12458: Pl. I/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=13 cm; Th=0.9-1.5 cm

The sherd belongs to a small conical, straight sided bowl and has a thickened rim. The upper part of the rim is decorated with saw-stamps. The body of the sherd is decorated with horizontal and incised bands. The bands are identical and are made up by two parallel and incised lines; the space in between them is filled up with diagonal incised lines. It is tempered with fine sand and medium sized grains. It has a good firing and a reddish-brown colour.

Analogies: shape - (Boroffka 1994, 141-TD1a.mk.)

20) **Bowl**, fragment

Inv. nr. 8001a; Pl. I/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Imréné Nagy

Dm=16 cm; Th=0.7-1.2 cm

The sherd belongs to a straight sided, conical bowl. Under the rim on the outside of the vessel is a ledge. The upper part of the rim is decorated with "saw"-stamps as opposed to the ledge, which is decorated with "wolf tooth"-stamps. It is fine sand tempered and it has a very good firing. The outer surface is smoothed and burnished.

Analogies: shape - (Boroffka 1994, 119f-TA1a)

decoration - (Boroffka 1994, 190-VD47)

21) **Bowl**, fragment

Inv. nr. 11420; Pl. I/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.4-0.5 cm

The sherd belongs to a small bowl. It is decorated with diagonal flutings and is bordered on its upper side with a horizontal incised line. It is fine sand tempered and has a very good firing. It is of greyish-black colour and the outer surface is burnished.

Analogies: decoration - (Boroffka 1994, 182-VA10)

22) **Bowl / Dish**, fragment

Inv. nr. 11853; Pl. I/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, István Nagy

The sherd belongs to a medium sized bowl or dish. It is decorated with a

horizontal register on the maximum diameter. This is bordered by two horizontal and parallel bands, each of which consists of parallel horizontal incised lines and the space in between them is filled up with punctations. The middle part of the register consists of an incised "zig-zag" band; it is bordered by two incised lines and the space in between them is also filled up with punctations. Underneath this register there is a further band of the bordering sort and above the register there are standing and running incised triangles filled up with punctations. It is fine sand tempered and has very good firing. It has a deep matte red colour with a burnished outer surface.

Analogies: shape - (Boroffka 1994, pl. 143/145)

decoration - (Boroffka 1994, 189-VD13)

23) **Cup**

Inv. nr. 11842; Pl. V/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, György Lengyel

Dm=6 cm; H=3.8 cm; Th=0.5-1.1 cm

The cup has a lower conical part and cylindrical upper part and at their meeting point a rough carinated featured is well recognisable. The place of the loop handle attachment is well recognisable. It is tempered with fine sand and medium sized grains. It has a very good firing and a creamy-brown colour.

Analogies: shape - (Boroffka 1994, 148-TD3e.k.)

24) **Cup**, fragment

Inv. nr. 11583; Pl. V/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=12 cm; Th=0.6-1 cm

The sherd belongs to a conical cup with loop handle. It has a slightly arched body. The tempering consists of fine sand, small grains, crystalline schist and small inclusions of ceramics. It is of very good firing and has a black colour. It has a burnished surface on the outside as well as on the inside.

Analogies: shape - (Boroffka 1994, 136-TC1c)

25) **Cup**, loop handle fragment

Inv. nr. 11846; Pl. V/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, György Lengyel

Dm=6 cm; H=3.8 cm; Th=0.5-1.1 cm

It is the loop handle of a cup. It is fine sand and small grain tempered. It has a very good firing and has a dark black colour. It has a burnished surface on the outside and on the inside as well.

Analogies: shape - (Boroffka 1994, 152-Td3.k)

26) **Cup**, fragment

Inv. nr. 11529; Pl. V/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Béla Steinberger

The sherd belongs to a cup, probably with a spherical body and slightly flaring rim. It is fine sand tempered. It has a very good firing and a greyish-black colour.

Analogies: shape - (Boroffka 1994)

27) **Cup**, fragment

Inv. nr. 12188; Pl. V/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

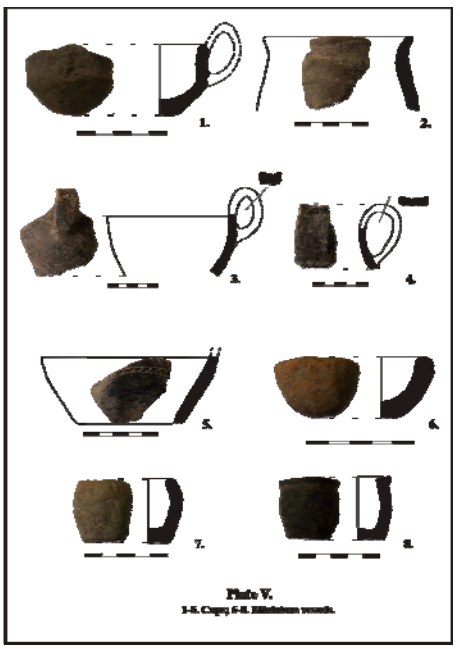
Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=12 cm; Th=0.6-0.7 cm

The sherd belongs to a small vessel. It is decorated with registers, of which only a fragment is preserved. The lower border of this is an incised band made up by two parallel lines, with oblong and diagonal incisions regularly spaced in between them. On the base band are

probably standing (upside-down) in the middle of the register incised running triangles. It is fine sand tempered. It has a very good firing and a dark black colour.

Analogies: shape - (Boroffka 1994, 132-TC3h)



28) **Dish**, fragment

Inv. nr. 11421; Pl. X/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=34 cm; Th=1-1.2 cm

The sherd belongs to a large dish (spherical?). It is decorated with a double "S"-shaped running spiral in relief with cross-hatched incisions on top of the spirals. It is fine sand and medium sized grain tempered. It has a very good firing and a light creamy-brown colour with a burnished surface on the inside as well as on the outside.

Analogies: decoration - (Boroffka 1994, 192-VE11)

29) **Dish(?)**, fragment

Inv. nr. 11422; Pl. X/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=40 cm; Th=0.7-0.9 cm

The sherd belongs to a large dish or pot. It is decorated on its shoulder with a horizontal incised band of two parallel lines filled up with diagonal incised lines with occasional cross-hatching over them. Below this band diagonal and shallow flutings decorate the lower part of the vessel. It is fine sand tempered. It has a very good firing and a light creamy-brown colour.

Analogies: shape - (Boroffka 1994, 144-TD2a)

decoration - (Boroffka 1994, 188-VD4)

30) **Dish**, fragment

Inv. nr. 11588; Pl. XI/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=36 cm; Th=0.7-1.4 cm

The sherd belongs to a straight sided large dish. The inner side of the rim is decorated by incised and hatched running triangles standing on a thickened ledge which has single vertical incised lines at regular intervals. The outer side of the rim is incised with diagonal and regularly spaced single lines. Below this, a second ledge on the outer surface of the vessel has vertical incisions at regular intervals. The body of the vessel is decorated with incised and hatched bands organised in triangles standing on a horizontal incised base line. It is fine sand tempered. It has a very god firing and a light brownish-red colour with a burnished inner and outer side.

Analogies: shape - (Boroffka 1994, 163-TG2a.k)

decoration - (Boroffka 1994, 188, 191-VD5, VD51)

Bibliography: (Székely 1955c, 14)

31) **Dish**, fragment

Inv. nr. 12245; Pl. XI/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.6-0.7 cm

The sherd belongs to a small dish (lobed?). It is decorated with meanders consisting of simple incised hooks bordered all around by tightly placed punctations (Zahnstempelung). It is fine sand tempered. It has a very good firing and a dark creamy-brown colour.

Analogies: shape - (Boroffka 1994, pl. 143/5)

decoration - (Boroffka 1994, 185-VC27)

32) **Dish**, fragment

Inv. nr. 12454; Pl. XI/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=28-30 cm; Th=0.5-0.8 cm

The sherd belongs to a large dish with thickened and flaring rim. The top of the rim is decorated with "wolf tooth" stamps and incised triangles, meanwhile the side is decorated with a single row of shallow punctations and on the outside below the rim is a single row of relatively deep punctations. It is fine sand tempered. It has a very good firing and a matte brownish-red colour.

Analogies: shape - (Boroffka 1994, 160-TF2a)

decoration - (Boroffka 1994, 190, 188-VD47, VD5)

33) **Dish**, fragment

Inv. nr. 11821; Pl. X/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

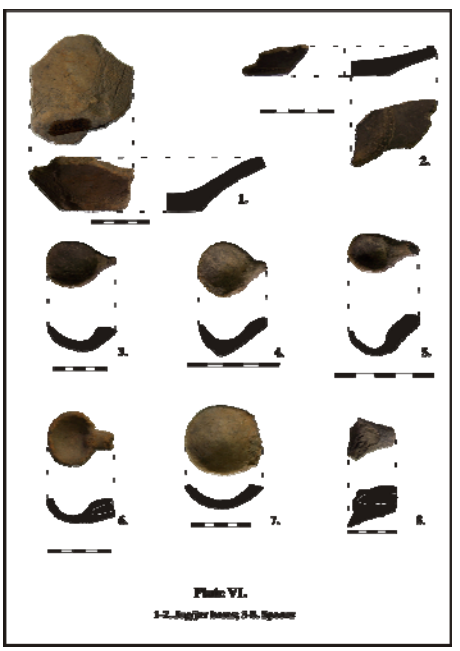
Unknown

Dm=30 cm; Th=0.9-1.1 cm

The sherd belongs to a large dish with flaring rim. The side of the rim is decorated with incised and sometimes overlapping "X"s, and the top of the rim is incised with diagonally hatched running triangles. It is fine sand tempered. It has a very good firing and light black colour with a burnished outer surface.

Analogies: shape - (Boroffka 1994, 160-TF2a)

decoration - (Boroffka 1994, 191-VD50)



34) **Dish**, fragment

Inv. nr. 11405; Pl. X/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=20 cm; Th=0.7-1 cm

The sherd belongs to a medium sized semi-spherical dish with flaring rim. The outer side of the rim is decorated with small incisions. Also the body of the vessel has horizontal and vertical overlapping incised bands of irregular squares. It is fine sand and small sized grain tempered. It has a very good firing and a light black colour. The inner and outer sides are burnished.

Analogies: shape - (Boroffka 1994, 141-TD1a.mk)
decoration - (Boroffka 1994, 116-R18)

35) **Dish (lobed?)**, fragment

Inv. nr. 11403; Pl. IX/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=36 cm; H=8.2 cm; Th=0.8-1 cm

The sherd belongs to a large dish (lobed?). Its decoration consists of double-lined incised running spirals, and the space between the lines is filled up with punctations, which in return have been filled with whitish lime paste. It is fine sand tempered. It has a very good firing and light black colour. It is burnished on both, inner and outer, surfaces.

Analogies: decoration - (Boroffka 1994, -pl. 31/5)

36) **Dish (lobed)**, fragment

Inv. nr. 11411; Pl. IX/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.7-0.9 cm

The sherd belongs to a medium sized lobed dish. It is decorated in one horizontal register, the top of which is an incised band of two parallel lines with diagonal incised lines in between them and the bottom is the same sort of band only wider than the upper one. The space in between the bands is filled up with incised and regularly cross-hatched lines which create the effect of a lozenge. It is fine sand tempered. It has a very good firing and a dark black colour, and its outer surface is burnished.

Analogies: decoration - (Boroffka 1994, pl. 40/9)

37) **Dish (lobed)**, fragment

Inv. nr. 12311b; Pl. IX/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.6-1.2 cm

The sherd belongs to a large semi-spherical lobed dish with thickened and slightly flaring rim. The side of the rim is decorated with incised cross-hatched lines, as is the outer surface below the rim by a similar band which follows the shape of the rim. It is fine sand tempered. It has a very good firing and a dark creamy-brown colour, and its outer surface is burnished.

Analogies: shape and decoration (Boroffka 1994, 157-TE1c)

38) **Dish (lobed)**, fragment

Inv. nr. 11305; Pl. IX/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=18 cm; Th=0.5-0.9 cm

The sherd belongs to a medium sized lobed dish. It is decorated with tilted and running incised "Z"s, which are filled up with punctations that in turn were filled with white lime paste. These are bordered by two horizontal bands of two parallel and incised lines and the space in between them is filled up in the same manner. Under this register is a further horizontal band of two parallel and incised lines only that is filled up with a single row of deeper and larger punctations. It is fine sand tempered. It has a very god firing and a dark black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 190-VD33)

39) **Dish (lobed)**, fragment

Inv. nr. 11407; Pl. IX/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=36 cm; Th=0.8-1.3 cm

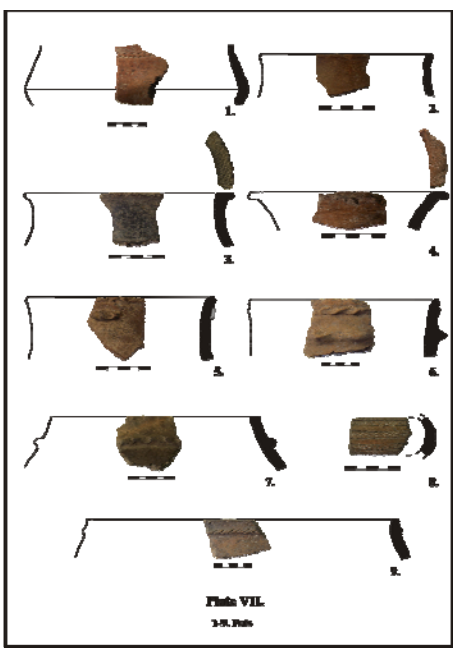
The sherd belonged to a large semi-spherical lobed dish with slightly thickened rim. The side of the rim is decorated with incised and regularly

spaced diagonal hatched lines with an occasional horizontal incised line at irregular intervals. The area just below of the rim has the same sort of incised decoration organised into two bands only that this are bordered by an incised line on each side, and these lines follow the shape of the rim. It is fine sand tempered. It has a very good firing and a dark black colour with a burnished outer surface.

Analogies: shape - (Boroffka 1994, 156-TE1b)

decoration - (Andrițoiu and Rustoiu 1997, 187-pl. 17)

Bibliography: (Székely 1955a, -fig. 8/6)



40) **Dish (lobed)**, fragment

Inv. nr. 11430; Pl. IX/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=21 cm; Th=0.6-1 cm

The sherd belongs to a large lobed dish with a thickened rim. Under the rim is decoration of a plastic band of circular impressions which follow the shape of the rim. Beneath this band the body of the vessel is decorated with diagonal, incised and wide lines each of which is topped by a large circular impression. It is fine sand tempered. It has a very good firing and a dark black colour with a burnished inner and outer surface.

Analogies: shape - (Boroffka 1994, 157-TE1c)

decoration - (Boroffka 1994, 192-VE2)

41) **Dish (lobed)**, fragment

Inv. nr. 12311a; Pl. X/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=22 cm; Th=1.2-1.5 cm

The sherd belongs to a medium sized lobed dish with thickened and flaring rim. The side of the rim has an incised line decoration which follows the shape of the rim. The body of the vessel was decorated by diagonal and parallel incised bands, each of which consist of two incised lines with the space filled up by punctations (Zahnstempelung). The upper part of these bands is closed by a single incised line which also follows the shape of the rim. It is fine sand and small sized grain tempered. It has a very good firing and deep, matte red colour.

Analogies: shape - (Boroffka 1994, 156-TE1b)

decoration - (Boroffka 1994, pl. 45/11)

42) **Dish (lobed)**, fragment

Inv. nr. 12247; Pl. XI/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.6-1.1 cm

The sherd belongs to a medium sized lobed dish with thickened rim. It is decorated with three parallel bands of

single-rowed, narrow punctations bordered below and above by a horizontal incised line. Below these bands the same sort of bands are organised in more complex motifs which due to the fragmentary nature of the find are rather difficult to reconstruct. It is fine sand tempered. It has a very good firing and a dark creamy-brown colour.

Analogies: shape - (Boroffka 1994, 188-VD5)

43) **Dish (lobed)**, fragment

Inv. nr. 11429; PL. XI/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=38 cm; Th=0.6-0.9 cm

The sherd belongs to a large, straight sided lobed dish with a thickened rim. It is fine sand and small sized grain tempered. It has a very good firing and brownish-black colour with a burnished inner and outer surface.

Analogies: shape - (Boroffka 1994, 155-TE1a)

44) **Dish (lobed?)**, fragment

Inv. nr. 11410; Pl. X/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.7-1.5 cm

The sherd belongs to a medium sized dish (lobed?). Immediately below the rim of the vessel is decoration of a narrow band of a single row and equally spaced, deep punctations bordered by two parallel and horizontal incised lines. The maximum diameter is decorated with an incised band. Tightly cross-hatched, incised lozenges are divided by vertical bands of the type under the rim and are bordered by horizontal incised bands with tight cross-hatching. It is fine sand tempered. It has a very good firing and a dark black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, pl. 65/2)

45) **Dish / plate**, fragment

Inv. nr. 12038; Pl. VI/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=12 cm; Th=0.8-1.5 cm

The sherd probably belongs to a large dish or plate. It is decorated in registers, of which only a fragment is preserved. It is decorated with incised metopes placed on an incised base band; the latter one is made up by two parallel and horizontal lines and the space in between them is filled up with cross-hatched incised lines at regular intervals. The metopes are left empty and are delimited by incised vertical bands. Each of these is delimited by two parallel and vertical bands that are similar to the base band and the space in between these two is filled up with cross-hatched incised lozenges. It is fine sand and small grain tempered. It has a good firing and a matte reddish-brown colour.

Analogies: shape - (Boroffka 1994, 162-TG1a)

decoration - (Boroffka 1994, 46/10)

46) **Dish / plate**, fragment

Inv. nr. 12455; Pl VI/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

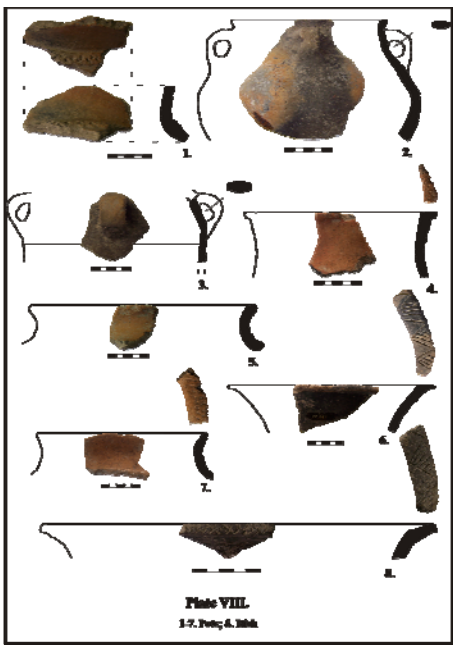
Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=6 cm; Th=0.5-0.9 cm

The sherd probably belongs to a medium sized dish or plate. It is decorated near its base with an incised band made up out of two parallel incised horizontal lines and a single row of punctations in between them. It is fine sand tempered. It has a very good firing and a matte dark black surface.

Analogies: shape - (Boroffka 1994, 162-TG11)

decoration - (Boroffka 1994, pl. 113/13)



47) **Handle**

Inv. nr. 11450; Pl. XII/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=14 cm; Th=0.7-0.9 cm

The course strap handle belongs to a medium sized vessel. It is fine sand and small sized grain tempered. It has a very good firing and a brownish-black colour.

48) **Handle**

Inv. nr. 11451; Pl. XII/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=14 cm; Th=0.6-0.7 cm

The loop handle belongs to a one- or two-handled medium sized spherical cup with an "S"-profile with slightly everted rim. It is fine sand tempered. It has a very good firing and brownish-black colour and the outer surface is burnished.

Analogies: shape - (Boroffka 1994, 137TC3a)

49) **Handle**

Inv. nr. 11500; Pl. XII/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.7-0.9 cm

The handle belongs to a medium sized vessel (pot or storage vessel). It is fine sand and large sized grain tempered-it has a good firing and has a light brownish-red colour.

50) **Handle**

Inv. nr. 11503; Pl. XII/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.5-0.9 cm

The rough handle belongs to a medium or large sized vessel (storage?) with a slightly flaring rim. It is fine sand and smalls sized grain tempered. It has a good firing and has a greyish-brown colour.

Analogies: shape - (Boroffka 1994, pl. 39/5)

51) **Handle**

Inv. nr. 11576; Pl. XII/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=32 cm; Th=0.6-0.8 cm

The handle belongs to a large pot or storage vessel with slightly flaring rim. It is fine sand, medium sized grain and crystalline schist tempered. It has a good firing and a greyish-brown colour.

Analogies: shape - (Boroffka 1994, 119TA1a)

52) **Handle**

Inv. nr. 11824; Pl. XII/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Tamás Kisgyörgy

Th=0.5-0.8 cm

The handle belongs to a medium sized spherical or bi-truncated pot. It is fine sand and small sized grain tempered. It has a good firing and a matte dark black colour.

53) **Juglet**, fragment

Inv. nr. 11420-22501-11493; Pl. XIII/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=12 cm; Th=0.6-1 cm

The sherds belong to a spherical juglet. The maximum diameter and shoulder are decorated with incisions. The horizontal based-band is realised by two parallel lines and the space in between them is filled up with diagonal lines. On top of this band are standing alternating diagonal lines, thus forming rough triangles. It is fine sand and small sized grain tempered. It has a very good firing and a light creamy-brown colour with a burnished outer surface.

Analogies: shape - (Boroffka 1994, 134-TB1b)

54) **Juglet**, fragment

Inv. nr. 11447; Pl. XIII/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=12 cm; Th=0.6-1.2 cm

The large sherd belongs to a spherical juglet. It has a straight base and the maximum diameter is placed below the half height. It is fine sand tempered. It has a very good firing and a brownish-black, mottled colour.

Analogies: shape - (Boroffka 1994, 135-TB1c.k, pl. 27/8)

55) **Juglet**, fragment

Inv. nr. 11584; Pl. XIII/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=8 cm; Th=0.5-0.8 cm

The sherd belongs to a medium sized juglet with spherical body. It has two strap handles attached to the neck and shoulders. It is fine sand tempered. It has a very good firing and a brownish-black colour with burnish on the outside and the inside of the rim.

Analogies: shape - (Boroffka 1994, 123TA2a.k)

56) **Juglet**, fragment

Inv. nr. 12450; Pl. XIII/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=4 cm; Th=0.6-0.7 cm

It is the base of a juglet with spherical body. It has a concave base and its maximum diameter is below the half of its height. It is fine sand and small sized grain tempered. It has a good firing and a mate black colour.

Analogies: shape - (Boroffka 1994, 135-TB1c.k, pl. 81/7)

57) **Lid**

Inv. nr. 11851, Pl. IV/1

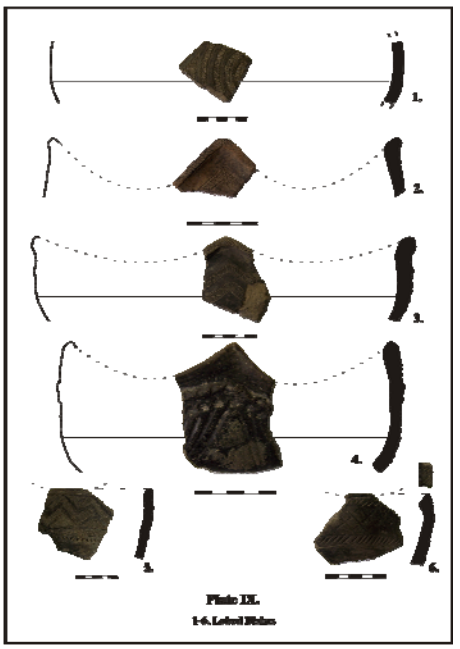
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, István Nagy

Dm=10 cm; H=2.2 cm; Th=0.4-0.9 cm

The lid has a circular top with slightly projecting edges. It has four pairs of perforations on this ledge, which were probably used for fastening the lid onto another vessel. The decoration consists of four concentrically placed incised circles. In the innermost circle has an incised "+" sign. The space between the inner and the next incised circle is filled up with a one-lined circle of punctation. The space between the second and the third incised circle is left empty while the one between the third and last incised circle is filled up with a single row of punctuations made slightly from the side in a sharp angle. It is fine sand tempered and the firing is good, which produced a brownish brick-red colour.

Analogies: shape - (Boroffka 1994, 165-TH3b)



58) **Lid**

Inv. nr. 8528, Pl. IV/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Imréné Nagy

Dm=5 cm; H=4 cm, Th=0.6-0.8 cm

It is almost complete; it has its sides slightly arched towards the inside. It has a circular upper part with slightly over the side projecting edges. It is undecorated and does not have holes for fastening. The tempering is made with fine sand and small grains. The firing is good and has a dark creams-brown colour.

Analogies: shape - (Boroffka 1994, 165-TH3b)

59) **Lid**, fragment

Inv. nr. 12451, Pl. IV/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=12 cm; H=3.8 cm; Th=0.4-1 cm

It has a bitronconic shape, with the sides slightly rounded and a circular top. This latter is slightly spherical in the middle and has a sharp edge. Four pairs of diagonal piercings were probably used for fastening it to a vessel. It is undecorated. It is fine sand and small grains tempered. It has a good firing and a light blackish-red colour.

Analogies: shape - (Boroffka 1994, 165-TH3b)

60) **Miniature chariot wheel**, fragment

Inv. nr. 13250; Pl. IV/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=5 cm; Th=0.5-0.7 cm

The half of a miniature chariot wheel. It is fine sand tempered. It has a very good firing and a light brown colour with sparse darker spots.

61) **Miniature cup**

Inv. nr. 11856; Pl. V/7

Collected by private person, István Nagy

Dm=2.6 cm; H=4 cm; Th=0.5-0.9 cm

It is a miniature cup with slightly inverted rim. It is fine sand and small sized grain tempered. It has a good firing and brownish-black colour.

Analogies: shape - (Boroffka 1994, 136-TC1c)

62) **Miniature cup**

Inv. nr. 14612; Pl. V/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Dm=5.8 cm; H=3 cm; Th=0.8-0.9 cm

It is a semi-spherical miniature cup with a rounded bottom. It is fine sand and small sized grain tempered. It has a good firing and a deep brownish-red colour.

63) **Miniature cup**

Inv. nr. 14632; Pl. V/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Dm=3.8 cm; H=3.2 cm; Th=0.5-0.6 cm

It is a miniature cup with inverted, slightly flaring and thickened rim. It is fine sand and small sized grain tempered. It has a good firing and a black colour.

64) **Pot**, fragment

Inv. nr. 12236; Pl. VII/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=30 cm; Th=0.6-0.7 cm

The sherd belongs to a bi-truncated pot. It is decorated on its shoulder by a horizontal band of "saw"-stamps. It is fine sand and small size grain tempered. The firing is good and it has a matte deep red colour.

Analogies: shape - (Boroffka 1994, 132-TA4e.mg.)

decoration - (Boroffka 1994, pl. 15/1)

65) **Pot,** fragment

Inv. nr. 11399; Pl. VII/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=16 cm; Th=0.6-0.7 cm

The sherd belongs to a medium sized pot and has a slightly flaring rim. It is fine sand tempered. It has a very good firing and a creamy-brown colour. Its outer surface is burnished.

Analogies: shape - (Boroffka 1994, 122-TA1c.mg)

66) **Pot**, fragment

Inv. nr. 11412; Pl. VII/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=18 cm; Th=0.7-1.4 cm

The sherd belongs to a medium sized pot with thickened rim. It is decorated on the upper part of the rim with cross-hatched incised lines. It tempered with fine sand and small sized grains. It has a very good firing and a greyish-black colour.

Analogies: shape - (Boroffka 1994, 120-TA1a.mk)

decoration - (Boroffka 1994, 190-VD45)

67) **Pot**, fragment

Inv. nr. 11423; Pl. VII/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.6-0.7 cm

The sherd belongs to a medium sized pot with squashed spherical body. It is decorated with horizontal incised bands; these are filled up with cross-hatched incised lines and white lime paste. It is fine sand and small stone tempered. It has a very good firing and a greyish-brown colour.

Analogies: shape - (Boroffka 1994, 121-TA1b)

68) **Pot**, fragment

Inv. nr. 11424; Pl. VII/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=16 cm; Th=0.7-0.9 cm

The sherd belongs to a medium sized pot with a thickened and flaring rim. The upper part of the rim is decorated with running incised, hatched triangles. It is fine sand tempered and has a very good firing. It is of creamy-brown colour and has a burnished outer surface.

Analogies: shape - (Boroffka 1994, 131-TA4e.k)

decoration - (Boroffka 1994, 191-VD50)

69) **Pot**, fragment

Inv. nr. 11437; Pl. VII/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=22 cm; Th=1.1-1.7 cm

The sherd belongs to a large bi-truncated pot. It is decorated on its shoulder with a plastic band with circular impressions. It is fine sand and medium sized grain tempered. It has a very good firing and a creamy-brown colour.

Analogies: shape and decoration - (Boroffka 1994, 122-TA1c.mk)

Plate X.

70) **Pot**, fragment

Inv. nr. 11438; Pl. VII/9

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=45 cm; Th=0.9-1.6 cm

The sherd belongs to a large bi-truncated vessel. On the outside below the rim is a narrow and horizontal plastic band with diagonal and regularly spaced incised lines. It is fine sand and medium sized grain tempered. It has a very good firing and a light creamy-brown colour.

Analogies: shape - (Boroffka 1994, 124-TA2b)

decoration - (Boroffka 1994, pl. 57/3)

71) **Pot**, fragment

Inv. nr. 11441; Pl. VII/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=18 cm; Th=0.6-0.7 cm

The sherd belongs to a medium sized pot with slightly flaring rim. The upper part of the rim is decorated by circular impressions and below the rim is a horizontal and elongated knob with two similar impressions on its side. It is fine sand and small sized grain tempered. It is of good firing and it is of dark creamy-brown colour.

Analogies: shape and decoration - (Boroffka 1994, 122-TA1c.mg)

72) **Pot**, fragment

Inv. nr. 11444; Pl. VII/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=26 cm; Th=0.9-2 cm

The sherd belongs to a large pot. It has a horizontal plastic band with diagonal impressions right under the rim. Below this band is a knob with two irregular projections. It is tempered with medium and large sized grains and it is of weak firing. It has a matte red colour.

Analogies: shape - (Boroffka 1994, 122-TA2a)

73) **Pot**, fragment

Inv. nr. 11452; Pl. VIII/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=22 cm; Th=0.7-1.1 cm

The sherd belongs to a large pot. The shoulder is decorated with a horizontal band of "saw"-stamps. It is fine sand and small sized grain tempered. It has a good firing and light creamy-brown colour.

Analogies: shape - (Boroffka 1994, 130-TA4c.g)

74) **Pot**, fragment

Inv. nr. 11452; Pl. VIII/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Th=0.9-1.1 cm

The sherd belongs to a large vessel with the handle on its shoulder. It is fine sand and medium sized grain tempered. It is of good firing and has a greyish-brown colour.

Analogies: shape - (Boroffka 1994, 126-TA3c)

75) **Pot**, fragment

Inv. nr. 11453; Pl. VIII/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=16 cm, Th=0.8-0.9 cm

The sherd belongs to a large spherical pot with the handle on its shoulder and a slightly flaring rim. It is tempered with fine sand and medium sized stones. It has a good firing and it has a mottled colour.

Analogies: shape - (Boroffka 1994, 126-TA3c)

76) **Pot**, fragment

Inv. nr. 11985; Pl. VIII/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=28 cm; Th=1.1 cm

The sherd belongs to a large pot with flaring rim. It is fine sand and small sized grain tempered. It is of good firing and has a light creamy-brown colour.

Analogies: shape - (Boroffka 1994, 133-TA4g)

77) **Pot**, fragment

Inv. nr. 12234; Pl. VIII/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=28 cm; Th=1.1 cm

The sherd belongs to a medium sized pot and has a thickened and flaring rim. The top of the rim is decorated with "saw"- and "wolf tooth"-stamps. It is tempered with fine sand, medium and large sized grains. It has good firing and a matte deep red colour.

Analogies: shape and decoration - (Boroffka 1994, 129-TA4c)

78) **Pot**, fragment

Inv. nr. 12235; Pl. VIII/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=22 cm; Th=0.8-1.2 cm

The sherd belongs to a large, probably spherical, pot. The inner side of the rim is decorated with "saw"-stamps. It is fine sand and small sized grain tempered. It has a good firing and a matte red colour.

Analogies: shape - (Boroffka 1994, 130-TA4c.mg)

decoration - (Boroffka 1994, pl. 92/8)

79) **Pot**, fragment

Inv. nr. 12395; Pl. VIII/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=30 cm; Th=0.5-1 cm

The sherd belongs to a large pot (dish?) with a thickened and flaring rim. The top of the rim is decorated with incised and diagonally hatched running triangles. It is fine sand and medium sized grain tempered. It has a good firing and a dark black colour. The inner side is burnished.

Analogies: shape - (Boroffka 1994, 127-TA4)

decoration - (Boroffka 1994, 191-VD50)

80) **Pot**, fragment

Inv. nr. 11404; Pl. XI/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=26 cm; Th=0.7-0.8 cm

The sherd belongs to a large pot with squashed spherical body. The maximum diameter is decorated with an incised tripled lined running as an "S"-spiral. This is bordered above by a horizontal incised band of parallel lines, which have the space in between filled up with diagonal and spaced out incised lines, and below by a wider and horizontal incised band with the same two parallel lines, only the space in between them is filled up with tightly placed hatched incised lines. It is fine sand and small sized grain tempered. It has a very good firing and a dark black colour. Both inner and outer surfaces are burnished.

Analogies: shape - (Boroffka 1994, 133-TA4h)

decoration - (Boroffka 1994, 189-VD26)

Bibliography: (Székely 1955a, fig. 3/3)

81) **Pot**, fragment

Inv. nr. 11536; Pl. XIV/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Béla Steinberger

Dm=30cm; Th=0.5-1.4 cm

The sherd belongs to a straight sided pot of large size. The outer side of the rim is decorated with diagonal incised lines. Below this is a horizontal plastic band with diagonal incised lines. It is fine sand and small sized grain tempered. It has a good firing and a brownish-black colour and it is burnished on its outer surface.

Analogies: shape and decoration - (Boroffka 1994, pl. 57/3)

82) **Sceptre head**

Inv. nr. 11855, Pl. IV/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, István Nagy

Dm=2.8-3.4 cm; Th=2.5 cm

It has a squashed spherical shape. The pierced side is clearly cut and the opposite has a semi-spherical top. It is fine sand tempered. The firing is good and it has a black lustrous colour with a burnished surface.

Analogies: type IVa - (Rustoiu 1995, 70-pl. VI/2); shape - (Boroffka 1994, vol. II, fig. 3, 15, 23)

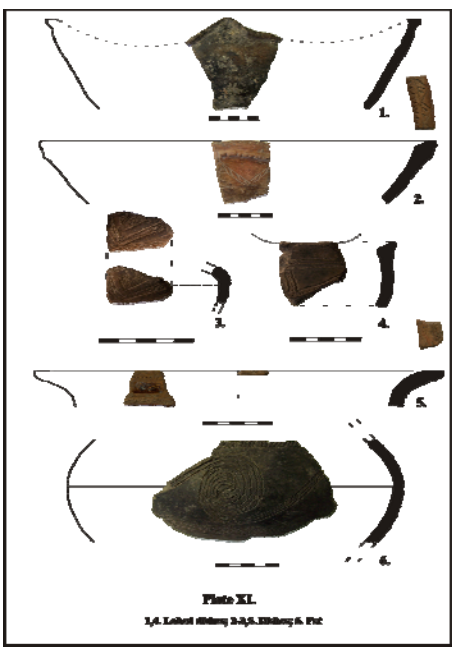


Plate XI.

83) **Spindle whorl**

Inv. nr. 11152; Pl. IV/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=2-3.4 cm

A smallspindle whorl with a spherical and slightly crushed body and a cylindrical hole right through it. The outer surface is decorated with vertical incised lines. It is fine sand and small grain tempered. It has a good firing and a greyish-brown colour.

84) **Spoon**

Inv. nr. 14610; Pl. VI/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Dm=3.6-4.7 cm; Th=0.4-0.9 cm

Clay spoon with a short handle and shaft, probably used for the insertion of a handle. It is fine sand tempered. It has a very good firing and deep red colour.

85) **Spoon,** fragment

Inv. nr. 14617, Pl. VI/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Dm=3.5-4.3 cm; Th=0.3-0.9 cm

It is of small size and on its lower outer side it is slightly thickened and has a pointy base. It is fine sand tempered. It has a good firing and brownish-grey colour.

86) **Spoon,** fragment

Inv. nr. 11845; Pl. VI/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, György Lengyel

Dm=3.5-4.3 cm; Th=0.3-0.9 cm

The handle of a large spoon with a conical shaft. The shaft was probably used for the insertion of a handle. It is find sand and medium sized grained tempered. It has a good firing and black colour with a burnished surface.

87) **Spoon**, fragment

Inv. nr. 12075; Pl. VI/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=5.8-6.8 cm; Th=0.3-0.7 cm

It is the distal fragment of a spoon, almost circular in form with a maximum depth of 2 cm. It is fine sand tempered. It has a very good firing and a light creamy-brown colour.

88) **Spoon**, fragment

Inv. nr. 14618; Pl. VI/3

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Dm=4.2-5 cm; Th=0.3-1.3 cm

The fragment consists of the distal end of a spoon and a bit of its handle. It has an elliptic shape and a maximum depth of 1.5 cm. with a pointy outer surface. It is tempered with fine sand and medium sized grain. It has a very good firing and a creamy-brown colour.

89) **Spoon**, fragment

Inv. nr. 14619; Pl. VI/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Dm=2-2.1; Th=0.3-1 cm

The fragment consists of the distal end of a spoon and a bit of its handle. It has an elliptic shape and a maximum depth of 1.5 cm. with a pointy outer surface. It is tempered with medium sized grain. It has a very good firing and a greyish-brown colour.

90) **Vessel**, fragment

Inv. nr. 10099; Pl. XIV/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.7 cm

The sherd belongs to a large vessel with everted rim. On the outer side, right under the rim, is a horizontally elongated knob with two impressions on its side. It is fine sand and small sized grain tempered. It has a good firing and a light creamy-brown colour.

Analogies: shape - (Boroffka 1994, pl. 68/3)

91) **Vessel**, fragment

Inv. nr. 10100; Pl. XIV/3

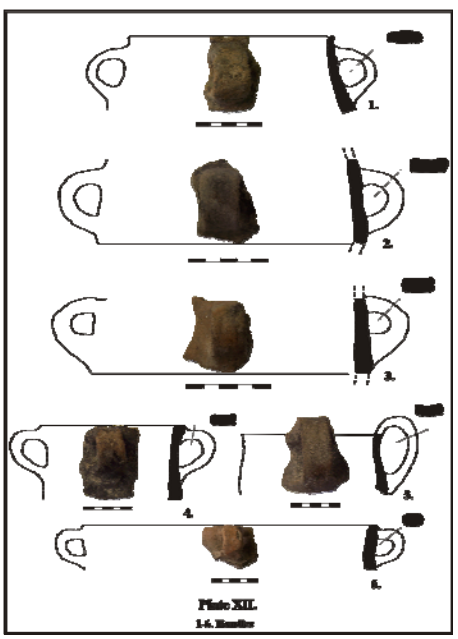
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=1.1-1.2 cm

The sherd belongs to a large vessel. It is decorated with diagonal and shallow flutings, which are bordered on their upper part by a horizontal incised band. The latter consists of two parallel lines with cross-hatching in between them. It is fine sand tempered. It has a very good firing and has a dark brownish-red colour.

Analogies: decoration - (Boroffka 1994, 182-VA12, pl.7/1)



92) **Vessel**, fragment

Inv. nr. 10102; Pl. XIV/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.4-0.6 cm

The sherd belongs to a large pot/dish/bowl with an "S"-profile. It is decorated on the neck with a horizontal incised band consisting of two parallel lines with cross-hatching in between them. It is fine sand and medium sized grain tempered. It has a very good firing and a dark black colour.

Analogies: shape and decoration - (Boroffka 1994, pl. 131/6)

93) **Vessel**, fragment

Inv. nr. 10123; Pl. XIV/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.6-1 cm

The sherd belongs to a large vessel. It is decorated by a single horizontal row of punctations. It is fine sand tempered. It has a very good firing and a dark black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 192VE3)

94) **Vessel**, fragment

Inv. nr. 10923; Pl. XV/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=32 cm; Th=0.4-0.9 cm

The sherd belongs to a large pot(?). It is fine sand and small sized grain tempered. It has a good firing and a matte brownish-red colour.

95) **Vessel**, fragment

Inv. nr. 11408; Pl. XIV/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.5-0.6 cm

The sherd belongs to a large pot/dish/bowl. The lower part of the vessel is decorated with metopes which are divided by vertical incised lines in groups of four. In between these is a vertical incised and roughly finished "S"-spiral. The top is bordered by a horizontal incised band of two parallel lines with cross-hatch in between them. It is fine sand tempered. It has a very good firing and a dark black colour.

96) **Vessel**, fragment

Inv. nr. 11410; Pl. XIV/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.6-0.7 cm

The sherd belongs to a large vessel. It is decorated with incised elongated lozenges realised by two lines and the space in between them is cross-hatched. It is fine sand tempered. It has a good firing and a greyish-brown colour.

Analogies: decoration - (Boroffka 1994, pl. 6/2)

97) **Vessel**, fragment

Inv. nr. 11413; Pl. XIV/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.4-0.7 cm

The sherd belongs to a small spherical vessel. It is decorated with diagonal and shallow flutings and above them they are closed by a single incised horizontal line on which stand diagonal and incised parallel lines. It is fine sand and small sized grain tempered. It has a very good firing and a dark black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 182, 189-VA11, VD14)

98) **Vessel**, fragment

Inv. nr. 11415; Pl. XV/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Dm=38 cm; Th=0.6-1 cm

The sherd belongs to a large pot or urn(?) with flaring rim. It is decorated on the side of the rim with diagonal incised lines and on top of the rim with incised running triangles; occasionally some sides of these triangles are of more than one incised line. It is fine sand and small sized grain tempered. It has a good firing and a brownish-black colour.

Analogies: decoration - (Boroffka 1994, 190-VD47)

99) **Vessel**, fragment

Inv. nr. 11419; Pl. XV/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.5-0.6 cm

The sherd belongs to a small to medium sized vessel. It is decorated with a horizontal incised band of two parallel incised lines and a cross-hatched area in between them. It is fine sand and small sized grain tempered. It has a very good firing and a light creamy-brown colour.

Analogies: decoration - (Boroffka 1994, 188-VD4)

100) **Vessel**, fragment

Inv. nr. 11426; Pl. XV/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected in survey by Zoltán Székely

Th=0.9 cm

The sherd belongs to a large vessel. It is decorated with a horizontal incised band of two parallel lines and the space in between them filled up with regularly-crosshatched lines that create rough lozenges. It is fine sand tempered. It has a very good firing and a brownish-grey colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 188-VD4)

101) **Vessel**, fragment

Inv. nr. 11435; Pl. XV/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Th=0.5 cm

The sherd belongs to a medium to large sized vessel. It decorated with two parallel incised bands, each of which consists of two parallel lines diagonally hatched by regularly spaced incised lines. It fine sand and small sized grain tempered. It has a god firing and a matte deep red colour.

Analogies: decoration - (Boroffka 1994, 188-VD4)

102) **Vessel**, fragment

Inv. nr. 11532; Pl. XV/3

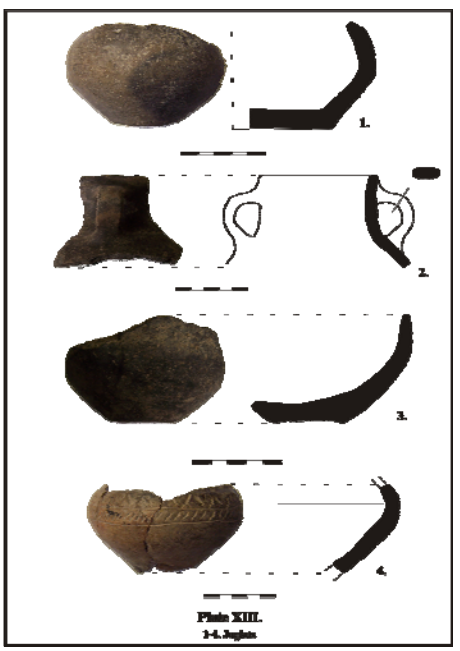
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Béla Steinberger

Th=0.8-1 cm

The sherd belongs to a large bowl. It is decorated with a running spiral in relief. It is fine sand tempered. It has a very good firing and a dark black colour.

Analogies: decoration - (Boroffka 1994, 192-VE11)



103) **Vessel**, fragment

Inv. nr. 11534; Pl. XV/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Béla Steinberger

Th=0.6-0.8 cm

The sherd belongs to a medium sized vessel. It is decorated with a horizontal band of two parallel and wide incised lines and the space between them is filled up with a single row elongated punctations placed at regular intervals. It is fine sand and small sized grain tempered. It has a very good firing and a black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 188-VD5)

104) **Vessel**, fragment

Inv. nr. 11579; Pl. XV/6

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Unknown

Th=0.8-0.9 cm

The sherd belongs to a medium to large sized vessel. It is decorated with an upside-down standing hatched and incised triangle. Below this are two horizontal and parallel incised lines. It is fine sand and small sized stone tempered. It has a very good firing and a dark black surface with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 189-VD17)

105) **Vessel**, fragment

Inv. nr. 11841; Pl. XVI/4

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, György Lengyel

Th=0.7-0.8 cm

The sherd belongs to a medium sized vessel. It is decorated with a horizontal incised band of two parallel lines and bordering a cross-hatched area. It is fine sand tempered. It has a very good firing and a light creamy-brown colour with a burnished surface.

Analogies: decoration - (Boroffka 1994, 188-VD3)

106) **Vessel**, fragment

Inv. nr. 12009; Pl. XVI/1

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

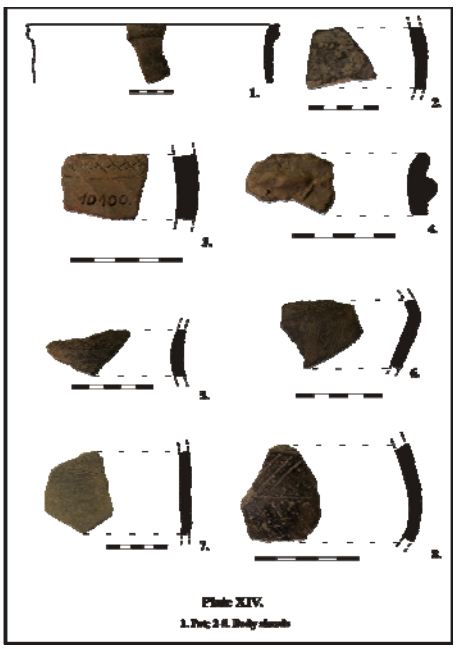
Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Dm=22 cm; Th=0.6-0.8 cm

The sherd belongs to a large vessel. The side of its rim is decorated with regularly spaced, vertical incised lines. It is fine sand and small sized grain

tempered. It has a good firing and a light creamy-brown colour.

Analogies: decoration - (Boroffka 1994, pl. 40/8)



107) **Vessel**, fragment

Inv. nr. 12019; Pl. XVI/2

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=1-01.1 cm

The sherd belongs to a large vessel. It is decorated with "Besenstrich". It is medium and large sized grain tempered. It has a weak firing and light creamy-brown colour.

Analogies: decoration - (Boroffka 1994, 188-VD1)

108) **Vessel**, fragment

Inv. nr. 12241; Pl. XVI/3

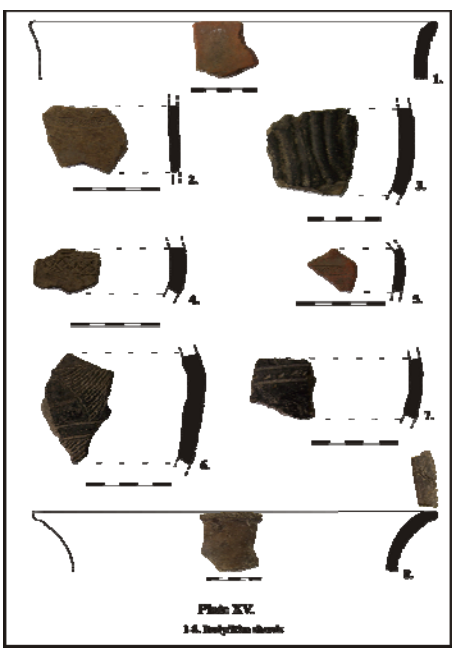
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.7-0.8 cm

The sherd belongs to medium sized spherical vessel. It is decorated with an incised horizontal band, which consists of two parallel lines and a single row of running cross-hatched lozenges in between them. Beneath this band is another horizontal incised line. It is fine sand and small sized grain tempered. It has a very good firing and a greyish-black colour.

Analogies: decoration - (Boroffka 1994, 189-VD20)



109) **Vessel**, fragment

Inv. nr. 12249; Pl. XVI/7

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.7 cm

The sherd belongs to a medium sized vessel. It is decorated with two horizontal and incised bands of parallel lines with cross-hatching in between them and these bands are divided by two horizontal and parallel incised lines. It is fine sand tempered. It has a very good firing and a dark black colour.

Analogies: decoration - (Boroffka 1994, 188-VD4)

110) **Vessel**, fragment

Inv. nr. 12445; Pl. XVI/5

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.9-1.2 cm

The sherd belongs to a large vessel. It is decorated with a relief spiral. It is fine sand and small sized grain tempered. It has a god firing and a black colour with a burnished outer surface.

Analogies: decoration - (Boroffka 1994, 192-VE5)

111) **Vessel**, fragment

Inv. nr. 13235; Pl. XVI/6

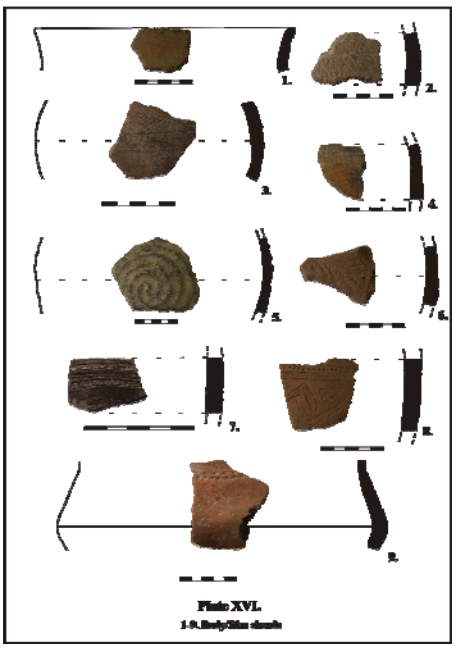
Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Excavation carried out by the Institute of History and Philosophy of the Academy of R. P .R. in Cluj-Napoca in 1949

Th=0.8-1 cm

The sherd belongs to a medium sized bowl or dish. It is decorated with incised meander double hooks which are filled up with punctations ("Zahnstempellung"). It is fine sand and small sized stone tempered. It has a good firing and a light creamy-brown colour.

Analogies: decoration - (Boroffka 1994, 185-VC19)



112) **Vessel**, fragment

Inv. nr. 13236; Pl. XVI/9

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Imre Demján

Th=1.1-1.3 cm

The sherd belongs to a large bi-truncated vessel. It is decorated on its shoulder with "saw" stamps. It is fine sand and small sized grain tempered. It has a good firing and a matte brownish-red colour.

Analogies: decoration - (Boroffka 1994, 188-VD6)

113) **Vessel**, fragment

Inv. nr. 14611; Pl. XVI/8

Muzeul Național Secuiesc, loc. Sfântu Gheorghe, county Covasna

Collected by private person, Ferenc Serbán

Th=1.1-1.3 cm

The sherd belongs to a medium sized vessel. It is decorated with incised, cross-hatched running meander-hooks and space filling incised and cross-hatched

triangles. They are bordered from above by a horizontal incised band of two parallel lines? with cross-hatching in between and above with is a single row of regularly spaced deep punctations. It is fine sand and small sized grain tempered. It has a very good firing and a light creamy-brown colour.

Analogies: decoration - (Boroffka 1994, 185-VC27)

Site catalogue of the Wietenberg culture from south-east Transylvania

The description of every site will contain: the name of the nearest modern-day settlement, and where needed, a toponym (these will not be translated from other languages in order to avoid confusion in the literature); the county; and the type: habitation (hab), burial ground (bg) or unknown (unk). The type of fieldwork (survey, excavation or unknown) will be also included. The description of the site's micro-region, based on the literature or on our own field research, will be detailed before highlighting some of the more important finds and giving the appropriate bibliographical reference(s).

We would like to stress that the presentation of the sites and of their finds is only a secondary goal as our main focus lies on the characteristics of their placement within the micro-region. The main reason for which we opted for the attachment of this catalogue is to make our above statements and conclusions verifiable. The used of N. G. O. Boroffka is preferred as a main bibliographical reference, due to spatial restraints of this paper and to provide complete and detailed citations for the sites.

1) **Baraolt – "zwischen Baraolt und Biborteni"**; county CV, *hab*.

Survey. Situated on the lower terraces of the Dongo stream. The layers belonging to the Wietenberg culture were less than 1 m thick.

(Boroffka 1994, 93-cat. nr. 529)

2) **Baraolt – Nisipărie, Nagyerdőalja**; county CV, *hab*.

Excavation. Three holes on a light elevation in the landscape, on the left-hand side of the Baraolt stream. The finds consisted of a few vessels and sherds.

(Boroffka 1994, 20-cat. nr. 46)

3) **Bixad – Vápavára**; county CV, *hab*.

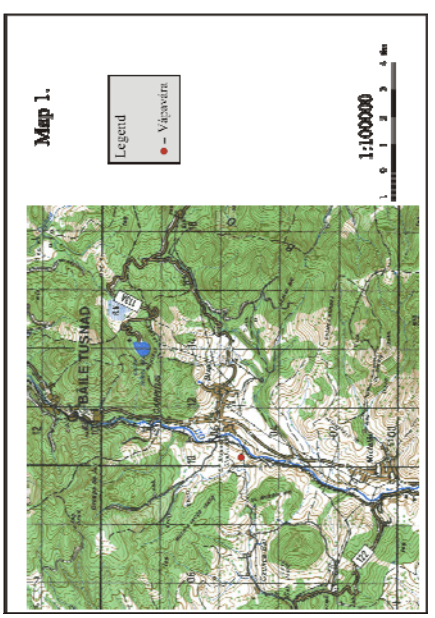
Excavation and *survey*. On the left bank of the Olt, on a promontory of a river-terrace. Finds mainly consist of burnt clay (see catalogue above), and the Wietenberg level was relatively thin.

(Boroffka 1994, 23-cat. nr.61)

4) **Bod – "Priesthügel"**; county BR, *unk*.

Insufficient information. A single sherd belonging to the Wietenberg culture.

(Boroffka 1994, 24-cat. nr. 66)



5) **Boroşneu Mare – Várhegy**; county CV, *hab*.

Excavation. Insufficient information about its micro-regional placement. Several sherds and cups belonging to the culture.

(Boroffka 1994, 25-cat. nr. 78)

6) **Braşov – Bartolomeu "bei der Bahn"**; jud. BR., *hab*.

Survey. Insufficient information about its micro-regional placement. Unpublished Wietenberg material.

(Boroffka 1994, 26-cat. nr. 82)

7) **Braşov – Bartolomeu "Schottergrube"**; jud. BR, *hab*.

Survey. Insufficient information about its micro-regional placement. Unpublished Wietenberg material.

(Boroffka 1994, 26-cat. nr. 83)

8) **Braşov – Bartolomeu**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of 34 sherds belonging to the Wietenberg culture. There is a slight chance that cat. no. 6 and 7 are identical with this site.

(Boroffka 1994, 26-cat. nr. 81)

9) **Braşov – Vl. Răcădăului-Militärbad**; county BR, *hab*.

Survey. The site is located on the left bank of the Răcădău River. Finds consisted of only 20 sherds belonging to this culture.

(Boroffka 1994, 26cat. nr. 85)

10) **Braşov – Vl. Răcădăului-Zementfabrik**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement, save for its general positioning within this valley. The finds only consisted of two Wietenberg sherds.

(Boroffka 1994, 26-cat. nr. 86)

11) **Braşov – Vl. Răcădăului**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement, save for its general positioning within this valley.

(Boroffka 1994, 26-cat. nr. 86)

12) **Braşov – Ziegelei Schmidt-Lehmgrube unter dem Hangstein**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 26-cat. nr. 87)

13) **Braşov – Zinne**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 26-cat. nr. 88)

14) **Caşinul Nou – "Pământ Alb"**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 28-cat. nr. 101)

15) **Caşinul Nou – Damófarka**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 28-cat. nr. 100)

16) **Cernat**; county CV, *hab*.

Excavation. The site is located on the left bank of the Cernat River. The most important Wietenberg find of the area is a horse-shoe shaped hearth with an anthropomorphic idol at one end.

(Boroffka 1994, 94-cat. nr. 539)

17) **Cincu**; county BR, *hab*.

Survey. Insufficient information about its micro-regional placement. A lobed dish and a lid with the "Wietenberg-cross" were retrieved from here.

(Boroffka 1994, 30cat. nr. 115)

18) **Ciuboteni – "Curtea Şcolii Generale"**; county HR, *bg*.

Unknown. On the right bank of the Şumuleu River; from the yard of the elementary school five complete vessels of the Wietenberg culture have been recovered.

(Boroffka 1994, 94-cat. nr. 544)

19) **Ciucani**; county HR, *unk*.

Unknown. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 94-cat. nr. 544)

20) **Ciucsângeorgiu – "Curtea parohiei romano-catolice"**; county HR, *unk*.

Unknown. Insufficient information about its micro-regional placement. A single find was made in the form of a cup belonging to the Wietenberg culture.

(Boroffka 1994, 94-cat. nr. 544)

21) **Ciucsângeorgiu – "Grădina Patowski"**; county HR, *unk*.

Survey. From a terrace of the Fiság stream, a few sherds have been collected.

(Boroffka 1994, 94-cat. nr. 545)

22) **Comandău – "Cetatea Mică şi Mare"**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement and finds.

(Boroffka 1994, 32-cat. nr. 130)

23) **Comolău – Stadt Reci**; county CV, *hab*.

Excavation. Insufficient information about its micro-regional placement. A single sherd belonging to the Wietenberg culture was found here.

(Boroffka 1994, 32f-cat. nr. 131)

24) **Coşeni – Stadt Sf. Gheorghe**; county CV, *hab*.

Survey (?). Insufficient information about its micro-regional placement. A ceramic oven of the Wietenberg culture was identified at this place.

(Boroffka 1994, 34-cat. nr. 138)

25) **Cozmeni – "Borbélyok"**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 34-cat. nr. 141)

26) **Cristuru Secuiesc – "Omláshegy"**; county HR, *unk*.

Unknown. Insufficient information about its micro-regional placement and finds.

(Boroffka 1994, 35-cat. nr. 147)

27) **Cristuru Secuiesc – "Valea Cetății"**; jud. HR, *unk*.

Survey. Insufficient information about its micro-regional placement. The finds consisted of only a few sherds of the Wietenberg culture.

(Boroffka 1994, 95-cat. nr. 549)

28) **Crizbav – "La stejari"**; county BR, *hab*.

Survey. On an elongated terrace along the Crisbăşel stream, a few sherds belonging to the Wietenberg culture have been found.

(Boroffka 1994, 35-cat. nr. 148)

29) **Dejuțiu**; county HR, *hab*.

Survey. In the modern-day settlement, on a natural terrace, from the plot of Gáspár Demeter, some sherds of the Wietenberg culture have been collected.

(Boroffka 1994, 36-cat. nr. 160)

30) **Dobolii de Jos**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement. The only find belonging to the Wietenberg culture is a small vessel.

(Boroffka 1994, 41-cat. nr. 176)

31) **Doboşeni**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement. The

culture was only represented by two sherds.

(Boroffka 1994, 41-cat. nr. 177)

32) **Eliseni – "Cimitirul lui Lod"**; county HR, *hab*.

Excavation. Insufficient information about its micro-regional placement. Most of the archaeological material consisted of sherds of the Wietenberg culture.

(Babeş 1971, 371-nr. 67; Boroffka 1994, 42-cat. nr. 183)

33) **Feldioara –"Şcoala de agricultură"**; county BR, *hab*.

Excavation (?). Insufficient information about its micro-regional placement. A large amount of Bronze Age sherds belonging to the Wietenberg culture has been retrieved from this site, along with a fragment of a bronze sheet and the mould for a shafted arrow-head.

(Boroffka 1994, 43-cat. nr. 188)

34) **Filiaş – "Pământul Pădurii Mari"**; county HR, *hab*.

Excavation. In the northern part of a terrace along a small stream, a fortification ditch and rampart associated with Wietenberg material was identified.

(Boroffka 1994, 43-cat. nr. 188)

35) **Ghidfalău**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement. The only object of the Wietenberg culture retrieved from this site is a small four-footed vessel.

(Boroffka 1994, 44-cat. nr. 200)

36) **Hălchiu – "Brelebrannen"**; county BR, *hab*.

Excavation. On a spur of a hill at the base of which is the spring of the Berlebrannen stream. The Wietenberg levels of the site are very thin but nevertheless attest its presence.

(Boroffka 1994, 47-cat. nr. 217)

37) **Hărman – "Lempeş-Groapa Banului"**; county BR, *hab*.

Excavation. At the foot of the Lempeş hill. The Wietenberg culture is only represented by a few sherds.

(Boroffka 1994, 47fcat. nr. 221)

38) **Leliceni – "Muntele cu Piatră"**; county HR, *hab*.

Excavation. On the eastern part of a hill which is situated in between the streams Pârâul Mic and Pârâul Mare. Only scarce material belonging to the Wietenebrg culture.

(Boroffka 1994, 53-cat. nr. 248)

39) **Lisnău**; county CV, *hab*.

Excavation. Insufficient information about its micro-regional placement. A large amount of sherds has been retrieved belonging to the culture.

(Boroffka 1994, 53-cat. nr. 249)

40) **Lutoasa – "Cetatea Chiuchiar", "Csuklyán vára"**; county CV, *hab*.

Excavation. On the right bank of the Lemnia stream, on a hilltop an area of about 80x64 m is enclosed by a stone wall with two surrounding ditches. The site contains material belonging exclusively to the Wietenberg culture.

(Boroffka 1994, 55-cat. nr. 264)

41) **Malnaş Băi – "Culmea nisipoasă", "Füvenyestető"**; county CV, *hab*.

Excavation. On a promontory between the stream Şomoş and the river Olt, with a possible habitation surface of 40x80 m. Very little material belonging to the culture.

(Boroffka 1994, 55-cat. nr. 268)

42) **Măieruş – "Burgeltschen"**; county BR, *unk*.

Unknown. Insufficient information about its micro-regional placement. The Wietenberg culture is represented only by a couple of sherds.

(Boroffka 1994, 55-cat. nr. 267)

43) **Mereşti – "Dealul Pipaşilor"**; county HR, *unk*.

Unknown. Insufficient information about its micro-regional placement and finds.

(Boroffka 1994, 56-cat. nr. 272)

44) **Mereşti – "Peştera Almaşului"**; county HR, *hab* and *bg* (?).

Excavation. The site is located in the Almaş cave. The finds consisted of sherds of the Wietenberg culture and a few human bones probably indicating the remains of at least one burial in the cave.

(Boroffka 1994, 56-cat. nr. 271)

45) **Mereşti – "Peştera no. 1"**; county HR, *hab*.

Survey. In the cave "number 1" in the Vărghiş gorge. Finds consisted of some sherds belonging to the culture.

(Boroffka 1994, 56-cat. nr. 273)

46) **Miercurea Ciuc – "Băi"**; county HR, *unk*.

Unknown. On the right bank of the river Olt. Insufficient details about the finds.

(Boroffka 1994, 57-cat. nr. 579)

47) **Miercurea Ciuc – "Jigodin Capătul Digului/Gátvége"**; county HR, *hab*.

Excavation. On a terrace of the Olt River situated on its right bank. The finds consisted of a few sherds belonging to the Wietenberg culture.

(Boroffka 1994, 57-cat. nr. 281)

48) **Miercurea-Ciuc – "Köcsukland, Köcsükland/Suta"**; county HR, *hab*.

Excavation. On slightly elevated area on the banks of the Şuta stream. The material exclusively belonged to the Wietenberg culture.

(Boroffka 1994, 57-cat. nr. 280)

49) **Mugeni – "Vizlok"**; county HR, *unk*.

Excavation. On the right bank of the Târnava Mare river, near the railway bridge. An archaeological layer belonging to the Wietenberg culture was identified.

(Boroffka 1994, 58-cat. nr. 288)

50) **Nicoleni – "Csördösdüllő"**; county HR, *hab*.

Excavation. Insufficient information about its micro-regional placement. Finds consisted of many sherds of the Wietenberg culture, two small male figurines, casting moulds and some bronze fragments.

(Boroffka 1994, 58-cat. nr. 293)

51) **Odorheiu Secuiesc – "Cetatea Bud", "Budvára"**; county HR, *hab*.

Excavation. Insufficient information about its micro-regional placement. Poor inventory of finds belonging to this culture.

(Boroffka 1994, 62-cat. nr. 308)

52) **Odorheiu Secuiesc – "Dealu Cetatea Macului"**; county HR, *hab*.

Excavation. Placed on a volcanic plateau and incorporating two terraces (1 ha). It is fortified with a ditch and rampart. The archaeological material consisted of sherds and flint tools.

(Boroffka 1994, 36-cat. nr. 158)

53) **Pădureni – "Babolna-Kistelek"**; county CV, *hab*.

Unknown. Insufficient information about its micro-regional placement. A large amount of sherds has been retrieved from this site.

(Boroffka 1994, 64-cat. nr. 319)

54) **Păuleni-Ciuc – "Cetatea/Dealul Cetății/Movila Cetății"**; county HR, *hab*.

Excavation. On a spur of a hill which had steep slopes on all sides save for the western one. The Wietenberg culture was represented by numerous finds at this site.

(Boroffka 1994, 65-cat. nr. 323)

55) **Plăieții de Jos – "Cetăți de Piatră", "Kővárútja"**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement.

Numerous sherds of the culture have been retrieved from here.

(Boroffka 1994, 67-cat. nr. 336)

56) **Poian**; county CV, *bg*.

Unknown. Insufficient information about its micro-regional placement. It is a single grave belonging to the Wietenberg culture with inventory of a vessel with four pierced knobs.

(Boroffka 1994, 96-cat. nr. 567; Székely 1985-1986 (1988), 158, 167)

57) **Porumbenii Mici – "Galath/Galáthető/Omlástető"** ; county HR, *hab*.

Excavation. On the left bank of the Târnava Mare River, on a slightly raised area with its northern end fortified by a defensive ditch. A rectangular surface house belonging to the culture was identified during the excavation.

(Boroffka 1994, 67-cat. nr. 342)

58) **Racul – "Dealul Bogat-Câmpul Cetății"**; county HR, *hab*.

Survey. On the right bank of the river Olt, on a low plateau of oval shape (55X35 m). The fortification of the site consists of a defensive trench and rampart belonging to the culture in question.

(Boroffka 1994, 68-cat. nr. 344)

59) **Râșnov – "Peștera Oedweg"**; county BR, *hab*.

Excavation. In the Oedweg cave. In a pottery oven of the Tei culture a single sherd with stamped decoration (triangles and Zahnstempellung) typical to the Wietenberg culture was found. Note should be taken as both techniques are strange to the Tei culture but the shape of the vessel on which they were found is more widely distributed in the Tei culture.

(Boroffka 1994, 69-cat. nr. 355)

60) **Reci – "Telek/Törökrétje"**; county CV, *hab*.

Excavation. On the right hand side of the Negru River on a river-valley terrace. Only scarce archaeological material belonging to the Wietenberg culture.

(Boroffka 1994, 68f-cat. nr. 349)

61) **Rotbav – "La Părăuț"**; county BR, *hab* and *bg*.

Excavation. It is located on plateau (180x200m) on an old river terrace. The finds of the Wietenberg culture only consisted of substantial finds showing a settlement and two incineration graves.

(Angelescu and Vasilescu 2006, 302ff; Boroffka 1994, 70-cat. nr.357)

62) **Rotbav – "Unghiul Gardului"**; county BR, *hab*.

Excavation. Insufficient information about its micro-regional placement. A fairly large amount of Wietenberg sherds has been retrieved from here.

(Boroffka 1994, 70-cat . nr. 358)

63) **Rotbav – "zwischen Rotbav und Feldioara"**; county BR, *bg*.

Survey. Insufficient information about its micro-regional placement. A cremation burial of the Wietenberg culture has been identified on the site.

(Boroffka 1994, 70-cat. nr. 359)

64) **Sânmartin**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement. Only a few sherds of the culture in discussion were retrieved from this location.

(Boroffka 1994, 78-cat. nr. 411)

65) **Sânsimion – Cetățuia "Görgös"**; county HR, *hab*.

Survey. On a terrace between the streams Fiság and Görgös. A bronze needle and some sherds of the Wietenberg culture have been retrieved.

(Boroffka 1994, 94-cat. nr. 540)

66) **Sânsimion**; county HR, *hab*.

Survey. On a terrace between the streams Fiság and Görgös. On the southern and south-western slopes a scarce scatter of sherds was identified.

(Boroffka 1994, 78-cat. nr. 415)

67) **Sântimbru – "Dealu Mic", "Kishegy"**; county HR, *hab*.

Survey. Insufficient information about its micro-regional placement. Only a few sherds of the culture have been retrieved from this site.

(Boroffka 1994, 79-cat. nr. 420)

68) **Sânzieni – "Tácospad"**; county HR. *unk*.

Unknown. Insufficient information about its micro-regional placement. A cup with a handle belonging to the Wietenberg culture was retrieved.

(Boroffka 1994, 80-cat. nr. 426)

69) **Sânzieni – "Urakszerelábja"**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement. The Wietenberg culture is represented at this site by only two sherds.

(Boroffka 1994, 80-cat. nr. 427)

70) **Sânzieni – Valea Seacă "Valea Caşin/Pârâul Cetății"**; county CV, *unk*.

Unknown. Insufficient information about its micro-regional placement. Only a few sherds of the Wietenberg culture were retrieved.

(Boroffka 1994, 98-cat. nr. 591)

71) **Sfântu Gheorghe – "Altmártya"**; county CV, *unk*.

Excavation. Insufficient information about its micro-regional placement. Only a few sherds of the Wietenberg culture were retrieved.

(Boroffka 1994, 73-cat. nr. 384)

72) **Sfântu Gheorghe – "Avasalja/Gémvárgerincze"**; county CV, *hab*.

Excavation. In the valley of the Debren stream, on a terrace (Avasalja) out of which juts a promontory (Gémvár). The site is located on the terrace (Avasalja). The settlement yielded a significant amount of finds, mostly pottery.

(Boroffka 1994, 73f-cat. nr. 385)

73) **Sfântu Gheorghe – "Bedeháza"**; county CV, *hab*.

Excavation. On the left hand side of the river Olt, on a terrace which is 10 m above the river valley. From this site 16 sherds and some vessels belonging to the culture have been published.

(Boroffka 1994, 74-cat. nr. 386)

74) **Sfântu Gheorghe – "Eprestető-Nisipărie"**; county CV, *hab*.

Survey. On a valley terrace on the left hand side of the river Olt at about 300 m from the river. The archaeological finds of the Wietenberg culture were very scarce.

(Boroffka 1994, 74-cat. nr. 387)

75) **Sfântu Gheorghe – "Őrkő"**; county CV, *hab*.

Survey. North from the town of Sfântu Gheorghe on a terrace of the river Olt, at the spot where archaeological finds were revealed; the site has been severely damaged by stone quarrying. One complete dish of the Wietenberg culture has been saved from here.

(Boroffka 1994, 74-cat. nr. 388; Székely 1955a, 844 and fig. 5/4)

76) **Simoneşti – "Panta de Stejar"**; county HR, *hab*.

Excavation. Insufficient information about its micro-regional placement. Most of the ceramic finds are attributed to the Wietenberg culture, as opposed to finds of other materials, which are more difficult to associate with the culture.

(Boroffka 1994, 78-cat. nr. 406)

77) **Şercaia**; county BV, *unk*.

Unknown. Insufficient information about its micro-regional placement and finds.

(Boroffka 1994, 73-cat. nr. 380)

78) **Târgu Secuiesc – "Bahndam nach Brețcu"**; county CV, *bg*.

Survey. Insufficient information about its micro-regional placement. A cremation burial in an urn of the Wietenberg culture.

(Boroffka 1994, 85-cat. nr. 465)

79) **Târgu Secuiesc – "Stadtteil Ruseni"**; county CV, *hab*.

Survey. Insufficient information about its micro-regional placement. Only a few sherds of the Wietenberg culture were retrieved.

(Boroffka 1994, 85-cat. nr. 466)

80) **Teliu – "Cetatea/Cetățea"**; county BR, *hab*.

Excavation. Insufficient information about its micro-regional placement. The Wietenberg culture is only represented by a few sherds.

(Boroffka 1994, 97-cat. nr. 584)

81) **Toarcla – "zwischen den Gräwen"**; county BR, *hab*.

Unknown. Insufficient information about its micro-regional placement. The Wietenberg culture only is represented by a few sherds.

(Boroffka 1994, 85f-cat. nr. 469)

82) **Turia – "Grădina Conacului Apor"**; county CV, *hab*.

Excavation. Insufficient information about its micro-regional placement. A pit-house of the Wietenberg culture was documented at this site.

(Boroffka 1994, 97f-cat. nr. 590)

83) **Turia – "Urnengräberfeld"**; county CV, *bg*.

Excavation. Insufficient information about its micro-regional placement. It consists of 26 cremation burials of the Wietenberg culture where the charred remains of the individuals were placed in urns.

(Boroffka 1994, 97-cat. nr. 589)

84) **Turia**; county CV, *hab*.

Excavation. On a jut of a hill towards the river Turia. The edge of this hill projection is fortified with a trench and stone rampart. The latter uses binding material of earth, with heavy marks of burning all over it.

(Boroffka 1994, 87-cat. nr. 480)

85) **Ungra**; county BR, *hab*.

Excavation (?). At the foot of a hill on the right banks of the Olt river. Very little of the retrieved finds belonged to the Wietenberg culture; these mainly consisted of sherds.

(Boroffka 1994, 88-cat. nr. 486)

86) **Vârghiș**; county CV, *hab*.

Unknown. Insufficient information about its micro-regional placement. Most of the finds consist of sherds of the Wietenberg culture.

(Boroffka 1994, 91-cat. nr. 512)

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DATA ABOUT ANIMAL EXPLOITATION AT RACOŞ – PIATRA DETUNATĂ / DURDUIA (COUNTY BRAŞOV, ROMANIA) IN THE BRONZE AGE AND HALLSTATTIAN HABITATIONS

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Keywords: *Bronze Age, Wietenberg Culture, Hallstatt, faunal analysis, animal.*
Abstract: *The article is presenting the statistical analyses on animal remains of Bronze Age and Hallstatt deposits from Racoş-Piatra Detunată and is presenting an comparative view of contemporary sites.*

"Piatra Detunată" / "Durduia / is a hill with an altitude of about 560 m, located on the left bank of the Olt River, halfway between localities Augustin and Racoşul de Jos. The hill was sporadic inhabited in Neolithic and very intense in the Bronze Age, Hallstatt and Latène (Costea, 2004, 52). The position was all-important to oversee the river Olt Valley, to Baraolt Depression and Homoroadelor Plateaus. Fortification from the Bronze Age, largely destroyed in the next age, is overlapped by two Hallstattian waves and a Dacian wall**.** At present, in relatively good condition are hallstattiene waves, unlike the Dacian wall which is kept on a height which varies between 1 and 1.6 m 1.7 m.

From the Bronze Age fortification a small faunal sample counting no more than 103 bones was collected; it comes from a dwelling - S2/2001 dated in the Bronze Age, Wietenberg Culture (Costea, 1999, 39-40). The bones exclusively belong to mammals, the most originating in **pig**. The 21 fragments (35.6 %) come from at least 6 individuals (40 %), killed in the following stages: two pigs at 7-9 months, one exemplar about 14-16 months, four exemplars upwards of 2.5 years. A single animal presumably reached an advanced stage, accounting the much worn dentition. The exemplar is a male, with a long upper third molar (39 mm in lengths) very closed to those of wild species. **Caprovines** rank the second with 17 fragments (28.8 %) from three individuals (20%), killed at 5-7 months, 12-16 months (a goat) and above four years (a sheep). A withers of 72.5 cm was estimated talus-basis, increased value but common, whereas the stature of the Bronze Age sheep in Romania was higher than previously (Haimovici, 1968, 190). For instance, the sheep from Otomani sites (NW Transylvania) had a stature of 61.4-69.3 cm (Haimovici 1987, 49; El Susi, 2002, 348), those from Noua Culture (SE Transylvania) 58.7-71.4 cm (El Susi 2002, 156). Unfortunately few data exist about sheep' withers exploited in Wietenberg settlements. It is possible they have had the

same waist high, as the sample from Cauce cave (Wietenberg level) shows it; a value of 68.9 cm was estimated (El Susi 2005, 121).

Table 1 – Species frequencies in the Bronze Age level

	Frgm.	%	MNI	%
Bos taurus	12	20.3	2	13.3
Sus domesticus	21	35.6	6	40
Ovis/capra	17	28.8	3	20
Equus caballus	1	1.7	1	6.7
Total domestic mammals	**51**	**86.4**	**12**	**80**
Sus s. ferrus	4	6.8	1	6.7
Cervus elaphus	3	5.1	1	6.7
Lepus europaeus	1	1.7	1	6.7
Total wild mammals	**8**	**13.6**	**3**	**20**
Total determined mammals	59	100	15	100
Splinters + ribs	44			
TOTAL SAMPLE	103			

12 remains originate in **cattle** post cephalic skeleton (20.3 %), coming from a sub-adult and a mature exemplar. From **horse** preserved a second phalanx of 45 mm in length, with a slender index of 84.2, coming from a relatively high individual with quite gracile legs. The wild mammal sample includes 4 wild boar bones (6.8 %), 3 red deer bones (5.1 %) and one of a hare (1.7 %). The fragments of **wild swine** originate in a single individual with a stature of 85.5 cm in average; is about a pair of talii (48.5 mm-GLl, tall – 85.9 cm) and a metacarpus III (79 mm-GL, tall – 84.7 cm). Whereas the stature of pig in Bronze Age is increased relative as well as the frequent interspecies cross-breeding, is not excluded the assignment of that animal to a mongrel. The three **red deer** fragments come from an adult individual. The **hare** is documented by a distal humerus. According to actual faunal information supposed the inhabitants from Racoş exploited chiefly domestic mammals, mainly the pork and mutton and secondary the beef. The by-products from small ruminants and cattle were also had in mind. The environment well forested advantaged an economy mostly focused on pig rising and sheep/goat (dairy products, wool). Cattle rising is on reduced scale least advantaged by environmental conditions. The game completed the diet, wild boar exploitation prevailing. Have stated an important amount of bones were not introduced in statistics inasmuch as come from a sector with mixed materials (Wietenberg + Hallstatt), „ from the bottom of the Dacian wall to core of hallstattian earth wave" (Costea, Bălos, 1996, 28).

The Hallstattian stronghold at „Piatra Detunată" is one of the most interesting objectives from SE Transylvania according authors of research. The two earth waves with an inner ditch form an arc of a circle, closing natural and anthropogenic terraces on which dwellings have high surface disturbed by the Dacian period**.** Fortification is located on a strategic place; it is believed that this was the headquarters of a local tribal chieftain (Costea, 2004, 76-77). Among the discoveries at the beginning of the first Iron Age at this point includes a sample fauna totalling 725 fragments, whose analysis will be presented below. He comes from campaigns, 1995 1997, 2000 and 2003 and was collected from the thickness of the waves and from two dwellings (loc. /1996-1997; loc. /2000)[64]. As revealed by data included in the table below the osteological sample consists almost entirely of mammal bones, there are only three shells harvested from the waters of River Olt. The sample consists of scraps of waste mainly of domestic mammals (87. 2%), among them cattle prevailing with 42.5 % (as fragments) and 25.6 % (as minimum number of individual). As frequency of NMI are readily brought forward by pig (26.4 %), a cause of the percentage difference between the two methods of quantification would be a reduced share of refuse jaws (14.4 %), an important criterion for estimating the MNI and kill-off patterns. There are four horn-cores of which one belongs to a female (dimensions at the base: 50/36/146 mm), the others ones coming from two immature males and one adult. The latter piece owns a portion of basic part with a diameter exceeding 79 mm; the piece is relatively massive, with morph-dimensional features what falls into the "primigenius" type. Complete long bones were not found so that there can not be to specify the stature of cattle at Racoş. Just remember that at this level chronologically cattle were of modest size with fewer individuals robust and higher. Thus, for cattle from the Hallstattian early settlement at Mediaş - "Cetate" has been estimated an average height of only 102.97 cm (Bindea, Haimovici, 2004, 119). Also, an average height of 103 cm was estimated for cattle from the Hallstattian site at Remetea Mare – "Gomila lui Gabor" (located in the Banat Plain) (El Susi, 1997, 50).

Table 2 – Species frequencies in the Hallstattian level

	Dwelling 1996/1997	Dwelling/ 2000	Wave	Total general	%	MNI	%
Bos taurus	21	60	161	242	42.5	31	25.6
Sus domesticus	14	32	78	124	21.8	32	26.4
Ovis/capra	10	11	54	75	13.2	21	17.4
Equus caballus		12	31	43	7.6	11	9.1
Canis familiaris	1	2	9	12	2.1	4	3.3
Total domestic	**46**	**117**	**333**	**496**	**87.2**	**99**	**81.8**

[64]Information Fl Costea coordinator archaeological research in this point, and thanks to whom this way for materials osteological and archaeological data

mammals							
Sus s. ferrus	2	7	14	23	4	7	5.8
Cervus elaphus	5	14	23	42	7.4	10	8.3
Vulpes vulpes	1	1	1	3	0.5	2	1.7
Lepus eurpaeus	1		1	2	0.4	1	0.8
Ursus arctos			2	2	0.4	1	0.8
Felis silvestris		1		1	0.1	1	0.8
Total wild mammals	**9**	**23**	**41**	**73**	**12.8**	**22**	**18.2**
Total determined mammals	55	140	374	569	100	121	100
Splinters + ribs	1	92	60	153			
MAMMALS	56	232	434	722			
Unio sp			3	3			
TOTAL SAMPLE	56	232	437	725			

Bone width measurements (few of them) show a population of cattle with many gracile animals (probably females) and few robust exemplars (males). Possible that this sex ratio reflects the gender composition of cattle herds in that time, the meaning of the prevalence of females compared to males (a normal ratio). On how the slaughter of the 31 individuals presumed, a percentage of 48.5 % represents the young and sub-adults and the remaining 51.5 % adults and matures. There are even cattle slaughtered after 7-9 years (four animals). The percentages suggest the use of cattle as the main source of meat and dairy products. Their killing for meat was done, either before reaching physical maturity, or after the reduction of economic performance, at an advanced stage.

The sample of **pigs** counts for 124 fragments (21.8 %) from the minimum 32 animals (26.4 %). About one quarter of their bones is fragments of jawbones which had allowed a detailing of the age of slaughter. According to them, up to a year was killed a small percentage, only 15.6 %, 53.1% between 1-2 years, 9.4 % between 2-3 years and 21.9 % over 3 years. According to these data it seems that the animals were mostly slaughtered between 1-2 years, more specifically between 1.5- 2 years, during which attained an optimum slaughter weight. There is, also an important percentage of animals kept as reproductive stock and a small share of young exemplars. It seems that there was a rational exploitation of species that assured beside cattle the source of meat of the community. Certainly the environmental conditions were suitable for a facile management of the species. With regard to withers height, on the basis of some astragalii were estimated values of 76, 76, 80.5 and 81.4 cm. The first two values characterise domestic individuals, the other two assign to boar females, by linking with similar materials from the Hallstattian early

settlement at Mediaş - "Cetate". The separation is quite arbitrary if we take into account the existing of cross-breeding (certainly) between pig and wild boar, in those times. High values of stature were estimated for suids from the Hallstattian early settlements of the Banat, a variation of 64.4 - 78.4 cm was found for the material from Remetea Mare and Vărădia (70 - 79 cm) (El Susi 1996, 126-127). Therefore, the pig exploited by the Early Iron Age communities seems as massive as the Bronze Age, with no sign of decrease of body parameters.

Caprovines sample totals 75 bones (13.2 %), of which 15 come from goats and 25 from sheep. The percentages suggest a relatively high frequency of goats in the livestock. Goat bones come from two sub-adult individuals and four adults. Sheep material is distributed in at least eight individuals of whom two were killed between 12 - 23 months and three between 3 - 5 years. Entering into account the bones without a sure assignment is obtained the following distribution of slaughter groups: a percentage of 66.7 % of young and sub-adult animals (14 individuals) and 33.3 % adult animals (7 individuals). Small ruminants killed at a mature stage were not identified. So the small ruminants rising aimed largely on meat consumption, unexcluding the milk and wool production. Estimations on the waist were not done in absence of long bones; the measurements on width of bone suggest medium-sized individuals.

43 pieces (7.6 %) were determined from **horse**, illustrating all body parts, which suggests the use of horse meat in diet. It estimated a total of 11 specimens (9.1 %), of which 7 animals (63.6 %) were killed 3.5 to 4 years and the rest over this limit; there is an animal slaughtered at 12 years and two over 15 years. Perhaps using of the horse was complex: riding, transport and food (the old or immature individuals).

Dog sample accounting for 12 fragments (2.1 %) completes the material of domestic segment from Racoş. Based on the seven jawbones is evaluated a number of 4 adult individuals (3.3 %), of which one of them has a mandible with a value of basal length of 205.4 mm, which corresponds to a dog of a high stature. Large-sized dogs lived in this epoch, as shows the faunal material at Medias "Cetate" (Bindea, Haimovici, 2004, 119), Remetea Mare (El Susi 1988, 158). Other measurements had highlighted medium-sized individuals also.

The bones of hunted mammals have a contribution of 12.8 % (73 pieces) in the sample. Among wild species, **deer** is ranked with 7.4% for 42 fragments and 8.3 % for 10 presumed individuals. His material is highly fragmented, illustrating almost entirely skeleton extremity; were identified only two jawbones, from a mature and a sub-adult (hunted around two years) exemplars. To be about a cutting of animals at the place of their capture, being brought into site just the significant parts for food, or the faunal sequence surprises a certain distribution of skeletal parts, dictated by the current stage of research. It is estimated that three animals were hunted as young a sub-adults and six ones have reached the adult stage (two were hunted at 4-5 years). For an individual was not considered the age. According to metric evaluations medium sized animals are in the majority.

In second place among the hunted species is placed the **boar** with 23 bones (4 %) from three immature individuals and four adults. Based on a talus was estimated a waist of 96.6 cm, values of 80.5 and 81.4 cm were assigned to wild species too. The metric data characterize medium sized exemplars, with some bones suggesting robust specimens robust, i.e. a distal tibia with GL. - 50.5 mm, a proximal radius, a scapula (see metric data). Definitely good woodland surroundings offered good conditions for the existence of robust mature specimens. Another wild mammal is the **fox**, from which two maxillary fragments and a complete radius preserved; the radius is 120.5 mm in GL. It is estimated a minimum of 2 individuals (1.7 %), hunted for their fur. The radius comes from a relatively small fox, less robust (probably a female) if we relate to similar material (Haimovici 1991, 155). Another species accidentally hunted is **hare** from which were identified a fragmentary scapula and a part of a pelvis from an adult specimen. Another species hunted for meat and fur is the **bear**, from which have resulted a portion of pelvis and a proximal phalanx, probably stored in fur, rotten over time. The last wild species found at the site is the **wildcat**, which has kept a radius, distal unfused, suggesting an immature body (GL is 113 mm). The presence of species in the area site links to existing well wooded hills that bordered the river course.

Making a synthesis on the above data one appreciates that domestic mammals were the basic food community. Enlightening is the value of domestic / wild ratio, 87.2 / 12.8 % as fragments and 81.8 / 18.2 % as MNI. The site location in a wooded environment, as evidenced by the prevalence of deer, wild boar remains together with the presence of elements typical of massive forests (bear, wildcat) promote the practice of hunting; however it was occasionally practiced focused on the elimination of possible predators, additional requirements for meat in the cold season or purchase of furs. Communities of the early Hallstatt raised both cattle for meat and milk, and pigs for meat and fat; the pork was a handy source of meat supply, relatively facile to keeping in conditions of a favourable biotope. Sheep and goats account lesser extent in the local economy. The horse was a significant component in the local economy, used in food as well as riding, carriage. Probably the aquatic resources as fish, molluscs were used in seasonal food. There are few faunal analysis for settlement of early Hallstatt from Transylvania, just the analyze of fauna from Mediaş - "Cetate" and partly the results from Mediaş - "Gura Câmpului" (Blăjan, Stoicovici, Georoceanu 1979, 35 42) may provide a basis for fauna from Racoş therein. Also there are some data on the fauna from Zau de Câmpie, it's about 123 determined bones, mentioned in a paper (Bindea, Haimovici, 2004, 120). To embark on a review of the fauna from early Hallstattian sites from Transylvania must take into account two aspects: the different quantitative value of analyzed samples (in this regard, with the exception of the slightly more numerous Racos sample - 725 frgm, the others are under 250 bones) and the conditions relatively different of settlements' location. If the settlements at Mediaş - "Cetate" and Mediaş - "Gura Câmpului were under the same bio-geographical location (placed at a low altitude of 300 m in the Târnave Plateau), in case of Racoş site (located in northern of Mountains Perşani) we talk of higher altitudes, over 500 m.

Overall all communities will be taken as basic food the exploitation of cattle, small ruminants and suidae. Their participation in supplying varies from case to case under both reports of no. fragments and as no. of individuals. If we take into account the frequencies as fragments, then their participation in diet is the maximum at Mediaş - "Gura Câmpului" (42.8 %) and Racoş (42.5 %) and lowers in the others, 26.4 % at Mediaş - „Cetate". As for Zau de Câmpie it states that "over half of the material belongs to cattle (Bindea, Haimovici, 2004, 120). To compensate, pig participation in supplying is higher at Mediaş - "Cetate" (25.2 %) and lower at Racoş (21.8 %) or Mediaş – "Gura Câmpului" (14.4 %). The horse has a role only at Racoş and Mediaş - "Cetate". Entering into question the criterion for measuring the frequencies as MNI, data change somewhat. Again cattle prevail at Mediaş - "Gura Câmpului" (30.1 %), at Racos having a somewhat smaller share, 25.6 %, and much less to Mediaş - "Cetate" (18.1 %). Pig dominates at Racoş (26.4 %) and Mediaş - "Cetate" (27.2 %). As a substitute small ruminants have significant frequencies at Mediaş - "Cetate" (24.2 %) and Mediaş - "Gura Câmpului" (21.1 %) and lowest in Racoş (17.4 %). Share hunting is significant at Mediaş - "Gura Câmpului" (20.9 / 27.7 % frgm. / MNI), a little lower at Racoş (12.8 / 18.2 %), while surroundings offered the best hunting. The game would have had a minor role at Mediaş - "Cetate", according to statistics (3.8 / 12.3 %). Range of hunted species was relatively diverse in surroundings of Mediaş, including deer, wild boar, aurochs, bear and roe deer and at Racoş as well, including: deer, wild boar, fox, hare, bear, wildcat. In the latter case the species composition includes mainly taxon (deer, wild boar, bear, and wildcat) typical of a well-wooded area with few open zones. Exploiting other food resources, from fishing, catching birds and molluscs (according fauna) will be made on a small scale or at all, although all sites were located near water. Some remains of molluscs were found at Racoş (3 pieces) and Mediaş - "Gura Câmpului" (a fish vertebrae, some shells of Unio sp.). The reserve required by small samples taken in question, generally speaking, the above data can not delineate types of settlements depending on the prevailing economic animal, probably every community in part operate in different natural resources offered by the environment, and the share of these resources vary in each case. Just as consistent analysis in many early Hallstattian settlements can further clarification.

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Methric data

Horn cores						
GL	**GD base**	**SD base**	**Circumf.**	**Taxon**	**Dating**	
	50	36	145	Bos taurus	Hallstatt	
	61.5	51	190	Bos taurus	Hallstatt	
	64	46	178	Bos taurus	Hallstatt	
	79			Bos taurus	Hallstatt	
70	37.5	21.5	107	Ovis/M	Hallstatt	
Maxila						
P2-M3	**M1-M3**	**P1-P4**	**M3/P4**	**Taxon**	**Dating**	
126	78	48	30	Bos taurus	Hallstatt	
			25.5	Bos taurus	Hallstatt	
			27.5	Bos taurus	Hallstatt	
		53		Bos taurus	Hallstatt	
			31	Bos taurus	Hallstatt	
			26	Bos taurus	Hallstatt	
			31	Bos taurus	Hallstatt	
			39	Sus dom.	Wietenberg	
			33.5	Sus dom.	Hallstatt	
			34.5	Sus dom.	Hallstatt	
	46		17	Ovic.	Hallstatt	
			18	Ovic.	Hallstatt	
			19	Ovic.	Hallstatt	
			18.5	Canis fam.	Hallstatt	
	17.5		18.5	Canis fam.	Hallstatt	
	21.5		18.5	Canis fam.	Hallstatt	
			18.5	Canis fam.	Hallstatt	
			13	Vulpes	Hallstatt	
Mandibula						
P2-M3	**M1-M3**	**P1-P4**	**M3/M1**	**Taxon**		
			34	Bos taurus	Hallstatt	

		50		Bos taurus	Hallstatt	
			31	Sus dom.	Hallstatt	
			34.5	Sus dom.	Hallstatt	
			35	Sus dom.	Hallstatt	
			36	Sus dom.	Hallstatt	
			45	Sus s. ferr.	Hallstatt	
			21.5	Ovic.	Hallstatt	
			23	Ovic.	Hallstatt	
76.5	53		26.5	Capra	Hallstatt	
			33.5	Equus	Hallstatt	
		38		Canis fam.	Hallstatt	
	86		24	Canis fam.	Hallstatt	
Scapula						
Ld	**SLC**	**GLP**	**Taxon**	**Dating**		
51.5			Bos taurus	Wietenberg		
56.5		54	Bos taurus	Hallstatt		
		50.5	Bos taurus	Hallstatt		
	39.5	32	Sus ferr.?	Hallstatt		
34	50.5	41.5	Sus s. ferr.	Hallstatt		
	30.5	25	Ovis	Wietenberg		
9	17.5		Lepus	Hallstatt		
Humerus						
BT	**Bd**	**Dd**	**Taxon**	**Dating**		
64			Bos taurus	Hallstatt		
69	78	76	Bos taurus	Hallstatt		
80			Bos taurus	Hallstatt		
		65.5	Bos taurus	Hallstatt		
		72.5	Bos taurus	Hallstatt		
33.5	40.5	42	Sus dom.	Hallstatt		

32	40	41.5	Sus dom.	Hallstatt		
31	41	41.5	Sus dom.	Hallstatt		
38	46.5	46.5	Sus s. ferr.	Hallstatt		
44	55	55.5	Sus s. ferr.	Hallstatt		
28.5	31	27	Ovis	Hallstatt		
	31	26	Ovis	Hallstatt		
	32	27	Ovis	Hallstatt		
30.5	32	26	Ovis	Hallstatt		
27	28	16	Ovis	Hallstatt		
	32	28.5	Capra	Hallstatt		
	31.5	34	Capra	Hallstatt		
	13.5	10.5	Lepus	Wietenberg		
Radius						
BFp	**Bp**	**Dp**	**Bd**	**Dd**	**Taxon**	**Dating**
72	79	38.5			Bos taurus	Hallstatt
		44			Bos taurus	Hallstatt
		43			Bos taurus	Hallstatt
		44			Bos taurus	Hallstatt
			76.5	54	Bos taurus	Hallstatt
	30	18			Sus s. dom.	Wietenberg
	32	22			Sus s. dom.	Wietenberg
	44.5	31			Sus s. ferr.	Hallstatt
			29.5	20.5	Ovis	Hallstatt
28.5	30.5	16			Ovis	Hallstatt
29.5	35	17.5			Ovis	Hallstatt
29.5	31.5	16.5			Ovis	Hallstatt
28.5		16			Capra	Hallstatt
30	30.5	16.5			Capra	Hallstatt
31.5	32.5	17.5			Capra	Hallstatt
73	79	46			Equus	Hallstatt
GL/120.5	10.5	6	13.5		Vulpes	Hallstatt
Metacarpus						

Bp	**Dp**	**Bd**	**Dd**	**Taxon**	**Dating**	
51	31			Bos taurus	Hallstatt	
55.5	32.5			Bos taurus	Hallstatt	
59	35			Bos taurus	Hallstatt	
	35			Bos taurus	Hallstatt	
		56	30	Bos taurus	Hallstatt	
		50.5	28	Bos taurus	Hallstatt	
		50	26.5	Bos taurus	Hallstatt	
		52.5	35.5	Cervus	Hallstatt	
Talus						
GLl	**GLm**	**Bd**	**Taxon**	**Dating**		
64	58	39	Bos taurus	Hallstatt		
66	60	43	Bos taurus	Hallstatt		
58	53	36.5	Bos taurus	Hallstatt		
67	61.5	44.5	Bos taurus	Hallstatt		
68.5	62	42	Bos taurus	Hallstatt		
64	59.5	39.5	Bos taurus	Hallstatt		
	66		Bos taurus	Hallstatt		
45.5?			Sus dom.	Hallstatt		
45?	39.5	26	Sus dom.	Hallstatt		
42.5	38.5	23.5	Sus dom.	Hallstatt		
42.5	38.5	25.5	Sus dom.	Hallstatt		
48.5	42	31	Sus s. ferr.	Wietenberg		
48	38	26	Sus s. ferr.	Wietenberg		
54	47.5	31.5	Sus s. ferr.	Hallstatt		
32	30.5	22	Ovis	Wietenberg		
61.5	57.5	52.5	Equus	Hallstatt		
56	51	37.5	Cervus	Hallstatt		
56.5	54.5	34	Cervus	Hallstatt		

59.5	55	36	Cervus	Hallstatt		
Mc. III/GL	**Taxon**	**Dating**				
79	Sus ferr.	Wietenberg				
Metatarsus						
Bp	**Dp**	**Bd**	**Dd**	**Taxon**	**Dating**	
50.5	49.5			Bos taurus	Hallstatt	
	45.5			Bos taurus	Hallstatt	
		51	29	Bos taurus	Hallstatt	
		51	26.5	Bos taurus	Hallstatt	
		56	29.5	Bos taurus	Hallstatt	
		61.5	30.5	Bos taurus	Hallstatt	
			30.5	Bos taurus	Hallstatt	
			27.5	Bos taurus	Hallstatt	
			28.5	Bos taurus	Hallstatt	
Tibia				**Pelvis**		
Bd	**Dd**	**Taxon**	**Dating**	**LA**	**Taxon**	**Dating**
55	42	Bos taurus	Hallstatt	32	Sus s. dom.	Hallstatt
61		Bos taurus	Hallstatt	33.5	Sus s. dom.	Hallstatt
61		Bos taurus	Hallstatt	43	Sus s. ferr.	Hallstatt
64.5	42.5	Bos taurus	Hallstatt	65	Equus	Hallstatt
50.5		Sus s. ferr.	Hallstatt	42	Canis f.	Hallstatt
25	17.5	Ovic.	Hallstatt	61,5	Cervus	Hallstatt
25.5	19	Ovic.	Hallstatt	13,5	Lepus	Hallstatt
53	38	Cervus	Hallstatt	**Calcaneus**		
53	38	Cervus	Hallstatt	**GL**	**Taxon**	**Dating**
54.5	39	Cervus	Hallstatt	124	Bos taurus	Hallstatt
54.5	41	Cervus	Hallstatt	129	Bos taurus	Hallstatt
56.5	39.5	Cervus	Hallstatt	133	Bos taurus	Hallstatt
				138	Bos taurus	Hallstatt
				42	Canis f.	Hallstatt
Equus caballus						

Ph I						
GL	**BFp**	**Bp**	**Dp**	**Sd**	**Bd**	**Dating**
					43	Hallstatt
83	49	55.5	37	35.5	44	Hallstatt
Ph II						
GL	**BFp**	**Bp**	**Dp**	**Sd**	**Bd**	**Dating**
47.5	43	49.5	33.5	40	47	Wietenberg

Fig. 1 – Bones of mammals

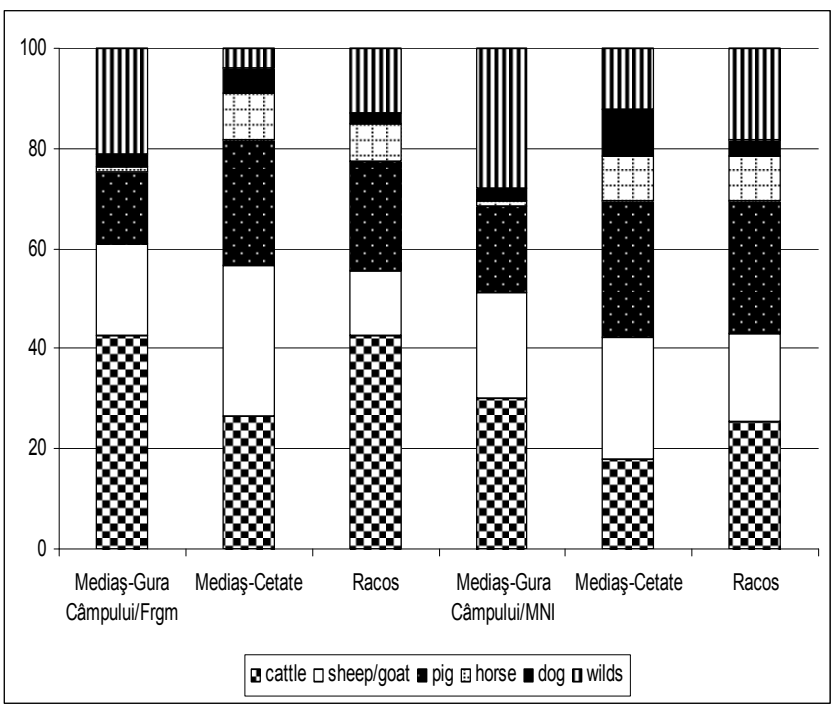

Fig. 2 – Animal frequencies in Hallstattian sites from Transylvania

CERAMICS FROM MIDDLE AGE SETTLEMENTS IN BRESTA LOCALITY NEAR THE VILLAGE OF ALTIMIR (BYALA SLATINA MUNICIPALITY, NORTH-WEST BULGARIA)

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In memory of my lecturer Assoc. Prof. Dr. Stefka Angelova

Keywords: Early *Middle Age, ceramics, dwellings - semi-dugouts.*
Abstract: *The article considers ceramics discovered in two Middle Age dwellings, studied in 2001 in Altimir-Bresta site (North-Western Bulgaria). For the time being these two semi-dugouts are the only constructions of this type, described in terms of stratigraphy on the territory of modern North-Western Bulgaria, which confers extraordinary informative value to materials excavated there. The technological, metric and morphological analyses of ceramics show that vessels with slightly pronounced high neck and non-profiled mouth rim drawn outwards prevail in the complex. The vessel silhouette is elongated with maximum widening in the middle of the body and the decoration consists of simple, shallow and irregularly spread motifs. All vessels, with no exception, are produced on slow-turning potter's wheel. Comparative analysis with materials from North and North-Eastern Bulgaria shows that the considered complex may be dated within the frames from the late 7th to the early 9th c. With these characteristics both dwellings and the material therefrom are a good evidence of existence of civil 8th c. settlement in the region of the well-know 'border' ramparts (Hayredin, Ostrov and Lom), accepted in the literature as military protection zone by the early 9th c.*

Bresta locality is 2,5 km to the North of the village of Altimir (Byala Slatina municipality, Bulgaria). The archaeological site is located on a non-flood terrace alongside the left bench of Skat River (altitude 171 m). The works on the site began in 1924 on the occasion of constructing Cherven Bryag-Oryahovo narrow-gauge railway. In 1951 another rail line was constructed in the region and crossed again the cultural deposits. This was the reason to start trial trench studies under the direction of Atanas Milchev. These excavations found out the existence of cultural layers from some ages: Late Neolithic, Chalcolithic, Early Bronze, Thracian, Roman (2nd - 3rd c.) and Late Roman (4th - 5th c.) (Милчев 1957). Later on, in 1961 Bogdan Nikolov reported also the existence of a '7th c. Slav settlement' on the left bench of Skat River (Николов 1961, 14-15).

New excavations in Bresta locality near the village of Altimir took place in 2000-2001 and were directed by Vratsa Regional History Museum and Institute of Archaeology with Museum near Bulgarian Academy of Science (Sofia) on the occasion of repair works upon Vratsa-Oryahovo road. The study covered pits from four different ages (Early Chalcolithic, Early Bronze, Early Bronze, Iron, Late Antiquity), including two Middle Age semi-dugouts, which are the subject of this article (Алтимир – Бреста 2006) (**Fig. 1**).

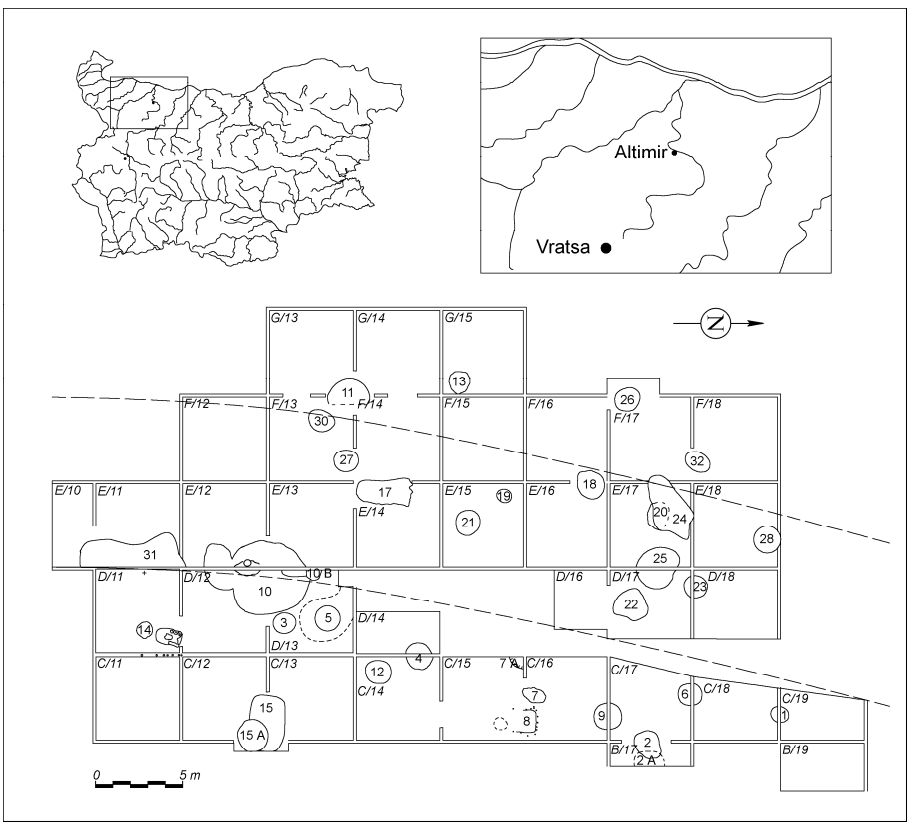

Fig. 1. General plan of excavations in Bresta locality near the village of Altimir, 2000-2001.

Middle Age structures (Nos. 14, 31) were discovered in the southern part of the site. They are two semi-dugouts from which the western one is heavily damaged. It might be presumed that both dwelling had been part of a Middle Age settlement, developed to South and South-East from the site - on the slightly pronounced slope going to the bed of Skat River. The terrain, where most probably the other Middle Age dwellings had been located, is now heavily destroyed as a result of earth works for two now non-operating rail ways (Vratsa-Oryahovo and Oryahovo-Cherven Bryag). It is not clear to what extent the discovered dwellings/semi-dugouts had

been fit together with the Middle Age constructions reported by B. Nikolov (Николов 1961, 14-15).

Dwelling No. 1 (Fig. 2). Heavily damaged as a result of construction and repair works relevant to building Vratsa-Oryahovo road. There are no data about the ground plan. The only thing outlined in grid map (GM) D11 eastern profile is that the construction is dug up to 0,80 m in a whitish earth layer of the ancient surface. On the same place we discovered a row of six posts (Diameter = 0,05 - 0,10 m) and preserved parts of floor coating (thickness up to 0,05 m), burned to black and red in between (**Fig. 2/1**).

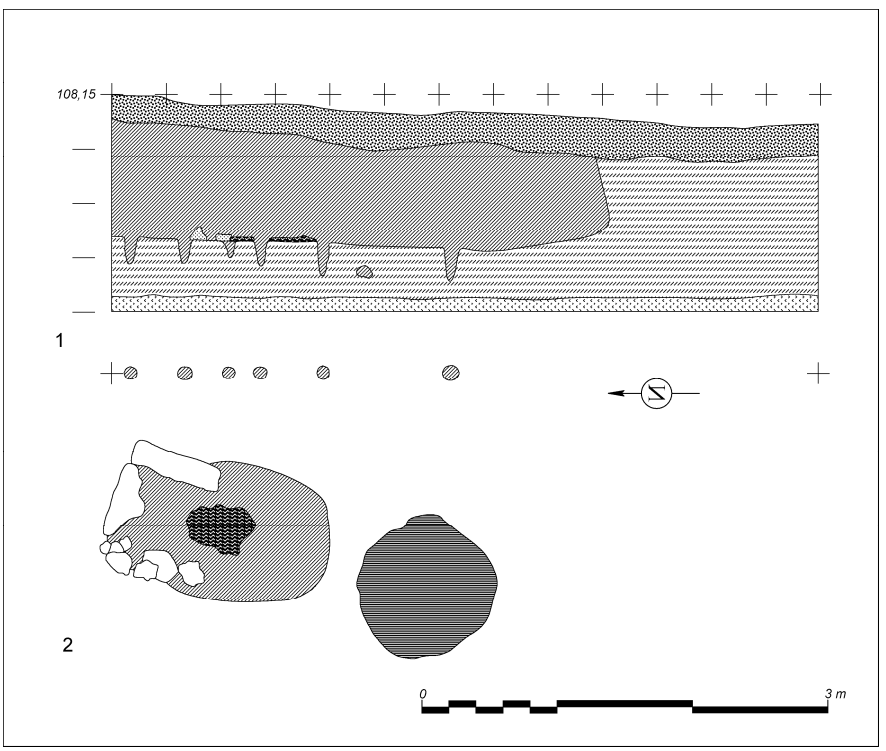

Fig. 2. Semi-Dugout No. 1. 1. Section - western profile of GM D/11; 2. Ground plan of the oven.

The oven of the dwelling was excavated at a distance varying from 0,20 to 0,40 m to the West of the series of posts (**Fig. 2/2**). It had rectangular (almost square) ground plan (0,84 x 0,80 m) and was oriented almost according to the four cardinal points, with opening to the South and a well pronounced pre-oven area. The oven was dug at approximately 0,40 m under the floor of the dwelling and its foundation was shaped with large size stones. The eastern wall of the oven was flanked by a large vertically fixed slab (L = 0,80 m, W = 0,20 m, H = 0,40 m). The vault of the oven, consisting in small broken stones with no traces of mortar, was discovered collapsed on the coating with oval plan, burnt to red and measuring 0,03 m in thickness. Also a pit, presumably meant for evacuating the cinders, was registered immediately in front of the oven opening. It was dug approximately 0,30 m under the oven level and measured almost 1,00 m in diameter. It was filled in with dark brown earth and did not comprise other materials.

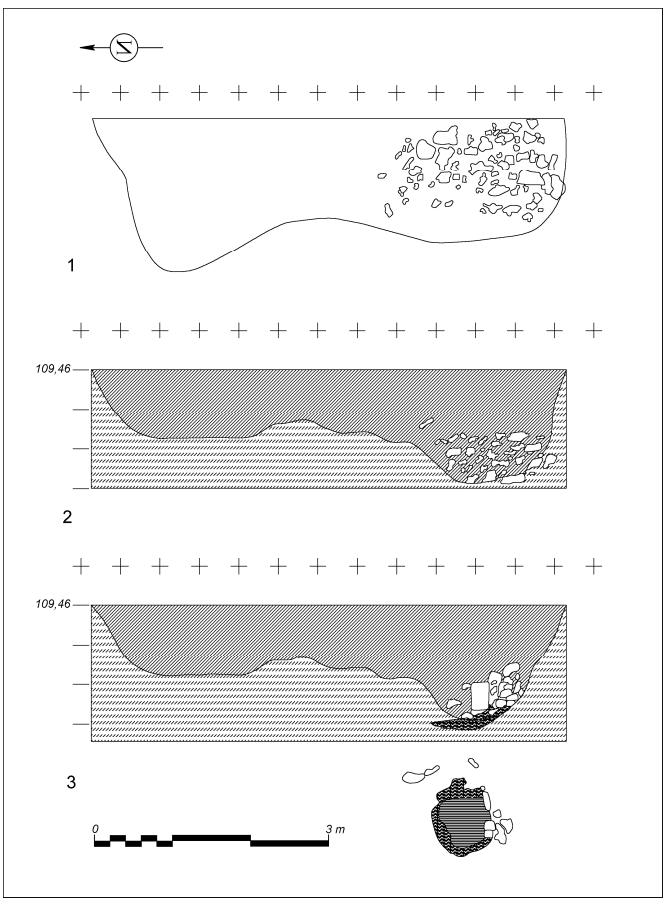

Fig. 3. Semi-dugout No. 2. 1. Ground plan of preserved part of dwelling; 2. Section before clearing up the oven; 3. Section after clearing out the oven and ground plan of the oven floor coating.

Dwelling No. 2 (Fig. 3). Only its western part was excavated since its eastern part falls under the temporary bed of Vratsa-Oryahovo road. The dwelling pit was outlined clearly in GM E11 eastern profile, where its upper part had got destroyed when construction and repair works took place (**Fig. 3/2, 3**). The preserved depth of the dwelling pit is 0,60 m. Neither supporting constructions, nor traces of forming the walls or floor through coating, ramming, etc. were found out. The preserved western part shows the dwelling used to have rectangular ground plan, orientation approximately according to the four cardinal pints and North-South dimension of 4,80 m (**Fig. 3/1**).

The oven of the dwelling was in its south-western corner and its western part was also studied partly (**Fig. 3/3**). It was dug 0,40 m down the level of the dwelling and its foundation was shaped by vertically fixed and closely arranged to each other stones with reused pre-historic millstones in between (maximum sizes: H = 0,55 m, W = 0,40 m). The partial study did not allowed us finding out the shape of the oven as well as to clarify the position of oven opening and the shape of the pre-oven area. The preserved North-South dimension was 2,00 m. The oven vault, consisting of small broken stone and strongly fragmented Late Antiquity and Middle Age home purpose ceramics with no traces of mortar, was also discovered collapsed on burnt to red coating with oval ground plan (dimensions: North-South 0,60 m, East-West 0,80 m, thickness 0,10 m). Partly preserved ceramic vessel (**Fig. 5/44**) and relatively large quantity of chicken bones were cleared up over the coating.

Small quantity of ceramic materials were found out in both semi-dugouts. In dwelling No. 2 the material was concentrated on the floor and used as construction material for building the oven (**Fig. 5**), while in dwelling No. 1 the material was found at a depth, approximately equal to the level of the dwelling pit and the largest concentration of material was close to the oven (**Fig. 4**). In both semi-dugouts the upper part of the filler was mixed with pre-historic and Late Antiquity ceramics (**Fig 5/36, 40, 41**), which decreased in quantity when the depth increased. No such ceramics were excavated at floor level of dwellings.

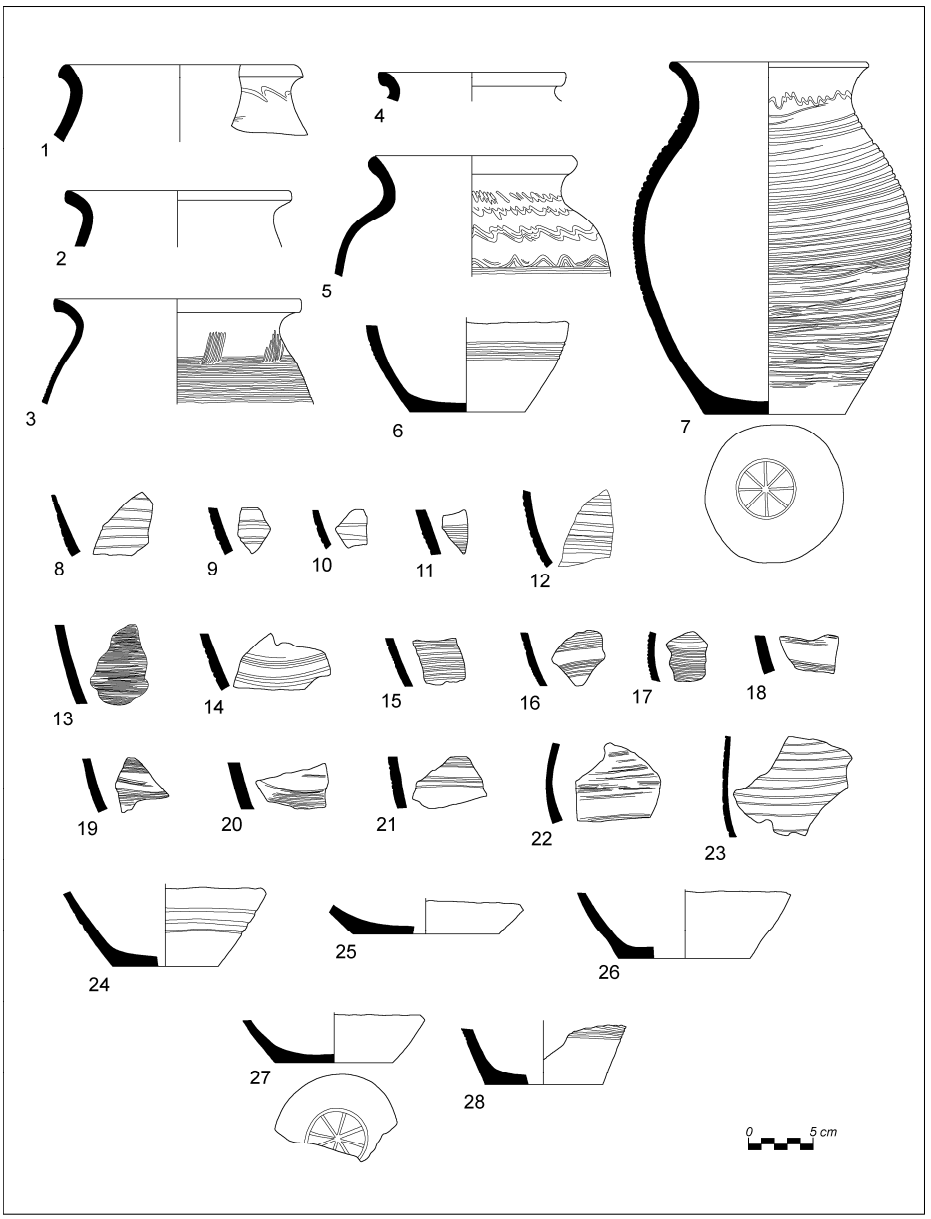

Fig. 4. Ceramics from semi-dugout No. 1.

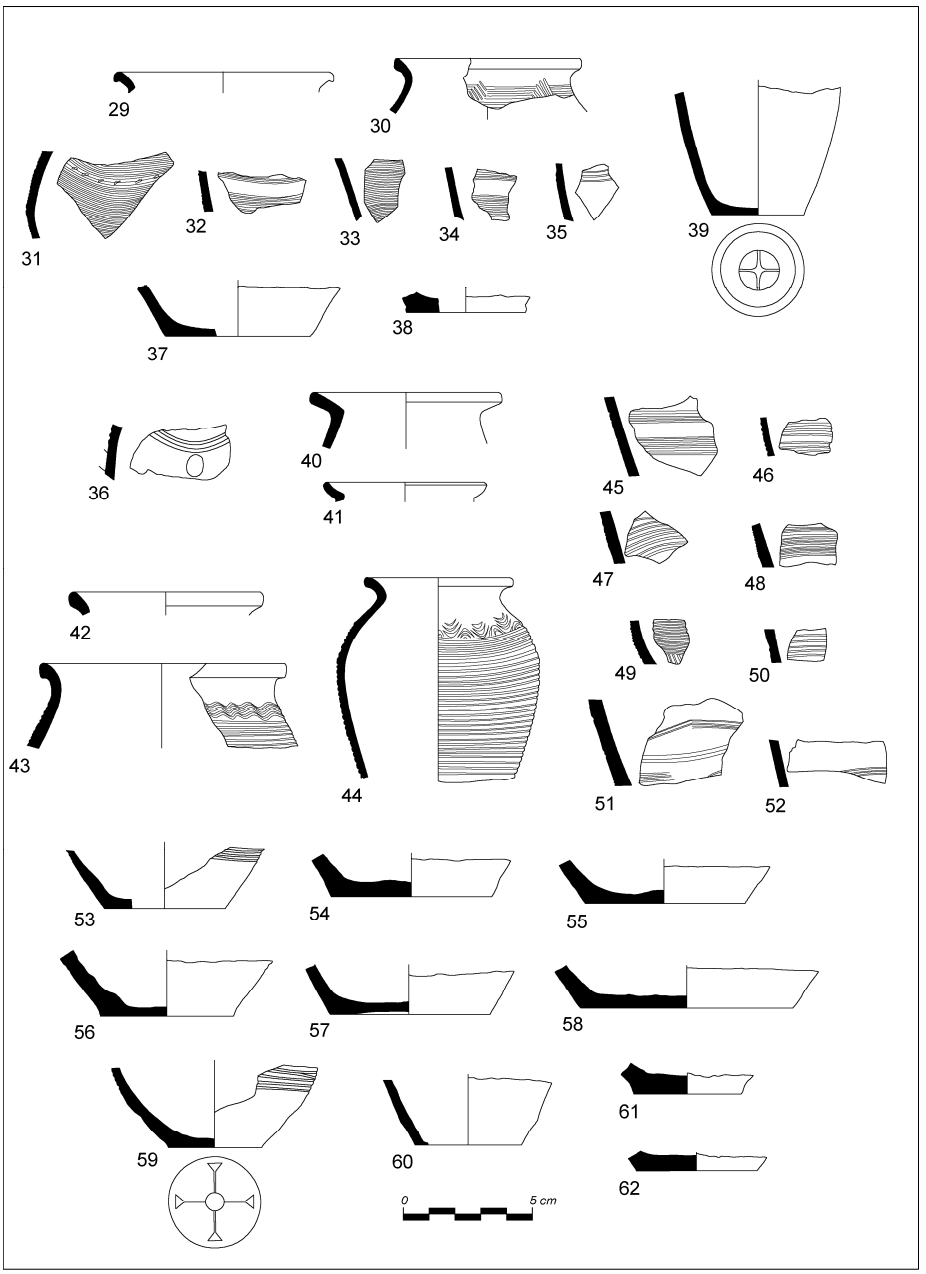

Fig. 5. Ceramics from semi-dugout No. 2.

The ceramics from both dwellings is of one type and consists of mouths and fragments of pots. The vessels were made of micaceous clay (**Table 1**), mixed with sands, comprising limestone particles and small stones. In most fragments the contents of limestone particles in the clay is either moderate or too high, but with small sizes. Part of the examples comprises large quantity and large size limestone

components (**Table 2**). Almost one half of the fragments do not comprise other admixtures. There are only three cases when the use of organic materials is found out for the purpose of making the clay poorer of greases. When there are stones with greater sizes in the clay, in 20 % of the examples these do not excide 1 mm. However, the material comprises also a large number of fragments when bigger components are found amongst the admixtures (**Table 3**).

Moderate quantity	60 %
Large quantity	18 %
Moderate quantity, small sizes	9 %
Small quantity	5 %
None	4 %
Large quantity, small sizes	2 %
Small quantity, small sizes	2 %

Table 1. Mica contained in the clay.

Moderate quantity, small sizes	24 %
Large quantity, moderate sizes	22 %
Large quantity, small sizes	20 %
Moderate quantity, moderate sizes	11 %
Small quantity, small sizes	9 %
Large quantity, large sizes	7 %
Moderate quantity, large sizes	4 %
Small quantity, moderate sizes	4 %

Table 2. Limestone particles contained in the clay.

None	46 %
Up to 1 mm	20 %
Up to 2 mm	8 %
Up to 5 mm	7 %
Up to 3 mm	5 %
Small quantity	5 %
Up to 4 mm	2 %
Large quantity	2 %
Up to 6 mm	2 %
Up to 9 mm	3 %

Table 3. Small stones contained in the clay.

The wall thickness of ceramic vessels varies from 0,3 to 1 cm. Fragments with thickness 0,5 cm prevail categorically. Presumably due to the purposeful selection of rougher material meant for strengthening the oven construction, the wall thickness of ceramic vessels from dwelling No. 2 is greater. This is the only place where we found fragments with thickness 1,00 cm (**Table 4**).

Total		Dwelling No. 1		Dwelling No. 2		Dwelling No. 2 – Oven	
0,5 cm	31 %	0,5 cm	29 %	0,5 cm	60 %	0,7 cm	24 %
0,7 cm	20 %	0,7 cm	22 %	0,4 cm	20 %	0,5 cm	18 %
0,4 cm	13 %	Uneven	16 %	0,6 cm	10 %	0,6 cm	18 %
Uneven	11 %	0,4 cm	14 %	0,7 cm	10 %	0,8 cm	18 %
0,8 cm	11 %	0,8 cm	11 %			0,9 cm	12 %
0,6 cm	9 %	0,6 cm	7 %			0,4 cm	6 %
0,9 cm	4 %	0,3 cm	4 %			1,0 cm	6 %
0,3 cm	2 %						

1,0 cm	2 %						

Table 4. Thickness of walls.

The great percentage of ceramics, suffered from secondary burning and found amongst the materials from both dwellings, is also due to the existence of fragments from the oven in dwelling No. 2. As a whole, the pots from both dwellings are fired up to colors, varying in the ranges of red and brown. The firing is uneven and gray and black spots are seen on many of fragments. In some cases the internal surface of the vessels has a different, usually darker color in the ranges of gray and black (**Table 5**). A typical feature of the complex is the large number of fragments with even broken surface (**Table 6**).

Burnt fragments	25 %
Dark red and brown	22 %
Dark brick-red	20 %
Dark gray	13 %
Dark beige	7 %
Light beige	5 %
Beige	4 %
Black	2 %
Light brown to orange	2 %
Uneven color	13 %
Surfaces of different colors	15 %

Table 5. Color of the surface

Even	48 %
Dark gray	21 %
Black	13 %
Dark red	13 %
Brown and red	4 %
Lighter	2 %

Table 6. Color of the broken surface

In terms of shape, the vessels from the site belong to one and the same type of pots with slightly elongated neck and non-profiled mouth rim drawn outwards slightly: cut obliquely (**Fig. 4/1-3; Fig. 5/44**), polished (**Fig. 4/7**) or slightly thickened (**Fig. 4/5; Fig. 5/29-30, 42-43**). The entire profile of the vessels can not be restored, but if we judge on the partially preserved pots No. 7 and No. 44, Bresta mouth fragments belong to vessels with slightly elongated proportions with biggest widening either in the middle or in the upper third part of the body. The metric data show a slightly greater width of the mouths (diameter varying from 11 to 18 cm) as compared to the one of the bottoms (diameters varying within the frames 7-16 cm, although diameters from 9 to 11 cm prevail). However, we can not state that the shape typical for the complex is the one of turned down truncated cone with maximum widening in the upper third part of the vessel, since there are only two vessels with well pronounced shoulders (**Fig. 4/5; Fig. 5/44**). It is more probably to presume that vessels of the type of pot No. 7 used to prevail in the complex - vessels with wall falling obliquely down from the neck, elongated silhouette and maximum widening in the middle of the body.

In terms of technology Bresta fragments of mouths, bottoms and walls show the traces of manufacturing through slow-turning potter's wheel. A great part of the fragments shows clay overlays under the mouth rim and close to the bottom and in some cases these are additionally flattened by means of thin tool. Uneven concentric traces, left by potter's fingers, are seen inside the moth and these are also additionally polished vertically. Flattening the surface through fingers, flat tool or tool with relatively sharp point is seen on a large part of the external and internal walls (vertically, horizontally and diagonally). On the bottoms we can clearly see the additional sticking of the walls to the piece of clay, used as basis of the vessel. This palace is thoroughly polished - most often by means of fingers, leaving concentric uneven traces on the internal walls of the vessels. An interesting feature is the additional polishing on the external lower surface of the bottoms after the items were taken sway from the potter's wheel. Most probably this technique was applied for manufacturing the greatest part of the vessels, although only 25 % of the bottoms bear clear traces of additional polishing (**Table 7**).

Flat, with rough surface	45 %
Flat, additionally polished	25 %
With relief sign	20 %
With sand dusted on the potter's wheel	10 %

Table 7. Technological features of the bottoms.

If we judge on the existing data, almost all vessels had been decorated mainly with shallow incised motifs. The patterns are simple - most often straight, unevenly incised lines, with different thickness and density, which most probably covered almost the entire vessel, reaching as far as 2-4 cm above the bottom. Wave lines or beams of diagonal lines are seen only on necks and upper body parts of the pots.

Specifying the date of the above-described dwellings is difficult because there is no comparative material from the region. Except for the sporadic publications of single fragments, originating from partial archaeological studies (Вължарова 1959; Вължарова 1976, 247; 236-245; Станилов, Александров 1983 a; Милчев 1964, 24; Димитрова 1985, 31; Иванов 1988, обр. 6; Иванов 1998, 28, Обр. 2; Иванов 1996) or visual inspections (Николов 1962, 35, Обр. 4; 36, Обр. 6; 37, Обр. 7-8; Вължарова 1965 b; Рашев, Иванов 1986, 21, Обр. 8; 22, Обр. 9; Ангелова, Колева 1992; Ангелова, Колева 1994), for the time being only some pots, relevant to the Pagan period of the Middle Age settlement on the ruins of ancient Montana, have relatively clear context of discovering (Станилов, Александров 1983 b, 46, Обр. 9; 49, Обр. 11). For this material the investigators admit evolutionary technological development and date the vessels with more precise workmanship later than those, produced manually or on slow-turning potter's wheel, but having greater quantity and rougher admixtures in the clay (Станилов, Александров 1983 b, 48-50). The lack of detailed scientific information for the Middle Age period of the considered region makes possible a relatively free interpretation of the material

published and originating from here. Using indirect chronologic benchmarks, such as historic data, type of burial ceremony, or prevailing ethnic group, is the explanation of differences in dating a great part of the archaeological sites studied in the region. In this respect we have to note the great difference of inventories from necropoleis near the villages Gradeshnitsa and Galiche, both dated within the frames of the second half of 9th-11th c.[65] (Mašov 1979, 47; Вължарова 1976, 420). The lower limit, comparable with historic source, is not earlier than 9th c. (ЛИБИ 1960, 29-39). The admission that the three earth fortifications (ramparts of Hayredin, Ostrov and Lom) mark the endmost territories, outlining the borders of the Bulgarian state by the early 9th c. (Рашев 1981, 33-34; Рашев, Иванов 1986, 19-20), displace the mass building of civil settlements after this date (Рашев, Иванов 1986, 23). In the same time, dating ceramic materials to the period before 9th c. is also not deprived from evidentiary basis (Вължарова 1959, 22; Ангелова, Колева 1994, 131; 147, Табл. VII/2, 3, 4, 9; Станилов, Александров 1983 b, 46). The opinion of the prevailing Slav character of the population living in the region appears almost well-established (Станилов, Александров 1983 b, 50) due to the lack or limited existence here of ceramics with polished decoration (Вължарова 1965 a, 171, бел.4, 172-173; Дончева-Петкова 1992, 500).

Considered in the light of the so far existing studies, the materials from Bresta locality, regardless their limited quantity, represent an enough representative complex, which by its main features (ceramics produced only on slow-turning potter's wheel, relatively simple morphology and decoration) are comparable with similar materials known from other places of Bulgaria. In terms of shape (mouth rim drawn outwards slightly, cut obliquely or thickened slightly) the vessels belong to one of the most resisting morphological types with relatively long period of existence. The closest parallels, not only based on the mouth rim shaping, but also based on data relevant to entire vessel profiles (oblique shoulders, high and slightly pronounced neck) are pots, originating mainly from the region of the town of Kozlodui (Ангелова, Колева 1994, 141, Табл. I/6; 143, Табл. III/7; 145, Табл. V/13; 147, Табл. VII/9), dated to the 8th - mid 9th c. pursuant to analogies with the settlement near Bucov-Rotari (Ангелова, Колева 1994, 130-131; Comşa 1979, 326, Abb.5, II/6, 7, 51, 92, 116, 118). Some vessels, originating from the non-studied cremation necropoleis in Kalifera locality, near the town of Kozlodui, possess the same characteristics (Ангелова, Колева 1994, 147, Табл. VII/2, 3, 4) and Naklata locality near the village of Dolni Tsibar (Вължарова 1965 b, 233, Обр. 3), as well as fragments from Bossovite Kamani locality near the village of Galiche (Вължарова 1965 b, 237, Обр. 8) and Brestoveshka Padina locality near the village of Hayredin (Рашев, Иванов 1986, 22, Обр. 9/г). Much close to the profile of pot No. 7 are the ceramic vessels from the most earliest Middle Age layers in the settlement near the village of Styrmen (Styrmen 1980, 222, Tabl. XLIII; 233, Tabl. LIV). From the late 7th to mid 11th c. mouths from the above-mentioned type had been used also in the Middle Age settlement Yatrus-Krivina (Wendel 1986, Beilage 3). Similar forms are

[65] Gradeshnitsa - second half of 9th c. - early 11th c.; Galiche - late 9th - 11th c.

also known from Middle Age settlements in North-Eastern Bulgaria such as Popina-Kaleto (Вължарова 1956, 37, Обр. 28/a), Garvan (Вължарова 1986, 30, Обр. 24; 31, Обр. 23; 31, Обр. 25; 31, Обр. 26; 32, Обр. 27; 33, Обр. 28), Dzhedzhovi Lozya locality near the village of Popina (Вължарова 1965, 97, Обр. 66; 98, Обр. 67; 99, Обр. 68; 100, Обр. 69, Обр. 70), Kladentsi (Ваклинов, Станилов 1981, 46, Обр. 42/3, 6, 8; с. 48, Обр. 43/2, 3, 10; с. 49, Обр. 44/2), Malak Preslavets (Станчев 1952, 290, Обр. 285/1), Durankulak (Меламед 1989, Табл. Ia/A, 1; Б, 1-6), Odartsi (Дончева-Петкова 1999, 75, Обр. 121/1, 9, 13), Middle Age settlement over the ruins of the ancient city of Abritus (Георгиева 1961, 19, Обр. 14; 20, Обр. 15, 21, Обр. 17).

The examples given show that such forms with incised decoration were manufactured over a long chronological period from sandy clay both on fast and slower potter's wheel. However, amongst the materials from Bresta this form is the only one and it refers only to vessels produced on slow-turning potter's wheel. It is worth mentioning that on sites with no materials produced through this technology the lower chronological limit does not go beyond the mid 9th c. (Меламед 1989, 161; Станилов, Рашев 1987, 59-60; Дончева-Петкова 1999, 78). For the time being the vessels produced on slow-turning potter's wheel are dated as a whole to the earlier chronological layers of Middle Age settlements (Вължарова 1965 a, 88-89; 89, Обр. 56; 90, Обр. 57; 96-97; Вължарова 1986, 17, Обр. 9; 18, Обр. 10; 21; 171-172; 172, Обр. 184; 182-183; 183, Обр. 196; Милчев, Ангелова 1971, 25-28; 38-39; Wendel 1986, 137; 141-142; Антонова 1981, 62-63). Amongst the sites, studied more thoroughly and documented in terms of stratigraphy, the chronological frame of this ceramics varies from late 7th to first half of 8th c. (Милчев, Ангелова 1971, 25-27; Вължарова 1986, 77) and 8th - early 9th c. (Styrmen 1980, 297; Wendel 1986, 141-142; Taf. 23/3-7; Taf. 24; Taf. l40/d-h; Антонова 1981, 60-61, Обр. 6/11-12).

The type of ovens in both dwellings is a seldom met construction, which is met sporadically amongst the ground plans of the sites studied. Based of their main characteristics (foundation built of big broken stones and vault built of small broken stones), Bresta ovens may be dated to the earliest type of ovens typical for North-Eastern Bulgaria (Димитров 1975, 220-221). They differ from them by their pits dug under the floor level of the dwellings and may be compared with some dwellings known from Middle Age settlements near Pliska (Георгиев 1981, 190; 191, Обр. I/3), Popina-Kaleto (Вължарова 1956, 13, Обр. 3-a; 34-35), Dzhedzhovi Lozya (Вължарова 1965 a, 20, Обр. 8/1, 2, 3; 86-88), Nova Cherna (Милчев, Ангелова 1971, 30; 160-161, Табл. XX), Durankulak (Тодорова 1989, 43). In the settlement near Huma, the ovens dug under the floor level make a separate group, for which the investigators admit such dating as 8th - mid 9th c. (Станилов, Рашев 1987, 57).

Conclusions. As a whole, the Middle Age dwellings excavated in Bresta locality near the village of Altimir are amongst the few examples illustrating the

material culture in the region of North-Western Bulgaria from the time of the First Bulgarian state. Unfortunately, the scarce stratigraphy data do not allow making more detailed observations about the type of the dwelling constructions. However, the discovered two stone ovens and the ceramics, which may be referred to them, give enough grounds Bresta dwellings to be dated to the period of late 7th - early 9th c. Bresta ceramic material and methods of construction of ovens do not evidence considerable differences from items, already studied in Central North and North-Eastern Bulgaria. Good firing of the vessels and registered deliberate polishing of bottoms, after the vessels are put away from the potter's wheel, may be noted as specific features of Bresta ceramic material. However, the percentage ratio of bottoms with relief signs is comparable with data from other sites, while the potter's signs existing on two vessels (Fig. 4/7, 27) are accepted in the archaeological literature to be ones of the most often spread (Станилов, Рашев 1987, 161, Табл. 60/274; Тотев 1996, Табл. XXI, LXXIV/2, LXXV/A3, A5; Чангова 1992, 115, 117, Обр. 111; 118, Обр. 112; 121, Обр. 114; Вължарова 1956, 38, 39, Обр. 29/Ia, б; Димитров 1973, 87-88, Табл. XII-II/5, 7, III/6, IV/4).

Furthermore, the simultaneous existence in both dwellings of ovens of a type, with restricted use in other places, may also be accepted as a specific feature of Bresta semi-dugouts. However, we have to note that any more specific conclusions, made based on the data for two partly studied dwellings, would be deprived from grounds. For the time being, there are no data allowing distinguishing Bresta materials from those typical for First Bulgarian state culture. In this respect, there is an interesting find from the region of the same settlement, to the South of the part studied, which may be referred to the well-known in the literature Popina-Garvan ceramic group (Fig. 6/63).

In terms of profile this vessel is very close to vessels found in the settlement near the village of Garvan (Вължарова 1986, 12, Обр. 5), while the features of clay, the method of manufacturing and firing are identical with those of similar materials known from a series of sites in Bulgaria (Тотев 1996, 15; Милчев, Ангелова 1971, 22-24; Антонова 1981, 62-63). Of course, the informative value of single finds of this type is not greater than the one of separate vessels, considered outside the context of their origin (Милчев 1964, 24, Обр. 1; Машов 1980, 43, Обр. 19; Ангелова, Колева 1992, 173-175). Yet taking in consideration the data from both dwellings studied, the fact that there are materials, typical for sites in North-Eastern Bulgaria, is not surprising at all. It is beyond any doubts that further investigations will give more detailed information on the issues. For the time being we can state that the dwellings, excavated in Bresta locality, and ceramics found therein are an eloquent example for the aspect of the Early Middle Age culture of the considered region and the respective data can not be neglected upon interpretation of materials relevant to the culture of the First Bulgarian state in present-day North-Western Bulgaria.

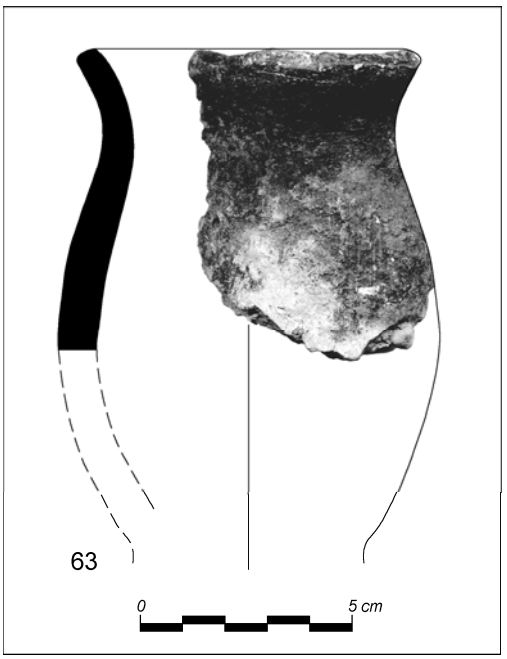

Fig. 6. Handmade ceramic vessel - occasionally found in the region of the village of Altimir

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