"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

IX

Editura "ALTIP"

Sibiu - 2010

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Introduction

This volume is divided in two sections: the first one is dedicated to the symposium that followed the achievement of European Grant LLP-LDV/TOI/07/IT/016, also called F.-M.U.S.EU.M., results that are published on-line on www.europeanvirtualmuseum.net

Because of this, information's are briefly presented, the purpose is to present the experiences gained by the team during the work done to the project.

The second part is following the last eight volumes that are already published.

I wish to thanks to everyone who contributed through their work to raising the scientific level of this publication.

Professor Sabin Adrian LUCA, Ph.D.

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BUILDING ARCHAEOLOGICAL MUSEUMS AS PROTAGONISTS OF VIRTUAL REALITY

Marco MERLINI
F-MU.S.EU.M. network
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Keywords*: cultural heritage, virtual museum, learning model, Prehistory, Danube civilization.*
Abstract*: How to migrate high motivated museum institutions to virtual museums online, even if they are affected by inadequate ICT competences, low Web presence and restricted financial resources? The article discusses the model-experience of the Virtual Museum of European roots realized by the F-MU.S.EU.M. Network. It is aimed disseminating toward a wide audience the acknowledgment that a major civilization flourished in Neolithic and Copper Age in Southeastern and Central Europe (the Danube civilization) and documenting how the European matrix is still now in part founded upon it. The partnership of the F-MU.S.EU.M. Network is comprised of about thirty national and regional museums of archaeology and history settled in this macro-region.*
If the presented model-experience is not the most sophisticated way to produce and manage Web exhibitions and 3D virtual reality, however it is an ambitiously realistic approach generating the necessary capacity building in order to empower the associated museum with all the necessary knowledge and skills to create and implement one's own virtual gallery provided on the Web.

An international learning community of museums to develop capacity building on Web exhibition and 3D virtual reality

Online information channels especially the Internet, virtual reality and multimedia technologies are a vital opportunity for public archaeological museums to widen their access and using e-learning to increase exposure to culture. If potentially virtual museums online rely on many factors of success, however archaeological museums are normally characterized by serious ICT lacks in the field of Internet in general and virtual reality in particular. Main gaps are in terms of competences, knowledge and abilities of human resources. Web sites, if directly generated by archaeological museums, are a pure digital replica of practical information such as opening times, location, etc. Their "virtual area" is a static and boring provision of listed artifacts with low quality and non-interactive pictures. Limited resources available for virtualization are associated with a limited appreciation of its potential. The more active museum institutions request to an external expert to

develop a dedicated Web site added with virtual reality, but he is in general unqualified and unconcerned to cultural heritage. Specular inadequacies of museum staffs and external experts to collaborate create a loop, which effects are (See the survey of F-MU.S.EU.M. 2008):

- High costs
- Unsubstantial collections delivered online
- Pure replicas in HTML of actual collections
- Images without any significant value
- Lack content and depth due to under-exploitation of multimedia potential for linking (say) a picture exhibit with associated text, music, maps, games, interactive quiz, and multilinguality
- Low added value in terms of additional information or increased culture compared to the original, physical museum
- Expropriation of museum contents
- Web pages not updated
- Prevalence of just marketing Web sites or sites selling from museum shops; few are real resources
- Under-used exhibit materials in the accession states that form part of museums tourism offer.

A network of archaeological museums of Southeastern-Central Europe has been established in order to cope with these pitfalls. It is the F-MU.S.EU.M. Network, which comprises historical and archaeological museum institutions of national, regional and local level. Its main purpose is to offer to the partner museums the opportunity to display, on the Web and in 3D, the artifacts held in trust by them without any necessity to appeal to external experts. Indeed, it works as an international learning community able to develop capacity building within the participant museums on the topic of virtual reality online.

The F-MU.S.EU.M. Network tries to “think different", answering to the following questions:

- How to migrate high motivated museum institutions to virtual museums online, even if they are affected by inadequate ICT competences, low Web presence and restricted financial resources?
- How to fashion a proper methodology in structuring such virtual Web exhibitions aimed making the partner museums actually protagonists?
- Through what means does such an experience be developed without any expensive software or muscular hardware?
- How to make the idea concrete that even a small virtual museum online should not be just a clone of the real world, instead imagining it as a tool collaborating with the traditional museum institution by performing distinct expositive and educational duties?
- Can the method of learning by doing be effective in such a challenge? How can a museum institution make successful the experience of learning

how to deal with the Web and virtual reality while creating a virtual museum online from its collections?

- Which is an effective manner to generate an international learning community able to develop capacity building within partner museums on the topic of Web exhibition and 3D virtual reality?

The F-MU.S.EU.M. Network has as a hub the *Virtual Museum of European roots*, which provides and explores, on the Web and in 3D, exceptional prehistoric artifacts hosted by the partner museums aimed documenting that a major civilization flourished in Central and Southeastern Europe throughout Neolithic and Copper Age times. Having as backbone the macro-region individuated by the Danube River and its tributaries, it is recognized as the *Danube civilization*. It flourished for three millennia, from c. 6400 BCE to c. 3500-3300 BCE (Merlini 2005, 234; Merlini 2009, 3 ff). The *Virtual Museum of European roots* exploits the mobilization of innovative synergies between cultural heritage and internet added with virtual reality enchantments as to attract tourism with the idea that the Danube civilization by now has to be considered *one* of the "*mothers*" of modern European culture. The *Virtual Museum of European roots* is accessible from the portal http://www.europeanvirtualmuseum.net. It offers visitors the opportunity to surf on and across several different waves of information in four languages: English, Romanian, Bulgarian, and Italian. (Fig. 1)

Fig. 1 - Main menu of the *Virtual Museum of the European roots*.

The *Virtual Museum of European roots* is a museum of museums. The partners of the network compose an international interacting and learning community where they develop capacity building and technical cooperation on the subject of digital representation methods, exhibitions online of prehistoric cultural heritage and 3D virtual reality. Museum institutions that are partners of the European network are:

- Austria - Natürhistorisches Museum - Prähistorische Abteilung, Wien
- Hungary - Historical Museum, Budapest
- Bulgaria - National Museum of History, Sofia
- Bulgaria - Regional History Museum "Academician Jordan Ivanov", Kyustendil
- Bulgaria - Regional Museum of History, Veliko Tarnovo
- Bulgaria - Regional History Museum, Rousse
- Bulgaria - Regional History Museum, Vratza
- Bulgaria - Regional History Museum, Dobrich
- Bulgaria - Abritus Museum, Razgrad
- Bulgaria - Regional History Museum, Targovishte
- Germany - Museum für Vor- und Frühgeschichte, Berlin
- Greece - National Archaeological Museum, Athens
- Romania - Muzeul National de istorie a Romaniei, Bucharest
- Romania - Brukenthal National Museum, Sibiu
- Romania - Banat Museum, Timisoara
- Romania - National Museum of Transylvania, Cluj
- Romania - Complexul Muzeal Arad
- Romania – Oltentia Museum
- Romania – Calarasi Museum
- Romania – Sf. Gheorge Museum
- Romania - Muzeul Județean de Istorie Teleorman
- Romania - Corvin's Castle Museum in Hunedoara
- Romania - Museum of Dacian and Roman Civilization, Deva
- Italy - Museo Nazionale Preistorico Etnografico Pigorini, Rome
- Italy - Musei Civici di Pitigliano (Museo Civico Archeologico della Civiltà Etrusca, Museo Archeologico all'aperto "A. Manzi")
- Italy - Fiora Valley Prehistory and Protohistory Museum, Manciano
- Italy - F. R. Vonwiller Civic Museum, Farnese

Partners providing cultural and technical support also compose the partnership:

- Italy - EURO INNOVANET, research institute, co-ordinator of the network
- Romania - Lucian Blaga University – IPCTE, Sibiu
- Romania – Alba Iulia University
- Bulgaria - Cultura Animi Foundation
- Italy - City of Rome
- Italy - TRUST – Tecnologie e Risorse Umane per Sviluppo e Trasferimento

Consequently, five challenges / goals characterize F-MU.S.EU.M. Network. They aim to generate ICT and tourism-related employment by establishing a European virtual museum conceived as a web-based product specifically designed to exploit this medium and no longer merely migrated from the physical products. F-MU.S.EU.M. Network strengthens and promotes tourism offers whilst at the same time building the capacity of partner museums to develop a virtual museum of early European history. The challenges / goals are:

- Documenting that the European matrix is founded upon a common ancient background with a hub in the Danube civilization.
- Making accessible collections that are normally inaccessible not only to a wide public, but also to scholars.
- Exploiting the augmented comprehension and appeal from 3D view of the collections.
- Generating the necessary capacity building in order to empower the associated museum as protagonists of the virtual museum.
- Experimenting a story-driven model of museum.

Delivering shared heritage

Concerning the first challenge/goal, the *Virtual Museum of European roots* is disseminating toward a wide audience and scholarship the acknowledgment that the European identity was built over the millennia and is founded upon a common ancient matrix with some significant sources into the prehistory of Southeastern-Central Europe. Since the Neolithic and Copper Age time frame, Europe is the fruit of the absence of rigid boundaries, continuous migrations, wide interactions, and a plurality of cultural imprints. Several millennia ago, this continuous merge caused conflicts, compromises and stratifications between different populations and languages, divergent cultures and economies. Nevertheless, at the same time, it formed the source for the present European originality: the cultural wealth and age depth of the "Old Continent" (Merlini, Velichkov 2009, 8). (Fig. 2)

The Danube civilization composed an institutional, economic, and social network of developed societies organized as a network of nodes, i.e. micro-regions and settlements that shared the same milieu with different level of authority keeping the social system stable. This ancient European civilization developed according to a model far from the traditional state-bureaucratic political centered prototype, being centered on the concept of network (Merlini 2009).

As documented by the collection of the *Virtual Museum of European roots*, the Danube civilization was characterized by extended subsistence farming economy and lifestyle through the improvement of agrarian land and technology. It was described by a tendency toward sedentary life in permanent settlements, proto-urbanism with concentrated agglomerates organized by planned layout, solidly built dwellings, and a tendency to distinguish profane (abodes, workshops and tribal/communal dwellings) and sacral (sanctified spaces and temples) architecture.

Fig. 2 – The region where the Danube Civilization and the Danube script flourished. The Danube script (framed in dark green) was utilized in the core area of the Danube Civilization (framed in marc).

The Danube Civilization was also distinctive for advanced technologies (particularly in weaving, pottery, building and metallurgy), long distance trade, and expansive exchange that even involved status symbols and luxury goods. It exhibited the development of many household activities and skills such as spinning, weaving, leather processing, clothes manufacturing, shoe fabricating, and the manipulation of wood, clay, and stone. It speaks of a specialization of labor and social complexity, even if within the context of a semi-egalitarian social structure.

The socio-economic system was associated with a complex ideological system connected to the agricultural creed of fertility and fecundity, elegant and cultured art, refined patterns of magic-religious imagery, intense spiritual life, sophisticated religious organization, and elaborated liturgies.

In brief, the *Virtual museum of European roots* disseminates to a wide audience the acknowledgment that, according to proper indicators, the early civilization status has to include the Neolithic and Copper Age cultures of the Danube Valley and beyond. The Danube civilization has to be placed in reference to other better-known ancient civilizations blessed by rivers such as Egypt, Mesopotamia, the Levant, the ancient Indus Valley, Yangtze Valley in China, and the Jiroft Valley in Iran (Merlini 2004). Besides, this common and dynamic prehistoric background -

extending from Turkey to France, from Ukraine to Cyprus - is partly still alive and goes beyond the current borders, political disputes and ethnic conflicts.

The complexity reached by the Danube civilization in the economic, social, institutional and cultural frames required an IT innovation to record, manipulate and transmit increasing packages of information. An effective system of communication was established (the *Danube Communication System*) by the means of tallies, marks, emblems, symbols and signs.

Until now, several components of the Danube Communication System have been identified: ritualistic markings; emblematic decorations; magic-religious symbols; divinity insigna; accountancy annotations; calendrical and chronographic annotations; sky atlases, constellations and motions of celestial bodies (sun, moon, and planets); personal and family identification marks; lineage recognition or community affiliation marks; and markings representing bio-energetic points of the human body. Within the Danube Communication System, indications of a rudimentary and mainly non-language related system of writing are apparent, too (the *Danube script)* (Merlini 2001; Merlini 2009).

The main effort in stocking and transferring information regarded to the mytho-religious narrative, not the economic affairs. Magic and religious information and ideas were exchanged by prehistoric people incising or painting small and highly symbolic objects made of clay, stone and bone (human statuettes, anthropomorphic pots, stamp-seals, plate-tablets, amulets, etc.) and their emblematic parts (vulvas, chests, buttocks, etc.).

Unfortunately, these ancient treasures with communicative goals are little known outside the circle of experts. In addition, the incised or painted signs and symbols are highly subjected to damage, erosion or destruction. Finally, the artifacts carriers of messages are dispersed among a wide net of national, regional, and local museums and often it is not very save to ask them to travel being delicate and fragile. Therefore, the *Virtual museum of the European roots* decided to valorize a number of these fascinating communication-driven objects displaying them in an effective 3D and friendly way. I present below some artifacts from the collection of the *Virtual museum of the European roots* that are capable in capturing the interest the wide public evidencing the high communicative skills achieved in prehistoric age.

An object found at Ocna Sibiului - *Triguri* (Transylvania, Romania) is very special, combining three communicational channels: iconic code, graphic symbolism, and a linear writing system although in *statu nascenti*. Discovered in a community dwelling devoted to a religious cult, it belongs to the Starčevo–Criş IC/IB culture dated about 6000-5900 BCE. It is one the oldest artifacts with archaic signs of the *Danube script* (Merlini 2004; Lazarovici 2006). The artifact is held in trust in the Brukenthal National Museum, Sibiu (Romania), partner of the F-MU.S.EU.M. Network (Fig. 3).

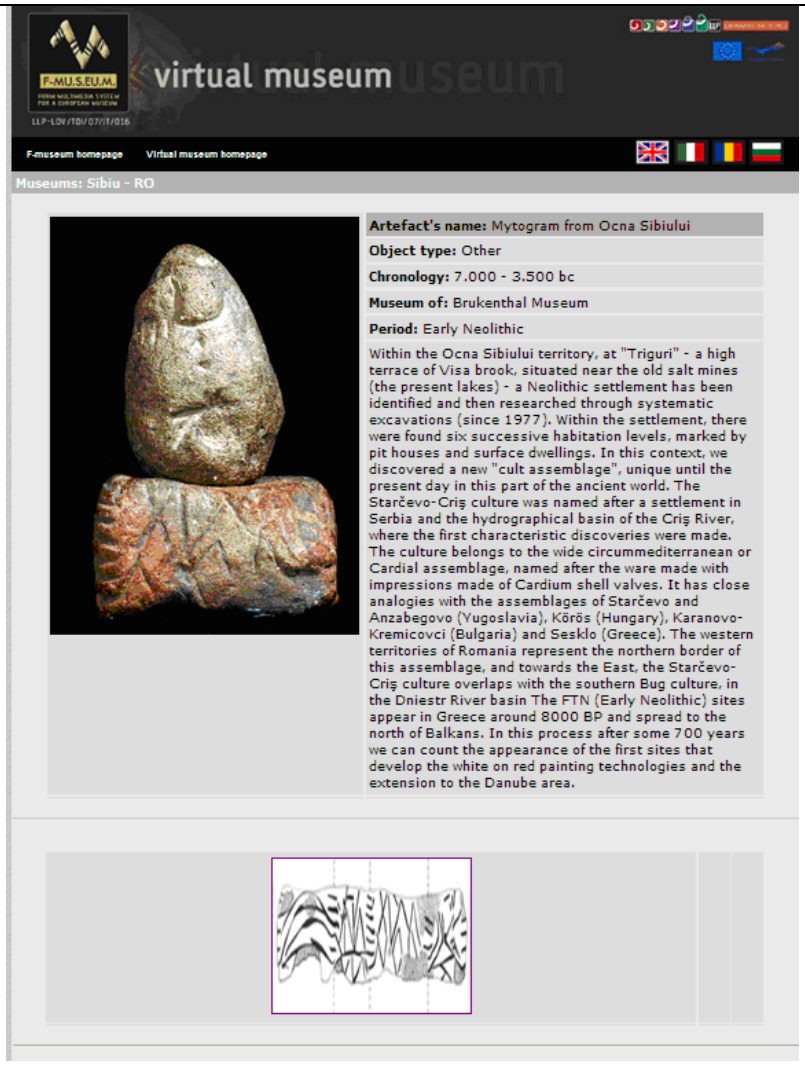

Fig. 3 – The Starčevo–Criş IIA Ocna Sibiului - *Triguri* (Romania) mythogram to represent Sun-Moon intercourse.

The object is a small and high-schematized statue (4.5 cm x 2 cm) with phalloid or conic shape, which stands on a miniaturize altar. It has been interpreted by the discoverer, Iuliu Paul, as a bearded man carved in bas-relief who is bound to a now unrecognizable woman (Paul 2004). On its right side, the statuette possibly bears the symbolic representation of Sun and Crescent Moon that identifies the cosmic symbolic couple depicted during its divine intercourse. The statuette's quadrilateral base bears an inscription composed of signs from an archaic version of the *Danube script:* "N", "X", "V", "/\", "<", ">", parallel horizontal lines and a lozenge (Merlini 2004).

The message from Ocna Sibiului - *Triguri* is of course undecipherable. Nevertheless, one can note that if the small statue conveys mainly male symbols (its actual shape and nose silhouette are phallus-like), the altar displays an inscription predominantly composed of female signs. In particular, the lozenge – a typical sign standing for fertility - is placed in a central position and is carved slightly in relief like the bearded man on the statuette playing as obverse and counterpart to it (Paul 1990, 28).

Statuette and altar form a "cultic assemblage" that represents one of the oldest existing combinations of iconic representation, magic-religious symbolism, and linear writing. It may be construed as a conversion-table among these three different communicational channels each of which transmits, applying its own code, the same mythical drama. It might express the creation and re-creation of the world, which is closely connected with the conjunction of the opposites expressed by the sexual sacred union between a male and a female divinity, Sun and Moon (*ieros gamos*). This cosmic core-myth stands at the foundation of the primitive agricultural societies of the Danube basin and all the other myths descend from it: magic fertility, re-birth, vitality of water, etc. (Paul 2002; Merlini 2009). According to Lazarovici and Gumă, the marks on statuette and altar might be connected to cosmic fire and water and to the related offerings during rituals. The four sides of the base might represent the four universal directions (Lazarovici and Gumă 2004).

What need was there to utilize simultaneously three communicational codes to express the same myth? The plastic expression of the statuette renders the cosmic drama in a visible way through a man-woman intercourse. The Sun-Moon symbolism conveys the sacred foundations of this union, communicating meanings in a synthetic way and intending to suggest rather than to explain. This astral symbolic language probably transmits the essence of a magic-spiritual message: the power and the generative effect of the divine *ieros gamos*. Finally, the sequence of script signs on the altar marks the various passages of the myth concerning the divine creation and/or illustrates the related magic-religious formula (Merlini 2009).

At Ocna Sibiului - *Triguri*, we are in presence of a "mythogram", i.e. a text that narrates myths, stories and perhaps epopees in order to transmit a spiritual knowledge. This mythogram might have induced the spectator to recall and orally express the whole myth, as well as to perform the related ritual practices (Paul 2002).

If the Transylvanian artifact renders the super-powers that supervise the cyclical creation and re-creation of the world, a ceramic model of an oven molded 4900-4800 BCE measures practically the time according to the yearly cycles of nature. Indeed, a system of timekeeping was a vital necessity for both daily life tasks and agrarian-pastoral worship. This Early Copper Age inscribed model of a furnace bears one of the earliest calendars. It was found at the site of Chardako near Slatino (Bulgaria) and is now in the Regional History Museum of Kyustendil, partner of the F-MU.S.EU.M. Network. (Fig. 4).

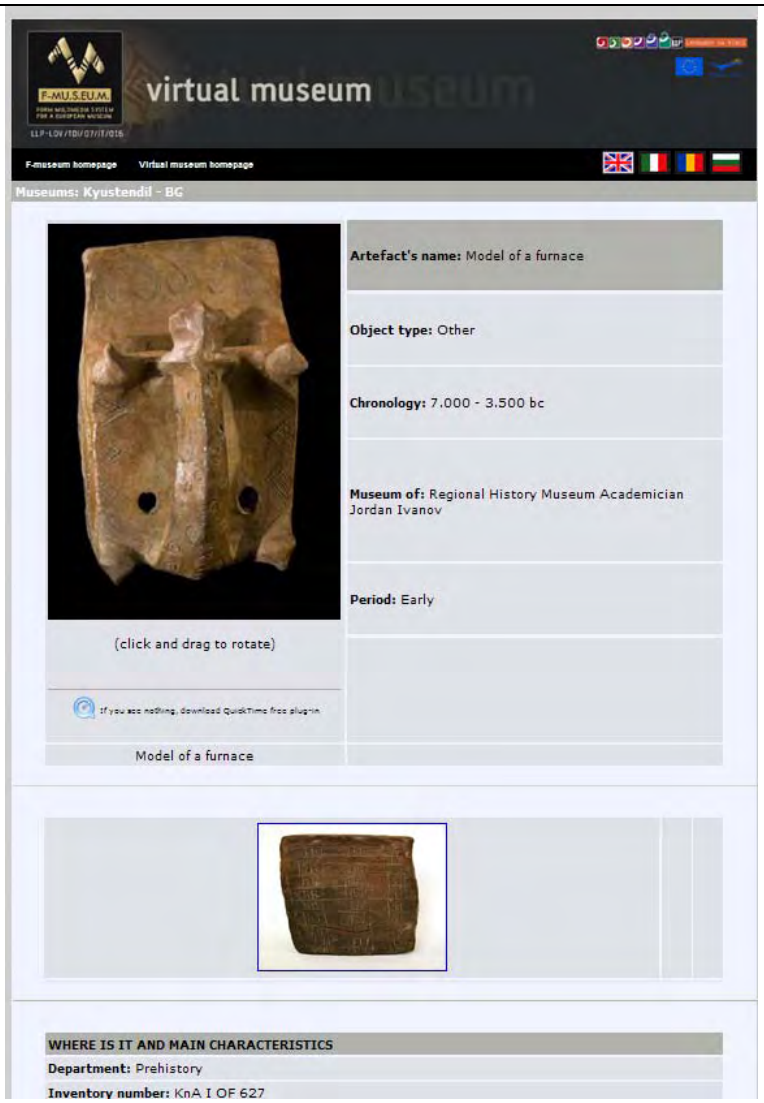

Fig. 4 – An Early Copper Age lunisolar calendar on a checkerboard from the site of Chardako near Slatino (Bulgaria).

The prehistoric time device has a rectangular shape, a small platform in front of its opening and four anthropomorphic images over the four corners of the roof. The zoomorphic (maybe a snake or a phallus) handle depicting the male principle protecting the "hearth" is a unique feature.

The linear signs incised on a checkerboard positioned on the bottom of the artifact have been interpreted by Stephan Chohadzhiev as a calendar system that has to be read in columns from top to down and from left to right. The thirty hatched compartments may be related to the days of one lunar month and be organized according to the lunar phases. The twelve compartments in red ochre may render

the twelve months of the year (Chohadzhiev 1989; 1997; 2006). Other scholars maintain that the table describes a solar calendar where the time intervals are grouped in 10-day weeks and 30-day months (Stoychev 1998).
According to Chohadzhiev, the New Moon and the crescent growing up to the first quarter phase are depicted at the beginning of the 1st column (cells 1-6), The next cells (7-12) show the Moon growing up to the Full Moon phase, marked with a blank field 12. The fields from 13 to 18, which have the most numerous incisions, represent the Full Moon phase. The next fields (19- 23) illustrate the waxing Moon up to the New Moon phase. Their incisions resemble those from 7 to 12 that precede the New Moon, that is to say that they represent one and the same state of the Moon. Field 23 is blank to show the disappearance of the Moon. The moonless period is marked with the fields from 24 to 30 (Fig. 5).

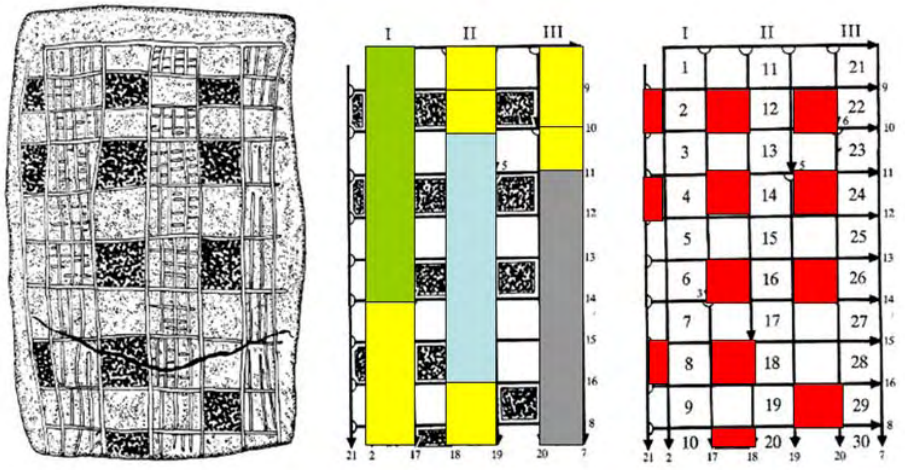

Fig. 5 - How the lunisolar calendar from Chardako works. (Adapted by Chernakov 2009).

The colored fields are grouped in three columns, respectively with 3, 5 and 4 squares. Each group is probably related to a season of the year. The first column represents the winter months. They are January, February, and March, if the beginning of the year is at the winter solstice (21-22 December). The end of the winter corresponds with the vernal equinox, 21 March. The second column covers the months of active agricultural activity up to harvest time (April, May, June, July, and August). The third column depicts the autumn months (September, October, November, and December). Such a calendar structure, comprising of three seasons, is typical of other calendar systems utilized by the Danube Civilization.
The Early Copper Age calendar from Slatino has a transitional character, because it reflects the adaptation of elements from a lunar calendar (Moon phases) to a solar one (the seasonal succession). The discrepancy between the number of the days of the year depicted in this timekeeping (12 months x 30 days = 360 days) and the

number of days belonging to the astronomical (tropical) year (around 365 days) is solved by adding five more days. They are depicted by the five lunar signs placed on the small platform in front of the oven opening.

After presenting a mignon altar with signs rendering the super-forces that organize the natural cycle and a miniature oven bearing one of the earliest calendars, the *Virtual museum of the European roots* displays magic signs on a horrifying female ghost or shaman (Fig 6).

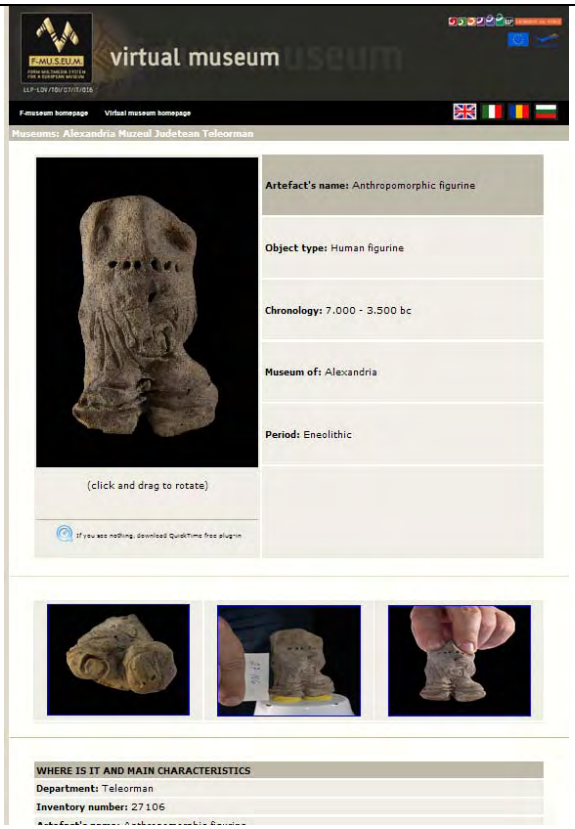

Fig. 6 - An inscription on a Gumelnița B1 horrifying female ghost or shaman (4500-4300 BCE).

A Gumelnița B1 female figurine from Vitănești (in Muntenia, Romania) bears an inscription over the stomach/abdomen. It was created around 4500-4300 BC (Andreescu 2002; Merlini 2009). Roughly modeled, she has ugly features. However, this does not mean intended cruelty against the owner-believer. The horrifying aspect aims to protect him/her by scaring away malevolent forces, as the Tibetan or African guardian divinities do. Alternatively, was she a horrifying ghost or a shaman? The inscribed figurine is kept at the *Muzeul Judetean Teleorman* in Alexandria, Romania, partner of the F-MU.S.EU.M. Network. The *Virtual museum*

of the European roots exposes a similar shaman figurine from the Oltenita Muzeul de Arheologie.

The signs are not randomly distributed on the ghastly human body, but laid out according to a format specifically organized for readability. For example, the space is clearly arranged separating two inscriptions – one on the left and the other on the right side of the figurine - to express different concepts (maybe words or phrases).

The text on the left is composed of two Λ aligned horizontally. The text on the right is in block format and is composed of a ⩓, a O, and a parallel line. The diagonal line in the centre is possibly not a unit of the script, but an auxiliary mark used to divide the space into two reading areas, as documented by its intersecting the long horizontal line composing the upper part of the metope frame. The text is framed by the use of horizontal lines incised over the chest and over the vulva. The compression of the left inscribed register evidences that the reading direction is from right to left. The statuette is also deeply inscribed under the feet, with linear signs aligned in row. It was possibly used as a human pintadera to stamp script messages. In fact, its shape makes it fit to be gripped.

Decorative horizontal lines run over the vulva and the legs. The mouth is composed of six holes. In general, they are four or five. Why is the mouth so large? Is it saying or chanting something?

Vităneşti tell, located in a flooded plain and close to a terrace of Teleorman Valley (Andreescu, Mirea 2008), is the key site for the development of the script within the Karanovo VI - Gumelnița B - Kodžadermen assemblage (Merlini 2009).

In conclusion, the presented artifacts extracted from the collection of the *Virtual museum of the European roots* evidence how vital was the communication within the Danube civilization and document the occurrence of a stock of information that exploited differentiated communicative channels to store and transmit complex messages. Prehistoric societies were communication-oriented. Information was fixed not on rectangular, white, smooth, odorless and tasteless leafs of paper, but on highly symbolic objects made mainly of clay.

Making accessible collections that are normally inaccessible

The second challenge / goal of the F-MU.S.EU.M. Network (make accessible collections that are normally inaccessible) descends from the capability of web exhibitions in 3D Virtual Reality in acting as powerful tools for the preservation of objects that are delicate and fragile or that are locked being state patrimony. Even when available, in general the archaeological collections display nebulous objects due to bad enlighten showcases, dirty and opaque glasses, farness from the eyes of the visitor, little-size and decentralized captions, etc.

The *Virtual Museum of European roots* exceeds the limits imposed by the storage conditions, making collections accessible not only to a wide audience, but also to scholars and researchers as well as to students (masters, doctorates, graduate students). Providing high quality 3D images, information directly from sources and contextualization through multimedia exploitation, it allows a deep study even to

pieces that are available with difficulties or those that are unapproachable due to geographical distances, structural fragility, inclusion into the state treasure, or simply lack of personnel to ensure access to storerooms.

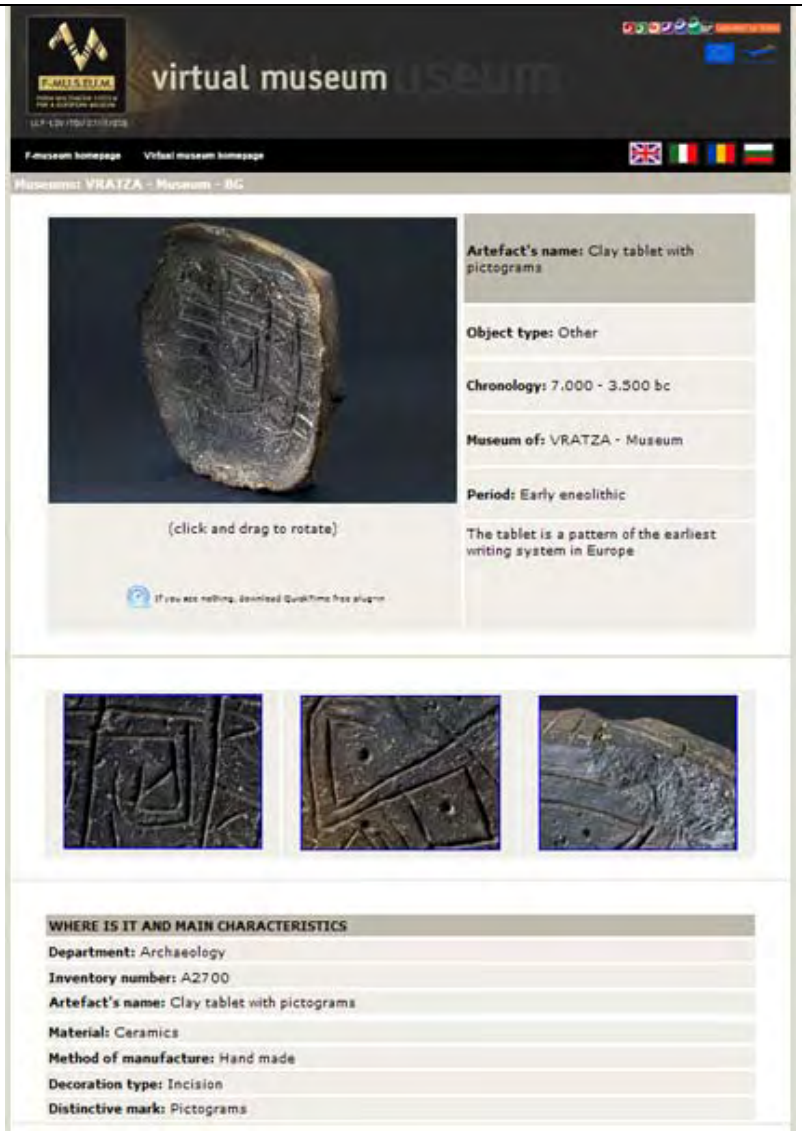

Fig. 7 - Evidence from the *Virtual Museum of European roots* according to which the famed Copper Age "tablet" or "plaque" from Gradešnica (Bulgaria) is actually a shallow vessel that bears in column marks.

It is the case of one among the most famous and hyper-studied masterpieces displayed by the *Virtual Museum of European roots.* I am referring to the Copper Age "tablet" or "plaque" from Gradešnica (Bulgaria), which is considered by the

discoverers (B. Nikolov, V. Mikov and G. Georgiev) and many other Bulgarian archaeologists as bearing the oldest signs of literacy in Europe or even in the world (V.I. Georgiev 1969, 32-35; V.I. Georgiev and B. Nikolov 1970, 7-9; B. Nikolov and V.I. Georgiev 1971, 289; B. Nikolov 1974, 33). It is worth noticing that the signs on the Transylvanian Tărtăria tablets had been relegated by them to the Coțofeni cultural horizon in order to argue that the marks on the Gradešnica "tablet" or "plaque", as well as on the Karanovo seal and other coeval Bulgarian artifacts, are the first written record in human history: the “Gradešnica-Karanovo writing” (G.I. Georgiev and V.I. Georgiev 1969*).* According to Gimbutas, from Gradešnica comes “one of the best examples of Old European script” (Gimbutas 1974/1982, 87). The archaeologist in charge maintained to have discovered the inscribed artifact in a room with religious function (Nikolov B. 1974). If so, the Gradešnica piece and its signs have meaning interpretable within the religious mythological system of these Copper Age communities.

The artifact is interpreted to be flat by the majority of the scholars (Winn 1981, 210; Renfrew 1973, 177; Masson 1984, 108) in consequence of a noncritical reiteration of the excavator misunderstanding who judged it to be a "plaquette en argile, ayant forme d’un petite pot, sur laquelle sont incises des signes écrits" (Nikolov B. 1974, 33).

Decades of studies did not correct the mistake due to erroneous drawings, confuse photos and the difficulty in checking directly the artifact held by the Regional History Museum at Vratza. The misinterpretation was fuelled by the exciting possibility to have discovered an inscribed tablet that predates the Mesopotamian tablets of a millennium. However, the Regional History Museum at Vratza is one of the partners of the F-MU.S.EU.M. Network and exhibits in 3D the renowned artifact in the *Virtual Museum of European roots.* From any computer connected with internet, it is easy to verify that it is actually a little, rounded shallow receptacle (12.5 cm. long by 10.5 cm. wide and 2 cm. high) with evident lips and two holes for suspension (Nikolov V. 1990, 47; Gimbutas 1991, 313 Fig. 8-12; Merlini 2006; ibidem 2009) (Fig. 7).

The *Virtual Museum of European roots* is capable to solve even a serious misunderstanding from the archaeologist in charge and the majority of scholars concerning the engraved signs on the Gradešnica flat receptacle: the idea that its inside bears a long inscription divided into four horizontal registers (Georgiev V.I. 1970, 8; Nikolov B. 1974; Masson 1984; Todorova 1986). Admiring in the collection of the *Virtual Museum of European roots* the humanoid stylized on the outside of the vessel and how it revolves (it does not reverse 90°), one can see that the signs on the inside of the artifact are actually aligned vertically and not horizontally (Nikolov V. 1990, 47; Chohadzhiev S. 2003, 115; Chohadzhiev S. 2006, 72; Merlini 2006). The in column layout has been judged strange by several scholars – blind from contemporary viewpoint - for a written text structured in supposed guidelines for religious literate worship. Therefore, they decided to loose the pictographic force of the anthropomorphic figure turning it 90°, in order to save

the horizontal alignment of the script-like marks on the inner face of the shallow vessel.

However, the vertical set of the signs was employed by several ancient writing systems (Merlini 2009). If our contemporary eye is costumed to connect *ars scribendi* with a horizontal alignment of the signs because alphabets are generally written horizontally,[i] ancient Near East and East Asian writing systems as well as other logosyllabic systems (e.g., Sumerian) were traditionally arranged in column setting. The plumb layout of the marks on the artifact from Gradešnica does not affect their script-like nature (if they have actually a script-like nature).

As any other artifact recorded in the *Virtual Museum of European roots*, the shallow vessel from Gradešnica is not only shown in 3D, but also described through a complete identity card conveying appropriate photo details and textual information. The user can chose multimedia deepening for interpretation and contextualization of it visiting - in a natural, simple, ubiquitous and engaging approach (Sumption 2006) - the thematic route "Communication in Neolithic and Copper Age, from symbols to writing".

The visual misadventure on the interpretation concerning the shallow vessel from Gradešnica substantiates that archaeology is intrinsically virtual for necessity. Understanding here relies upon the archaeologist's rationalization, which fills the gaps of data through reconstructive drawings, taxonomies, grammatical or formal regularities, and seriations based on experience and acumen as well as osmosis with other disciplines. As currently accepted (Hodder 1999), evidence is moreover based on subjectivity during acquisition and interpretation. Therefore, the 3D provision online of an artifact is just the last link in a chain having more immaterial rings than material rings (Nicolucci 2007). In the above presented instance, as well as in a number of others, the 3D link challenges established notions (Trant 1998, 110-113; Dietz et alii. 2004).

Embedding augmented comprehension and appeal from 3D view of the collections

The third challenge / goal of the *Virtual Museum of European roots* is both cognitive and attractive. Part of the aura of actual remains is transferred to a virtual gallery (Davis 1995; Mitchell, Strimpel 1997). In addition, the 3D view of prehistoric artifacts is capable exploiting the augmented comprehension and appeal on them. The three-dimensional representation of objects provided online invites, induces and allows the viewer into fuller, deeper, proxemic relationships with them. The 3D view encourages the spectator to find out, to see close-up and inside, to move-around-the-back and see-for-himself what is behind, to glimpse what is below, and what is above; and to move back again.

Walking around, the viewer establishes a radically different relationship with the artifact that he is looking at, than when he engages a two-dimensional representation and has only ever one viewpoint from which to see a single, fixed representation. Accumulating numerous different views, nothing is hidden or left

out. This cognitive process provokes the viewer to build up, to assemble, and to collect an understanding of the object being observed. The 3D visual experience triggers the spectator to shift from asking questions about what this artifact is, to interpretative investigation of it as material evidence of people, their behavior and their environment. Which are the physical characteristics of the object? How did it work in people's lives? What did it do and why was it successful in doing what it did? Which were the reactions that it evoked? How did people perceive and utilize it? The comprehension that emerges from 3D view is complex, multi-part, and never banal. It is often absent from the archaeological record (Connerton 1989, 72-79; Rowlands 1993; Van Dyke, Alcock 2003, 3-4).
For example, the three-dimensional vision of the famed Berlin Golden Hat from Hallstatt A-B period is one of the fundaments for a real comprehension of it. The artifact is held at the Museum for Pre- and Early History of Berlin, partner of the F-MU.S.EU.M. Network (Fig. 8).

Fig. 8 – 3D view of the Berlin Golden Hat from the *Virtual Museum of European roots.*

At a first glimpse, it appears as an imposing headdress of a chieftain or a chief-priest. In fact, it is this. Nonetheless, it is much more. The 3D and zooming observation makes noticeable the highly decorative discs, rings and concentrically circles in relief, leading to a fully comprehension that the hat is a masterpiece made by a specialized goldsmith in embossed work. With a more significant step further, the virtual visitor can discover that it is a lunar-solar calendar established 3000 years ago. The "ornamental" circles are actually 1739 astral symbols. Apart from the numerous circle symbols, the "decoration" includes 19 lying half moons, 19 eye models and, on the top, an eight-radiated star. The symbols are systematically

arranged along 19 horizontal registers. Among the signs, 1701 concentric rings identify single days. The magnificent gold hat was probably worn by a chief priest during ritual actions connected to cyclical events.

The *Virtual Museum of European roots* improves the 3D presentation of the intriguing Berlin Golden Hat with a multimedia enrichment according to "multiple perspectives" (Merriman 2004, 87). A distinct path contextualizes it among the other recovered Bronze Age conical golden hats as symbols of power and calendar systems made of one piece of thin gold foil. Similar artifacts are displayed and explored as tokens of power since the third and second millennia in the glyptic and plastic art from Mesopotamia to Anatolia, Cyprus and Greece to Sardine. Even in Scandinavian and the Baltic regions, stylized depictions of revered men wearing conical hats are recognized (Gerloff 1995: 153-194; ibidem 2003: 190-203).

The trail explains also to the virtual visitor how the Berlin Golden Hat worked as a calendar and how such a timekeeping was related to mythological sceneries with astronomic-cosmological background. In short, taking astronomic calculations as a basis, the number of symbols on it corresponds nearly exact with 57 solar months (= 3 * 19) and 59 lunar months. The result of multiplying 57 * 4 is 228 solar months (= 12 * 19). It also corresponds approximately with the 135 lunar months of the moon cycle. Both cycles individuate the metonic cycle, i.e. a period of 19 years, after the lapse of which the new and full moon returns to the same day of the year. Consequently, the number system represented on the decoration of the Berlin Golden Hat can be considered as a lunar-solar calendar settled 3000 years ago, long time before the Babylonians and Greeks developed similar timekeeping systems (Menghin 2000: 31-108; Menghin 2003: 220-237). Another path contextualizes the Berlin Golden Hat within the Sun cult in the Bronze Age.

In the new exhibition of the Museum for Pre- and Early History of Berlin at the Neues Museum, a special room is devoted to the Berlin Golden Hat (Fig. 10).

Fig. 9 - Multimedia deepening for interpretation and contextualization of the fascinating Berlin Golden Hat as a calendar.

Fig. 10 - From the virtual reality to the actual reality. The special room for the Berlin Golden Hat in the new exhibition of the Museum for Pre- and Early History of Berlin. (Photo courtesy from the Museum for Pre- and Early History of Berlin).

Capacity-building training for associated museums

The forth challenge / goal of the F-MU.S.EU.M. Network is making the associated museum protagonists of the *Virtual Museum of European roots* even if they have quite low ICT skills, Web competences and financial resources. Invest in new competence on virtual reality online acts for the re-qualification and the competitiveness of an increasingly relevant economic sector in Europe - the cultural heritage - and for the success of its key organizations – the museums.
A Learning Model has been fashioned by the F-MU.S.EU.M. Network in order to answer to the increasing demand for a set of standard competences needed to create and manage a Virtual Museum online, from the writing of the contents to the shooting of 3D photos, to the upload of textual and multimedia data. The F-MU.S.EU.M. Learning Model is based on an assessment of expertise to be used for the creation of a virtual museum, on a map of related current jobs and on the analysis and forecast of professional and skills needs.
Conferring the F-MU.S.EU.M. Learning Model a special attention to the training costs/benefits and the fruitful use of technological supplies, the centrality of the associated museums is reached by the development of a friendly and manageable Content Management System (CMS) and the provision of higher professional skills to museums' managerial, technical and operational staff coping with the fast communication innovations in cultural heritage.
The Content Management System is the “meeting point” among training experience, networking, communication and technology. It is source of:

- A dedicated database that organizes the information directly uploaded in the system by each partner.
- A platform where museums insert contents in a way that is uniform and able to guarantee the output communication according to standardized patterns.
- A reserved uploading and updating area that is accessible – in different languages - by each associated museum through password. Each partner can prepare data, fill up Access forms, upload papers, insert 2D and 3D images, check the output, and attend a forum for support.
- An operational and cultural forum where each museum contributes to implement the project, following the principles of a “social group network”.

The F-MU.S.EU.M. Network transfers to any associated museum institution all necessary knowledge and skills to create and implement, step-by-step, one’s own virtual gallery provided on the Web. F-MU.S.EU.M Courseware online and F-MU.S.EU.M Training Laboratories are distinct tools – usable through password - that give to user museums all necessary know-how to manage the section Reserved Area in order to realize their own virtual exhibition online, starting from capacity

building of know-how and competences. They explain and accompany in detail all management stages of data.

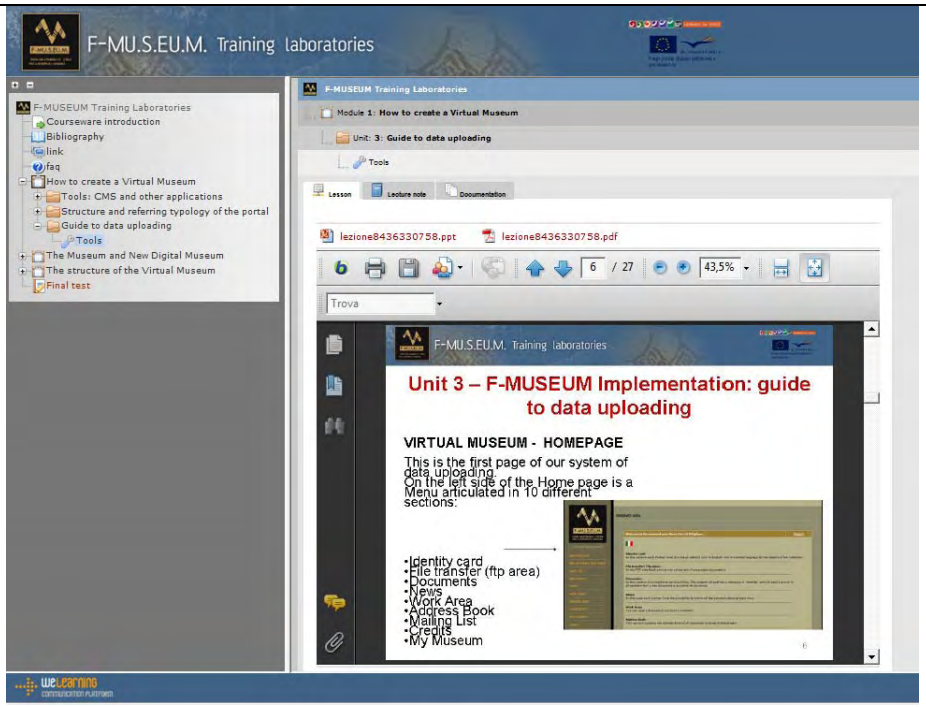

Fig. 11 - Management of the information by each museum partner through the Reserved Area; example from the F-MU.S.EU.M. courseware online.

The Training Laboratories are available only within the partners' network, in the reserved area of the portal. (Fig. 11) They provide:

- Detailed information on the building and implementation of a virtual museum
- Practical exercises with the use of the WebCMS (web content management system) provided by the F-MU.S.EU.M. portal and having the *Virtual Museum of European roots* as background
- Remote Supervision provided by the F-MU.S.EU.M. technical staff
- Individual deepening with the use of Lecture Notes
- Opportunities for interaction and exchange of experiences in presence (internally to the user organization) and at distance (in the network of partners).

F-MU.S.EU.M. supplies also four e-learning courses available in the public area of the web Portal. They have been addressed to four key professional positions involved in the design and management of a virtual museum giving them the basic expertise required: the manager coping with investment in virtual reality, the Web master specializing in virtual reality, the Archaeologist provider of content for

virtual collections, and the e-museum communicator. The coursewares are supplied in four languages: English, Romanian, Bulgarian, and Italian (Fig. 12).
As a background of the above training provision, the F-MU.S.EU.M. Network utilizes an overall architecture of competences that has been translated in a standard path of learning. The structure is comprised of three levels:

Process and output ⇒ Roles and core competencies ⇒ Competence Units

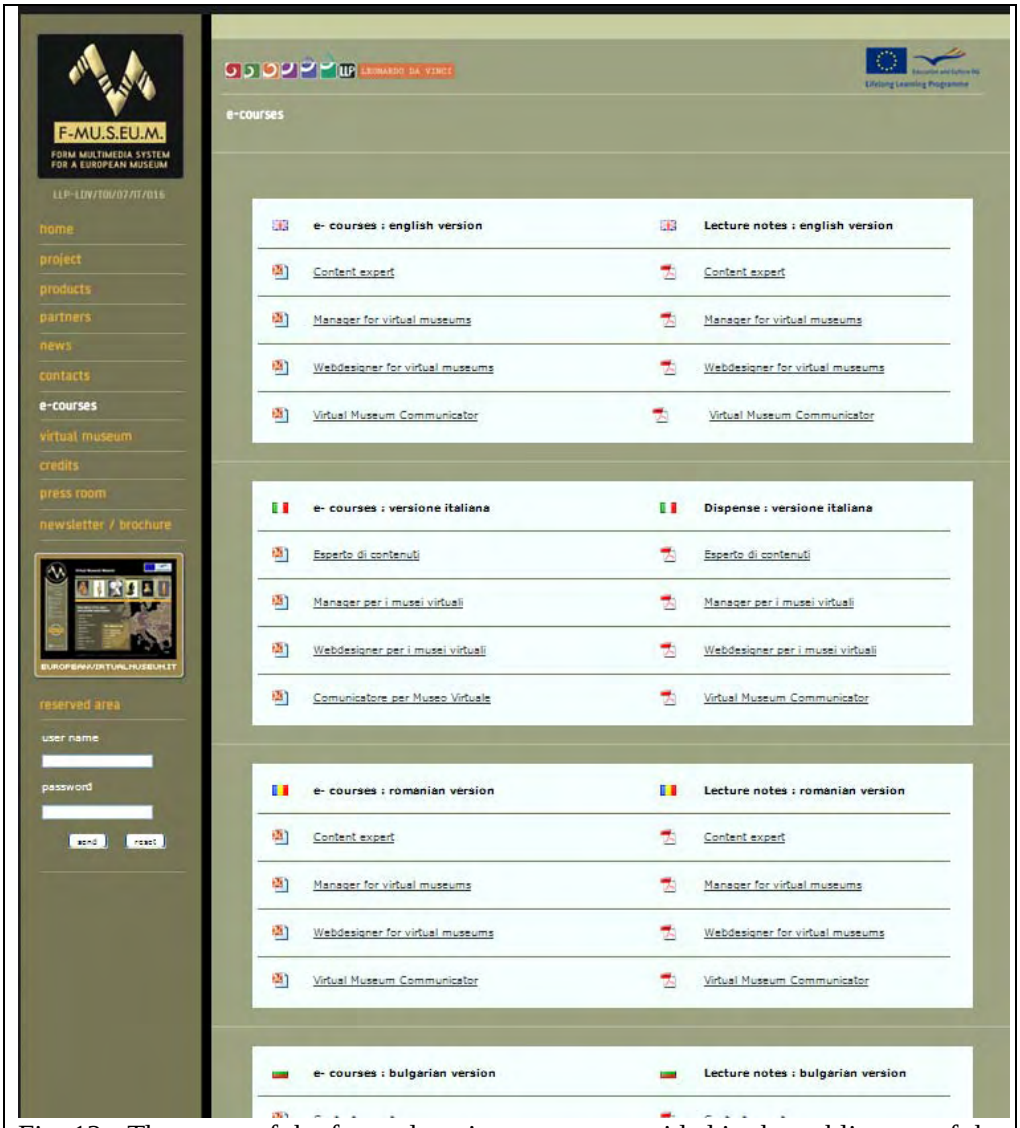

Fig. 12 - The menu of the four e-learning courses provided in the public area of the web Portal.

The rationale of this methodological procedure is that the recognition of the output for every sub-process can lead to the identification of the roles and core competences more strictly related to the efficacy in producing the output. Afterwards, the core competencies can be nearly stocked and clustered in Units that identify a homogeneous and self-consistent mix of knowledge, abilities, and behavior.
The combination of these variables expresses an effective work performance that is achievable through continuous training. Each museum trickles down its capacity training along these packaged learning paths. As learning resources, they are educationally productive, closely aligning with e-learning initiatives and potentially promoting strong transnational links. Partner museums are encouraged internalize this learning in the form of new products, new structures and new ways of working as the latest phase in the e-services trajectory. They are also encouraged exploit the learning units to build trans-national projects.
In short, the associated museums act as protagonists of the F-MU.S.EU.M. virtual collections joining three essential trajectories:

- From a training focus to a learning focus
- Form an individual learning to a collective learning
- From a top-down approach to a peer-review modus operandi.

Practicing these perspectives, the F-MU.S.EU.M. Network implements some broad approaches shared by the OCSE together with the main European and National institutions (UE and National Governments), which are pointing to the central role of learning processes as a determinant competition factor within economy and society.

Experimenting a story-driven model of museum

The narrative model (Hodder 1982; Shanks, Tilley 1992; Pearson, Shanks 2001) as main exploitation option for the visitor is the fifth challenge / goal of the *Virtual Museum of European roots*. The virtual collection based on a network system offers dedicated paths to any user, supporting the individual knowledge through the potentialities of the centralized database online. Therefore, the visitor can proceed following the rules of that mental process working through the association of ideas. The journey through the *Virtual museum of European roots* can utilize a storytelling model, since the collection is not exclusively focused on the conservation and preservation of artifacts as the traditional version of museum is. Contrariwise, it is tailored for revealing appealing stories to a virtual audience and for transforming users into interpreters of the European prehistory starting from finds never seen in that way or which are otherwise inaccessible.
The hypermedia and interactive structure and the virtual reality enchantments of the *Virtual Museum of European roots* allow individual explorative paths to the visitor. They comprise: a) a chronological voyage; b) a geographical travelling; c) a single museum journey; d) a surfing from museum to museum (because the artifacts of the same excavation or archaeological site are often dispersed around

Europe); e) a object type examination (for example the Bell Beakers phenomenon, or the Copper Age fashion for gold ring-shaped pendants); f) a thematic routes exploration; and g) touristic-cultural itineraries that start from a partner museum to explore the territory around it (often through a downloadable and printable circuit with related GIS map).
Significant is the exploration of the European prehistory via Thematic Routes. They explore the issues that the associated museums have in common, despite the geographical farness, in particular for what concerns the legacy of the Danube civilization. The Thematic Routes have been conceived and narrated through close cooperation among the museum partners. They are:

- Civilization, gift from the river
- Trade and early exchanges in prehistoric societies
- The religious places
- Cult and religion in the earliest human societies
- Thermal baths and sacred water places in ancient times
- Fashion in prehistoric times
- Ancient wine regions: The savior of a drink-food for Gods
- To be a farmer in prehistoric times
- Clay house models
- The beginning of metallurgy
- Communication in Neolithic and Copper Age, from symbols to writing
- The modern way of making music in Prehistory
- Sport and role games in prehistoric times
- The Hidden Roots of Europe: Thracians, Dacians and Etruscan
- Ritual connected to the burn of the old year
- From excavation to virtual reconstruction: How will build up an exhibition.

The Thematic Routes map the conceptual relationships being hypertexts structured in content description, active 2D and 3D images of the related items (with the possibility to enlarge them and explore links), videos, drawings, interviews, and in-depth articles.

Conclusions

In conclusion, the *Virtual Museum of European roots* establishes and accomplishes at the same time the following quality criteria and technical standards:

- Documenting the Neolithic and Copper Age roots of Europe
- Housing a substantial online collection
- Making accessible masterpieces that are normally inaccessible
- Delivering rich multimedia content and providing augmented comprehension and appeal from 3D
- Empowering the associated museum as protagonists of the virtual museum
- Putting forward user-friendly entrance and surfing
- Proposing a narrative model for fruition

- Tickling many return visits to explore collection
- Incentivizing visits to physical museums.

The proposed model-experience is obviously not the best and sophisticated way to create and manage Web exhibitions and 3D virtual reality (Deloche 2001; Manovich 2001; Dietz et alii. 2004; Copeland 2006). However, it is an ambitiously realistic approach to support the associated museum institutions to migrate to a Virtual Museum exploiting any good opportunity putting in sync culture, innovation, network, and ICT even if their technical skills, Web competences and financial resources are quite low as usual for any European archaeological museum.
The presented model-experience is also a way to force museums to think to themselves as tourism units skilled in the management of knowledge. The realization of a virtual collection online cannot be decontextualized from other key tasks such as destination management, strategic plans making, synergies and co-operative management with other public and private bodies, extended range of cultural activities on offer, pooling of resources, cross marketing, cultural mediation, and new opportunities from increased customer benefits. Each museum has to weave the virtual museum into its tourist strategic planning.

However, Western people practise the reading of vertical texts when they search for items from lists in column, e.g. surnames from telephone directory or sequence of the stations from railway timetable (Laarni et alii. 2004, 75). It is also the instance for some coins (such as the Polish 10 and 200 ZL coins) and notes (like the Lithuanian 500 litas banknote). Huey (1908) Tinker (1955), Coleman and Kim (1961), Coleman and Hahn (1966) have studied reading a column format of text from paper. They conclude that if a vertical text is typically read slower than the standard horizontal text prior to practise, text comprehension may be comparable in the vertical - and standard - text conditions from the very beginning. No acute difference between horizontal and vertical orientation was found for native Chinese (Chen, Chien 2007).

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THE EXPERIENCE OF LUCIAN BLAGA UNIVERSITY FROM SIBIU TO DELIVER E-COURSES AS A TOOL TO BUILD VIRTUAL MUSEUMS

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Keywords: *E-Courses, F-MUSEUM project, museum, manager, content, digitization*
Abstract: *A presentation of the work done and undergoing at University Lucian Blaga from Sibiu (ULBS) related to the e-courses developed in F-MUSEUM project where ULBS was partner. The e-courses were tested on the university students at the master "Protection of the patrimony".*

Introduction

Fig. 1. Print screen http://www.europeanvirtualmuseum.net/e-courses.asp

The staff training in the museum is one of the most important activities and implies basic knowledge about the latest technologies in the electronic space. One of the main targets is to upgrade the stuff abilities to use all the resources they dispose of. Another goal is to interact with our visitors through pedagogical

approaches. Our courses were tested on the university students at the master *Protection of the patrimony*. Students and heritage linked jobs are targeted too.

The e-courses were used to build up the F-MUSEUM learning model (F-MUSEUM Book 2009, p. 233) focused on network learning community based on a workplace learning approached, targeting competencies and build in a standardized form through competences learning units. The e-courses are available on line at http://www.europeanvirtualmuseum.net/e-courses.asp in English, Italian, Romanian and Bulgarian languages.

Fig. 2. The workflow of FMUSEUM e-courses.

The team from University Lucian Blaga Sibiu participated in the upgrading the *content expert*, *manager for virtual museums* and *web designer for virtual museums* e-courses. The beneficiary museums and students were used for testing and adapting the learning units. The e-communicator e-course is not presented here.
Course specifications for employment market[1]:

TRAINING STANDARD 1 – WEB DESIGN OF THE VIRTUAL MUSEUM

Job specification: to design the structure of the site, indexes and metadata, in close co-operation with the Project Leader; to participate in interactive design processes and evaluations featuring site style, feel and navigability; advice on how the site can facilitate the generation of new web communities, based around site content; to work with content and web design experts to implement the web design; to create a usable, navigable and attractive website featuring prescribed content and given design; address security issues, passwords, firewalls, payment systems and protection against hackers.
Competence: Know how to design and develop the website and in particular:
- upload the database
- publication of data on the Internet

Know how manage the digitalization of images and in particular:
- use the software for modeling 3D images
- use photography within the given context

Existing job profiles related:
Web designer, Web manager, Computing expert, e-learning expert.

DU 1: Upload the database
Objectives: to plan and realize a System of Managing Relational Databases; to define the structure of the database (organizing data in tables and their connections); to identify the operations that can be executed in interactive modality.

LO 1.0 Databases and the publication of data on the Internet
LO 1.1 General Information
LO 1.2 The relational model
LO 1.3 Management systems of the relational databases
LO 1.4 Configuration of databases
LO 1.5 Physical implementation of data (a)
LO 1.6 Physical implementation of data (b)

DU 2: The publication of data on the Internet

[1] The specifications were first defined in http://www.europeanvirtualmuseum.net/documenti/Report_Professional_roles_FINAL.pdf by EuroInovanet and in M. Merlini, A. Velichkov (eds.), *Routes and Itineraries from the Virtual Museum of the European Roots*, F-MU.S.EU.M. Project, Sofia 2009, pp. 241-248.

Objectives: to identify the operations that can be executed in interactive modality; to know how to use the main software for realizing the web pages.
LO 2.1 Hyper Text Markup Language
LO 2.2 Active Server Pages (ASP)
LO 2.3 ActiveX Data Object (ADO)
LO 2.4 Structured Query Language (SQL)
LO 2.5 JavaScript

DU 3: Software used for modeling 3D images

Objectives: to know how to use the main software for realizing the images in 3D; to know how to converse profitable with the professional figures of the expert of the contents and with the project leader.
LO 3.1 3D Software Object Modeler
LO 3.2 VR WORX 2.5
LO 3.3 PhotoModeler
LO 3.4 PixMaker PRO

DU 4: Photography

Objectives: to know how take photographs to know how make digital elaboration of the sequence of pictures through the Apple software "Quick Time VR".
LO 4.1 Projecting the camera set
LO 4.2 Lightening
LO 4.3 The camera

Competence Standard 2
Competence Unit 2 - CONTENT SETTING OF VIRTUAL MUSEUMS

Job specification: Lead the content gathering, retrieval and presentation in the project; seek and represent knowledge appropriate in an e-learning environment; access relevant resources such as literature and information sources (including bibliographies, directories and indexes); help manage the museum's collection and select items for digitization; support the preparation of design, graphics and visual presentations using multimedia.

Competence: Know how to prepare and manage a repository of contents for the website and specifically: develop a repository plan according to the Virtual Museum project and potentialities; design and use the cataloguing criteria and formats (Identity Card); manage the Relational databases; manage the web uploading process in cooperation with the web manager; develop specific e-learning contents.

Existing job profiles related: Researcher; Contents architect; Training methodologies expert (can be separated from the contents).

TRAINING STANDARD 2 – Content setting of virtual museums
DU 1: Virtual museums: why?

Objective: to be aware of the main characteristics and advantages of virtual museums with particular emphasis on the possibility to attract a larger interest through friendly and pro-active visits

LO 1.1 Virtual museums: objectives and characteristics

LO 1.2 Personalization of the virtual museum and accessibility

DU 2: Description of F-MU.S.EU.M. Identity Card

Objectives: to apprehend classificatory rules for the F-MU.S.EU.M. objects; to be able to identify the communicative value of each cultural resource; to be able to schedule training paths for specific categories of visitors.

LO 2.1 Contents and utilities

DU 3: The database: hints

Objectives: to improve the communication with the web-designer who is the one entitled to data uploading; to know the basic structure of the database and how to elaborate queries

LO 3.1 Basic Elements for the Creation of Interactive and Dynamic Websites

LO 3.2 Databases

LO 3.3 The relational model

LO 3.4 Management Systems of Relational Databases

DU 4: Internet and virtual museums

Objectives: to improve the communication with the web-designer who's the one entitled to data uploading; to apprehend how uploading information and images on the website

LO 4.1 The Publication of Data on the Internet

LO 4.2 3D Software Object Modeler

LO 4.3 VR Worx 2.5

LO 4.4 PhotoModeler

LO 4.5 Pixmaker PRO

Competence Standard 3

Competence Unit 3 MANAGEMENT OF VIRTUAL MUSEUMS

Job specification: to manage and motivate a team that includes a variety of professionals from mixed governances (i.e. in-house and external) and disciplines; to plan the project and set SMART targets for its completion including key milestones, go/no-go points and rolling targets; o communicate effectively with the team, co-workers, external funders, partner museums, network providers; to hold and control the project budget; to create a project evaluation plan.

Competence - know how to concept and manage a Virtual Museum and in particular: analyze advantages and potentialities; identify market spaces and specific requirements; concept the project; building on and manage the staff appropriately; supervise and evaluate the results

Existing job profiles related: project manager, financial manager, manager of the institute, project leader.

DU 1: Virtual Museum from a managerial point view
Objectives: to acknowledge the web opportunities for museums in terms of communication; to improve graphic skills in order to construct virtual museum.
LO 1.0 The advantages of internet for museum communication
LO 1.1 The survey by the Dallas Museum of Art
LO 1.2 The impact of computer graphics and virtual reality
LO 1.3 Virtual museums as e-services
DU 2: SWOT methodology
Objective: to be familiar and to be able to apply SWOT methodology in reference to the construction of the virtual museum.
LO 2.1 The characteristics and use possibility of SWOT analysis
LO 2.2 Questionnaire for SWOT analysis
DU 3: The human resources for the virtual museum
Objectives: to know how to identify the key professional figures in building and managing a virtual museum; to make out the necessary competences in building and managing a virtual museum (Training needs analyses – TNAs); to be able to estimate the impact on the equal opportunities in building and managing a virtual museum.
LO 3.1 Professional profiles required by a virtual museum
LO 3.2 Role and skills of the professional profiles: the methodology Training needs analyses (TNAs)
LO 3.3 Impact on equal opportunities

Work undergoing at University Lucian Blaga from Sibiu using the F-MUSEUM e-courses experience:

1. Student Laura Coltofean won a grant regarding the Neolithic and Copper Age signs in Romania from F-MUSEUM management (work done is available on F-MUSEUM website) and she used the e-courses, mainly parts from Managers for virtual museums and content expert e-courses. She developed a procedure presented shortly in the actual number of Acta Terrae Septemcastrensis Journal.

2. Student Luca Adrian used the content expert e-courses for the project *Digi-Bruk*, a digitization work done for all journals held in National Brukenthal Museum Sibiu (F-MUSEUM beneficiary museum) portfolio using the guidelines of F-MUSEUM e-courses. His work is presented shortly in the actual number of Acta Terrae Septemcastrensis Journal.

3. The developing the www.preistorie.ro website using the F-MUSEUM database management skills learned from F-MUSEUM e-courses and learning model. The website will be launched at the end of 2010 and it is developed with *GitsCom Sibiu* (http://www.gitscom.ro, www.solutia.ro) company. The website will have a relational database for artifacts and library management for an integrated repository, user friendly.

4. Course support and exercises for students in MA specialization: *Protection of the Patrimony and Conservation of Cultural Heritage* mainly at courses *Theory of the Patrimony* (using FMUSEUM e-course for manager for F-MUSEUM)

The F-MUSEUM e-courses proved themselves to be very useful and practical for us, considering that they opened new opportunities for training and improving the activity developed by student, professors or museum staff. For these courses to remain always actual and in permanent contact with the developing technology, it is necessary that they are updated at least at a 2 years period.

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DIGIBRUK
DIGITIZATION PROJECT OF THE BRUKENTHAL NATIONAL MUSEUM JOURNALS

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Keywords: *digitization, journal, database, Brukenthal National Museum Sibiu, history, archaeology, arts, natural science, ethnography.*
Abstract: *This article was made in order to present the digitization project that takes place at the Brukenthal National Museum in Sibiu. The work involves scanning the journals, and then the images are processed and afterwards exported into a single PDF document. The scanning procedure is completed when all the scanned articles are added in a database. The work was done following the F-M.U.S.E.U.M. project rules.*

The European Commission Community presented in 2005 the *i2010: digital libraries* (COM 2005 465 final, 30.09.2005) initiative, which seeks to optimize the benefits of the new information technologies for economic growth, job creation and the quality of life of European citizens. This communication sets the digitization strategies, online accessibility and digital preservation of the Europe's collective memory. This collective memory includes print (books, journals, newspapers), photographs, museum objects, archival documents, audiovisual material (hereinafter 'cultural material') (OJ L 236, 31.08.2006, 28). In this way the *DigiBruk* project was born, from the wish to expose to the public, through the internet, the journals that appeared in time in the Brukenthal National Museum from Sibiu. In the same time, the digitization of these journals is important to the Museum because it means: stocktaking, documentation, research, conservation, exploitation and dissemination of knowledge (Oberländer 2006, 48). This project implies the collaboration between the *Lucian Blaga University Sibiu* (Professor Luca Sabin Adrian Ph.D., Reader Cosmin Ioan Suciu Ph.D. and Luca Adrian), IPCTE[1] and the Brukenthal National Museum from Sibiu.

In the last few years IPCTE was constantly involved in digital projects (Luca and Suciu 2007, 13-39) and the importance of their activity was recognized by the scientific forums even though the people which access the internet on daily bases is very low in Romania comparing to the Western European countries (IFAP 2009, 52). Even with this inconvenience a digital product can be promoted easier being accessible in any corner of the world, at any given time, at a very good quality. The investment needed for a project as the one we are presenting is not very high. For this project we used two image scanners (HP A4 and Mustek A3) and three

[1] *Institute for the Study and Valorification of the Transylvanian Patrimony in European context.*

software programs (Corel Photo-Paint X3, version 13, 2005, Adobe Acrobat and Microsoft Office 2007).

Objectives

When the project started, in late 2009, we settled a series of main objectives:

1. To the transpose the written cultural patrimony into a digital format → promotion at European level;
2. The protection of the national cultural patrimony found in the Museums library → promoting the collections;
3. Improvement of the access to the documents → rising the number of users and their category;
4. To create a database which will contain the authors name, the articles name, the volume and the series, up to five keywords, the pages where it can be found in the journal, the abbreviation used and a link to the respective article;
5. Online publication of the material on the Museums web site (www.brukenthalmuseum.ro).

The scanning procedure can begin only when we are sure that nobody else started the same project earlier (OJ L 236, 31.08.2006, 29) and not before we establish all the details regarding to the best management of the project. Detail such as: selection of the documents/collections that will be digitized, the work methodology, the digitize solution we use and the identification of equipment and software that we intend to use (BNR 2009, 3).

For the scanning procedure we used the two image scanners and Corel Photo-Paint X3 software. In order to obtain an image we need to use the *acquire image* option form *file* from the Corel program. In order to obtain a better quality of the image we scanned the documents in the *grayscale*[2] mode at a 300 DPI[3] resolution, in this way we were able to scan approximately 100 pages per hour.

The image processing procedure. The image obtained after the scanning is not a high quality one, the most frequent problems is determined by the angle you can open the book while scanning. As a result shades appear and in most cases the image is deformed. These problems can be resolved with the Corel Photo-Paint software. In order to obtain a quality image we first need to rotate the image as much as needed, we can do this with the option *"Rotate custom"* found in *File→Rotate.* The next step will be to eliminate all the shades; we can do this with the *rubber gum* which can be activated by pressing the *X* key from the keyboard. After this we can advance to the next step which is to adjust the brightness, contrast and intensity of the image; which can be done by selecting the *Adjust* button from the toolbar and selecting the option *Brightness/Contrast/Intensity*. Then we have to

[2] Scanning in gray = more bits per pixel to represent many shades of gray, the preferred level of gray scale is 8 bits per pixel, and at this level the image displayed may select from 256 different levels of gray.

[3] Acronym from **D**ots **P**er **I**nch; it determines the resolution of the document when it is printed, the higher the DPI the better quality of the image, but also considerably higher document size.

adjust the tone balance form *Tone Curve…* from the same *Adjust* field. In order for the image processing procedure to be complete we need to set the same values of width and height for each page, with the *Maintain aspect ratio* unselected, in order for the images from the PDF to be the same size. This process can be done by selecting *Image* and then clicking *Resample.* After all of these modifications have been done, the resulted image must be saved as a *.jpeg*[4].

In order to publish the materials on-line we chose the ***.pdf***[5] ***format.*** In order to make such a file we need to have the Adobe Acrobat software installed on the computer. There are many reasons for which we chose this file format, first of all because we can combine a series of *.jpeg* images into a single PDF document by selecting, from the toolbar, *Combine→Merge files into a single pdf→Add files,* at this point we have to select the images that we want to add to the respective document and we choose the *Combine files* command, at this point we need to save our work. Another special characteristic of the PDF document is the *OCR*[6] *Text Recognition* (Document→OCR Text Recognition→Recognize text using OCR→ we have to select the primary language of the text), which reduces the file size and allows the text to be reformatted, searched, or processed by other applications. We can also add some properties to the document, from *File→Properties…→Description /Security*, such as: title, author, subject, keywords and we can also add some restriction for: printing, changing the document, document assembly, content copying, content copying for accessibility, page extraction, commenting, filling of from fields, signing and creating of template pages.

The digitization process is completed when all the documents that we scanned are organized in a **database** or a **system** (BNR 2007, 5)**.** In order to create our database we used the *Access 2007* software from the *Microsoft Office 2007* package. The database contains many fields among which: author's first and last name, journal, series, abbreviation, 5 keywords, the pages where the article can be found in the written version, year and a link that makes reference to documents in digital format. Up to this point we added 107 articles to our database.

List of publications targeted for digitization is as follows: ***History, archeology****: Studies and Communications, Brukenthal Museum, Sibiu*: 1956, nr. 1; 1965, nr. 12; 1967, nr. 13 *reverential volume, Brukenthal Museums Yearbook*, 1817 – 1967; 1969, nr. 14; 1973, nr. 18; 1975, nr. 19; 1977, nr. 20; 1981, nr. 21.

Plastic art*: Studies and Communications, Brukenthal Museum*, Sibiu: 1956, nr. 4, 5; 1956, nr. 7, *History Culture*; 1978, nr. 1; 1979, nr. 2.

---

[4] Acronym from **J**oint **P**hotographic **E**xperts **G**roup = an image with a compressed resolution, 8-24 bit. This varies depending of quality and the size of the file/document.

[5] Acronym from **P**ortable **D**ocument **F**ormat = a file format which allows us to maintain the same font format, the format of the page, the colors and the graphic elements.

[6] Acronym from **O**ptical **C**haracter **R**ecognition = is the mechanical or electronic translation of images of handwritten, typewritten or printed text (usually captured by a scanner) into machine-editable text.

Natural Sciences*: Studies and Communications, Brukenthal Museum, Sibiu*: 1958, nr. 10, 11; 1970, nr. 15, 1971, nr. 16; 1972, nr. 17; 1973, nr. 18; 1975, nr. 19; 1976, nr. 20; 1977, nr. 21; 1978, nr. 22; 1979, nr. 23; 1980, nr. 24 + Supplement; 1983, nr. 25 + Supplement; 1984, nr. 26; 1998, nr. 27.

Ethnography*: Studies and Communications, Brukenthal Museum, Sibiu*: 1956, nr. 2, 3, 6; 1958, nr. 8, 9;

Cibinium: *Study materials for ASTRA National Museum Complex in Dumbrava Sibiu*: 1966, vol. I; 1967/1968; vol. II; 1969/1973, vol. III; 1974/1978, vol. IV; 1979/1983, vol. V.

From this list only the journals regarding to history are ready to be published online and hopefully by the end of year 2010 all the journals will be uploaded on Brukenthal National Museums website.

Future projects

The project presented here is only a pilot one. We wanted to see if the work needed in order to implement a project of this magnitude is worth on the long run. Our next objective is to implement a digitization project to the older series of journals which appeared in the Brukenthal National Museum (in the field of ***plastic arts***: *Mitteilungen aus dem Baron von Brukenthalischen Museum* 1931-1937; *Neue Folge* I-VII 1941, *Neue Folge* VIII 1944, *Neue Folge* IX-X 1946-1947, Neue Folge XI-XII; ***Natural Science***: *Verhandlungen und Mitteilungen der Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt* 1849-1945, 95 volumes), but in order to do this new modern equipment is necessary because the digitization process is a destructive one in its nature, especially when we are dealing with older books that are more fragile. One solution for this problem is to acquire an automatic scanning system, which can employ vacuum and air and static charges to turn pages while imaging is performed automatically, usually from a high resolution camera located over an adjustable v-shaped cradle, but the costs for such an investment are very high.

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MUSEUM PEDAGOGY – A SUCCESSFUL PROGRAMME

Dana Roxana HRIB
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Keywords: *Brukenthal National Museum, museum pedagogy, Europa Nostra Awards*
Abstract: *In the year 2010, the Brukenthal National Museum was the first museum in Romania to receive a European Union Prize for Cultural Heritage/Europa Nostra Awards, the 4th category: Education, Training and Awareness-raising with the pedagogy program "Discovering the Museum"***.**

The program was launched at the beginning of school year 2008/2009 (15th of September 2009 - 15th of June 2008). At the moment, its second year is running for 2009/2010.

The Brukenthal National Museum of Sibiu, Romania, was opened to the public in 1817, being the first museum on the today's Romanian territories and in the South-East Europe. The Museum was named after its founder – Baron Samuel von Brukenthal (1721-1803), who built an impressive Baroque palace in Sibiu, in which location the Museum established its beginnings. Initially presenting von Brukenthal's collection of European Painting in one single building, today the Museum shelters a large diversity of valuable collections in 9 buildings. During the period between 2006 and 2008, the Museum was subjected to a spectacular transformation, all the buildings in its administration being renovated while about 85% of the exhibitions were reconsidered.

Before 2006 Museum's education activities were random. Because of the renovation process paralleled by the events of Sibiu European Capital of Culture in 2007, an articulate educational programme was possible to be run only starting with school year 2008/2009.

The education rooms in the Museum were opened in 2007 at the Museum of Natural History and in 2008 at the Brukenthal Palace (Art Galleries) and the Museum of History.

The Brukenthal National Museum comprises the Brukenthal Palace (European Art Galleries), the Romanian Art Gallery, The Contemporary Art Gallery, the Brukenthal Library, the Museum of Natural History, the Museum of Pharmacy, the Museum of Hunting, The Museum of History, the Restoration Laboratories.

The programme was launched at the beginning of school year 2008/2009 (15th of September 2009 - 15th of June 2008). At the moment, its second year is running for 2009/2010.

Img. 1. Education room.

Scope of the project: aims and objectives

On short term, the Brukenthal National Museum aimed at encouraging students of different groups of age to become familiar with the museum through recurrence in visiting, to discover the museum step by step, having the possibility of learning, being creative and enjoying in recreation.

On medium term, the Museum aimed at a different approach to the Sibiu community through the means of creating events dedicated to children and teenagers, involving teachers, parents, press, other institutions.

On long term, the Museum aims at serving as model for other museums in Romania, in order to form through today's children and students the future museum-oriented public, which at the moment doesn't exist at the national level.

Stages of implementation

1. Dissemination

The broad educational offer for the school year 2008/2009 (a step-by-step activities timeline comprising 57 themes and eight projects) was disseminated at all urban or rural levels, being handed over to schools and to the County School Inspectorate under the form of printed materials. For the school year 2009/2010, the offer is structured in accordance with the target group on three categories: primary, secondary and high school. The educational offer it is also posted on the education page of the official website of the museum http://www.brukenthalmuseum.ro/educatie, the events related to the education activities are announced on news and events web page and Museum’s press releases, the exhibitions being posted on the temporary exhibitions page.

Img. 2. Brukenthal National Museum education web page

.

2. Establishing the activity categories:

The Museum educational offer includes basic guided tours, thematic guided tours, thematic projects, contests, workshops, exhibitions, guided tours for disable children and their parents, ethnic and ecumenical oriented activities.

3. Strategies

The main patterns of the project were set during the school year 2008/2009 in which concern the activity types, publication concepts, establishment of relations with schools and other institutions education-related through the means of written agreements. There were also established rules of participation, means of information, and means of popularizing the results.

The main strategy was to focus on what the museum in general and the Brukenthal National Museum in particular has characteristic. On the other hand, the educational project was thought to respond to the needs of institutions involved, accommodating their own specificity.

Partners:

Until the end of year 2009, the project involved the participation of 11 high schools in the city of Sibiu, 2 urban high schools in Sibiu County, 13 schools (primary & secondary teaching) in the city of Sibiu, 2 urban schools (primary and secondary teaching) in Sibiu County, 7 rural schools (primary and secondary

teaching) in Sibiu County, 9 kinder gardens in the city of Sibiu, 1 urban kinder garden in Sibiu County, 1 rural kindergand in Sibiu County.

a.

b.

Img.3a/b. Pedagogy and art praxis in the Museum

The Brukenthal National Museum also enjoyed as partners in education activities The "Grigore Antipa" Museum of Bucharest, Grupo de Gestevores Patrimonio Cultural Latino-Americano of Buenos Aires and the National University of Comahue Argentina for the project "Discovering the Dinosaur" (2008), The German Cultural Forum in Sibiu for several workshops (2008 and 2009), the Calvinist Parish in Sibiu for an exhibition project (2008) and the Twinning Association Rennes Sibiu (project related with a temporary exhinition, due to be launched on the 9th of November, 2009), the Caleidoscop Centre for Autistic Children.

Results:

The audience of the project was considerable under the respect of participants, summing a total of 1587 visits, 2 thematic projects and 2 exhibitions in 2008, 7341 visits, 34 thematic projects and 7 exhibitions in 2009 and 7750 visits, 15 thematic projects and 3 exhibitions in the first quarter of year 2010.

The records of the visits, number of participating students, activities, projects and exhibitions, dated and mentioning the school, the name of the teacher leading the group and the guiding person are posted on the education web page of the Museum's site. There is also an archive for the 2008 and 2009 records.

The community response to the Museum's youth educational project equaled the audience in schools, the events of prizes awarding or exhibition openings were mediatized through over 20 television and radion news and 35 newspaper articles.

Publications

Until present, the Museum issued six publications for students of different groups of age: guided books to the permanent exhibitions of Brukenthal Palace (1st ed. 2008, 2nd ed 2009, sold until August, 2009 in 1104 copies) and the Museum of Natural History (2009) for secondary and high school students, activity books to

the Brukenthal Palace and the Museum of History (2009) for primary school students and an exhibition catalogue promoting the works of art school students

As far as we know, the Brukenthal National Museum is the first in Romania to publish a guide to the exhibition for students, the first to issue museum-applied activity books for children and the first to publish a catalogue on students' exhibition.

a.

b.

Img.4.a/b. Publications for students.

European added-value

The European added-value consists in the new approach regarding youth education in the museum on a school-museum relation basis.

As the general museum practice is to present an exhibit and encourage students to draw and comment upon the subject afterwards, the main strategy of "Discovering the Museum" programme was to focus on what the museum in general and the Brukenthal National Museum in particular has characteristic.

Under this respect, the young generation was thought what a museum is: exhibitions, collections, storages, conservation and restoration were the main topics to be explained before referring to a particular item.

The step by step process of discovering the museum moved from general to particular, from what is to be visited to what it is beside the closed doors. The students were invited to become little museum workers organizing there own collections and making there own exhibitions.

In response to the needs of institutions involved, in order to accommodate their own specificity, "Discovering the Museum" programme included training stages for teachers, facilitated the practice of pedagogy and art high school students and promoted the creation of art students and theater students inside and outside the Museum's galleries.

There were also activities accommodating the persons with special needs, as organizing the visits for autistic children and special tours for their parents, at present the Museum working on a project for sightless people. The project also

involved the visits of kinder gardens and school with developmental disability profile.

The intercultural dialogue and cultural diversity were promoted through special events for Romani students and the ecumenical pattern of some of the projects as the *Angels* exhibition comprising works done by Eastern Orthodox students, inspired by Catholic paintings and exhibited in a Calvinist church.

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Prizes

In the year 2010, the Brukenthal National Museum was the first museum in Romania to receive a European Union Prize for Cultural Heritage/Europa Nostra Awards, the 4th category: Education, Training and Awareness-raising with the pedagogy programme "Discovering the Museum"**.**

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TOWARDS THE ACCUMULATION OF WEALTH AND SOCIAL COMPLEXITY IN PREHISTORY

Lolita NIKOLOVA
International Institute of Anthropology, USA, lnikol@iianthropology.org

Keywords: *wealth, accumulation, subsistence, treasuring, prehistory, theory.*
Abstract: *Four-level structuring of social complexity in prehistory is proposed based on the wealth criteria.*

The meaning of wealth was different in prehistory than today and there are many lost or invisible traces of prehistoric wealth that make the problem complicated even if we use the best archaeological records, theory, ethnographic and prospective case studies. This hypothesis is offered as inspiration for future critical research in similar or alternative directions. The author reserves her right to make future updates and will appreciate critical comments and suggestions.

Four-level structuring of social complexity based on the wealth criterion

Many archaeologists approach the prehistoric graves as direct evidence of social structure and social complexity. Then, according to the direct interpretation model (Scheme 1):

1. No burial goods = poor population (households, communities;)
2. Non-rich burial goods = Non-rich population (households, communities);
3. Rich burial goods = Rich population (households, communities);
4. Extraordinarily rich burial goods = headman, chieftain, priests, etc.

This model would work if the cemeteries and burials functioned as a social mirror of the living community world.

Conversely, the cultural anthropological approach to burial, and especially to prehistoric burial, infers that burial was accepted as a means to bridge the world of the living community and the world of ancestors. In traditional societies and in many modern societies there is no spiritual split between both worlds and the ancestors are considered as a reflective part of the everydayness of the living population. The role of burial, then, is to pay respect to the ancestors and facilitate their transition toward becoming invisible partners in the people's everydayness. The prehistoric burial as a ceremony also had a significance for indicating identity, social status, gender, age and generally cultural (ethnic) belonging. It contributed to a successful reproduction of household and community social relationships.

There is a tendency toward multidimensional approach to the topic of wealth and/or social complexity and social identity in the modern historiography on prehistoric and traditional societies (see e.g. Hodder, 1982; Brandley, 1982, 1990; Leach, & Leach, 1983; Renfrew, 1986; Kristiansen, & Rowland, 1998; Quesada, 1998; Russell, 1998; Nikolova, 1999, 2006; Bailey, 2000; Liu, 2004; Bently, & Maschner, 2008). Our supposition concerning the accumulation of wealth is in the context of a four level classification scheme of social complexity. It is an attempt to destructure prehistoric everydayness as a complex of social activities for social and cultural reproduction. The burials were initially proposed as active elements in household social strategies of reproduction based on the Neolithic interments in settlements (Nikolova, 2006). The analysis was further expanded based on the extramural cemeteries (Nikolova, 2002).

According to our proposed theoretical model, there are at least four levels of development of the households' social complexity based on the wealth criterion (Scheme 2):

1. Level of reproduction of subsistence only;
2. Level of accumulation of wealth;
3. Level of reproduction of wealth and possible increase of surplus;
4. Level of treasuring of wealth for non-practical use.

From the perspective of this hypothesis, the households of the first level would provide a burial that tied the deceased individual to the world of the ancestors, respectively to the living communities possibly through non-artificial social symbols. The last may include wearing traditional costumes, emphasizing gender through body posture, or by the use of burial goods developed as a standard for the given community and available for the ceremony.

Many "poor burials" would belong to households at the subsistence level of reproduction. Their ritual expression was symbolic. The Neolithic, for instance, was the period of the development of strong ancestor memory in human civilization. In our theoretical framework, any 1^{st}-3^{rd} level of social complexity could provide "poor graves" if there is no a special need for treasuring rich non-perishable objects.

At the second level, social reproduction strategies would include rituals of transmission of wealth (if any), like adornments from elderly people to the younger generations. In other words, the initial wealth would be inherited. Depending on the character of the burial ceremony – close to the household or having a community character – we may also expect a clearer demonstration of wealth through a social status. Richer traces of feasting and possibly rich children's burials may indicate this level in the cemeteries.

At the third level – the reproduction of wealth and possible increasing of the surplus – the household would include some richer burial goods in their social strategies because of the abilities to reproduce wealth. This is the level in which we

may expect not only some rich children burials, but also of some adults. However, the archaeologically documented wealth most probably differs from its real social contents since we cannot document perishable and symbolic wealth expressed by the rituals (Scheme 3).

According to the published data, the richness of the households was expressed in three main manners in the Neolithic-Copper Age cemetery of Durankulak (Todorova, 2002):

1. By deposition of the skulls of animals, which could be a result of feasting or just the deposition of the skull of the favourite animal of the deceased which was kept after its death;
2. Rich adornments: necklaces, bells, applications, earrings, rings, etc.;
3. Rich burial goods including not only adornments.

The fourth level – of treasuring mobile artificial wealth – would be reflected in rich burials. The burial ceremony possibly demonstrated not only the wealthy high status of the deceased, but their faithfulness to the ancestors.

In our opinion extraordinary rich burial does not demonstrate in all cases the level of straightforward treasuring of wealth since it is possible for these burials to occur in periods of societal crisis as a sacrifice and/or as social strategies of resolving social conflicts (e.g., one possible interpretation of the Varna cemetery). In principal, the archaeological record is by nature fragmentary and incomplete and for this reason straightforward match of theory to case studies would be not reasonable.

We will limit our research to some possible application models, turning to further problems of interpretation of the archaeological burial records.

In light of present evidence, big extramural graveyards emerged very late in the Neolithic of the Balkans. The Hamangia culture in the Northeast Balkans is actually the first prehistoric culture in the Balkans to demonstrate a strong spirit of ancestral solidarity in which distant communities would gather in one place to develop a cemetery as a central place of respect to the ancestors. The cemetery could also reflect a response to increasing social differences and the attempt to maintain solidarity in everyday life as a tradition and necessary mechanism of successful social reproduction.

Jewellery was certainly an investment of the household as a means of accumulation of wealth regardless of its social significance, such as having an item only for good luck. Possibly because of the commencement of an active interregional trade, jewellery became one of the most popular investment means, with a line of development from *Spondylus* toward copper adornments (beads, bracelets, rings, etc.).

Rich jewellery occurs in Balkan prehistory as early as the painted pottery horizons in the earlier Neolithic in some leading cultural centres like Gulubnik (Todorova, & Vajsov, 2001: Nos. 162-164). The social strategy of investment through adornments was most probably adopted by the Hamangia culture from the South and developed in a specific way.

It can be presumed that different kinds of jewellery were a typical Hamangia social strategy of expression of identity including possibly wealth and status, for all three defined levels. In later Copper Age, axes and gold adornments were popular expressions of wealth, and later in Early Bronze Age II was documented a global horizon of distribution of gold adornments together with silver, copper and bronze axes and other metal implements.

Further case studies and theoretical insights may expand the problems of the accumulation of wealth in prehistory and its reflection on the social complexity. I believe that sharing the above hypothesis will stimulate a discussion on one of the most fundamental components of human social behaviour – the accumulation, reproduction and treasuring of wealth, in particular in prehistory and its reflection in the archaeological records.

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Scheme 1. Direct interpretation model of defining a social stratified society.
Scheme 2. Four level structural model of social segmentation in prehistory.
Scheme 3. Variants of wealth in prehistory.

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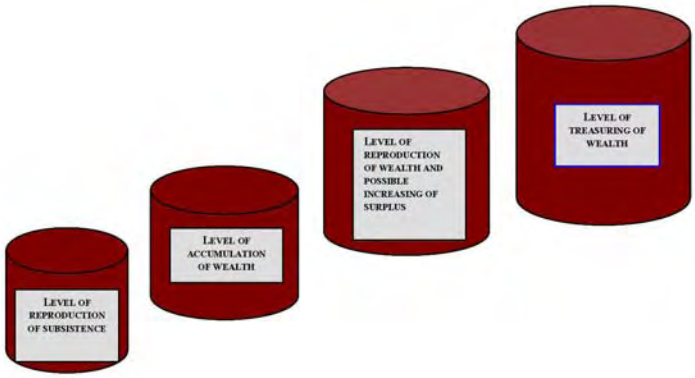

Scheme 2. Four level structural model of social segmentation in prehistory.

Scheme 3. Variants of wealth in prehistory.

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TOTEGANISM:
TOWARDS THE DEFENITION OF A MISSING PHASE IN ANCIENT METAPHYSICS

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***Keywords**: Toteganism/Totegan, Totemism and Paganism, Chalcolithic religion, Precession, Urbanism Revolution/Evolution, Ibex/Capricorn.*
***Abstract:**This article tries to briefly introduce a metaphysical concept that is considered as an intermediate step between the notions or the periods of Totemism and Paganism, that is the period called Toteganism by the writer. In the Middle East Chalcolithic period, the Ibex changes from a tribal Totem into a Totegan out of which a number of pagan godheads are created. The precession is an astronomic concept with the intermediation of which this process of change, that is the Toteganism of the Ibex, is shaped. Since this sample, the relationship between Precession and the Ibex, is the first one that in the discussion on Toteganism is studied and acknowledged, besides the endeavor to pay enough attention to it, the writer tries to use it as a base for a more generalized definition of Toteganism. On the whole, this article tries to explain a metaphysical period of the life of the ancient man that is located between the Paganism and Totemism. From the archaeological point of view, this event belongs to the beginning of the revolution of Urbanism and can be regarded as one of the effective and facilitating factors in the creation of this revolution or evolution.*

Introduction

To find something which the ancient man had thought of, concerning the metaphysics, on the one hand has usually been considered as one of the final goals of the prehistoric archeology and on the other the difficulty of the studies in this case has caused the archeologists not to work on it. Among the features like architecture, grave, pottery etc, that are available to an archeologist and help him to attain the thoughts of the prehistoric man, pottery design is the best media, since in it we have a more direct and simultaneous relationship between the mind, as the locus of metaphysical thoughts, and the hand of the painter.

Among the potteries of the Middle East Chalcolithic period one can find some designs which lead us to the ancient man's thoughts. The pottery designs of the Chalcolithic Fertility Crescent and its neighborhood can be considered as one of *first* samples from which this "thoughts" can be inferred. To explain and justify this "first" one can say that; although the "Homo sapiens sapiens"es and their Neanderthal ancestors, since the time of their living in caves, tried to convey their

thoughts and specially metaphysical thoughts as the most important of them, through visual arts, nevertheless our temporal distance with them makes the concepts behind those pictures seem vague and intelligible, and since the Chalcolithic period ,is directly linked to the advent of writing and literature or history in which it is possible to have a better conception of what we call metaphysics, is the first period in which one can more[1] confidently express his conception of what the ancient man thought, including his metaphysical thoughts.

Among the pottery designs of the Chalcolithic Central Plateau of Iran (the map below) and some of the areas around it we come upon some designs that can illuminate some corners of the metaphysical thoughts of the ancient man. One of these designs shows a very common motif that it is possible to put in a general branch called 'the Ibex'.

Fig 1. The Central plateau of Iran (the highlighted area).

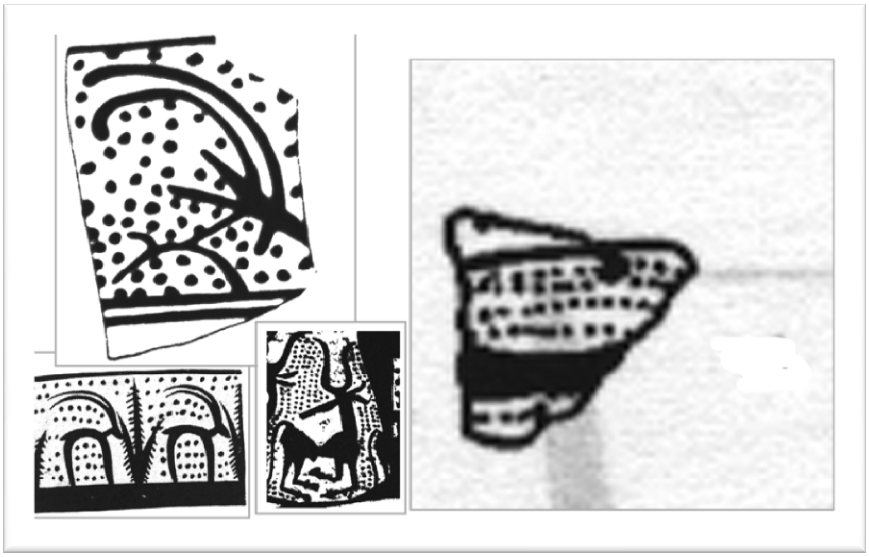
Before the beginning of the main part of my discussion it is not useless to mention a particular point. The 'Ibex' motif is the most frequent one painted on the potteries of the Middle East and specially Iran. This high frequency is amazingly conspicuous in the central Plateau of Iran and especially in its Chalcolithic period. This article is too brief to prove this matter, however it is possible to mention it as something objective and obvious and refer the reader to the numerous potteries and potsherds of this period of the central Plateau of Iran that are kept in the museums all over the world and the designs represented in the excavation reports (e.g. see:

[1] We know that in the prehistoric archeology one can hardly be thoroughly confident of what he/she says.

Malek Shahmirzadi: 1977; Majidzadeh: 1976; Fazeli Nashli: 2005; Schmidt ,E.: 1937 etc.).

Although the arguments of this article are claimed to be valid in all of the kinds of the mentioned motif, nevertheless to begin the discussion some seldom samples which can more directly convey the thoughts behind them that this article is looking for, are studied and are considered to be suitable for opening the discussion.

Among the potteries discovered in the Central Plateau of Iran and the areas around it like Zagros area and even Mesopotamia there are some samples in which the Ibex motif is surrounded by some spots. In these designs seemingly there is no ritual completive images[2], as a result the writer, concerning the matter which is to be discussed in this article believes that the mentioned spots are representative of the stars and consequently the Ibex among them is the constellation that nowadays, after the ancient times usage of the word, is called Capricorn or, to use the term used in the Persian and Arabic astrology: 'Jady'.



Some particular designs showing the Ibex (right:Fazeli nashli:2006:59) (top left: Contenau et Ghirshman:1932:plate51) (bottom middle: Céramiques de Halaf:2002) (bottom left: Haerinck&Overlaet:1996:Fig 77).

Although among the samples provided in the figure above the most incomplete and the smallest one belongs to the central plateau of Iran (Zagheh[3]), regarding the things mentioned above and those that are going to be said, the centre of these

[2] Including some images added among the Horns of the Ibex, the images that are interpreted to be water etc. the writer is working on an article about these added images and their probable meanings.

[3] An late Neolithic and early Chalcolithic site in Central plateau of Iran.

particular images, since they are numerously repeated on the potteries of the central Plateau of Iran (Talai&Aliyary: 2007: 27-46), have to be sought in this area and consequently one can expect its dissemination in the other areas. This supposition is also verified by a unique and rare figurine discovered in Tepe Hissar (Dameghan):

The figurine, Hissar II (after: Schmidt: 1937: plate XXVII-B).

Although coloring and designing of the figurines have not been a new phenomenon for that era, the style of the designs on the mentioned figurine that can be a representation of the stars on the body of this Goat-like animal[4] has made it a unique one. To explain this image it is possible to say that since in the case of a figurine we do not have any background as is the case in the pottery designs the sculptor has been unable to represent the firmament and its objects as the painter has been able to do and he has represented the stars within the constellation.

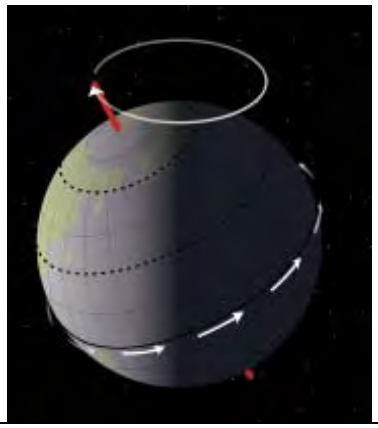
The vital question that raises is why this constellation has been of such an importance to the people of the Middle East and basically all of the men of that time, that have motivated them to represent it on their potteries and make it so frequent in a particular area, namely the central plateau of Iran(!?).

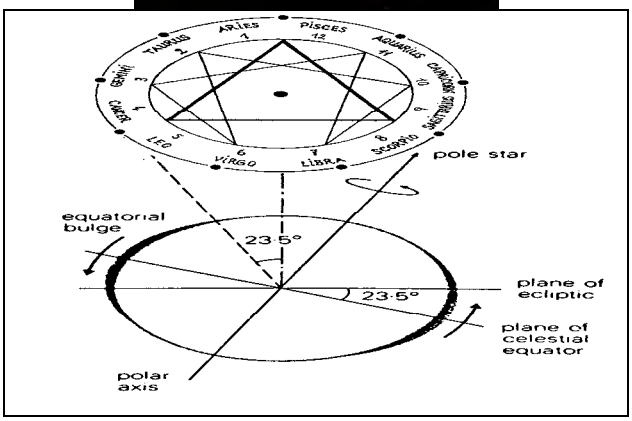
From the astrological point of view, *Capricorn* stands for the months December-January and in Persian calendar is called ‘dey’. Nowadays this month marks the beginning of the winter and its first day according to Iranian Jalali Calendar marks the winter solstice. But has this always been the case? To be more suitable to the discussions of this article one can put this question thus: had to the Chalcolithic man also this constellation meant a mark for the month that is located in the beginning of the winter solstice?

[4] Because of its Characteristics (hornless, Goat/Ibex-like tailed), It seems to be from Bovidae (*Family*) / Caprinae (*sub-family*).

The answer to the previous questions can obviously be 'No'. This decisive answer has also been given by the scholars of the third century B.C. as a result of the Hipparchus's discovery.

According to the modern astrology, earth has three main kinds of movements; Rotation, revolution and precession, the last of which is a sort of slow and regular vibration in the rotation of the earth round its own axis:





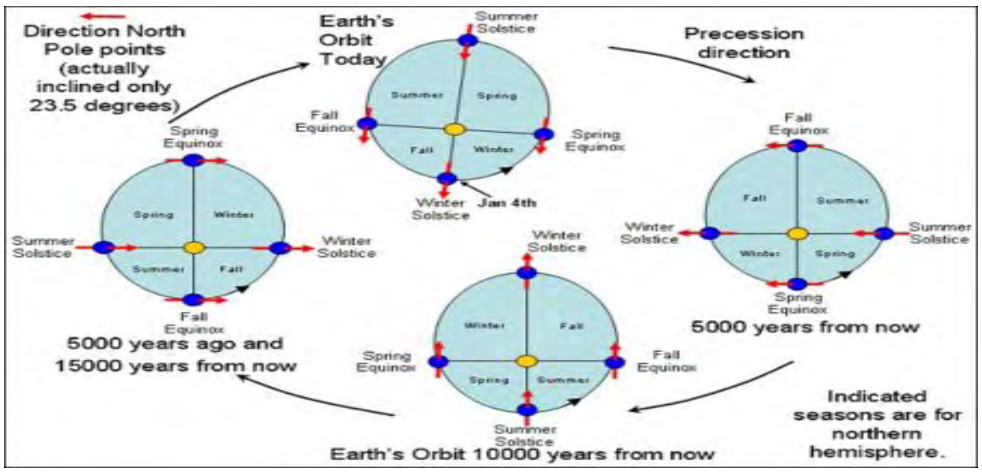


Fig. 3-5: Precission (After: Wikipepia).

This slow movement of the earth, discovered by Hipparchus and completed in meaning by his posterities can be explained thus; precession of equinoxes is a corollary of gravitation. The gravitation of the sun and the moon causes some slight movements of our planet. It means that whenever the earth returns on its orbit to the spring equinox, its axis is a bit different from what it has been before. In actual fact the earth's axis slightly changes from moment to moment but its effect is very little and can be measured just after years. It took centuries for the ancient men to feel this change. According to the same alteration, the location of the poles also changes regarding the orbit of the stars, and in one time this and in another that star becomes the pole star (e.g. see Krupp: 1994: 30-45) and as a result the sun's location in zodiac likewise changes. This latter change is impacted by the accordance of the alt-azimuth mounting (Sky's Equator) with the zodiac.

Precession of equinox causes the backward and slow movement of the two equinox points. It is the result of the fact that the equinox point passes through a constellation every 2160 years and it takes (12x2160=) 25920 (rounded to 26000) years to pass through all of the twelve constellations. So presently the spring equinox occurs when the sun is in Pisces Constellation. However in the following centuries this equinox will occur in the Aquarius Constellation. The spring equinox of the Hellenistic period has occurred in Aries constellation and the autumnal equinox in the Libra. (e.g. see: Ulansey 2006)[5].

Accordingly and by a simple calculation[6] we can come to this conclusion that the spring equinox for the people of the Chalcolithic period has occurred in Gemini. It means that the time we know as the beginning of the spring in Aries (Persian Farvardin; 21st March to 20th April) has been Gemini in the Chalcolithic

[5] Where one can find another case in which astrology and the religious rituals are interlinked.

[6] The Chalcolithic period of the Central Plateau of Iran (mid sixth to late forth millennia B.C), has been about 7000 years ago. So, (3x2160) = 3 month backwards.

period. In other words for the people of the Chalcolithic period the beginning of the spring has been in Gemini and as a result for them the Capricorn constellation stands for the beginning of the autumn.

However, the important point is the fact that now that it is proved that what to us means the beginning of the winter solstice, to the Chalcolithic men had meant the beginning of the autumnal equinox; *why the Ibex*[7] *had turned out to be the most important animal*? Nowadays, at least for the Iranian people whose calendar is to a great extent in accordance with the nature, the most important month of the year is Farvardin (21stmarch-20thApril) which marks both the beginning of the spring and the New Year. However it seems that the most important month, for the rural people of the Chalcolithic period in Central Plateau of Iran, had been the first month of the autumn. There has also remained a significant evidence for us: 'Akitu'/ 'Akiti' is a great festival held by the Mesopotamian people in the period of the advent of literature. (e.g. see: Schmidt W. 1961: 72–79, de Moor 1971: 56–58, 77-80, Loretz 1988: 428). Although in Mesopotamia since the early second millennium B.C. Akitu is combined with the festival of the beginning of the spring which in its turn became the mark of the beginning of the New Year, nevertheless the festival of the beginning of the autumn had been held by the people of Iran and the Egyptians (e.g. see: Wolters 1995; Bidmead 2002).

"If Nowrouz, Mehregan and Sadeh are Indo-Iranian Festivals they had to be mentioned somehow in the Vedas and Avesta while until the end of the Avestian period they are not at all mentioned. It is most likely that these Festivals, specially Nowrouz and Mehregan that seemingly belong to the agricultural societies and not to the shepherd societies, must have been very old-rooted in the Plateau of Iran and belong to the prehistoric periods and the natives of this land; namely our non-Indo-Iranian ancestors. These two festivals were carried to Mesopotamia by Sumerians who created two Festivals of sacred Marriage and Akiti, both of which later in Mesopotamia turned into a single Festival held the beginning of the year, however in Iran, till the present Islamic period, they still remained as two distinct Festivals." (Bahar 2002: 495-496)

The Akiti/Akitu aforementioned, that after the unification of the Mesopotamian Festivals, were considered as the festival held at the beginning of the Babylonian month Nissanu, at first was the name of the autumnal festival. This festival, which as Indo-Iranian people's Mehregan is taken from the same autumnal Akitu, belongs to the farmer and shepherd social stratum that dominated most of the ancient society. These people in the beginning of the autumn took care of their products and stored or exchanged them and assigned the portion of it they had to consume and then free from any ceaseless work happily and hopefully looked upon their lives. On the one hand this freedom and happiness and on the other a sense of debt to the Metaphysical Powers for the abundance of their products and the wish to have the same abundance in the next year, have made the time and Atmosphere appropriate for the implementation of the thanksgiving festival and rituals. Akitu,

[7] The symbol of Capricorn Constellation.

in any shape, implemented through any rites and ceremonies, and in any place, is the reminder of the same ritual of the Chalcolithic[8] farmer-shepherd people. There are some evidences showing that the beginning of the year for some of the Middle East nations, specially for Mesopotamians and Indo-Europeans (e.g. see: Idem), has been marked by the beginning of the autumn[9] and this fact increases the importance of Akitu.

Now, it is possible to find out one of the most important factors bringing about such a high frequency of the Ibex images on the Chalcolithic potteries of the Central Plateau of Iran.

The month in which the best days of the year are located when the metaphysical powers have to be thanked for such abundance of the products, either consciously or unconsciously have made the metaphysical thoughts of the men develop, and the first fruit of this developed metaphysics is offered to this month and the symbol of it through revering and worshiping of the Ibex that it is possible to say has been previously worshiped, and in that time, this worship concerning its quantity and quality had developed. In other words, the man gradually came to this conclusion that these gifts are given to him through Capricorn constellation or the Ibex.

Toteganism

It is possible to categorize the process of the worship of the Metaphysical powers into three general categories:

- Primitive Religions
- Paganism or Polytheism
- Abrahamic Religions

Although the Primitive religions include many of the dimensions of the worship, nevertheless Totemism is a unique case, among the characteristics of which, is the worship or revering of an especial creature or phenomena and is able to define one of the final stages of the primitive thought. Some of the other aspects of the primitive religions such as Animism, Animatism and Fetishism cannot be associated with some 'peculiar' creature or object and one can expect that for example in a tribe the people of which practice Animatism, Spirit in its general meaning be worshiped.

The thing that is of high significance to this article is this 'peculiarity' in worship in the cases of Paganism and Totemism that can be considered, on the one hand, in a general look, as the characteristic they have In common, and on the other, an specialist's reflection on the matter can bring the distinctions still hidden in this similarity to the fore. In the case of this general similarity (the worship of a

[8] The omission of 'Neolithic period' from this sentence is out of the reason of the absence of any evidence of such rite.

[9] For the farmers of the most of the areas of Iran, especially the central Plateau of Iran, autumn is still the beginning of their financial year.

'peculiar' creature), although both Paganism and Totemism show some disposition to some 'peculiar' creature, at least in two cases they are different from each other:

- The kind of the creature worshiped and the extent to which naturism is involved in this worship.
- What one can call '*The Area of Transmission'*.

After 'Totem' came out of the lingual domination of Ojibwas and turned into a universal term; it was encumbered with a lot of definitions. Although relatively old, two of these definitions mentioned below can shed light on the staple part of its characteristics:

W. H. R. Rivers has defined Totemism in the light of three elements:

1- A social element: the relation of some particular species of the animals, or in some rare cases some inanimate objects or a particular kind of them, to a particular social group (usually an exogamous group or a clan).

2- A psychological element: the belief in some familial relationship between the group members and Totem that has always been a personification of the ancestor of the group.

3- A ritualistic element: respect to the Totem that is usually shown in the bans exercised on hunting and eating totemic animals or plants, or in the abstinence from using the totemic object, unless in some rare cases (see: Rivers 1914: 75).

The second definition provides a more complicated understanding: Totemism can be used when: (1) a tribe consists of some totemic groups in each of which we are dealt with a particular relation to some animate or inanimate Totem; (2) these social groups have some similar relationships with the Totems, and (3) in these groups it is impossible to find an alteration in membership or in other words relinquishing a Totem by an individual and his acceptance of some other Totemic Group, unless in some rare cases. Three extra preconditions are added to these tree ones including; Exogamy; behavioral principals and conducting some particular behaviors concerning one's relationship with the totem (see: Notes and Questions on Anthropology 1951: 192)

Considering the two definitions given above, one can easily understand that with regard to the two distinctions between Paganism and Totemism, as mentioned above, Totemism, firstly directly derives from Naturism and in other words one part of this worship relationship is obviously nature. This is in contrast with the Polytheist Paganism in which "the Worshiped" in its most intimate relation to nature, is a very strong abstraction of a natural phenomenon, for example Zeus whom is sometimes considered as the personification of the fear of men from thunder or generally speaking the firmament and the act of worshiping it.

And secondly, what we called "the area of transmission" is a lot smaller in Totemism and is confined to a single group of a clan, or at most a tribe, and in comparison with what we know as the area of transmission of Paganism, is a single drop against the ocean (compare with Roman Paganism-Mithraism or Mesopotamian Polytheism). The interesting thing here is the fact that what can *prevent* us from this thought that paganism (with regard to its Polytheistic nature)

is a mingling of a number of Totemism; is the same "area of transmission" on the one hand, and the discordance of this thought with the conditions of Totemism (the lack of the religious cooperation between the Totemic tribes) on the other. This 'prevent' makes us obliged to define a period of transition between these two concepts, that has so far remained unknown.

◙

What this article tries to define is likewise generally associated with a period of transmission between these two systems of thoughts, that explains the ways through which the real naturism of Totemism is changed into its abstract version in the Polytheism of Paganism and is also able to explain how the restricted area of the transmission of Totemism changes into a great Empire of Paganism. Since any kind of definition given for a particular entity or concept, at least to facilitate its process, has to have recourse to some word coinage; this period of transmission is named 'Toteganism' by the researcher.

'Toteganism' is a clip-word made out of the two words 'TOTEmism' and 'paGANism'.

The only case in this field known to the researcher is the subject about 'the Precession and its effect on the development of the holiness of the Ibex' that is amusingly an apparent example to explain the main aspects of the concept of Toteganism the introduction of which is the main task of this article.

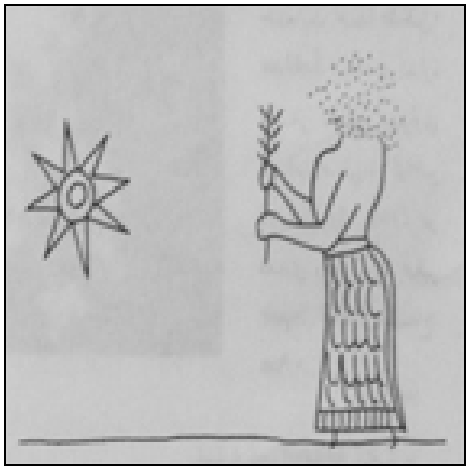
The high frequency of the Ibex Image in the Chalcolithic Middle East and the Central Plateau of Iran as its center, according to the researcher is due to the alteration and development of a tribal way of thinking into an ultra-regional religion, namely the mentioned Toteganism; that is the link between Totemism of this animal in one or a number of tribes or villages of this area[10], and the paganism in the case of this animal and the later Pagan systems reigning on this area-specially Mesopotamia and Egypt, as the first areas of which with regard to the creation of writing in them, we have a better conception of their metaphysics systems.

According to the calculations aforementioned, we know that the third and the forth millennia B.C. has been the time in which the autumnal equinox has been in accord with the month represented by the Capricorn and Akitu that has been regarded as the most ancient ritual-seasonal system must have been the consequent of regarding the celestial gifts and the representative of the month of bliss; namely

[10] Although, because of the absence of a concentrated study in the Metaphysical Archeology in Iran, there is no evidence of any Totemic case and basically the spread of Totemism in this area, nevertheless in this particular case, one can assume some indirect evidence of this system (such as the abundance of this Image in a few separate areas and with different shapes which has always been decorated with some different complementary metaphysical designs) and another direct one (such as what is seen of the decorative-sacramental use of the skull of sheep or ibex in the level D of Tappeh Ganj darreh, located in Zagros-see: Smith:1976: fig. 5). As a result the researcher has presumed that there have been a lot of Tribes in the middle east whose tribal Totem has been the Ibex or the animals of its specious (Caprinae).

the Ibex as the same thing, that has led to the creation of Toteganism of this animal. Another kind of this parallelism can also be found in the later periods.

'Şala' (Shala) the Godhead of agriculture in later Mesopotamia (that is probably taken from a Hittite Origin) is apparently in relation with the Virgo Constellation and even she is symbolized by the stalk of barley (see:Blak&Green:1992). Here the most important thing is the fact that in the later fist millennium B.C. Precession has encumbered Virgo with the same responsibility that in the forth Millennium B.C. ,the time under discussion in this article or the Chalcolithic period, Capricorn has been encumbered with: taking care of the Month of Bliss that is the end of the summer and the beginning of the autumn (21st September- 20th October). In this time (especially the time the following Image of Şala belongs to) the Precession has been discovered and been applied.



The Goddess Shala with a stalk of barely in her hand and is depicted on a tablet along with an astrological text. Uruk, Seleucid period (after Black & Green 1992).

In this image the depicted Star is probably the most shining star of the Virgo Constellation or the same star that nowadays – according to the ancient times- is called Spica the meaning of which is exactly the stalk of barley (see Idem). Another thing that can be mentioned is the condition of Şala's husband; Dagan that in Mesopotamian mythology is the same El and is the father of Baal or Marduk. The thing that is of high interest is the intimate relationship between Marduk as the God that has probably been originally the Godhead of Agriculture (with regard to its symbol; Celt) in the one hand and the word Marduk on the other, that seemingly, literally means the Calf of the Sun. this calls a person's attention to the similarity between the Calf and the Ibex[11] and considering the temporal primacy

[11] The researcher has studied the similarity between the ibex design of the Chalcolithic period and cow design of the later periods, in another separate article that is to be published.

and recency that causes the Marduk's period be after Toteganism of the Ibex; a complex made of the relations between Ibex and Marduk (as its successor), the Chalcolithic astrology and the pre-literature period.

The introduction of Şala and Marduk, sheds more light on our subject. Since the man of the later ages has considered directly (in the case of Şala) and indirectly (in the case of Marduk), the Agriculture, as a particular case, to be related to the Astrology and the Metaphysics imputed to it, regarding the undeniable similarities, and if we consider one is unable to prove that he has inherited this idea from his prehistoric ancestors, we can attribute the same idea to the prehistoric periods. Therefore, a Totem as the Ibex that until the beginning of the Chalcolithic era and the overlap between the constellation representing it and the 'Month of the Bliss' has had some meaning of worship and respect to just a few tribes located in different places, suddenly after becoming participant in the affairs related to the 'bliss', it turns into a Totegan, albeit not yet a true godhead, it can be considered as an interval that can lead us to the period of paganism. What we have of this sacred animal in the Ancient Egypt and in the Icon of Amon can likewise show the same process.

Fig. 7. Amon as a Ram. A piece of a carving on a lime stele. 13th to 14th century B.C., Fitz William Museum, Cambridge. (After: Grimal 2006).

J. Hall has written that Amon, the supreme deity of the Egypt, has been completely of a Ram's shape and was distinguished by its downward horns (after the twelfth dynasty). After Alexander, Amon was considered to be as the same Zeus (e.g. see Ram in Hall 1996). Besides the direct statements asserted by Hall, This 'twelfth Dynasty' has something more for us. The second Millennium B.C. is

when during a process Amon replaces[12] Xnum/Khnum whom has also been represented by the ibex or the ram (see: Seawright 2001). It is interesting that the time during which ram had represented Xnum, Capricorn has still been the representative of the 'Month of Bliss', however, when Xnum's time lapsed and he and generally most of the Egyptian Gods were going to be replaced by Amon as the Supreme God, the Time of Capricorn had been over, but the Fertility and the protection of spring-time and autumnal overflow of Nile were still symbolized by the *Caprinae* which as a symbol represented Amon. We can say that the source of the Toteganic position in the case of the *Caprinae*s had been forgotten and the Toteganistic reasons of this evolution, in the Pagan Egypt, were not remembered by anyone; this can also be the case regarding the mixture of Amon and Zeus, in Ptolemaic period, which have two different metaphysical and national sources.

Conclusion

According to the mentioned discussions it is possible to say that in the Chalcolithic period of Middle East, the people developed their knowledge of astrology, and the constellations, which has remained for us in written format from the historic period, were almost completely developed. As a result of this development in the design of the time scale, astrologic metaphysics that principally must have been its foundation, has developed. The Totemist tribes scattered over the Middle East, especially the Central Plateau of Iran, after the recognition of the constellations, as one of the influential factors in this evolution, and mingling them with their Metaphysical considerations, consciously or unconsciously, are affected by some changes and gradually, from a metaphysical disparity of the tribes and the clans, proceeded towards a system which at the end of its evolution concluded in polytheism or paganism.

As mentioned above, firstly astrology is just one of the reasons of the consensus upon metaphysical agents that make a tribe-restricted Totem change into a Godhead respected by a nation (in its vast geographic and religious sense)[13], and secondly since the study of this alteration of the religious system and this phase of transition, is in its initial stage, it is impossible to expect some more effectual definition and principals than what follows.

The notion that explains this phase of transition is called Toteganism by the researcher and generally it is assumed to have these characteristics:

[12] This replacement is so that Amon is considered as the most powerful deity along with this supreme deity all of the other deities continued their existence.

[13] The other reason that can be an important agent in this consensus, is the political supremacy. The thing that should be considered here is the status of the Godheads such as Marduk (the God of Babylon) and Ashur (the God of the city of Ashur) that as a result of the political dominion of the cities spiritually ruled by them over the Mesopotamia, turn into the supreme and conclusive gods of that area.

- A sacred consensus[14] upon a particular Totem in a number of tribes or the tribes of some region (even as wide spread as the Fertility Crescent), the result of which is the creation of a Totegan[15].
- Some evidences of the existence of this totemic creature which is a matter of consensus (the mentioned Totegan), are traceable in one of the Deities of the pagan world of this area.

This latter characteristic can in its own turn be studied from two points of view:

I. The more time gets further from the source of this alteration, the more the Totemistic characteristics of this Totegan is reduced and its Paganistic ones are increased, the process that rationally brings this Totegan closer to a Godhead.

II. The more we get further of the spatial origin of these alterations, the volume of the changes increases. In other words the more we get spatially further from the tribes which the first evidences of their initial consensus can be recognized from their artifacts, the more the phases of this religious evolution becomes compact. The thing that in the first tribes taking part in this consensus, in the beginning shows just a brief symptom of Paganism, in the tribes that are temporally and spatially further from the place of the initial consensus, in the initial symptoms of the emanation of this alteration, shows a more developed state and consequently a creature closer to a Godhead.

Toteganism as a social and religious phenomenon could be the cause of some changes in the other aspects of the human life. One of these changes can lead us to another conclusion of this article:

As we know one of the causes of the creation of Urbanism is Metaphysics (e.g. see: Marcus 1978, Conrad & Demarset 2008, Adams 1981). It is convenient to explain more: the nation that were going to establish an urban system or in other words were going to found a city, had to enjoy a kind of unity. One of the most important manifestations of this unity was the religious unity, while the totemic system and its related preconditions such as exogamy (see: Lord Avebury 2003) etc. that caused the strangeness of a tribe among the far or near tribes, was an impediment to this unity.

[14] This consensus can be either conventional or as the researcher is intended to call it; Unconscious. In the latter case, that the researcher considers it more probable, we deal with a consensus in which man unconsciously or unwillingly is put in the process of an evolution, that finally his Totem, that is, out of any reason, simultaneously respected by the other tribes, turns into a Totegan. Nevertheless here the role played by the inextricable cultural exchanges that had been for the sake of their subsistence, and had existed even before the Neolithic period, is undeniable.

[15] The way this thought is spread, in this stage of researches, cannot be determined, anyway, finding it, is a step forward to solve the problem that we have in the case of the creation of the pagan system out Totemism.

The theories on Urbanism and principals of the governments stated by some researchers presuppose a mental unity in the light of which the people who had created the city could tolerate the people of the other tribes and consequently begin the collaborations and the economic or social exchanges that led to the construction of an urban society. Some of the theories such as the Theory of Conflict (e.g. see: Oppenheimer 1926, Spencer 1976) the Theory of War (e.g. see: Carneiro 1968; 1970: 733-738) the Theory of Hydraulic (Water-Control) System (e.g. see: Wittfogel: 1957), the Theory of a Supreme Leader (e.g. see: Weber 1947: 310-406), the Marxist Theories (e.g see: Diakonoff 1969: 173-204), or even some combined Theories such as Adams's (Adams 1960) in all of which we are dealt with some systems that regard the government as one of the bases of Urbanism, and the ways of creation of a leadership are studied, despite their high ability to solve the problems related to the Government, they are unable to answer the question that how a dogmatic and inflexible thought such as the one we notice in a Totemic system, is able to unify the people of some tribes to accomplish such an enterprise as founding a city!? In other words how a man who before Urbanism had been committed to his/her Totemic rituals and had had no friendly coexistence with other Totemic tribes which had been his strange rivals or enemies, out of a sudden by the establishment of a City, based on any one of the mentioned theories that you pick, under the aegis of a leader or a government, leaves the inter-tribal competitions and in accompaniment of the 'strangers', shoulder to shoulder with them other goes towards some common benefits!?

Although the structure of the thought of the man of that period is so complicated that it is not possible to justify the urban union by obviating the metaphysical question, nevertheless religion and metaphysics is a good resort to explain this intellectual and practical evolution. The beginning of the Toteganistic evolution can be considered as the beginning of the metaphysical union[16] in the light of which it is possible to define a new occupational system that nowadays is called the Urbanism Revolution.

[16] The likeness of which can be found in the case of confederacy of Urartu which are united under the aegis of a supreme God called Khaldi (along with two other Gods Teishba, Shivini). Although, on the one hand this was one of the aspects of the confederacy of Urartu and this confederacy has basically been conventional, and on the other this confederacy has shaped a long time after the revolution of Urbanism, nevertheless some similarities are still discernible.

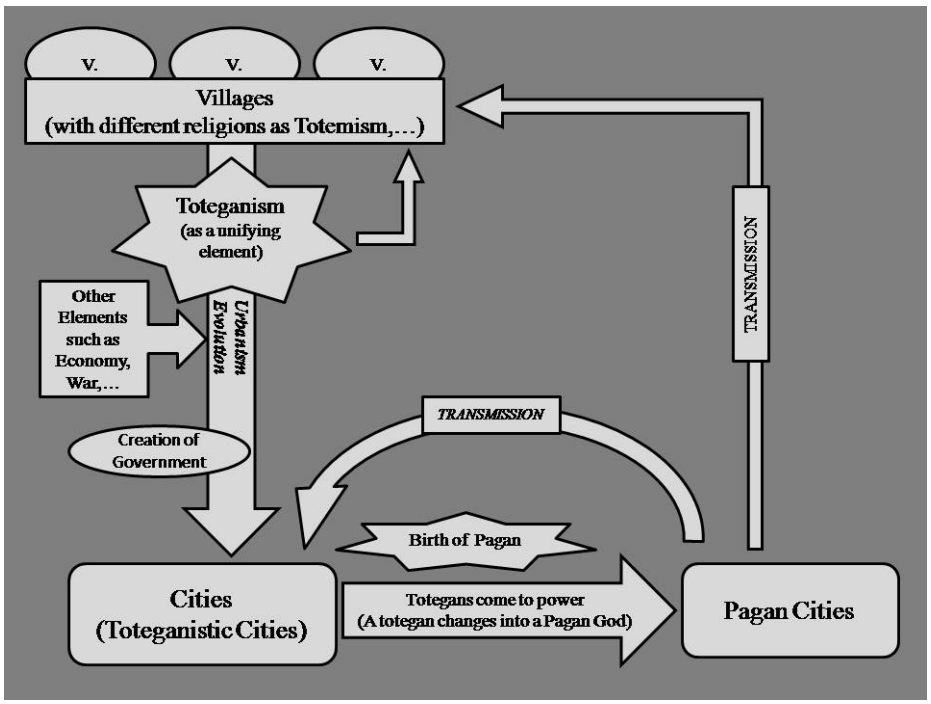


Fig. 8. The evolution of urbanism and the role of Toteganism in it and the following evolutions within a city. (In this image Toteganism as an agent of Union that seems to be a necessary prerequisite, is introduced. After the beginning of this evolution, the other elements responsible for the creation of Urbanism likewise, have later affected this evolution and consequently a Toteganistic city is created. During this evolution there is this possibility that the Toteganistic thought could be transmitted to the villages that had already had a Totemic system. In such a condition the villages related to a city joined its Totegan. After the creation of a Toteganistic city, in the beginning by the creation of a relatively pluralistic vision out of an inconsistent populace-religious complex, we will be able to see the creation of a number of Totegans some of which in comparison with the others are made more powerful which finally leads to the birth of a Pagan/Godhead. It is in this stage that the Toteganistic city falls into another path of evolution and consequently turns into a pagan city. It is obvious that in this juncture likewise, there is the possibility of the transmission of the pagan thought to the other Toteganistic cities, and villages which are either passing through a Totemistic or a Toteganistic period).

Along with economy, war and the other agents provided in the different Theories of Urbanism, and even before all of these agents, a metaphysical union have to be noticed which, on the one hand, has established an urban colony and has made it thrive, and on the other, created the principals of the development in quantity (more and healthier individuals) and quality (a relatively greater society

which thinks more consistently and freely and can be consider as what we now call philosophy) of this city.

In the following stages of this evolution, the Toteganistic society that possibly in the beginning had been created by the consensus upon a single Totegan, grounded upon the thought that is the natural continuation of a Toteganistic evolution (and basically in the case of any kind of thought that in the beginning of its process or in its conclusion we can discern a union), was automatically pushed towards a pluralistic thought that results in a Polytoteganistic city. It is possible that this pluralistic thought, besides the fact that it is empowered by the creation of some different sects that exist within a Toteganism; because of the new immigrations from the societies with other Totems and Totegans be enhanced.

In the following stage each of the Totegans can, off course with different severities, be changed into a Pagan/Godhead that is completely different from its original Totemic state in which one can discern all of the characteristics of a Godhead. Based on the nature of such cases, after a while one of these Godheads, out of a host of reasons, turns into the supreme Godhead of a nation that along with the other Godheads or perhaps the Totegans that are passing their Post-Toteganistic evolution, lay the foundation of the intellectual Pantheon of that city.

Therefore we can say that Toteganism can be the source of some significant changes in Revolution/Evolution of Urbanism. After the Urbanism, we have a less religious disparity and man could, in some important cases such as the development of Architecture, the enhancement of the quality and the quantity of arts etc, attain some considerable successes.

What we observed as 'Toteganism' in the light of the instance of the Ibex, can be only one of the aspects of Toteganism and one can be hopeful that, by some more investigations in the field of the Archeology of religion, some unknown parts of this history of ancient metaphysics be illuminated.

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PRELIMINARY CONSIDERATIONS REGARDING VINČA ANTHROPOMORPHIC FIGURINES DISCOVERED IN ARCHAEOLOGICAL SITE LIMBA- OARDA DE JOS, SECTORS: *BORDANE, SESU` ORZII* AND *VĂRĂRIA* (ALBA COUNTY)

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Keywords: *anthropomorphic plastic, Vinča, Transylvania, classification, functionality, symbolism.*
Abstract: *The present paper is a preliminary study regarding the early Vinča anthropomorphic figurines discovered in site of Limba-Oarda de Jos during archaeological campaigns from 1995-2001. Proposals for classification based on morphological-style, technologic-functional and symbolist are treated separately. A special emphasis is given to the presentation of the main general features of the artifacts that comprises the category known as anthropomorphic plastic. The description of type, manufacturing technologies, the specific anatomical features, the specific characteristics are presented by authors. Finally, are advanced, generically, some assumptions most frequent disseminated in the literature regarding the significance of these artifacts, respectively short interventions with similar findings analogies from Transylvania and Banat.*

Introduction

The archaeological sites from Limba-Oarda de Jos are well-known in archaeological bibliography, older and recently published[1]. The site is distinguish from others by the thickness and composition of archaeological deposits belonging to the Neolithic era (early and middle Neolithic); by the advantageous location within Middle Valley of Mureş. This location gave the quality of the "key station", very important in understanding of the Neolithic complex processes from Transylvania Intracarpathian. But, more than normal with individual features provided by the richness of special finds belonging to anthropomorphic plastic representations, particularly of material deposits belonging to Vinča culture.

This special particularity of the site was constantly been revealed during reports publication of archaeological researches, respectively of results obtained during seven systematically research campaigns (1995-2001), but also after surface researches carried out in ’70 years. The high number of anthropomorphic pieces discovered has determined us to organize a thematically exhibition. The exhibition was organized in

[1] See on this topic a complete bibliography at Ciută 2009; 2009a. Here are also an overview of research history, the sectorisation, toponymy, topography and geo-morphological particularities of the habitat.

1999 being hosted by Alba Iulia University within its didactical exhibition space[2]. More important was the fact that we took advance to attract students from *Archaeology specialization* to study this artifacts category and also to make them dissertation works related to this topic[3].

Regarding the plastic art from Vinča culture were been developed a series of special papers, studies and articles which addressed issues to this highly complex from different points of view[4].

In the next lines I will try to present some preliminary considerations regarding this particular category of artifacts found within archaeological deposits (and not only), even from view of spiritual meanings that have been consistently emitted about pieces functionalities. The present study does not claim to be an exhaustive one because not comprises all the pieces found in the site nor does it aims to advance critical judgments about the place and role of this category of artifacts in the site, but also within the complex phenomenon of Vinča culture. These approaches will be addressed later in this study, with the exact mention of the context and the stratigraphic position of each pieces illustrated.

In 1995 at the beginning of systematic research at Limba, were very little known about the early phases of Vinča culture in Transylvania[5], but later during the researches, have appeared a number of relevant studies which intended to clarify the problem of genesis and evolution of early stages of Vinča culture in this area[6]. These were based on extensive studies made on materials from different archaeological sites mainly located in area of Mureș River, Limba-Oarda de Jos being one of them. In light of these, the aspect of Vinča culture from Transylvania reveals as a distinct cultural entity, born from a strong inflow of early Vinča bearings (phase A) from Banat who ascended in southwest and central

[2] On that occasion, were been exposed, more than 60 pieces belonging to Neolithic anthropomorphic plastic from different sites (Limba, Alba Iulia-Lumea Nouă, Tăualaș, Ocna Sibiului, Șeușa). Overwhelming majority were came from Limba (over 45 pieces!): idols, statues, human representations on the walls of vessels, prosopomorfe caps. As can bee seen this research was not only in the fourth year running, the next three years was at least as rich in such discoveries. Unfortunately during their exhibit, some of these pieces together with other artifacts from the exhibition, were been stolen (it was a criminal act); the criminal file is still open, the authors being still unknown.

[3] A first graduation paper with title: *Plastica antropomorfă din cadrul sitului arheologic de la Limba*, was presentated by Cristian T. Florescu. In 2000, the same author presented a disertation paper on this topic: *Particularități ale plasticii antropomorfe vinciene din sud-vestul Transilvaniei – Plastica antropomorfă descoperită în situl arheologic de la Limba (com Ciugud, jud. Alba).*

[4] A review of basic bibliography, related to this problem, see at Luca 1998, p. 52 sqq; Suciu 2009, 207 sqq; Drașovean 1998

[5] Comparing with Banat area, much better researched at the present time: Lazarovici 1970; 1977; 1977a; 1979; 1981.

[6] Luca 1999; 2001; Luca et alii 2000; 2000a; Suciu 2009. With special attention to settlements from Romos, Tărtăria, Balomir and Limba.

Transylvania[7] following the corridor of the Mureş River. Consequently it was revealed a distinct evolution from the second stage of the first phase of the culture (Vinča A2) to the second stage of the intermediate phase (Vinča B1-B2). In circumstances in which Turdaş culture was not born earlier than phase B2 of Vinča culture as was demonstrated by stratigraphic correlations and current cultural realities from the Middle Mureş River[8].

The plastic figurines were also the subject of particular attention in an extensive paper of well-known German scientist S. Hansen, published in 2007. With this occasion several pieces were been published for the first time[9].

Gh. Lazarovici has made in the years `70's an initial and general classification on category of Vinča plastic figurines from Banat[10]: *anthropomorphic idols, idols and perforated amulets, zoomorphic idols, small cult altars and other cult objects*. More recently it was proposed a more simplified classification which includes two categories: ***anthropomorphic idols*** (with subcategories as anthropomorphic figurines of column type, anthropomorphic figurines (cylindrical and prismatic), anthropomorphic figurines with mask) and ***other anthropomorphic representations*** (with subcategories as: prosopomorfic lid vessels and anthropomorphic representations with representations in relief on ceramic walls[11]).

The most frequent morphological and stylistically criteria of typological classification used by authors whose main aim was the problem of Neolithic plastic figurines will be associated (or even replaced!) frequently with technological-functional and/or contextual[12] which is more appropriate in terms of analysis of a large variety of artifacts and of each one individualized separately. The risk of falling into an ineffective mannerism, for the sake of mannerism and the dependence of tables and databases, it determined us to opt for this alternative, preliminary, at least in this first phase. Finally, the analysis will be conducted in a manner which deals also the issue symbolism that transcends the morphological significance[13].

[7] Luca 1997; 1998; 1999; 2001; Luca et alii 2000; 2000a, 2001; 2002 etc.; Paul, Ciută 1998; 1999; 2000; Suciu 2009.

[8] Luca 1997, 73; Luca et alii 2000; 2000a.; Suciu 2009.

[9] Hansen 2007. This was an ample habilitat disertation, held in 2002, made by the author on the analytical study of Neolithic anthropomorphic plastic in Mesopotamia, Anatolia and the Balkans.

[10] Lazarovici 1979, 85-105; Bălănescu, Lazarovici 1979; Luca 1997.

[11] Florescu 2000. This classification, simple and easy to use, can be optimized.

[12] Regarding this topic see Monah 1997. There is a direct link between manufacturing technology and duration of use of such artifacts. Author is proposing the separation of figurines, summary confection, incomplete firing and only for short occasionally uses; with figurines of high quality clay, very well shaped, fired and polished, for an extended use.

[13] Hockmann 1968; Gimbutas 1973.

Discussions

In this study, we aim to approach the subject related to artifacts belonging to the first category from Limba-Oarda de Jos[14], that of the *anthropomorphic idols* (namely the fourth category); and that of *other cult objects*, the lid vessels with prosopomorph representations, anthropomorphic protoms (from vessels or altars) and plastic representations of humans on the pottery, which in our view belongs also to first category.

Passing over all aspects related to sites division from Limba-Oarda de Jos as well the distinct stratigraphic succession belonging to Vinča culture from these sites complex[15] we have to reveal some aspects regarding the anthropomorphic figurines plastics. A first significant aspect to be revealed about anthropomorphic plastic is the *dominant nature* of this category compared with that of *zoomorphic idols*, the report of them being 10 to 1. This fact, revealed after seven research campaigns can be a relevant part only, which takes the current state of research, even in conditions in which were excavated more than 200 square meters from the whole site. However, the obvious balance in favor of anthropomorphic plastic certainly will lead at release of working hypothesis about the role of these artifacts in the daily lives of early Vinča communities that have habitat here; and also to the system of their specific ideological-spiritual beliefs. A similar situation at least, the numerical ratio between two categories was recorded in the eponymous site from Vinča as was publicized in the volume dedicated to plastic figurines; where, looking on the general relationship between these two groups (597/20) we state a larger difference, respectively that of the net dominance of plastic anthropomorphic represented by anthropomorphic idols. We registered the same situation within anthropomorphic plastic figurines from Limba-Oarda de Jos, respectively the predominance of anthropomorphic idols category, which also, was classified by Gh. Lazarovici, in subcategories, as follows: *cylindrical idols, idols flat or prismatic, plastic model idols, idols with mask*[16].

Another significant aspect is that of the *domestic character of the anthropomorphic plastic* from Limba-Oarda de Jos. Most of the pieces belonging to this category were been found in cultural contexts, mainly of them interpreted as living spaces, such as surface houses and pit houses, because the morphology and specific materials discovered within.

Obvious differences were recorded in terms of technology of anthropomorphic plastic respectively on the focus on the issues of: clay type, type of tempers, firing

[14] It is appropriate to mention that the pieces what making up the subject of this study come exclusively from the sectors: Bordane, Şesu Orzii and Vărăria; sectors characterized by the most relevant and complete stratigraphy and excavations that have been concentrated in the years 1995-2001.

[15] On this topic see Ciută 2009; 2009a. In this context I want to thank to Mr. Doru Sabau and to my colleague Calin Șuteu for their courtesy with which they have provided photos related to subject of to study. Also I want to thank to Ms. Edith Mantea and Leontina Calian, for the drawing in ink of drawings made in pencil.

[16] Lazarovici 1979, p. 85-107.

type and anthropomorphic elements representation (modeling, incision, excision) but even treatment after the firing (slip, polishing and painting). In most cases the type of pottery from which was made the anthropomorphic plastic is from a good and very good quality. Homogeneous clay, well stirred, tempered in most of the cases with small sand grain.

But there were situations in which we notice the vegetal temper such as: chaffs, hulls or spikes which were left its specific imprint on the ceramic surface.

In most of the cases burning was of good quality, reducing firing (and mixed) and usually with artifacts with dark colors, brown gray to black, showing the same quality as that of the ceramic. Subsequent treatment of the ceramic surfaces is different from the pieces that were only smoothed to those who benefited by a special exterior slip (fig. 2) while some pieces still retain traces of later painting (fig. 21-22).

Regarding the artistic aspect creation, we note different trends, from the pieces whose artist has paid particular attention thorough accuracy of anatomical elements, which sometimes has an overflowing realism (fig. 1-2; 28-29) to pieces where sketchiness and geometry elements predominates (fig. 8); and even to the abstraction style of the anatomical features of pieces (*Venus type idols* fig. 13; 18).

The fragmentary nature of these pieces is another feature on which it is worth to insist. Basically, from a simple view, there are anthropomorphic figurines which are incomplete. On this particular item there were a number of previous hypotheses, this feature being explained as a result of different causes: the manufacturing technology (with separate pieces, unified before burning), functionality (which have the purpose of ritual broke of pieces used within ceremonials with ritual significance, black or white magic). Even in different domestic practices as a result of intentional abandonment or accidental destruction of house, either because of the archaeological context with particular condition preserving. This particularity of an incomplete stage of pieces is that which make hard to create a morphological- typological classification. Finally, another parameter which make difficult to realize such a classification is that of different sizes of pieces.

The morphological-style criterion of typological classification of the artifacts and the most frequently used by authors who have dealt with the issue of Neolithic plastic figurines will be frequently associated (or even replaced!) with that of technological-functional and/or contextual, more appropriate in terms of the large variety of artifacts analyze each one individualized. As we have already mentioned, the risk of falling into an inefficient mannerism has determined the option for this alternative.

The larger variety of anthropomorphic idols is that of cylindrical type (about 50% from total) having a well evident head, quite often with occipital area strongly profiled and with a pointing up face, sometimes with a triangular mask quite easily distinguishable. Also the eyes and the mouth was made through a single or double incisions (oblique and /or horizontal), with nose and ears only summary sketched.

The net domination of cylindrical idols is an additional argument of the early placement of Vinča plastic within general evolution of this cultural phenomenon[17]. In addition, the presence of the relatively high number of idols with steatopigia elements (fig. 13, 17-18) and with analogues in Criş culture from Transylvania[18], but also from other outside areas from Carpathians, prove the still strong presence of Starčevo remnants evidences. In the case of artifact which we named *Venus from Limba* (fig. 13), we noticed a harmonious junction between Starčevo and early Vinča elements, all this showing a balanced symbiosis, a mixture of two conceptually different patterns where Vinča elements tend to impose (by triangular mask oriented up, by flatting of top of head which form the upper edge of the mask, by the arms construction[19] in an original manner with means of wooden rods which remained well-shaped imprinted; by the loss of the Starčevo elegant forms in the benefit of Vinča brutal forms, more massive, respectively by typical Vinča ceramic clay).

Also the anthropomorphic protoma from Figure 23 reveals striking analogies with similar altars protomes belonging to later Körös culture located in Tisza Plain. The presence of belt with 4 buckles (dimpled buttons) positioned in the middle of the body (fig. 17) has betraying Starčevo traditions.

Most anthropomorphic idols, of which head were preserved, bear on the face the specific ritual masks[20] with the edges clearly outlined by the evident profiling of margins, especially of horizontal upper limit. Dominant is the triangular mask with the side edges longer, slightly curved inward, surrounding the character's face and making with this an oblique plane (fig. 1, 3-8, 10-13, 15). This could be a new argument for their belongings to the early stages of Vinča progress[21].

A special case is that of statue numbered as Fig. 2 whose mask is treated very carefully, so that is hard to distinguish if is a mask and not the actual character's face. Perhaps is the most realistically rendered piece discovered; the human features (eyes, nose, ears, head, neck) is reproduced in a higher proportion being respected and distinguished a certain attitude, or a particular gesture mimic of the character. If in this case we note the particularly careful treatment of piece's surface, with yellowish slip (unfortunately partially fall), plus high quality of oxidizing firing, made us to appreciate that it could be a piece with a very important role. An exception is the cylindrical idol (phallic?) from Fig. 9, whose mask pointing up and the base is round, flat and widened.

The manner of the eyes expression is different, through linear incisions, simple horizontal disposed (fig. 1, 5-8, 23), oblique (fig. 3, 12), or in angle (fig. 4, 24),

[17] Bălănescu 1982; Lazarovici 1977; 1979, p. 88 sqq; 1988;
[18] Such an example could be *Venus from Zăuan*; Lako 1977; Lazarovici 1988; 1991; Lazarovici, Draşovean, Maxim 2001.
[19] The presence of arms at anthropomorphic figurines is related with the influence elements under Vinča culture- Lazarovici 1980.
[20] Regarding the role of the plastic Vinča mask, see Luca 1990; 1998; Luca, Dragomir 1987; Lazarovici 1977; 1979;
[21] Lazarovici 1979, p. 91-93; 1980, p. 20; Luca 1998, 77;

through points (fig. 2) or impressions (fig. 9). Sometimes, the artist tried to approach to the reality and draw the eyebrows in the form of arches above the eyes. Also were been registered cases in which the eyes are not represented on the mask (fig. 11, 13). Usually, the nose is treated summarily with a small protuberance pulled of from the mask, slightly elongated vertically. Very rarely were been preserved the legs and the arms of anthropomorphic idols (fig. 4-6). Sometimes, their arms present perforations (fig. 5-6). It seems that the hairdress is not an important detail in the case of these artifacts. A special circumstance, which can hardly be interpreted as representing a hairdress, is that numbered as Fig. 8, which present in the top of head a rectangular spiral made in angular incision technique. There are cases where this feature is entirely missing (fig. 4-6).

A relative majority features of the anthropomorphic idols is that of profiling of occipital region of head, from the form more subdued, more attenuated (fig. 1-3, 9, 12-13) to exaggerated forms[22] (fig. 7-8, 10-11). Normally all anthropomorphic idols have the anatomical sexual features presented, but most of them are representing feminine characters. Whether we talk about the prominence on the chest which represent the breasts, preserved or lost, they still have the imprints on them surface which suggest this anatomical feature (fig. 5-7, 10-11, 13, 15-16, 20, 21, 24).

In the case of *Venus* figurine (fig. 13) we noticed a good indication of sex feature marked as a vertical rhombus of which decoration was probably filled with impressions. The steatopigia mentioned above represent also her femininity feature. Even in the case of idols without clear indication of sexual gender it is presumed that they belong to female gender. There are two figurines of whose belonging to masculine gender is not excluded (fig. 4, 19). In the case of artifact numbered as Fig. 1, the incised decoration on the neck and chest may suggest a male character, characterized by a more obvious pilosity.

To the cylindrical figurines with massive body and circular base, round or oval, the indication of legs are missing, with only few exceptions (fig. 23/3-4). Typically, to this plastic category (idols plastic modeled) is missing the top part or the head. This feature makes us to wonder if there are not legs of anthropomorphic vessels[23]. In their case the sexual features are quite well represented, especially in the case of breast representation (fig. 21/1-2).

A special piece is one that represents a female character with a triangular mask and with breasts profiling. Also with two pairs of parallel incisions arranged in the shape of "V" above breasts and with arms partial preserved; the right arm is almost complete showing a cross perforation (fig. 6). On the back of the character, between shoulders seems to be shaped a belt, suggesting that the character would probably bear a scale (?) on his back. On the chest and on the back of figurine there are some parts which still preserve traces of red painting. The presence of parallel

[22] With analogies at Vinca (Vasic 1936, pl. X/43, XXII/111, XXVI/132), Balta Sărată (Bălănescu 1982, pl. III/1) and Turdaş (Roska 1941, pl. CXXXVIII/2; CXXXIX/4, 12).
[23] Luca 1998, p. 53-54, with references to related drawings.

incisions pairs arranged in the shape of "V" above the breasts could probably indicate clothing elements.

The anthropomorphic lids are simple with cone truncated and without prominence. The lids have two holes on their top surfaces and the eyes presented as oblique incisions or horizontally impressions. The nose is plastic represented by pulling in relief of ceramic clay. Sometimes the nose is very realistic represented being indicated the nostrils with the help of vertical holes and usually the mouth is missing (fig. 28-32). In some cases, under the nose, appear simple incisions (fig. 28) or parallel grouped (fig. 30/1) which hard could be interpreted as the mouth of character. Quite often they have arcades and/or eyebrows represented by pulling in relief of ceramic clay (fig. 30/1; 31/1) or by flattening the top limit of vessel walls (fig. 28, 32). In most cases, the vessels lids with prosopomorhic representations are decorated in specific technique of Vinča phases, through incised bands with short lines and dots which depicting various ornamental forms. There are no ideas of ears representing. The prosopomorphic aspect of lids is completed through the correspondent vessels which under the abstract forms imitate the human body, namely the female, as pot-bellied forms with obvious reference about the idea of fertility and fecundity.

Their apotropaic character is pretty obvious, these representations being placed on ceramic vessels (fig. 29 hypothetical reconstruction) in which were been kept special lots of cereal seeds[24]. The holes from the lid are explained by the need for ventilation of pottery content or by applying a string which made easier manipulation of the cap.

Finally, anthropomorphic representations on the walls of ceramics are represented by a rather unusual and inedited piece. The complete figure reproduce a character, most likely a man, with arms horizontally wide open, feet slightly apart (ritualistic position?), the head represented by a triangular projection which corresponds to the beak of leakage of the vessel (fig. 26). The type of ceramic is not a usual one, belonging to medium fine ware or coarse ware with much medium grain sand as temper. The morphology of lid vessels pleads for their fitting in early phases of Vinča culture[25].

Also to the medium fine ware, brut treated, belongs another human representation figurine with triangular form very close related with that of anthropomorphic idols with triangular mask disposed on the demarcation band from the shoulder of vessels (fig. 28).

Eyes are represented through horizontal incisions and nose with a prominence pulled from ceramic. Another anthropomorphic representation on a pottery is located between the crossing points of decoration band with incised dots. The eyes and nose of character are represented in relief (fig. 25).

A very special piece is that numbered as Fig. 24 with a slightly curved shape, which could be interpreted as an anthropomorphic idol, protoma or as human

[24] Daisa 2000, p. 21-30.
[25] Lazarovici 1979, p. 103 sqq; Luca 1998, 54-58

representation on the ceramic walls because the lack of posterior and inferior part (it could be a technological defect). It is a female character represented with refinement and with minimal decorative elements. Eyes are illustrated by double incisions placed at an angle facing to nose; slightly shaped above the breasts being represented through incisions placed in the form of "V" form which perhaps could represent feminine clothing (fig. 24). This piece still preserves traces of red paint.

Conclusions

The closest analogies regarding the morphological features of early Vinča plastic art from Limba-Oarda de Jos archaeological were been found within the settlements of Vinča culture from Banat[26], but also early depositions from eponymy site from Vinča[27] in Serbia. This is a natural thing if we take into account the origin of Transylvanian aspect of this culture.

In present paper we will not insist on the typological-style analogies of anthropomorphic plastic from Limba-Oarda de Jos with those found in contemporary sites, located in vicinity areas (Basin Mures) or in more distant areas (Banat, Valley of Morava, Tisa basin, etc.). This approach will be discussed with the occasion of another publication as part II of the present study. On that occasion we will reveal exact details regarding the stratigraphic and contextual belonging of the artifacts. However we specify that distinct elements of early stages of Vinča culture are to be sought in analogies with similar pieces from: Tărtăria[28], Turdaş[29], Miercurea Sibiului[30] but also at Zorlenţu Mare[31], Parţa[32], Gornea[33], Balta Sărată[34], Fratelia[35], Chişoda Veche[36], Liubcova[37].

The mask, in mentality of Neolithic human, was played probably the role of intermediary in the relationship with the divinity[38]. On a general view we could see general similarities, especially common for distinctive elements from early Vinča (phase A2 and A3), but also the individualization of certain elements which appear only in Transylvania (during on the phases B1 and B1-B2) and which not appear in Banat or in Vinča site, like the case of lid vessels.

This phenomenon gives to anthropomorphic plastic from northeast area of Vinča culture, respectively of Transylvanian version, its archaic character supplemented by certain Starčevo traditions that transcend in some plastics

[26] Vasic 1936 (vol. III, Plastica – ПЛАСТИКА)
[27] Lazarovici 1977; 1979, p. 85-107;
[28] Vlassa1967; 1976; Lazarovici et alii 2001; Luca 1999; Luca et alii 2000; 2001;
[29] Roska 1941; Lazarovici 1977; 1979; Lazarovici et alii 2001; Luca 2001; Comşa 1995; Suciu 2009;
[30] Luca et alii. 2000; 2000a; 2001; 2002; Suciu 2009.
[31] Comşa 1971; 1995;
[32] Lazarovici 1977; 1979; 1993; Lazarovici et alii 2001;
[33] Lazarovici 1977; 1979; Lazarovici et alii 2001; Comşa1995
[34] Bălănescu 1982; Bălănescu, Lazarovici 1979; Lazarovici 1977; 1979, p. 91;
[35] Lazarovici et alii 2001
[36] Lazarovici 1977; 1979; Lazarovici et alii 2001
[37] Luca 1990; 1991; 1998; Luca, Dargomir 1987; Comşa 1971; 1995; 1996; 1996a.
[38] Luca 1998, 77.

archetypes. It could be discerned the basic elements of microasian origin spirituality grafted on the original elements, indigenous, which gave the appearance of Intracarpathian customization features of Transylvanian culture. In this way plastic figurine acquiring forms of expression and features distinctive from the south area, where it is originating.

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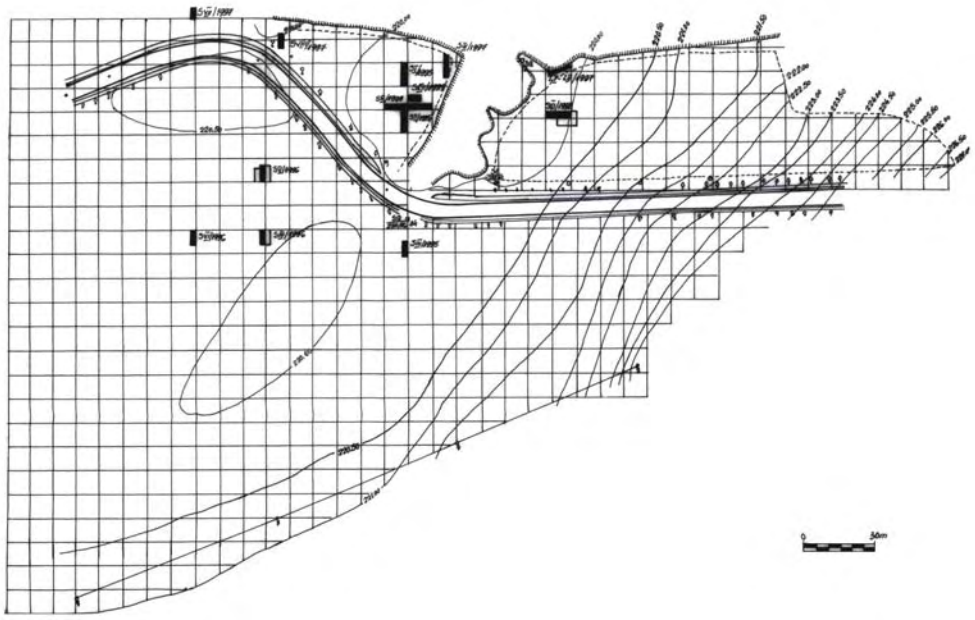
Map 1. Josephine map with archaeological site area.



Map 2. Topographic survey from Bordane, Vărăria and Şesu`Orzii (till 2000).

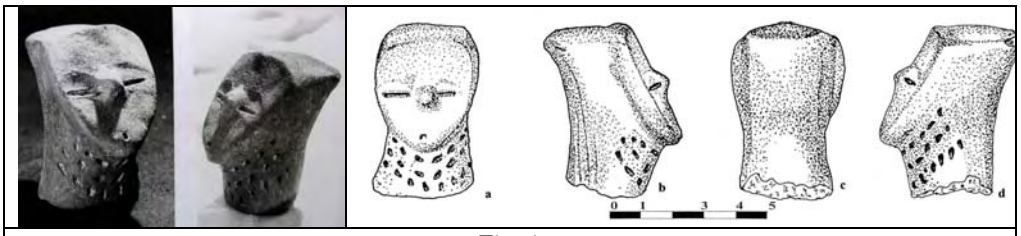


Fig. 1

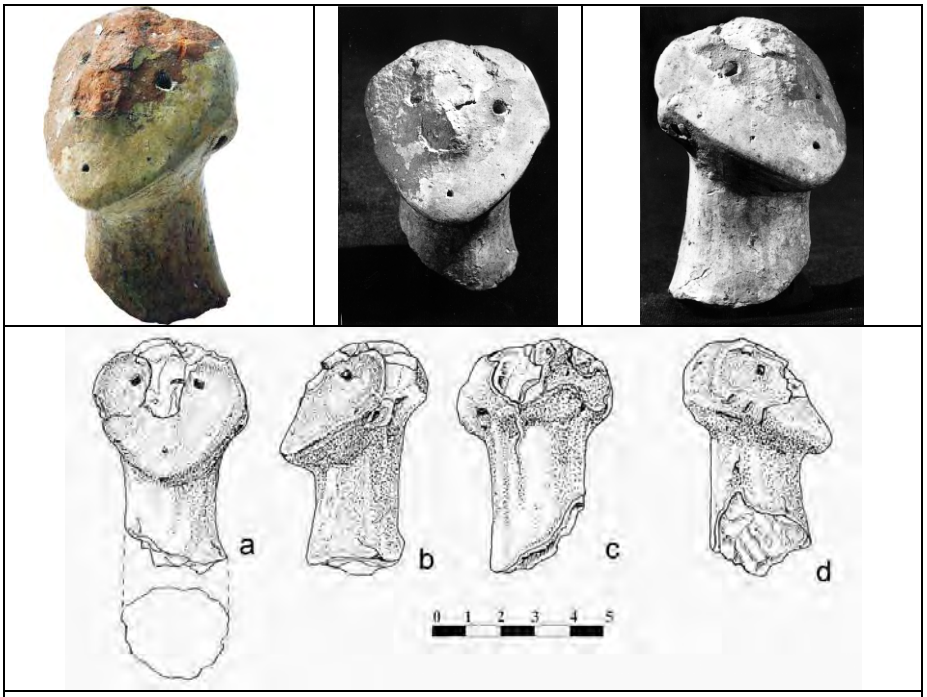
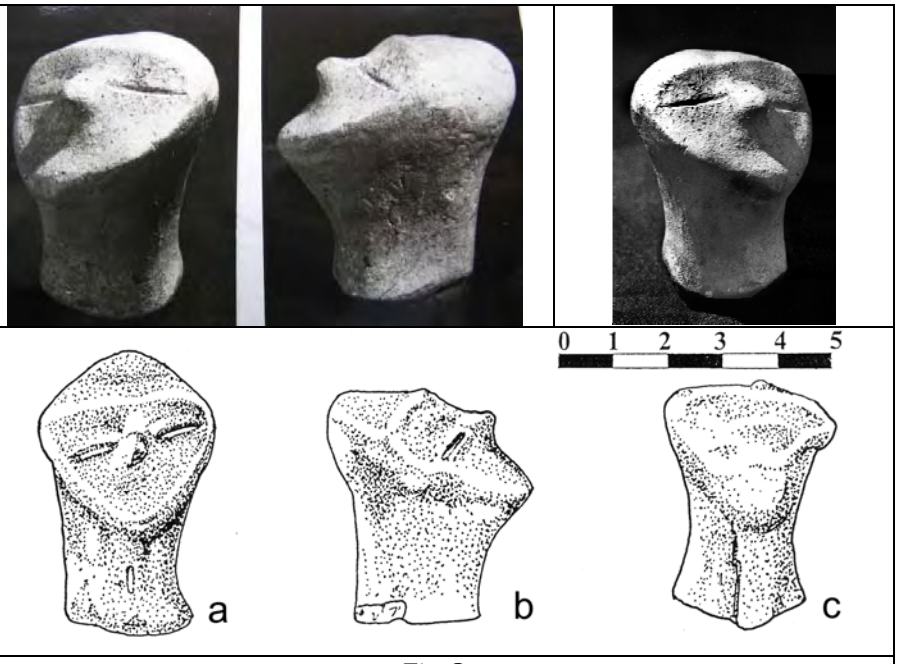


Fig. 2



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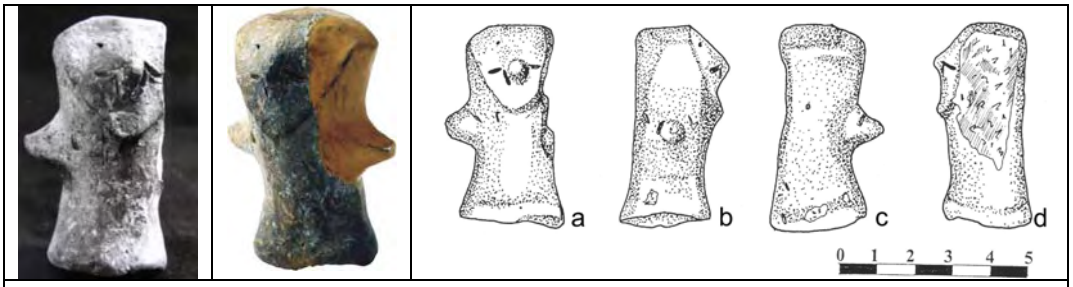
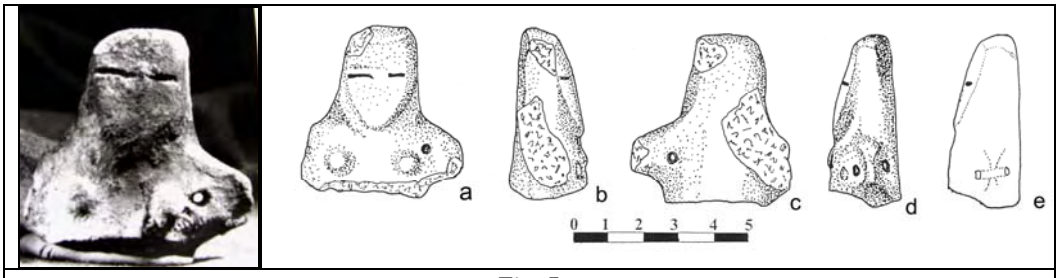


Fig. 4



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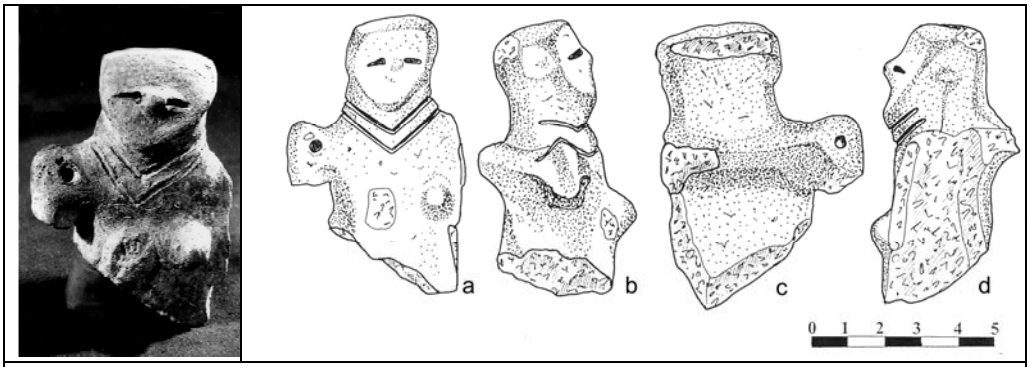

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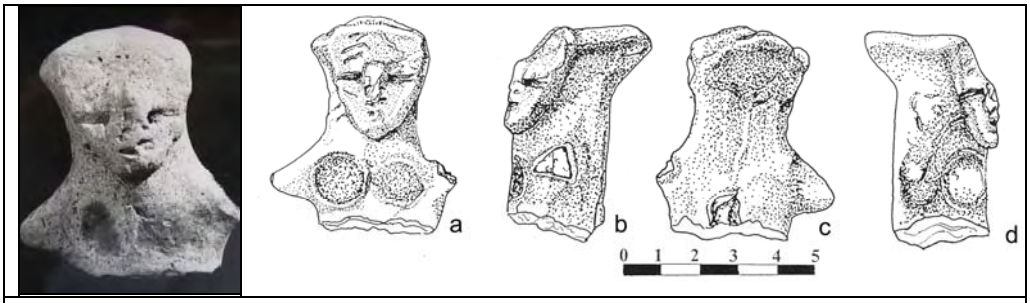


Fig. 7

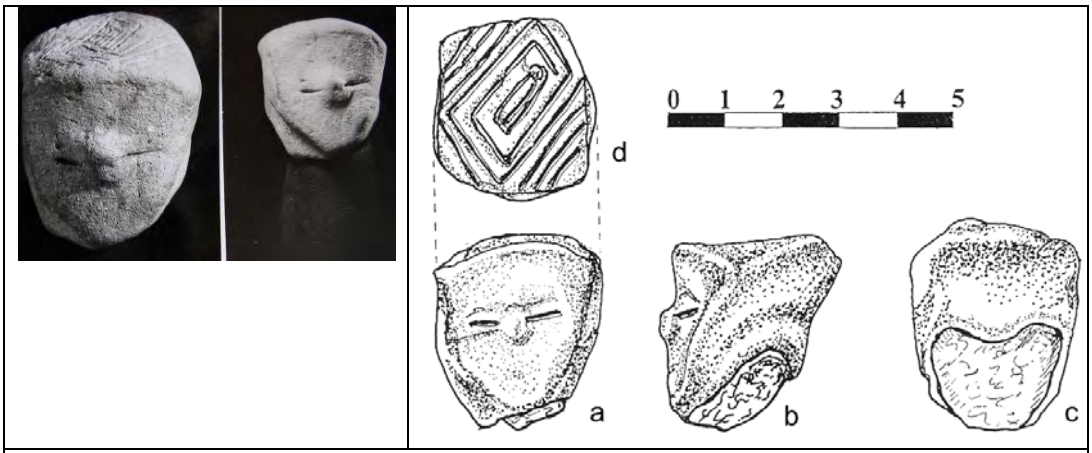
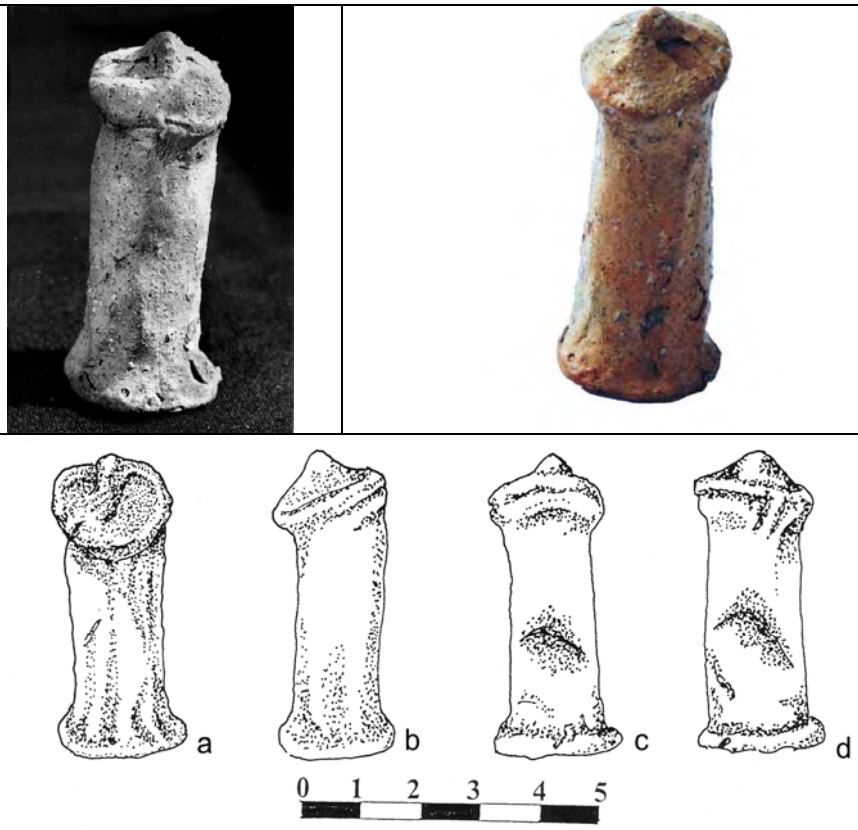


Fig. 8



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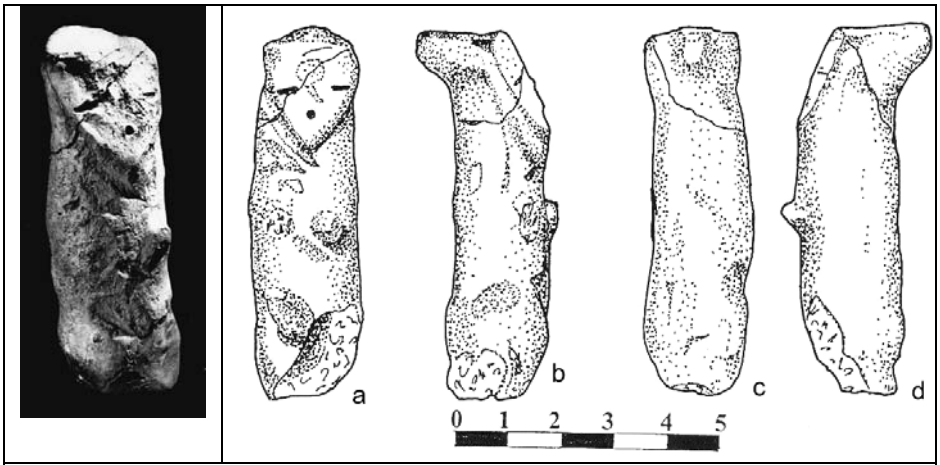
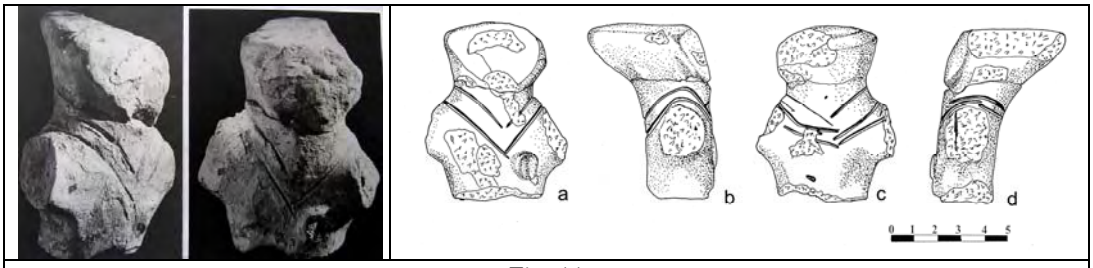


Fig. 10



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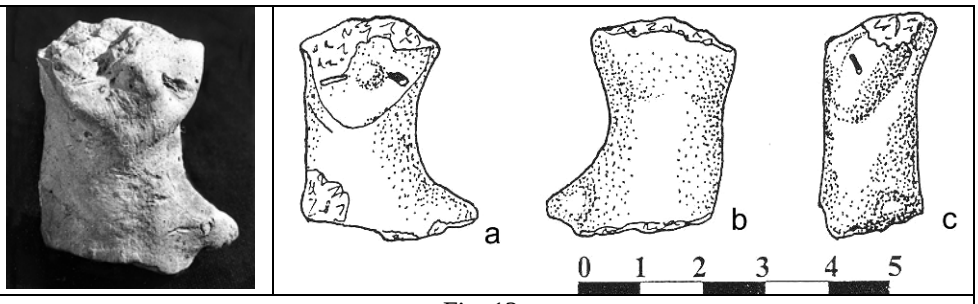

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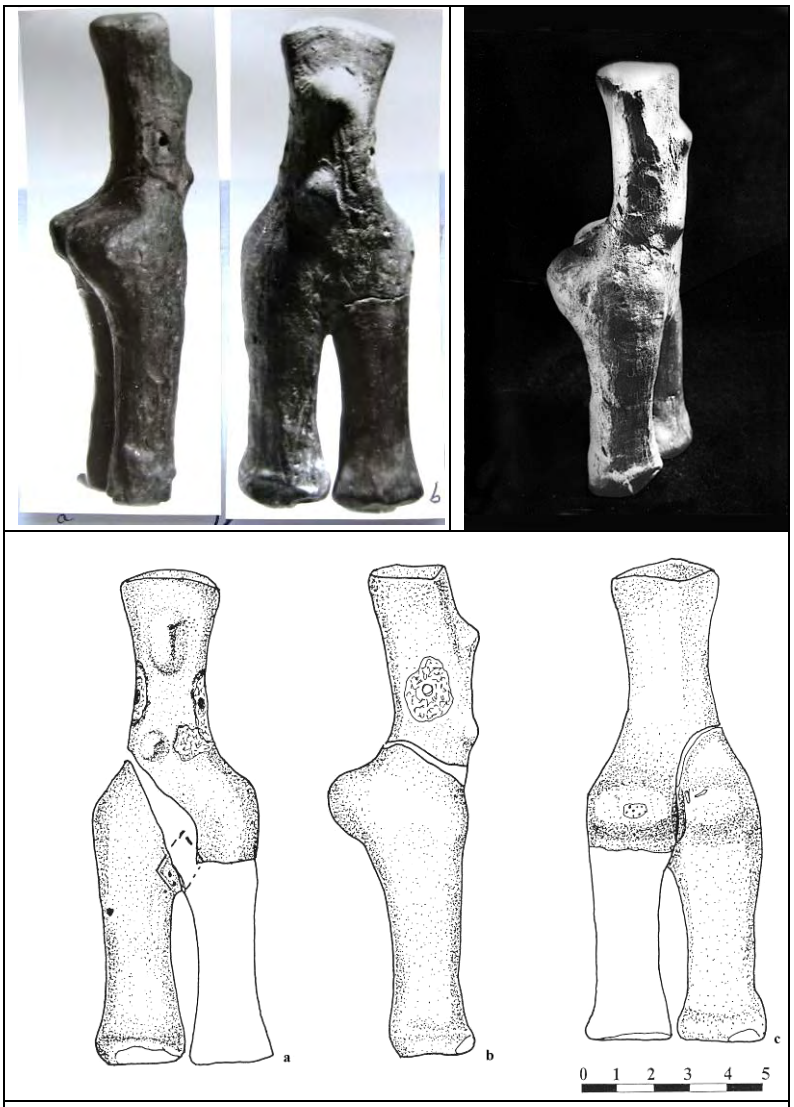

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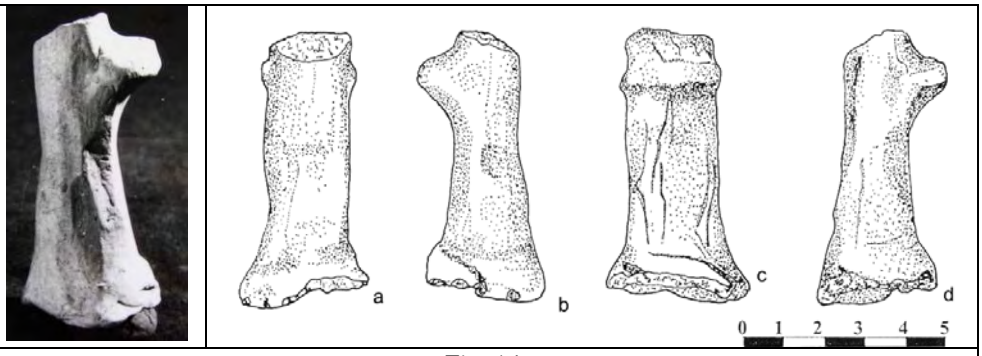

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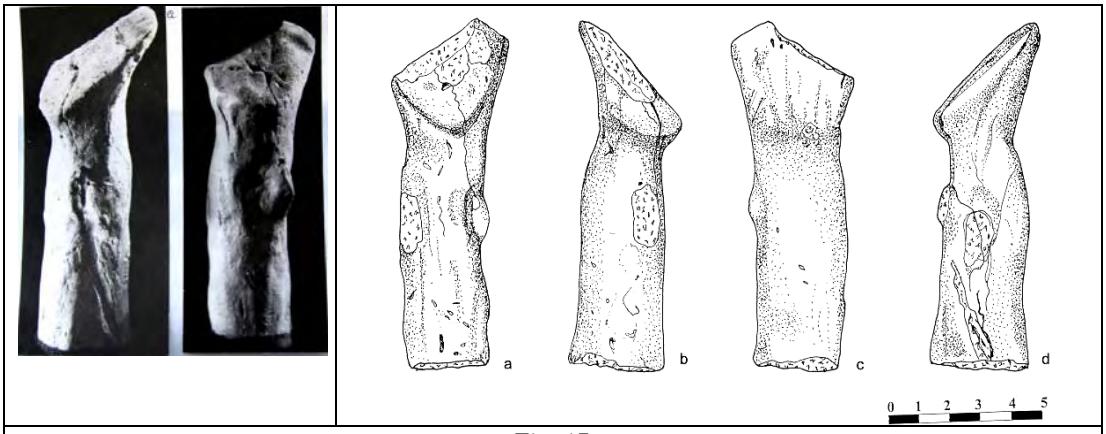

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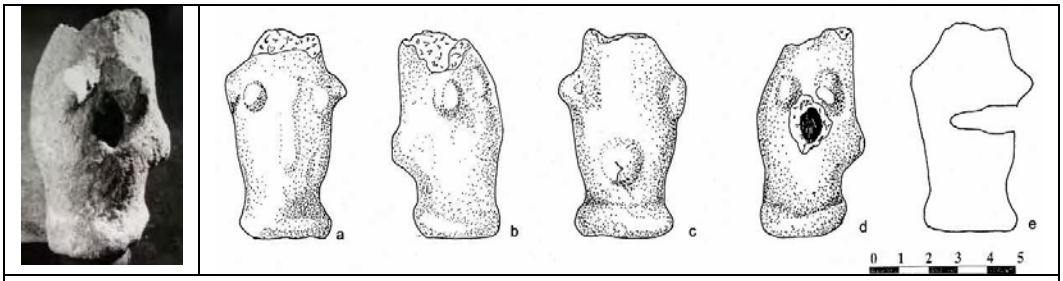

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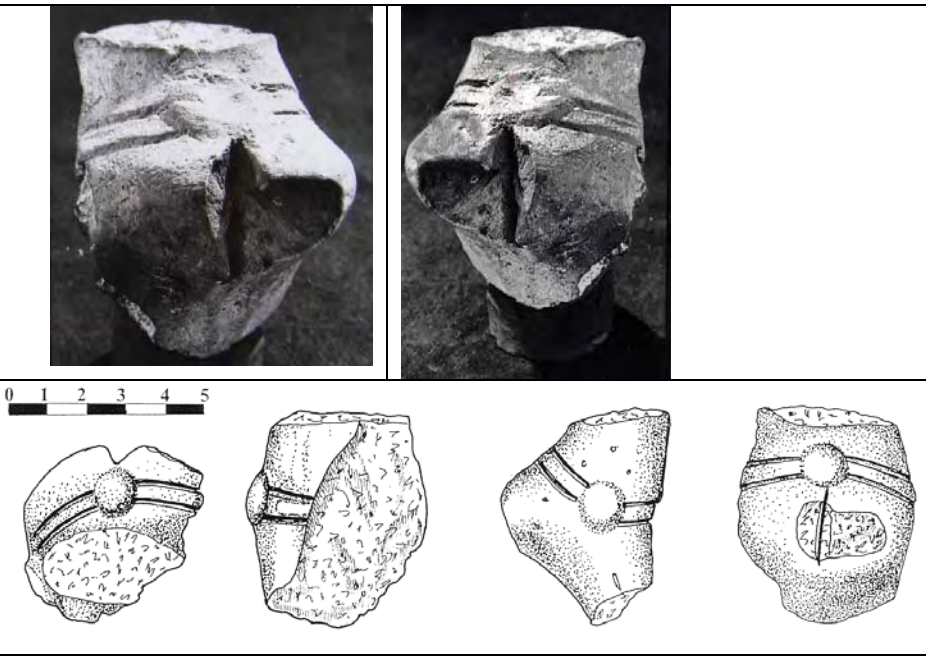

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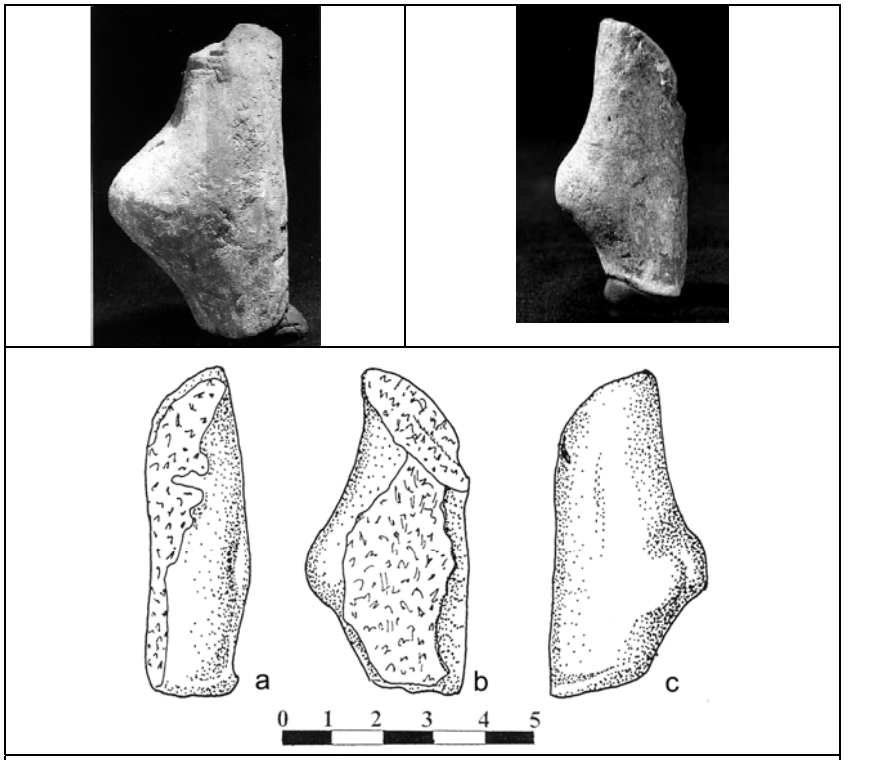

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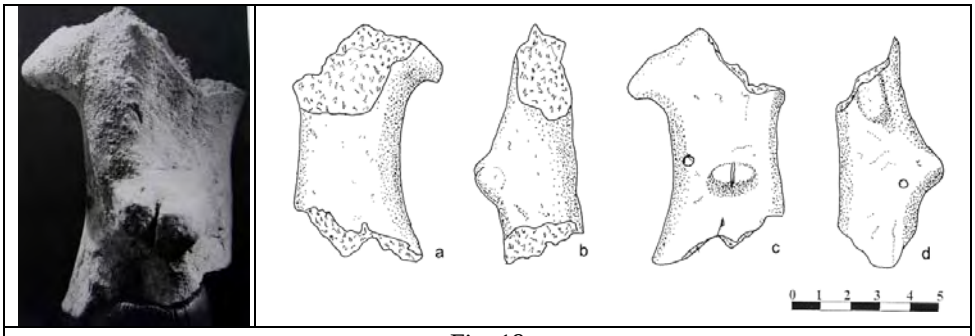

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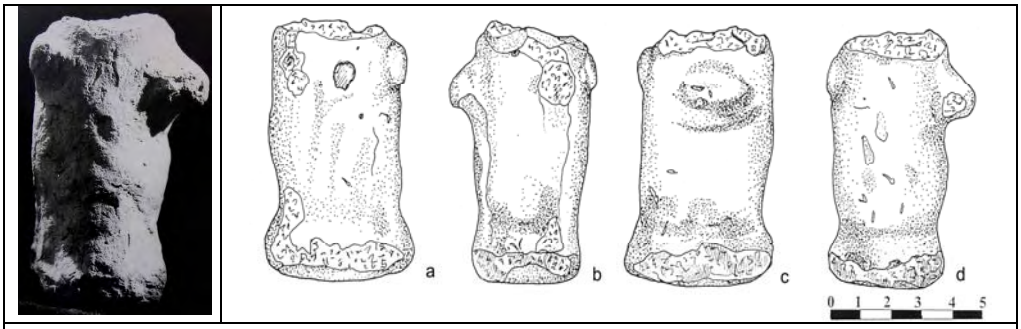

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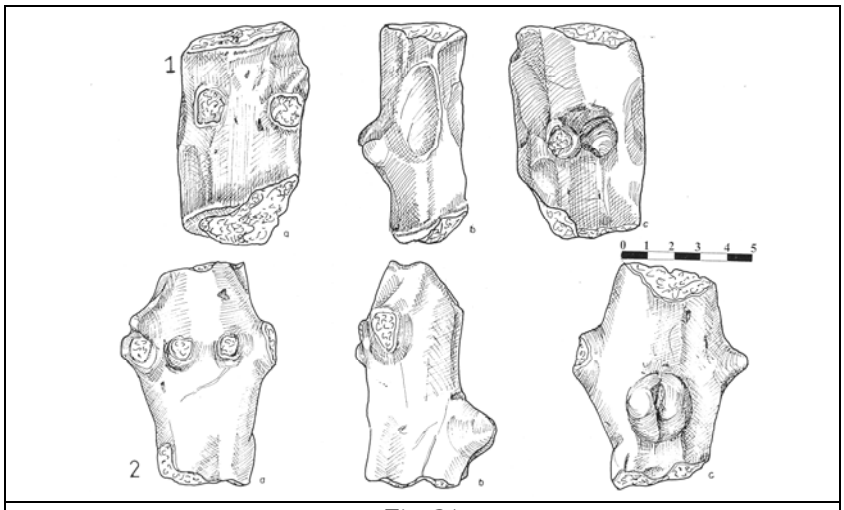

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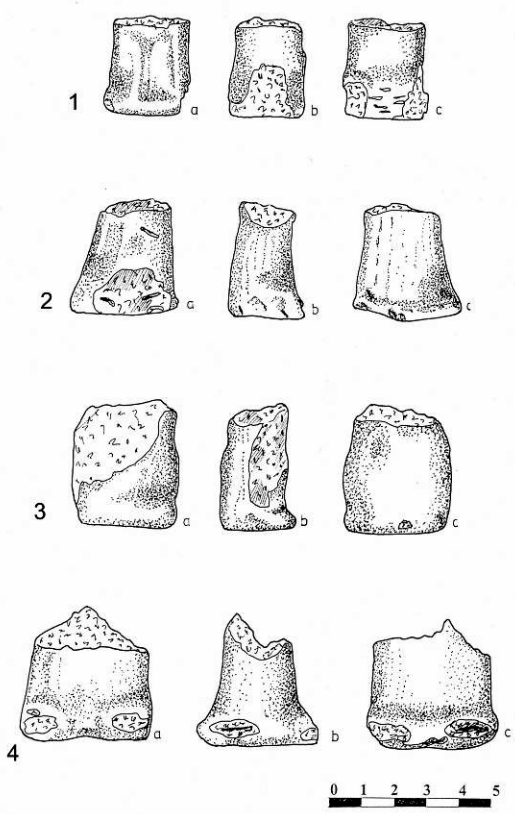

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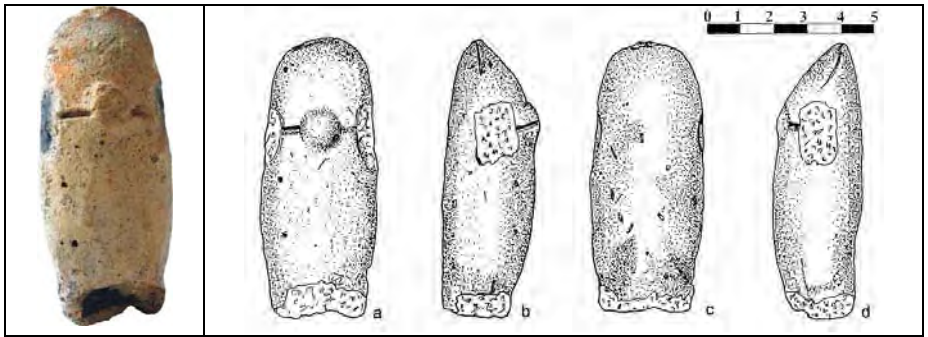

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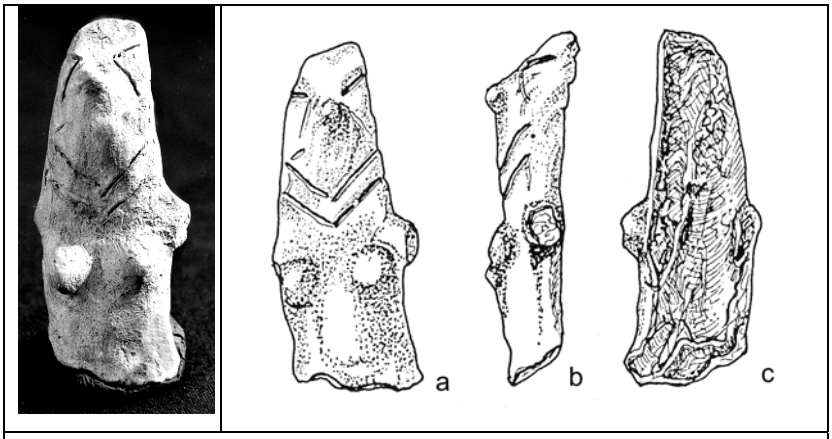

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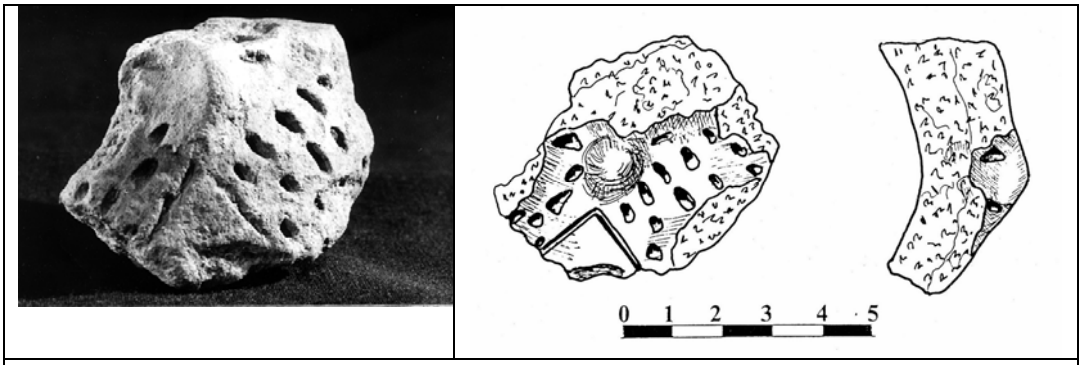

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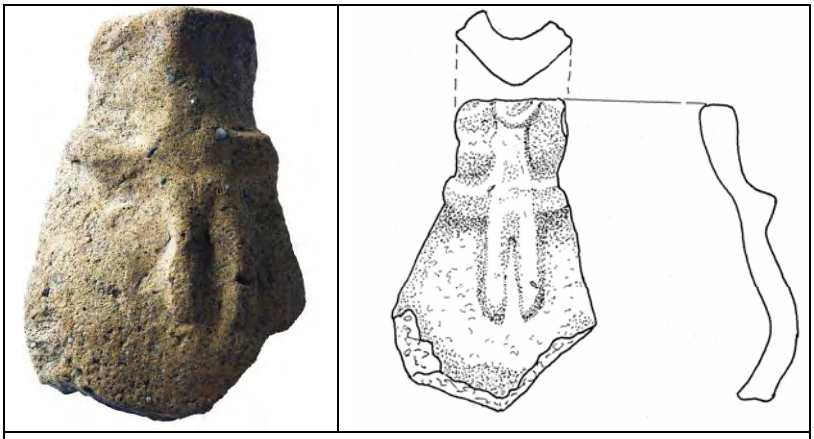

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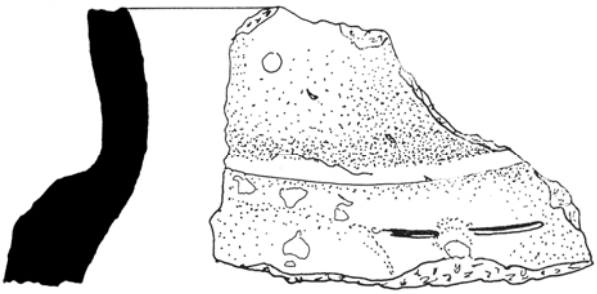
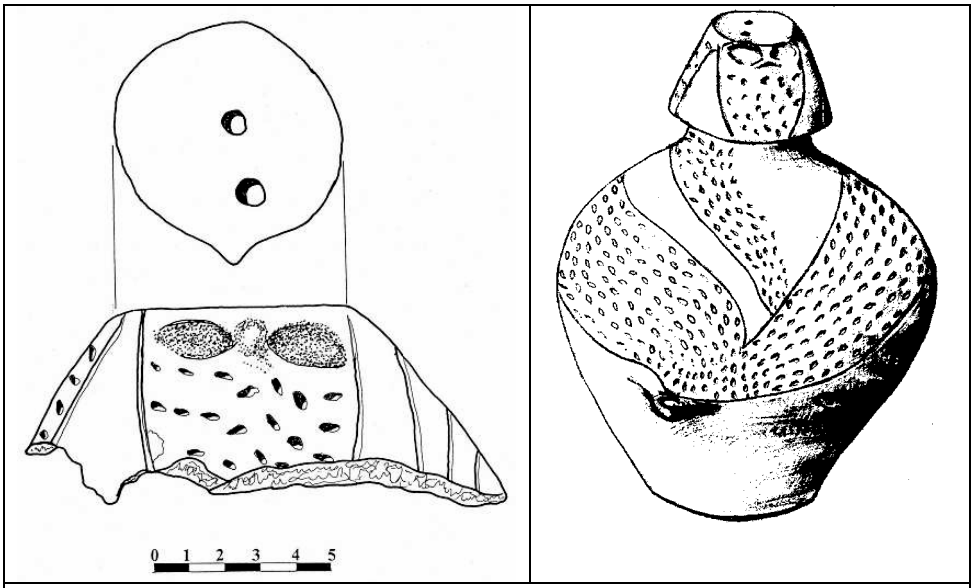


Fig. 27

Fig. 28



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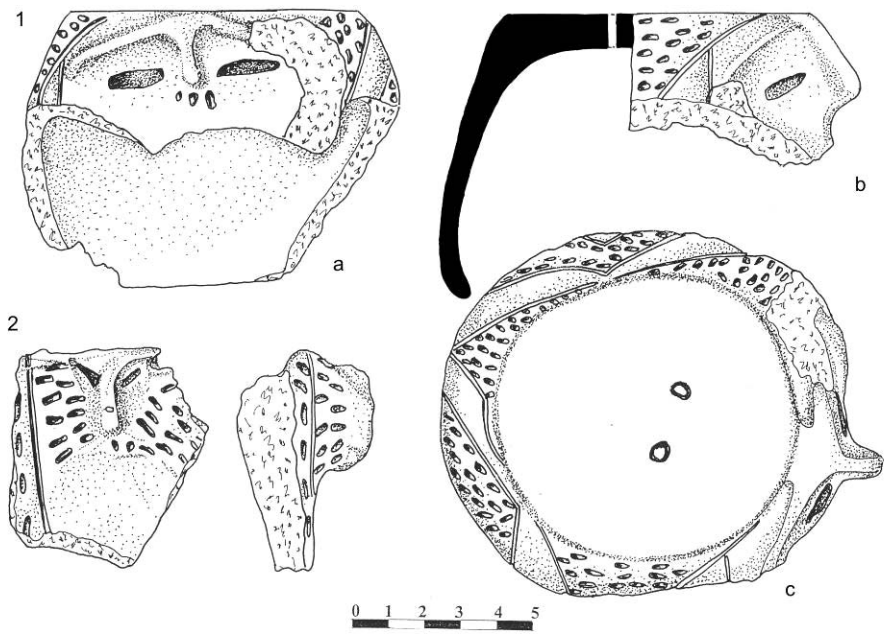

Fig. 30

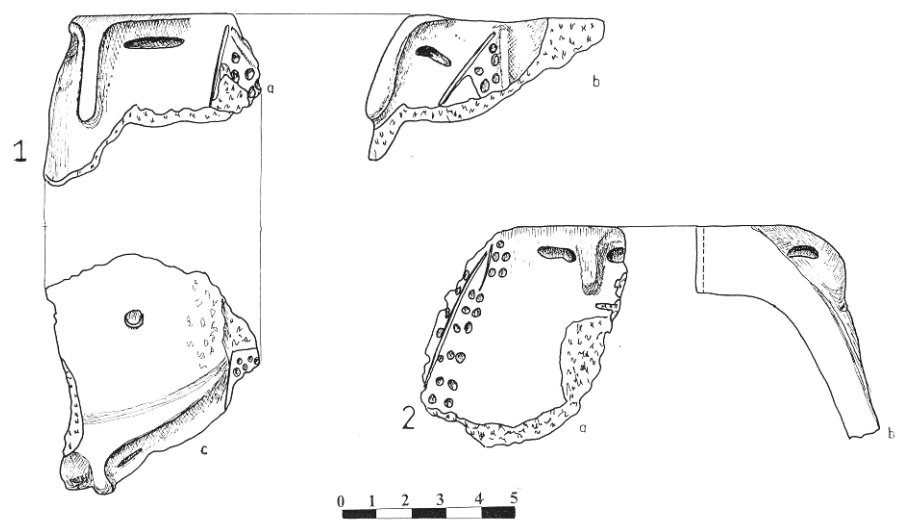

Fig. 31

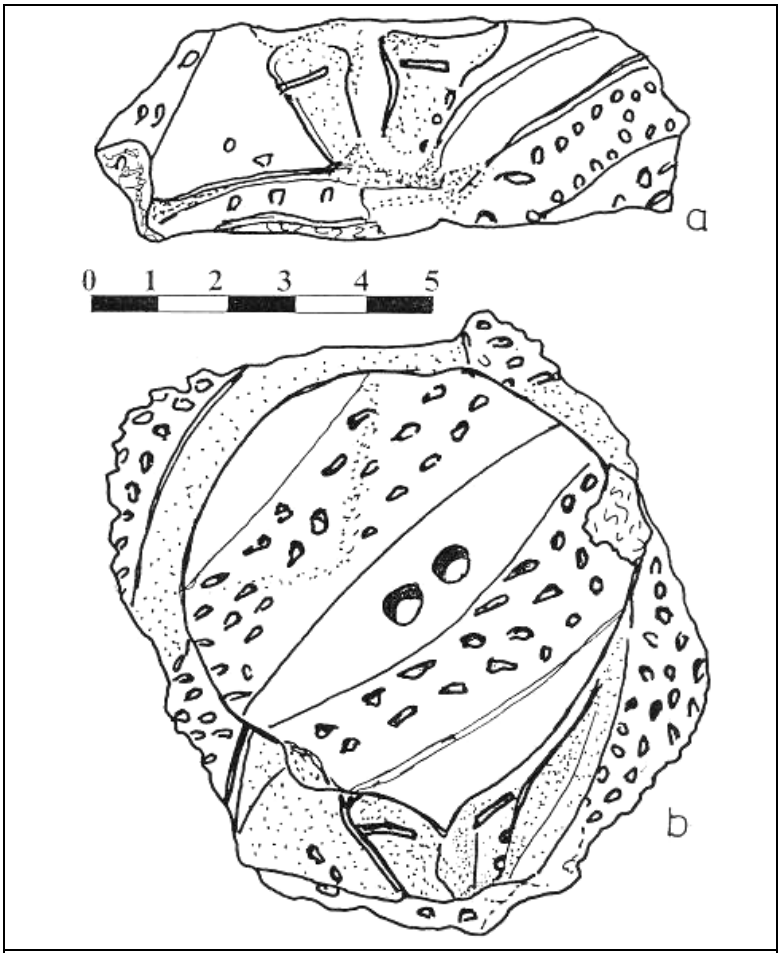

Fig. 32

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IX

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IX, 2010

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NEOLITHIC AND COPPER AGE SIGNS - METHODOLOGY OF TRANSLATIONS

Laura COLTOFEAN
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Keywords: *translation, signs, symbols, Neolithic, Copper Age, Romania.*
Abstract: *The purpose of this article is to present the methodology of the translations made in the F-MU.S.EU.M. Project, concerning the topic of Neo-Eneolithic signs on the territory of Romania. Furthermore, a new research project regarding translations is presented, with the inclusion of its preliminary bibliography.*

Introduction

In March 2009, I applied for and obtained the F-MU.S.EU.M. grant regarding the Neolithic and Copper Age signs in Romania. The project implied several tasks, such as:

1. Gathering and scanning the Romanian (possibly Hungarian) bibliography (articles, books and chapters of books) concerning the topic of Neo-Eneolithic signs.
2. Selecting the key pages related to this topic from the gathered bibliography.
3. Translating into English the selected pages/excerpts.
4. Organizing the selected and translated pages according to sub-topics.

The resulted work is to be published on the website of the F-MU.S.EU.M. Project (http://europeanvirtualmuseum.net/).

Translation – steps and problems

The translated Romanian articles were initially selected from the bibliography of Marco Merlini's PhD thesis - "An Inquiry into the Danube Script". They were searched at the library and then scanned at a minimum of 300 dpi. The scanned parts consisted of cover and contents (until the page the title is mentioned on) of the journal/book, the article/excerpt itself and, in some cases, the plates and drawings belonging to the article/excerpt. Next, the scanned documents were edited using Corel Photo Paint X3 in order to improve the quality of the images by adjusting the brightness of the image, removing the unwanted additional parts resulted while scanning, etc.

The process of scanning and editing was followed by the translation of the selected articles and excerpts (including the footnotes/endnotes), which sometimes

proved to be quite difficult. The main reason for this is that it was the first time I was confronted with the translation of scientific articles which, in order to avoid confusion and misunderstandings, required the use and knowledge of exact and precise scientific terms from the field of archaeology. During my work, I used dictionaries such as "Concise Dictionary of Archaeology", "Longman Dictionary of English Language and Culture"; among them there were also several useful online dictionaries, such as YourDictionary.com, Dictionary.com, bab.La and Everest.

The next step involved finding a modality through which the original scanned and modified document and the translated Word Document version could be combined in an attractive and easy-to-read way. Therefore, Corel Draw X3 proved to be the most suitable to fulfill the above-mentioned targets. It enabled me to insert the scanned image in an A4 page, adjust the paper width from 210 mm to 410 mm, place the scanned image on the left side of the Corel page and start adding new pages in order to comprise the entire article. The translated fragments were then taken from the Word document and placed next to the original paragraphs, on the right side of each Corel page. It is important to mention that text characteristics such as Font (font, font style, size, font colour), Paragraph (i.e., line spacing) and page layout, must coincide both in the original and translated article.

The first page of the future document is extremely important, since it presents the following: the scanned cover of the journal on the left side of the Corel page, brief information about the project itself (theme of the project - Neolithic and Copper Age signs, name of translator, the web page link of F-MU.S.EU.M.), general information about the translated article (article title in English, name of author, name, number and year of journal, the article's number of pages) or excerpt (book title, excerpt title, author of book, year and place of publication, publisher, pages on which the excerpt can be found), an abstract and the marks of the F-MU.S.EU.M. Project on the right side of the page.

Lastly, the created Corel Draw X3 document was exported into a final PDF document which was improved by several actions: OCR recognition (select from the toolbar of the Adobe document: Document - OCR Text Recognition - Recognize Text Using OCR - All pages - Edit - Primary OCR Language - select Romanian or Hungarian diacritics) and modification of the document properties (select from the toolbar of the Adobe document: File - Properties - Description: we add the title and author of article, the subject of the project - Neolithic and Copper Age signs - and the keywords of the article).

As a result, I translated the following articles: **Ion Aldea** - „Altarul" magico-ritual descoperit în aşezarea neolitică de la Ghirbom (com. Berghin, jud. Alba); **Dumitru Berciu** -Contribuţii la problemele neoliticului în România în lumina noilor cercetări (pp. 507-509: Problema plasticii culturii Boian si descoperirile de la Tangîru); **Vasile Chirica** - Amuleta-pandantiv de la Mitoc, jud. Botoşani and Datarea prin C_{14} a unor locuiri gravettiene de la Mitoc-Malul Galben (com. Mitoc, jud. Botoşani); **Vladimir Dumitrescu** - Inscripţiuni preistorice în România?; **Gruia Fazecaş** - O tăbliţă de lut de la Suplacu de Barcău; **Iuliu Paul** - Cultura

Petreşti (pp. 110-115); **Gheorghe Lazarovici** - Arhitectura neoliticului şi epocii cuprului din România (pp. 198-207: Groapa rituală sau mormântul de la Tărtăria) and Despre simbolistica focului în neolitic (unpublished article); **Sabin Adrian Luca, Ion Dragomir** - Date cu privire la o statuetă inedită de la Liubcova-Ornița (jud. Caraş-Severin); **Anton Nițu** - Despre semnificația motivului pictural în formă de ,,casă" de la Turdaş; **Márton Roska** - Erdély Régészeti Repertóriuma I. Őskor (pp. 7-15: Tordos, 806-817); **Nicolae Ursulescu** - Dovezi ale unei simbolistici a numerelor în cultura Precucuteni; **Nicolae Ursulescu et alii** - Noi date privind complexele de cult din cultura Precucuteni; **Nicolae Vlassa** - Probleme ale cronologiei neoliticului mijlociu în lumina stratigrafiei aşezării de la Tărtăria, Contribuții la problema racordării cronologiei relative a neoliticului Transilvaniei la cronologia absolută a Orientului Apropiat, Noi contribuții la problema influențelor orientale în neoliticul Transilvaniei and ,,Căsuțele de cult de la Tudaş". In addition to this, I also reviewed several English articles - including the ones written by Romanian authors from the "Signs and Symbols from Danube Neolithic and Eneolithic" volume - which I completed with an abstract and prepared for the F-MU.S.EU.M. website in the same way and style as the others: **Radian-Romus Andreescu** - The sign: typology, context, meaning; **Lazarovici Cornelia-Magda** - Clay breads and tablets with signs and symbols; **Lazarovici Gheorghe** - Are the Tărtăria tablets an "enigma"?; **Attila László** - Some aspects of the Tărtăria issue; **Luca Sabin Adrian** - A new special discovery from Turdaş; **Luca et alii** - Incised amulet from Turdaş-Luncă archaeological excavation; **Nicolae Ursulescu, Felix Adrian Tencariu** - Symbolic signs on the ceramics of the Chalcolithic settlement from Isaiia (Iaşi county, Romania).

Future projects

While being at the "Eötvös Lóránd" University of Budapest, as an Erasmus student during the 2009-2010 academic year, I intend to continue the process of translations regarding the theme of Neo-Eneolithic signs, but this time focusing on Hungarian articles and books. Starting from the bibliography of Marco Merlini's PhD thesis, I have already created a preliminary bibliographical list of articles to be translated:

Kalicz, Koós 2000 - Kalicz N., Koós J. S., *Újkőkori arcos edények a Kárpát-medence északkeleti részéből*. In: *A Hermann Ottó Múzeum Évkönyve* 39 (2000), 15-44.

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Torma 1880 - Torma Zs., *A nándori barlangcsoportozat*. In: *Erdélyi Múzeum*, Cluj (1880), 153-171, 206-209.

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Abbreviations

ActaMN - Acta Musei Napocensis. Muzeul de Istorie al Transilvaniei, Cluj-Napoca.
Apulum - Apulum. Acta Musei Apulensis, Alba Iulia.
Banatica - Banatica. Muzeul de Istorie al județului Caraş-Severin, Reşița.
BCMI - Buletinul Comisiunii Monumentelor Istorice, Bucureşti.
MemAntiq - Memoria Antiquitatis. Muzeul de Istorie Piatra-Neamț, Piatra-Neamț.
Sargetia - Sargetia. Acta Musei Devensis, Deva.
SCIVA - Studii si Cercetări de Istorie Veche si Arheologie, Bucureşti.

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YourDictionary.com (http://www.yourdictionary.com/)

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UNPUBLISHED DATA ON THE MANAGEMENT OF MAMMALS IN THE SETTLEMENT PETREŞTI FROM MOŞNA (SIBIU DISTRICT)

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Keywords: *Petreşti A-B level, Petreşti B level, mammal remains, ritual pit, waste pit, slaughter age.*
Abstract: *The article deals with analysis of 335 animal bones collected from a dwelling and numerous waste and ritual pits, dated in A-B and B phases of Petreşti culture. The first part includes a report of the distribution of taxa in different contexts, in terms of skeletal remains and minimum number of individual. Then, one make assumptions about the mortality profiles, withers heights and body conformation, as the frequency of taxa in several settlements Petreşti from Transylvania.*

The site is located 3 km south from Moşna village (which is 8 km SE of Mediaş, Sibiu District), at a place named "Pe Tablă"/"La Râpă". The landscape is dominated by rolling hills, 300-600 m altitude, cut by small streams, characteristic of the Târnava Plateau. The Moşna stream is draining the area, flowing to the south side of the hill, which is located the settlement. The vegetation today is dominated by durmast oak woods with hornbeam, much more expanded in the past. A meadow vegetation developed along stream courses (Posea et alii 1982, 695). The rescue excavation started in 2003 established the limits of the prehistoric site, 100 m long and 60 m wide. The findings belong to Petreşti A-B, Petreşti B and Coţofeni III subcultures (Gonciar et *alii* 2007, 40). During excavations of 2003-2006 few animal bones were collected, as to the 0.60-0.70 m layer of culture is disturbed. From this deep down, samples were taken into account. There have been analyzed two lots of bones belonging to both levels of Petreşti culture, stratigraphic clearly defined. The first sample totaling 83 bones, comes from the lower level (dated in the late Petresti A-B), the second summing up 325 bones comes from the upper level (dated in early Petresti B) (Gonciar et *alii* 2007, 45). About 16 animal remains, taken from trenches: S3, S4, S5, not stratigraphically assigned, were excluded from statistics. To separate the bones of Petreşti levels from those in the top layer (mixed sample), very helpful have been their pigmentation, different from layer to layer. Thus the recent bones are light-colored, than those of levels Petreşti, more blackish. We add that, the bones are poorly preserved due to high degree of fragmentation, burning activities and bad preserving conditions (the forest soil rich in humic acid corroded the bones).

Distribution of taxa into the site

Petreşti A-B level has provided 83 remains, of which 72 fragments have been specifically assigned to five domestic and three wild species, as table 1 shows. The sample originates in three wastes pits (Pit 1, 4, 10), two "ritual" complexes (Pit 7, 8) and cultural layer of culture from trench S7. **Pit 1** localized in the central part of trench /S1, at a depth of 110 cm furnished few materials.

Table 1: *Distribution of taxa as NISP in Petreşti A-B layer.*

Petreşti AB	Pit 1	Pit 4	Pit 7	Pit 8	Pit 10	Layer	NISP	%
Bos taurus	2	1		4		11	18	25
Sus s. domesticus	1	7		1	1	8	18	25
Ovis/Capra	2		4	4		10	20	27.8
Canis familiaris	1						1	1.4
Cervus elaphus		1	3			7	11	15.2
Capreolus c.						1	1	1.4
Lepus sp.	2					1	3	4.2
Determined	8	9	7	9	1	38	72	100
Bos/Cervus						11	11	
Total sample	8	9	7	9	1	49	83	

In terms of bones, eight remainders originating in one adult cattle, one goat slaughtered towards 12 months (early spring), one pig 14-16 months old (M3 in crypt), one dog, one hare and one sub-adult red deer, 14-15 old (M2 in eruption) (Azorit 2002, table 4) were identified. **Pit 4** placed south-western side of S4, at 90 cm depth, contained nine bones from one cattle, one red deer and two pigs. From a sucking pig, a couple of humerii and tibiae, a part from acetabulum and a left femur were determined. The bones have the ends burnt. Another radius originating in another sucking pig, younger than former (so it seems, according to the radius size) was also identified (fig. 1). **Pit 10** was shaped in the southern corner of trench S10, at 123 cm depth; it contained few bones. Among structural clay fragments has been identified a single splinter from the braincase of a sub-adult pig. **Pit 7** was excavated in the eastern extension of S7, at a depth of 105 cm. The pit is made in two phases. The initial hole was excavated down to the surface of the yellow sterile sand and filled with intensely burnt fragments of structural clay… placed cold in the pit, intermixed with bones and stone tools. The tools were functional and were put there on purpose, not simply discarded. A smaller cylindrical pit was dug in the middle of the larger one, its walls being decorated or reinforced with antlers[1], fragmented vases being placed on its floor. It was filled with ashes intermixed with bones and shards (Gonciar et *alii* 2007, 44). In terms of bones, the small pit provided a portion of an antler base with pedicle. The beam and branches have been removed above the rose; the piece comes from a mature/old male, taking into account the ratio of diameter/length of the pedicle - 43/30 mm (Hattemer, Dreschler 1976, tab. 2). Certainly, the stag was hunted during cold season. This detail suggests

[1] Is the observation of the archaeologists who performed the excavation into the site.

the occupation of the settlement, over the winter. Mention also, the anther has blackish spots, due to either fire or from the ashes that filled the small pit. A distal metacarpal, with Bd/Dd-53/33 mm and a thoracic vertebra seems to belong to the same individual too. They were found in the same context as the anther. From large pit filling (presumably, blackish spots on bones were not observed) were harvested

Table 2: *Distribution of mammals as MNI in Petreşti A-B layer.*

	Pit 1	Pit 4	Pit 7	Pit 8	Pit 10	Layer	MNI	%
Bos taurus	1	1		1		2	5	21.7
Sus s. domesticus	1	2		1	1	1	6	26.1
Ovis/Capra	1		1	1		2	5	21.7
Canis familiaris	1						1	4.3
Cervus elaphus		1	1			1	3	13.1
Capreolus c.						1	1	4.3
Lepus sp.	1					1	2	8.7
Total	**5**	**4**	**2**	**3**	**1**	**8**	**23**	**100**

three ribs and a distal metatarsal sheep, belonging to a lamb. **Pit 8** was identified in NE side of S1/2 and SV of S8, at ca. 63 cm deep. A large pouring vessel and a small drinking cup were placed on its floor. "A kid or a lamb skull and several snail shells" were found on the same level as the vessels (Gonciar et *alii* 2007, 44). Indeed, from that complex, we determined a portion of the occipital region + upper jaw of a ram. We are talking about an animal slaughtered between 3-4 years and not a lamb. The snail shells nothing of saying, I have not found anything like that in the sample, probably were lost. An epistropheus comes from a pig, maybe it was lost in the pit with earth filling. From cattle were determined four bones suggesting, at least one adult exemplar (distal radius epiphysed). Under name "layer" we included bones taken from S7, the level under the house, dated in Petreşti A-B. The 43 remainders derive from almost all identified species, excepting the dog; they suggest minimum eight individuals (table 2).

Petreşti B level has provided 252 remains, of which 235 fragments have been specifically assigned to five domestic and five wild mammals. The material was taken from a house, a waste pit (Pit 2) and cultural layer. **The habitation complex** of 3/ 4.5 m, oriented NW/SE, was built on the

Table 3: *Distribution of taxa as NISP in Petreşti B layer.*

Petreşti B	House	Pit 2	Layer	NISP	%
Bos taurus	12	8	56	76	32.3
Sus s. domesticus	11	7	18	36	15.3
Ovis/Capra	12	13	39	64	27.2
Canis familiaris			2	2	0.9
Cervus elaphus	18	1	24	43	18.3
Sus s. ferrus	1	1	4	6	2.6

Capreolus c.			1	1	0.4
Lepus sp.		2	4	6	2.6
Ursus arctos	1			1	0.4
Determined	55	32	148	235	100
Bos/Cervus	3	1	13	17	
Total sample	58	33	161	252	

Table 4: *Distribution of mammals as MNI in Petreşti B layer.*

Petreşti B	**House**	**Pit 2**	**Layer**	**MNI**	**%**
Bos taurus	2	2	8	12	23.5
Sus s. domesticus	3	2	4	9	17.6
Ovis/Capra	3	2	7	12	23.5
Canis familiaris			1	1	2
Cervus elaphus	2	1	5	8	15.7
Sus s. ferrus	1	1	2	4	7.8
Capreolus c.			1	1	2
Lepus sp.		1	2	3	5.9
Ursus arctos	1			1	2
Total	12	9	34	51	100

ground, and with wall of wooden structure covered by clay. The house contained few materials, which led the authors of the research, stating that: "the house has been emptied before it was set on fire, probably looted" (Gonciar et *alii* 2007, 46). In this context, we have got for determination about 58 animal bones, of which one third comes from red deer (table 3). Twelve exemplars

Table 5: *Distribution of cattle sample in different contexts.*

Dating	Petreşti A-B				Petreşti B		
Skeletal element	**Pit 1**	**Pit 4**	**Pit 8**	**Layer**	**House**	**Pit 2**	**Layer**
skull					1	2	2
mandible+ teeth						1	7
scapula					1		1
humerus				2	2		2
radius			1	1	1		2
ulna							2
carpals							2
metacarpal					1	1	4
pelvis			1				2
femur							2
tibia			1	2	1		4
tarsals	1	1		1	2		4
metatarsal							6

phalanges	1			5			4
vertebrae			1		2	2	8
ribs					1	2	4
total	**2**	**1**	**4**	**11**	**12**	**8**	**56**

Table 6: *Distribution of pig sample in different contexts.*

Dating	Petreşti A-B					Petreşti B		
Skeletal element	**Pit 1**	**Pit 4**	**Pit 8**	**Pit 10**	**Layer**	**House**	**Pit 2**	**Layer**
Skull	1			1	2	2	2	1
mandible+ teeth						1		4
scapula								2
humerus		2						2
radius		1				1	1	
Ulna								2
metacarpal					1			
pelvis		1				1		1
femur		1				2		1
Tibia		2						1
tarsals						1		
phalanges					1			
vertebrae								2
Ribs			1		4	3	4	2
Total	**1**	**7**	**1**	**1**	**8**	**11**	**7**	**18**

of them, almost reached the adult stage). The eleven pig bones are distributed at least three individuals: one killed in the first year, another one around 14-16 months (M3 in crypt, cf. Horard-Herbin 1997, tab. 26) and a third one, over 3 years (one calcaneus epiphysed). Height at the withers of this individual is estimated at 72.65 cm (Teichert 1990, apud Udrescu et alii 1999). As mentioned above, a numerous sample comes from adult red deer individuals. And finally, an atlas and an acetabulum from a boar and a bear were determined too. **Pit 2** was shaped in the center of trench S2, at 65 cm depth, being composed by four levels of burnt clay, separated by earth strata. Thirty-three faunal remains come from levels 2-4 and derive from nine individuals (table 4). Most bones become to sheep, the thirteen fragments suggesting an individual slaughtered by 2 years (upper and lower M3, in final eruption) and another between 3-4 years (an upper M3 in incipient wear). Cattle rank the second with eight bones from two exemplars: one individual 24-30 months old (upper M3 in eruption) and another above this limit (distal metacarpal epiphysed). The pig sample count seven bones from one sub-adult (killed by 18 months, according P4 already erupted, radius-distal not epiphysed) and another one with age not specified. A distal tibia and a metapodial

from an adult hare complete the pit sample. The most numerous sample was collected from cultural layer 161 remainders, excepting bear, all the other species are represented. Approximately 35% of sample belongs to cattle, 24% to small ruminants, 15% to red deer, 11% to pig and 6.8% to other species (dog, boar, hare and roe deer). On the quantity of bones recovered from Petresti A-B complexes, animal bones are too few, to provide solid data, so we will emphasize only some aspects: the so-called waste pits (1, 4 and 10) have fewer bones, as we have expected. Without doubt they had a minor role to storage the animal remains from household consumption, at least this fact results from the distribution of samples. In other news, the special/ritual role of the pits 7, 8
rather results from analysis of other archaeological inventory, than from bones distribution. From Petreşti B level more bones were harvested for analysis.

Table 7: *Distribution of sheep/goat sample in different contexts.*

Dating	Petreşti A-B				Petreşti B		
Skeletal element	**Pit 1**	**Pit 7**	**Pit 8**	**Layer**	**House**	**Pit 2**	**Layer**
skull			1			2	3
mandible+ teeth	1				4	4	8
scapula				1	1		4
humerus				2			2
radius					2	1	
ulna				1			
metacarpal							1
pelvis							3
femur				1			1
tibia					2		4
tarsals							2
metatarsal		1		1	1		2
phalanges					1		2
vertebrae	1						1
ribs		3	3	4	1	6	6
total	**2**	**4**	**4**	**10**	**12**	**13**	**39**

Pit 2 seems to be closely linked to house, there are many matches between their bones, perhaps they functioned at the same time; namely, bones from the same individuals may have accumulated inside. One presumption would be that, individuals of the same age class were identified in both cases. Unfortunately, fragmentation and scarcity of lots can not offer clearer evidence. It is only an impression, and as such must be considered.

Related to taxa distribution in terms of skeletal elements within pits, few things can be said. In case of cattle, sheep and red deer, a dispersal of skeletal elements, mostly from column, distal ends of hind limbs, jaw and isolated teeth (low meaty

regions) in the layer (regardless of cultural phase) was registered. The presence of skull elements from wild boar and cervids proves the assertion that, carcasses were entirely carried into the settlement, there being hacked.

Age profiles

We start with the group of small ruminants, most elements for assessing dental age of slaughter, being supplied by them. In the early phase of the site five individuals were supposed, of

Table 8: *Distribution of red deer sample in different contexts.*

Dating	Petreşti A-B			Petreşti B		
Skeletal element	**Pit 4**	**Pit 7**	**Layer**	**House**	**Pit 2**	**Layer**
skull		1		6		2
mandible+ teeth			1	1		
scapula			1			1
humerus			2			
radius				1		1
metacarpal		1		2		2
femur				1		
rotula						1
tibia			1	1		2
tarsals	1			2	1	2
metatarsal			1	3		7
phalanges			1			4
vertebrae		1				1
ribs				1		1
total	**1**	**3**	**7**	**18**	**1**	**24**

which one goat and four sheep, taking into account the dentition. A goat was slaughtered in the first year of life and a ram around 3-4 years. Three other sheep were identified with regards to the sutures of long bones: a specimen killed in 12 months, and two between 1-2 years (table 9, fig. 5). In Petreşti B sample, 12 sheep were identified, of which 8 individuals were supposed by dentition. Half of them were cut between 1-2 years, one at 2.5 months, and three between 2-6 years. Given some data provided by the fusion of long bones of the 12 identified animals, a rate of 25% was culled in the first year of life, 41.7% in the second year, 16.7% between 2-4 years and 16.7% above this limit. Specifically, in both levels, there is a rate of 41% animals killed between 1-2 years (class D) and about 30% animals slaughtered up to a year, (classes BC). Therefore, meat production was concerned in particular (type B and A) (Blaise 2009, fig. 20). Milk products and wool exploitation was done on smaller scale. Classes FG (meaning adult-mature sheep), barely amounts 23%. In the management of cattle, the following can be stated: for the Petresti A-B level, slaughter age appraisal was done on bone sutures only, in the absence of

dental remainders. Thus, of five individuals, one is slaughtered between 1-2 year, three between 2-4 years and one over the stage (fig. 4). The material from the upper phase has provided evidence for at least 12 cattle; five of them were identified just by dental criteria. Overall, of the 12 individuals, 16.7% was killed between 1-2 years, 50% between 2-4 years and about 33.3% over this limit, no calves were found. So in both cases, the exploitation of animals is focused on achieving maximum production of meat, given the prevalence of animals slaughtered between 2-4 years (50%), when they reached optimum slaughter

Table 9: *Kill-off patterns in small ruminants.*

Context	Dating	Taxa	Specimen	R/L	Eruption/ MWS**	Age	Stage
Pit1/	Petreşti A-B	Goat	Md+M2	r	05	6-12 m	C
Pit8/	Petreşti A-B	Sheep	Mx+M3	l	Early/medium	36-48 m	F
Pit8/	Petreşti A-B	Sheep	Mx+M3	r	Early/medium	36-48 m	F
House	Petreşti B	Sheep	M3 inf.	l	h13	4-6 y	G
House	Petreşti B	Sheep	Md+M3	l	J	22-24 m	D3*
House	Petreşti B	Sheep	Md+M1	r	J	5-6 m	B2
Pit2	Petreşti B	Sheep	M3 inf.	l	U	22-24 m	D3
Pit2	Petreşti B	Sheep	M3 sup	r	Erupting	22-24 m	D
Pit2	Petreşti B	Sheep	M3 inf.	r	U	22-24 m	D3
Pit2	Petreşti B	Sheep	Mx+M3	l	Early wear	36-48 m	F
Layer	Petreşti B	Sheep	M2 sup	l	Early wear	12-18 m	D
Layer	Petreşti B	Sheep	M3 inf.	l	U	22-24 m	D3
Layer	Petreşti B	Sheep	Md+P4	l	h13	4-6 y	G
Layer	Petreşti B	Sheep	M3 inf.	l	e10	24-36 m	E
Layer	Petreşti B	Sheep	Md+M3	r	E	16-22 m	D2
Layer	Petreşti B	Sheep	Md+M2, P4	l	P4-E M2-07	16-22 m	D2
Layer	Petreşti B	Sheep	dp4	r	c8	2-5 m	B1

*Greeenfield 2007; ** Payne 1987, Grant 1982

weight. A relatively significant percentage of animals kept over four years, involves exploitation of milk and labor by the Petreşti B community. Unfortunately we cannot specify the upper limits for keeping livestock, the assessments being made solely on the long bones. Related to the exploitation of domestic swine, we have only a few estimates on the dentition; by supplementing them with information of poscefalic skeleton, one obtained the following picture: of six animals, two of them have not specified the exact age class, if we consider the faunal sample in the lower level of the settlement. Three pigs are 0-6 months old (two animals) and one 14-16 months. The material from the upper level provided age data for nine pigs, of which for one did not specify the precise time of slaughter. For the other eight statistics show that: 37.5% was killed in the first year of life, just as in the second, and 25% between 3-3.5 years.

Caprinae	Pit 1	Pit 7	Pit 8	Layer AB	**Sub-total**	House	Pit 2	Layer B	**Sub-total**	Total	%
2-6 m						1		2	**3**	3	17.6
6-12 m	1			1	**2**					2	11.8
12-24 m		1		1	**2**	1	1	3	**5**	7	41.2
24-36 m								1	**1**	1	5.8
36-48 m			1		**1**		1		**1**	2	11.8
48+						1		1	**2**	2	11.8
Total	1	1	1	2	**5**	3	2	7	**12**	17	100
Cattle	Pit 1	Pit 4	Pit 8	Layer AB	**Sub-total**	House	Pit 2	Layer B	**Sub-total**	Total	%
12-24 m				1	**1**			2	**2**	3	17.7
24-48 m	1	1		1	**3**	1	1	4	**6**	9	53
48+			1		**1**	1	1	2	**4**	5	29.3
Total	1	1	1	2	**5**	2	2	8	**12**	17	100

Table 10: *Distribution of caprinae and cattle according age profiles.*

Animals with extremely worn dentition or slightly worn were not identified. It seems that, between 1-2 years pig reached the optimal weight for slaughter, as evidenced the slaughter classes. The three bones of dogs (canine with open roots, a piece of acetabulum and an epiphysed proximal ulna) suggest two specimens over 6-12 months. The assemblage from Petreşti A-B phase provided data for at least, three adult red deers. About eight deers were supposed based on the sample from Petreşti B level, of which two undetermined as age. Of the other six, one is sub-adult (one metacarpus distal not fused) and the rest are adult-mature. A taxon with increased material than usual is the hare, it ranks the second among wilds. One mandibular articulation, one proximal radius and a fused calcaneus originate in two adults from the

older phase (first from Pit 1 and the second from layer). The upper deposit contained six bones from at least three hares, one from pit 2 and two from layer. Wild swine bones were collected just from the upper level. Mortality curve shows that, of the four individuals, at least two are mature. A very mature exemplar showing a third lower molar in advanced wear (corresponding to J14, cf Grant 1982) was identified. From roe deer were identified a proximal phalanx (Petreşti A-B sample) and a P4 in eruption (Petreşti B); the pieces belong to an animal over 6-7 months and another one hunted not long after one year (Tomé 1999, tab. 2).

Body size data

About size and body conformation of mammals exploited by Petreşti communities at Moşna, few assessments were made, in the absence of more numerous material and less broken. However, I used some analogies with fauna from Zau de Câmpie and Tărtăria (Bindea 2008, 70-74), inhabited about at the same time. In the light of these comparisons we assume that, cattle were still robust, with relatively high waist. Although we have no estimates of cattle size at Moşna, the

sample from Zau de Câmpie provided enough data on this parameter: heights of 120.9 cm for females and 129-137 cm for males were estimated (Bindea 2008, 137). The few dimensions, taken on width of bones from Moşna, suggest still robust individuals. We mention a length of 40 mm for LM3, a value close to the lower limit of aurochs variation. For example, the scatter-diagram of distal tibia in sites Petreşti (turned into log-ratio, fig. 8) emphasizes the large limit of variation of this parameter, the upper values closed to aurochs data. The metric data are insufficient for sheep and goats from Moşna. The few measurements of bones and teeth, show small-sized sheep and medium-sized goats. Related to height at withers, a value of 65.8 cm was calculated on a talus. Values of 74,1 cm (Zau de Câmpie) and 59,9 cm (Cheile Turzii) were estimated based on calcaneus (Bindea 2008, 152). The few measurements of red deer bones are placed in the middle-

Table 11*: Kill-off patterns in cattle and pig.*

Cattle	Dating	Specimen	R/L	Eruption /MWS*	Age
Layer	Petreşti B	Incisor 2	l	just erupted	24-30 m
Layer	Petreşti B	M1 inf		d9	12-16 m
Layer	Petreşti B	M3 inf	r	½	24-30 m
Layer	Petreşti B	M3 inf	l	j14	36+
Layer	Petreşti B	M3 sup	l	erupting	24-30 m
Pit 2	Petreşti B	M3 sup	l	erupting	24-30 m
House	Petreşti B	M3 sup	r	erupting	24-30 m
Pig	Dating	Specimen	R/L	Eruption /MWS	Age
Pit1/	Petreşti A-B	Mx+M3	l	in crypt	14-16 m
House	Petreşti B	Md+M3	r	in crypt	14-16 m
Pit2/	Petreşti B	Mx+P4	l	just erupted erpt	14-16 m
Layer	Petreşti B	Md+dP4	l	just erupted erpt	0-2 m
Layer	Petreşti B	Md+M3	r	S1/2	18-20 m

*Higham 1967, Grant 1982;

upper limits of species variation as compare to similar records (Bindea 2008, 447-452). We refer to humerus, tibia, metacarpal and distal radius measurements. Preferential hunting of male specimens may explain this. No data metric for wild boar, with the exception of a lower third molar showing an increased length, of 47 mm. Hare measurements falls within the range size variation of Transylvanian Eneolithic (Bindea 2008, 462-463).

Table 12: *Distribution of pig according age profiles.*

Pig	Pit 1	Pit 4	Pit 8	Pit 10	Layer AB	**Sub-total**	House	Pit 2	Layer B	**Sub-total**	Total	%
0-6 m		2			1	**3**	1		1	**2**	5	33.3
6-12 m									1	**1**	1	6.7
12-24 m	1					**1**	1	1	1	**3**	4	26.7

36-42 m							1		1	**2**	2	13.3
Age?			1	1		**2**		1		**1**	3	20
Total	1	2	1	1	1	**6**	3	2	4	**9**	15	100

Species frequencies as NISP, MNI and meat weight

In terms of cattle remains, their share increased from 21.7% in the early phase (Petreşti A-B) to 32.3% in the late one. In terms of MNI (minimum number of individuals), the frequencies do not change appreciably, they slightly decrease from 25 to 23%. Ovicaprids increase in frequency from 21 to 27% (as number of bones) and decrease from 27 to 23% (as individuals) along the site occupation. Pigs share significant decreases to the end of settlement (from 26 to 14%), the same trend is seen in statistics on individuals (25-17.6%). On red deer, there is an increasing trend towards higher levels, from 13-18% (as NISP). Overall, the share of game is 24/26% in Petreşti A-B, registering a noteworthy raise of 33%, towards the end of site (as MNI) (fig. 2, 3) A regular presence, not to be neglected, is the hare, which reaches a frequency of 8% as number of fragments, in the early levels of the site.

A theoretical estimating of the meat amount provided by the presumed individuals established that: domestic species accounts for 80% and the game just 20%, in the early levels. Specifically, beef totals 52.1%, mutton 16.2%, pork 11% and red deer 19%. Domestic mammals provided about 70%, specifically, beef over 48%, small ruminants 12% and pork 9.2%, in later levels. Red deer makes up 17.3%, boar 7.7%, bear 4.9%, hare and roe deer less than 1%. Frequency of taxa in terms of quantity of meat highly differs from MNI and NISP distributions (fig 6, 7). And that is because, the NISP and MNI estimation do not establish a clear hierarchy of the identified taxa; the estimated meat method by far, put forwards the value of cattle as mains meat source for Petreşti communities. In fact, the age profiles also emphasize the same deem.

When interpreting the faunal remains from the earlier period, we found that: small ruminants overcome cattle in terms of NISP and pig overcomes them in terms of MNI. Nevertheless, cattle were the most important element in Petreşti economy; the mortality profiles shows almost no calves, the prevalence of the adults kill-off (peak between 2-4 years) and a lesser percent of animals older than four years at death (about one third). This scheme suggests a chiefly meat exploitation, working, dairying and breeding purposes to a lesser extent. In case of pig, one notes a high rate of immature specimens, slaughtered for meat, usually before two years. There is few data about caprins age profiles, according them, sheep was used as meat source. Data collected from the late period sample suggest the prevalence of cattle and sheep as dominant trend; much of the cattle were bred primarily for meat (meaning 17.7% young exemplars, and 53 % sub-adult/young adults). No doubt, the species was used for other purposes, such as diary products, draught power, just as the 30% of animals killed over four years supposes. Flocks of small ruminants, more sheep than goats accounted, presumably taking into account the sheep/goat rapport = 15/2, as it is reflected by Moşna sample. As stated before, the meat production was the main aim of small ruminants' exploitation. Dairy products, wool

production, and breeding flock were exploited to a lesser extent, as the percent of 23% suggests.

It is very likely that the main domestic mammals may have been fed in the wooded surroundings of the site. Also, the mortality profiles claim that the settlement was inhabited all year round and not seasonal.

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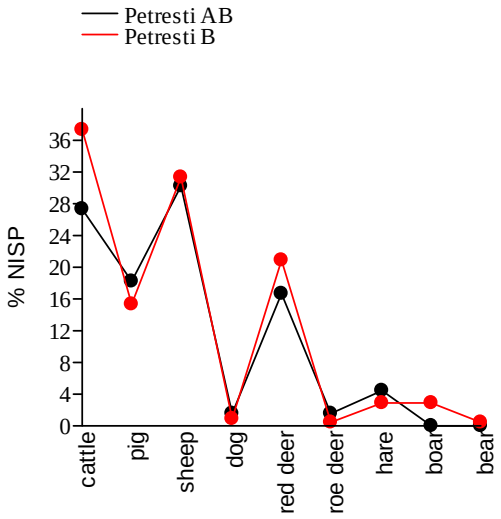

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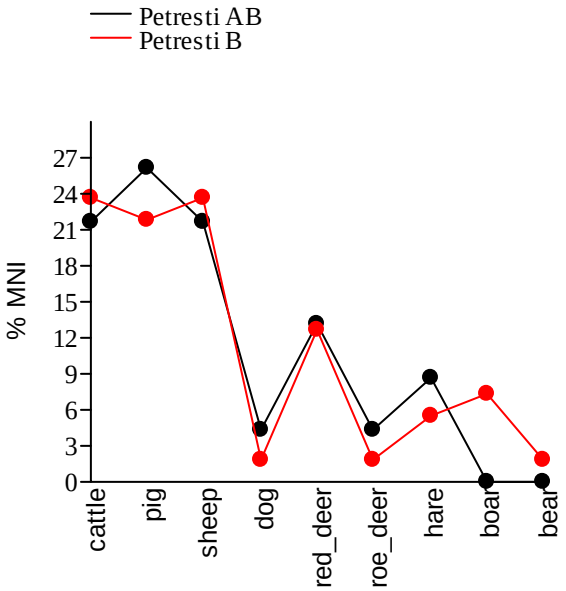

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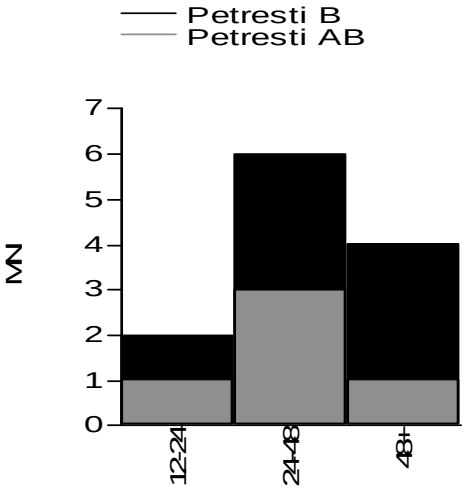

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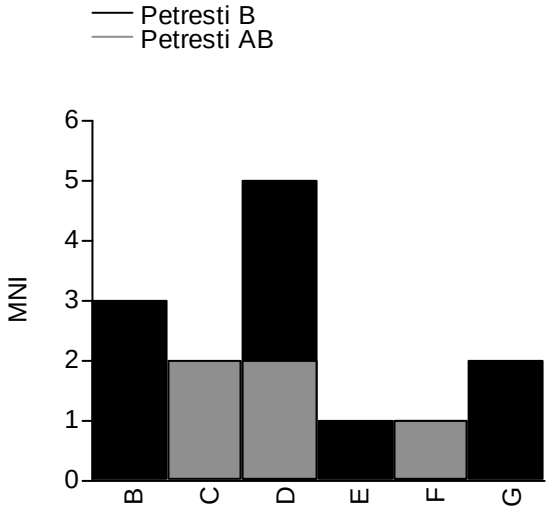

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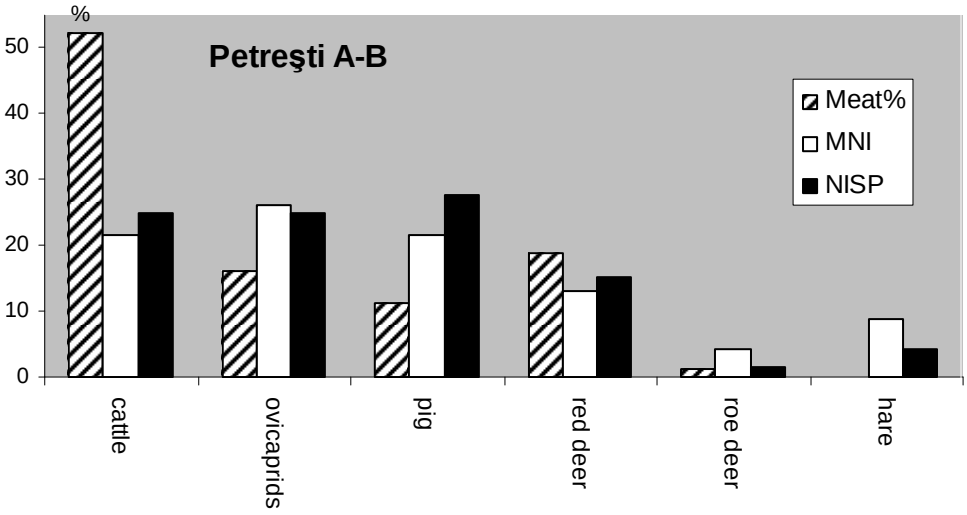

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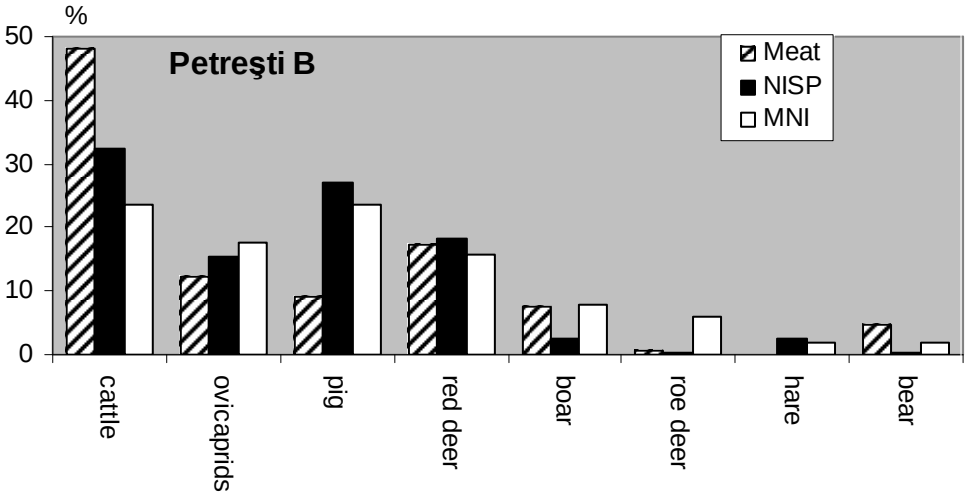

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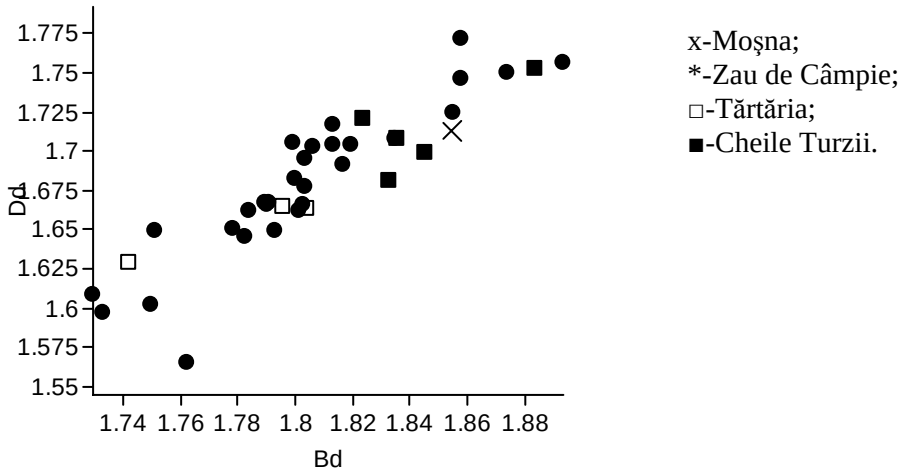

Fig. 8 – Scatter-diagram of cattle distal tibia in Petreşti sites

Measurements cf. Von den Driesch, 1976

Maxilla/sheep

Context	Dating	P2-M3	M1-M3	LM3	Age
S2/pit 8	P. AB	62	41.5	17	3-4 y
S2/pit 9	P. AB	62	41.5	17	3-4 y

Mandibula

Context	Dating	Taxon	M3	Age
S1/2/layer	P. B	Boar	47	old mature
S7/layer	P. B	Cattle	40	36+
S7/house	P. B	Sheep	22	4-6 y
S2/Pit 2/level 2	P. B	Sheep	23.5	22-24 m

Atlas

Context	Dating	Taxon	BFcr	BFcd
S2/layer	P. B	Pig	48	45
S10/layer	P. B	Sheep	42	

Scapula

Context	Dating	Taxon	SLC	GLP	LG
S2/layer	P. B	Cattle		74	61
S7/house	P. B	Cattle		64.5	56.5
S1/layer	P. B	Pig	21		
S1/layer	P. B	Sheep		27	22
S3/layer	?	Cattle		80	65

Humerus

Context	Dating	Taxon	BT	Bd	Dd
S1/layer	P. B	Cattle	75		
S10/layer	P. B	Goat	27.5	28.5	24
S7/layer	P. B	Red deer	60.5		
S7/layer	P. B	Sheep	27.5		

Radius

Context	Dating	Taxon	BFp	Bp	Dp
S7/house	P. B	Cattle			46
S2/layer	P. B	Cattle	74	81	41.5
S1/pit 1	P. AB	Hare			6.5
S2/layer	P. B	Hare		10	6
S7/house	P. B	Red deer			37
Context	**Dating**	**Taxon**	**Bd**	**Dd**	
S2/pit 8	P. AB	Cattle	74	44.5	
S1/layer	P. B	Red deer	58	41	

Metacarpus

Context	Dating	Taxon	Bp	Dp
S7/layer	P. B	Red deer	50	36
S7/layer	P. B	Red deer	48	35
S10/layer	P. B	Red deer	44.5	30.5
Context	**Dating**	**Taxon**	**Bd**	**Dd**
S7/pit 7	P. AB	Red deer	56	35

Metatarsus

Context	Dating	Taxon	Bp	Dp
S2/layer	P. B	Red deer	43.5	45
S10/layer	P. B	Red deer	45.5	45
S10/layer	P. B	Sheep	23.5	21.5
Context	**Dating**	**Taxon**	Bd	Dd
S7/House	P. AB	Red deer	47	32
S10/layer	P. B	Red deer	47.5	31

Tibia

Context	Dating	Taxon	Bd	Dd
S2/layer	P. B	Cattle	71.5	51.5
S2/pit 2	P. B	Hare	16.5	10.5
S1/layer	P. B	Red deer	54	41
S2/layer	P. B	Red deer	52	40
S1/2/layer	P. B	Sheep	25	19.5

Talus

Context	Dating	Taxon	GLl	GLm	Bd
S4/pit 4	P. AB	Cattle		61	
S1/2/layer	P. B	Cattle	60	54	38
S2/layer	P. B	Cattle	69	62.5	47
S7/house	P. B	Red deer	62.5	57.5	39
S10/layer	P. B	Sheep	29	26.5	19.5

Calcaneus

Context	Dating	Taxon	GL	GB
S2/layer	P. B	Cattle	129	43
S7/layer	P. B	Hare	34.5	12.5
S7/house	P. B	Pig	75	22

Centroquartal

Context	Dating	Taxon	GL
S7/house	P. B	Red deer	47
S7/layer	P. B	Red deer	48
S2/pit 2	P. B	Red deer	45

Pelvis

Context	Dating	Taxon	LA
S1/pit 1	P. AB	Dog	22

S2/layer	P. B	Pig	27
S1/layer	P. B	Sheep	22.5

P. AB-Petreşti AB; P. B-Petreşti B; ?-unclear context

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IX

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IX

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THE DACIAN FOTRESS FROM ARDEU
- REASEARCH DIRECTIONS -

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Abstract: *The investigation at Ardeu, during the last years had focused the interest of the scientific community about an archaeological site considered depleted and designed to be destroyed. The affluence of the archaeological material, connected with the complexity of the archaeological contexts justify the enhancement of the researches in the next period. The aim of this paper is to establish the main directions of the researches but also some targets and sequences for the improvement of the monument.*
Keywords**:** *dacian, fortress,settlement, Ardeu, educational, Cetățuia Hill, archaeological research.*

1. The emplacement of the site

Ardeu village is placed in southwestern Transylvania, in the Apuseni Mountains on one of the routs which connect the Mureş Valley to the area rich in precious metals (Pl. I). The southern part of the village is protected by *Cetățeaua*, a hill formed of Jurassic limestone, partially destroyed by the stone exploitation activity (Fig.1)[1]. The hill had some inaccessible sleep slopes on the northern and western sides, these being premises for a better defense of the dwellings placed here. Given that it's slightly gentle shape on the east, the slope is ending with a plateau known as *Judele* or *Dealul Judelui*. *Cetățeaua* Hill is offering the view toward Mureş Valley and beyond as well as Şureanu Mountains. The district road passes close to this elevation and because of geo/morphological characteristics of the terrain we may believe that in ancient times the road could follow the same way, in its neighborhood.

[1] In present day, the limestone quarry is stopped with the help of the mass media, the community and politicians. See for ex: http://www.cdep.ro/pls/steno/steno.stenograma?ids=6089&idm=1,34&idl=1, seen on 16 June 2009.

Fig. 1. Cetățuie Hill; on the left side the limestone quarry can be seen.

2. The archaeological file

The antiquities found on *Cetățeaua* and *Judele*, first attested at the end of the 19th Century (1888) by Téglas Gabor (*Téglas 1888, p.134-138*) produced almost a century later an interest among researchers. We shall not insist on this topic because it has been broached by us in some recent papers (*Ferencz 2003, p. 100; Ferencz 2006, p. 372*), we still want to mention that at the beginning of the 8th decade of the 20th Century the first systematical research, whose results have been presented briefly (*Nemoianu, Andriţoiu 1975, p.181-190*). Between 2001 and 2004, the Museum of Dacian and Roman Civilization reopened the research as preserve excavations financed by Direcția Județeană a Drumurilor Hunedoara (Road District Center) R.A (*Pescaru et all 2002, p.41-43, Ferencz et all. 2003, p.40-42*), and between 2003 and 2004 as a systematical excavation financed by "1 Decembrie 1918" University and Ministry of Culture and Cults (*Ferencz et all. 2004, p.43-45; Ferencz et all. 2005, p. 56-57*).

The archaeological campaign carried on 2002 was the longest, from August until October, when it was investigated the upper plateau of *Cetățeaua* Hill (*Ferencz et all. 2003, p. 40-42*).

In the autumn of 2004, our collaboration with Maria Magdalena Duțescu and Dan Ştefan from the Domain Digital company from Bucharest made possible the first topographic survey of the site (Pl. 2).

3. The main results of researches carried on the upper plateau

During the 2002 campaign two archaeological trenches disposed "crosswise" were traced in order to estimate the archaeological situation from the hill's upper plateau. By researching surfaces of 5x5 m the uncovering of the whole area was started. Parts of some edifices were discovered, which completed our image about the inner organization of the fortification. Thus, we are able to say that on the hummock that dominates the entire upper plateau of the hill were found traces of a

structure that we consider a tower dwelling (*Bodó, Ferencz 2004, p. 150*) because of its form and dimensions.

Besides the tower dwelling which dominates the whole fortification area, existed some other structures (dwellings) inside the walls, inhabited by the persons closed to nobles and/or members of garrison and their families. The remains of two of this kind of buildings were researched in those two archaeological units during the 2002 (*Ferencz et all. 2003, p. 41*) campaigns. In order to lay out this kind of dwellings, the rock was leveled, and a concentration of archaeological materials being found in the area (Pl. III, 2-3). In addition, in the same campaign of 2004, the wall (Pl. III, 1) of the Dacian fortification (*Ferencz et all. 2003, p. 41*) was discovered, as well as various and highly spectacular archaeological materials.

The Dacian habitation had destroyed the other ancient traces (Copper Age, Bronze Age and First Iron Age) but we were still able to find some materials belonging to those historical periods. Materials that are more recent were discovered as well. A small number of them are belonging to the time of the Roman Dacia Province (2^{nd} to 3^{rd} century), several to the Migration Times (4^{th} to 6^{th} century) and others belonging to the Middle Ages (11^{th} to 12^{th} and 14^{th} to 16^{th} centuries).

4. The settlement

We have located the settlement on the Southern and Eastern slopes, on some natural (*Judele*) and artificial terraces and on the bank of the brook (the place named *Gura Cheilor*). The excavation between 2001 and 2003 (*Pescaru et all 2002, p. 41-43; Bodó, Ferencz 2003, p. 147-158; Ferencz Bodó 2003, p. 20-21; Ferencz et all. 2004, p. 43-45*) shows some frames of the habitation in Dacian times, as well as in the Prehistoric times (Copper Age, Bronze Age and First Iron Age) (*Pescaru et all 2002, p. 41-43; Ferencz et all. 2004, p. 43-45*).

We had identified some dwellings (*Pescaru et all 2002, p. 41-43; Ferencz et all. 2004, p. 43-45*) in those areas and the traces of a bronze processing workshop (Ferencz Bodó 2003, p. 20-21). The stratigraphy of the Dacian settlement shows two levels: the older belonging to the end of the 2^{nd} to the first half of the 1^{st} century B.C., and the other one is dated between the 2^{nd} half of the 1^{st} century B.C. to the time of Traian's wars in Dacia (*Pescaru et all 2002, p. 41-43; Ferencz et all. 2004, p. 44-45*). For the time being, we do not have enough data in order to render a more accurate dating.

5. The archaeological site – expectations of the research

There is now enough evidence to prove the importance of the site for the Dacian history and for some other periods. That is the reason for our fight to protect the integrity of the site, as much as it is possible. In the summer of 2006 with the help of a few young and enthusiastic members of Dacia Nemuritoare association, we placed a panel to point out the main characteristics of the site (Fig 2).

Some other activities had taken place with the aim of making the importance of the archaeological site and the entire area known to the local community and in the entire county. This consisted in meetings with the local community members (Fig.

3) and some materials and interviews published in the most popular local newspapers and on the local television broadcasters.

Fig. 2. The panel pointing the main characteristics of the site.

Fig. 3. Meeting with the local community members at Ardeu in the Summer of 2009.

The initial topographic survey was extended for the entire site, according to the cutting of young vegetation done between 2008 and 2009. For the topographic measurements, done in the reference system STEREO 70, the Leica TC 407 total station was used. We have used the points "Pleşa Mare" and "Biserica Ardeu" from the national geodesic network. Using these points, we have determined and materialized other points in the area of the archaeological site, points that we have later used in the detailed land surveys. In order to transfer the data from the total station to the computer we have used the LEICA Geo Office Tools 6 program. Later on the data has been operated with Microsoft Office Excel and Autocad 2008. The 3D models, the profiles and the contour lines were operated with the TopoLT (for Autocad) model and with Surfer 8. If the future archaeological research will require it, we will be able to render some 3D models of the Cetățuia, transversal profiles on different directions or other specifically topographical presentations[2].

Our goal is that the data bases will contain, in a first stage, the pottery, physics-chemical analysis (metallic objects – end products and in course of processing – metallic slags) and osteological analysis. The extention and development of the data bases will depend on the ongoing archaeological research as well as on the existence of a rich documentary background, derived from specialty papers. In realizing this objective we were graciously supported by Dr. Ing. Romulus Ioan Vasile (from TMK Reşița) and Dr. Corneliu Beldiman from Universitatea Creştină «Dimitrie Cantemir», Facultatea de Istorie, Bucureşti.

In studying Ardeu we have also used "Zeus", a program recently implemented by Prof. Dr. Gheorghe Lazarovici (*Lazarovici-Micle 2001*) and computer expert Lucian Tarcea. For the Second Iron Age this program motivated the generation of catalogues on pottery motifs, forms, lips, bottoms and handles. The already existing dictionaries for the technology of pottery (on category, mixture, color, lean material, firing) have been completed with new terms, especially since a main characteristic of the pottery is that it was wheel turned.

For the scientific community we have already prepared some papers presented to some cultural and scientific manifestations, like symposia, congresses and others. We have also published articles regarding special artifacts discovered at Ardeu during that time.

In the same time, we had traced the main lines for the researches, for the future. Drawing up a "*Project for researching the site*", for three years, we had established the strategy for excavating the site through the "*Management yearly planning*". Now our research focuses to the top of the "Cetățuie" Hill. In the first stage we were able to investigate the entire surface of the upper plateau by excavating surface areas of five by five meters on the entire area (Pl. IV).

The presence of the fortress entrenchment's wall in the Western side is another purpose of the investigation and all of these are very important to delineate the image of the Dacian fortress in the ancient time.

[2] Many thanks for mr. Bogdan Tomuş and his team, who made the topographic survey in 2009.

Another question is that about the entrance in the fortress and about the main ways used in the ancient times and in medieval period for climbing the hill. It is very possible that the main gate was located in the Southern Part of the upper plateau. In the earliest written record about the antiquities from the „Cetățuie Hill", Téglas Gabor mentioned walls built of stone blocks looking like those of the Dacian fortresses (*Téglas 1888, p. 134*). The walls seen by Téglas at the end of the 19th century, if indeed they were actually there, had disappeared along the time, partly probably used by the peasants to make lime, and partly destroyed by the limestone quarry. However, thinking about the walls described by Téglas, we are supposing that they belonged to the medieval fortification. That supposition is confirmed by the fact that a thick layer of soil now covers all the walls. It is also a fact that no Dacian fortress specific limestone blocks were ever found at Ardeu. Moreover, according to our observations, the medieval walls (Fig. 4) are made by local limestone processed and fixed with mortar.

At the same time, the Dacian walls are erected with local limestone just summary processed and stabilized with clay. This structure was strengthened by timber poles and possibly by a wooden structure.

The base of the medieval wall (which was detected in only one trench – S3/2001) has two rows that at first sight seem to be made of stone that was not bound with mortar. We suppose that could indicate the line of the Dacian wall that was used in the Medieval time.

Fig. 4. The remains of the Medieval wall.

The objective of the second stage of the investigations must be, in our opinion, the plateau named „Judele". The surface researches and a small trench excavated in

2001 (S2) in the area proved the existence of habitation in different periods (*Pescaru et all 2002, p. 41-43*). The same excavation system used on the upper plateau should be implemented on the „Judele" too.

On the third stage of the researches we intent to excavate the settlement that we had identified at the basis of the hill. Only when this stage of research is over will we be able to create a complete picture of the Dacian habitation at Ardeu. This kind of research approach in several archaeological sites should be able to bring results that we think will allow us to better understand the more complex aspects of the Dacian society in the last centuries before the Roman conquest. At the same time we believe that the research in the area should be intensified in order for us to be able to more clearly see the general frame of the dwelling from Ardeu.

In accomplishing this we need to generate data basis like the ones made by scientists in Sibiu or Cluj for the Neolithic Age. The initial goal of these data basis will be to articulate the information on Romania for the general and particular characteristics of the Second Iron Age (geographical environment, geology, climate, types of habitat, settlements, fortified settlements, fortresses, necropolises, sacred premises, iron and bronze metallurgy, bone and antler manufacture, agriculture, religion, magic, sacred architecture, means of communication and commerce, interaction with the Hellenistic and Roman milieu etc).

6. **Valorization of the site.**

One of the consequences of gathering knowledge from the archaeological research should be the one to try to integrate the investigated monument in the touristic circuit.

As for promoting and the valorization of Ardeu the research group has set a series of short, medium and long time objectives. In a first phase our efforts went to presenting the site to the press, signalizing the monument and presenting to results of the research to the scientific community in communications, studies and articles. We have also initiated collaboration with the illustrator Radu Roşian, who made possible the realization of some idealized sketches representing the ensemble of the monument and some of its buildings. This project is based on the knowledge on the monument at the moment and it tries to present an image of the Dacian fortress to the public.

We have organized activities for the locals in order to make them understand the importance of the monument for their village and we have launched a website dedicated to the fortress[3], its volume and value are conditioned by further research. The event is a first, Ardeu being the first of the Dacian fortresses to benefit such a promotion. The website will be able to be connected to other specialized sites, of museums, research institutes and private associations with concerns on cultural mobile and immobile patrimony. We have also initiated the idea to mount up presentation panels of the site on three places on the road (DN7) and also to include Ardeu in an ideal tourist circuit for the most important Dacian "hot spots"

[3] www.ardeu ro

(Grădiştea Muncelului, Costeşti, Blidaru, Piatra Roşie, Bănița, Hunedoara, Căpâlna, Piatra Craivii, Tilişca).

In the near future we will organize itinerary theme exhibitions that will present the discoveries from Ardeu. Also we would like to create virtual reconstructions of the site, which will be used as part of the future exhibitions dedicated to this site.

We foresee a finance project that will result in roads up to the upper plateau of the hill, information and explanations for the entire ensemble and its components. As the research will advance we will extend our work with architects and illustrators, hoping these collaborations will result in a project that will be able to offer the visitors at least part of the glory of this erstwhile fortress.

Translated by: Delia - Maria Roman

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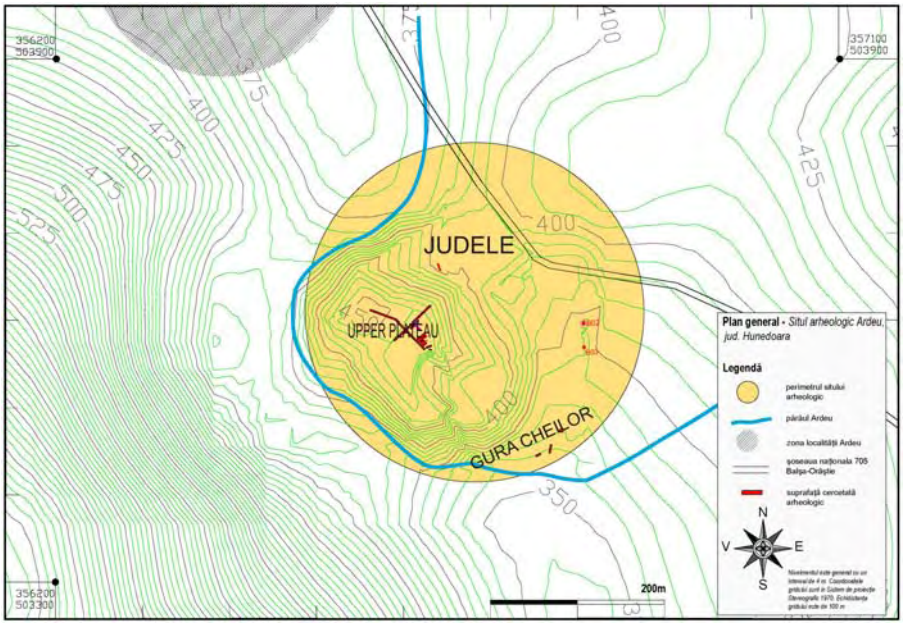
Explanation of the plates

Pl. I. The emplacement of the village Ardeu.



Pl. II The first topographic survey of the site (Domain Digital 2004).

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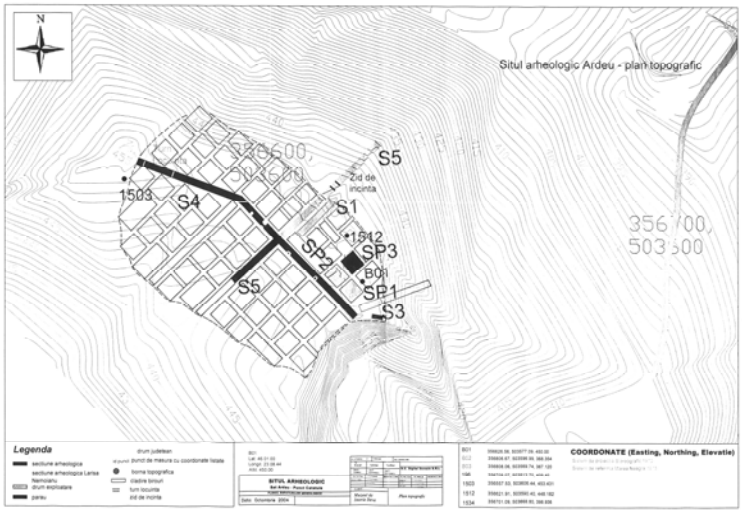

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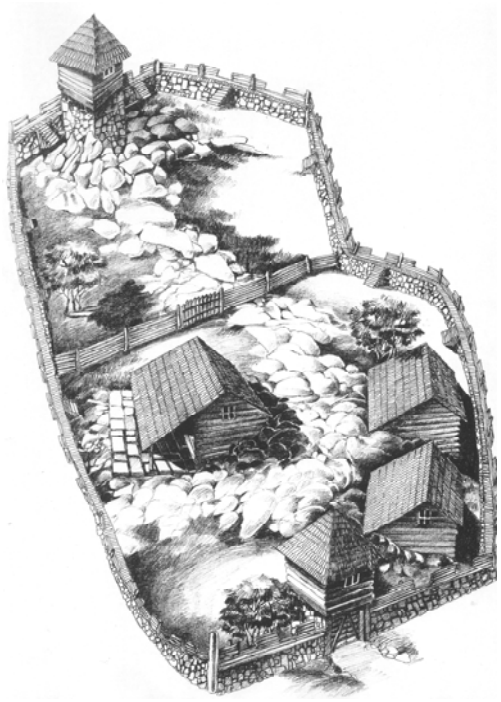

Pl. V. Proposal for a graphical reconstruction of the Dacian fortress from Ardeu (drawing by Radu Roşian).

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FACULTY OF HISTORY AND PATRIMONY
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OF THE TRANSYLVANIAN PATRIMONY IN EUROPEAN CONTEXT

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VITIS VINIFERA SPECIE USED IN LIBATIONS AND IN DAILY LIFE APULUM-*LIBER PATER* SANCTUARY

In Vino Veritas…

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Universitatea 1 Decembrie 1918 Alba Iulia, beatrice.ciuta@uab.ro

Keywords: *Vitis vinifera, libations, sanctuary, Liber Pater, Apulum.*
Abstract: *The present paper debate the use of Vitis vinifera specie within libations, offerings and in daily life. On the debate topic we reported to a key site belonging to roman era (site Apulum) where during archaeological researches developed in area of ancient Colonia Aurelia Apulensis was revealed a sanctuary dedicated to Liber Pater, a roman deity of wine and vegetation. Liber Pater was an archaic divinity being associated with Dyonisos and Bachus, later at Romans.*
The results of archaeobotanical analysis carried out on the soil samples picked from the mentioned area have confirmed the presence of Vitis specie in the sanctuary. These realities can afford us to launch the hypothesis that the specie may be used within libations as wine, but also as fruit within ritual deposits.

Introduction

There is no other plant in the world which has had an older history, being better studied and richer documented than vines. Since the first phase of human society establishment when were created the tales with legendary heroes and the myth of the gods, the vines was considered a symbol of fertility and health and the wine was considered the "*Nectar of the gods*".

The impression that the wine has left on the humans was so deep and so lasting that soon after the discovery of fermentation, vines took to expand with an amazing power wherever the climate and civilization allowed. The populations less privileged being acquainted with the wine but unable to produce themselves has sought to replace it with other similar beverages.

But after various attempts when they failed to get a good drink were contented to buy it from others offering instead of wine cereals, slaves, metals etc. In this way every developed society sought to supply the water with wine, a different drink, serving to the reconciliation of the gods (libations[1]), honoring guests, honoring leaders, reward winners, extinguish the fire after incineration procession.

The Cult of *Liber Pater*

[1] Libation: ritual act consisting of wine flowing on the altar, in an honor of God.

Archaic deity from central Italy, *Liber Pater* was together with its counterpart *Libera*, the protector of vines and fields fertility. This circumstance has led to its assimilation with *Dionysus* - *Bacchus* and his cult has spread in the whole Roman Empire (Teodorescu *et alii* 1966, p. 75) (see fig.1). *Liber Pater*: from the Latin word *libare* which means *flow, sacrifice, taste*, was an old Italic deity of abundance and breeding. Usually *Liber Pater* was associated with *Libera* goddess, both being plebeian deities. The celebration consecrated to *Liber* were been called *Liberalia* and were celebrated on 17 March. After the merging of *Liber* with *Bacchus*, the cultural image of the god was accompanied by Bacchante priestesses called *Bacchantes* during the feasts of *Bacchanalia*, or during the grape harvest held in autumn. The *Bacchantes* dressed with deer skins, bearing lighted torches and waving a *thyrs* during orgies took out the cry: *Evoe*! Being named *evantes*: those that yell! (*Teodorescu et alii 1966, p. 76*).

Originally the ritual of Bacchus was exercised only by women, as well as in Greece, taking place normally, as a sacred ceremonial and social moral was not affected in any way. Much later when were introduced the *Bacchantes,* the Bacchus cult has degenerated into orgiastic rituals. Pacullia Ana, the priestess of Bacchus took the initiative to allow men to participate during the festivities of the cult in nocturnal bacchanal. Because of the mixture these celebrations have slipped down into depravity and moreover, from where the feminine celebrations were limited to three days on year, they came to be held five times on month (*Teodorescu et alii 1966, p. 76*).

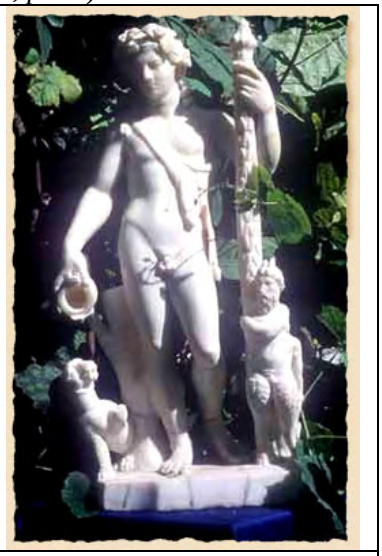

***Fig. 1**. Statue representing Liber Pater the God of wine and vegetation at Romans (apud Apulum-Archaeology Homepage: http://www.apulum-archaeology.com/10.03.2010).*

In order to stop depravity a senatorial edict emitted in 186 B.C., has forbid this degenerated celebration of the *Bacchanalia* in entire Roman Empire. The reason for this edict was based on the fact that while the old *Liberalia* (dedicated to *Liber* and *Libera)* and *Vinalia* were fitting with sobriety practice of the Romans from the beginning of the republic, the orgiastic celebration of Dionysus cult introduced in Rome and in entire empire has degenerated in a real depravity shortly after his introduction (*Teodorescu et alii 1966, p. 76*).

The description of archaeological site

In Romania, in close proximity of Alba Iulia is located the roman archaeological site Apulum. Here was discovered in 1989 a sanctuary dedicated to *Liber Pater* (*Diaconescu et alii 2002, p. 32*). The sanctuary of *Liber Pater* is located in the northwest corner of the ancient Roman city

Colonia Aurelia Apulensis, within an island belonging to the westernmost series housing. The sanctuary hasn't a very complex stratigraphy (fig.2). According to the research in the *Liber Pater* sanctuary area has took place the following chronological sequence events: over the city ditches of *Aurelium Apulense* were been dug a series of clay pits where were installed several pottery kilns during Antonin late age (*Diaconescu et alii 2002, p.32-33*). In 2002 was excavated a kiln together with the afferent level containing the residual ceramic waste. In 2003 the development of the excavation to the north has led to the identification of the same large clay pits, which apparently bunged down on a considerable stretch the trenches from first Roman fortification.

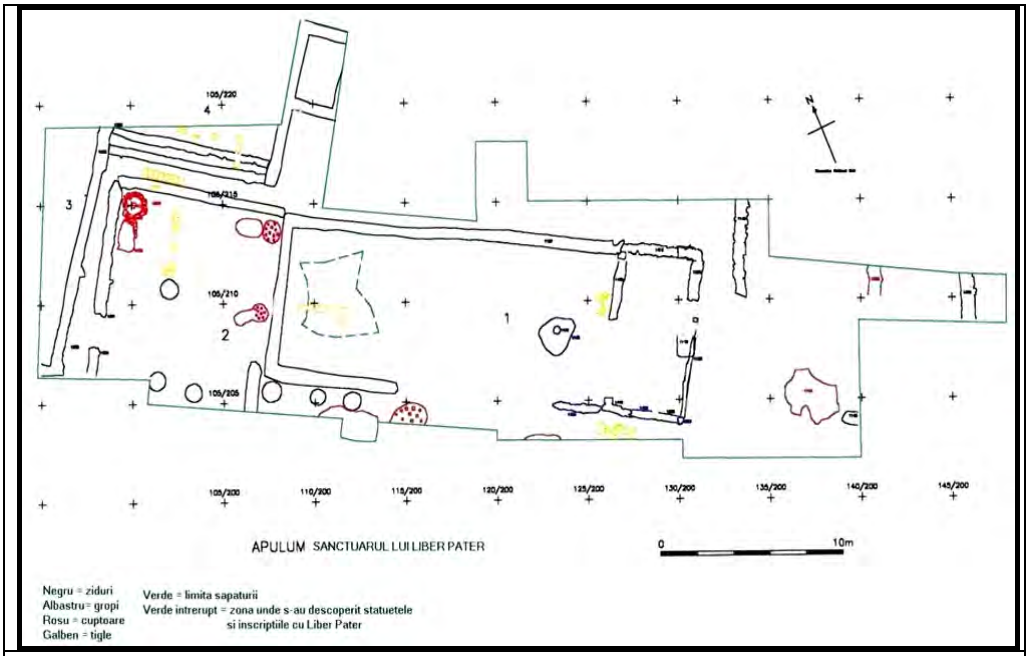

Fig. 2. *The excavation plan from Apulum-Liber Pater Sanctuary (apud Diaconescu et alii 2002, fig.1).*

Perhaps once abandoned the old defensive structure, the potters took advantage from the clay from the walls of the ditches. They excavated on the horizontally the entire space between the defensive trenches (*Diaconescu et alii 2005, p. 47*).

Those resulted in final a pit with cradle form in profile oriented north-south which crosses the whole dug area. The pit, in the early Severian era, (or successive pits) was filled and the ground has been levelled and was build a complex with the appearance of a large suburban villa which is the sanctuary of *Liber Pater*.

In the first stage the walls were been made from wooded beam and adobe (diameter 0,35-0,4 m). In a second phase, dating after Severus Alexander, to walls has made a foundation from gravel and stone pedestal over which was elevated the adobe. Some previous wooden beams were incorporated into a new building which has had exactly the same plane as the first.

A final stage is represented by a few wooden and adobe walls put on the foundation stone and having a slightly different orientation comparative to the older walls. Last phase of the sanctuary is dated by coins of Philip the Arab being the latest found in this site and which not appear until the final contexts which were been dated in the last two decades of province.

It is unclear if not now, or only after the dismantling of pagan worship build by the end of III century, new ceramic ovens were installed in the area, after which there was a complete demolition of the roof and then of the adobe walls. It is clear that the building was devastated by the early Christians which broke methodically wine god statuettes, which were throw into centre of garden sanctuary (*Diaconescu et alii 2005, p.49*).

The building which hosted a Dionysian association from *Colonia Aurelia Apulensis* has measured about 50x50m. The entrance was from the east, where was a rectangular garden and from where was a passing into a courtyard paved with *tegulae* and bricks, placed on a thick bed of gravel.

Next, on the building axis was situated a garden with a black soil rich in humus and from was picked a grape pip. Is very likely that there may have been planted some vines. The court measured 9x9 m and the garden 18x9 m. In the first phase the garden was extended about 9m to the west. In a later stage there was built a hall, oriented north-south.

Between court and garden there was a crossing pavilion made of beams on a foundation of *tegulae* attached with mortar. The northern section of the building was made probably from a square room followed by a long hall from 21m length and 9m width. Latest excavations indicate that to the north there was another hall, measured 4,5 m length and 4,5 m width. In the northwest corner there was a room, where were been identified more brick and mortar foundations for altars and aedicule (*Diaconescu et alii 2005, p.48*).

The main discoveries during 2002 and 2003 were a series of *favisae* (ritual pits, where regularly were been placed the sanctuary offerings). These discoveries determined to extend the excavation period. The ritual pits were placed in halls, which bordered the garden to the north and west. The pits had a depth of about 1.5 m from the ancient level of occupation and a dished form (6-7 m width and 9-10 m length) (*Diaconescu et alii 2005, p. 49*). On their bottom were found a large number of potteries. The specialists estimate about 4-500 pieces of vessel broken in the place of pit, without the scattering of shards. Sometimes the fragment of brick or the stone used to break the vessel was left in place (see fig. 3 and 4). Most (over 60 pieces) are bell-shaped bowls with low and unstable base, made from a coarse paste and burnt in reducing techniques. There are disposable pots for unique usage used in typical offerings. *Turibula* (smoky vessels), follows closely. *Turibula* is specific for burning of incense and other spices, but also could be used as lamps or in libations. It also has been found a lot of *kantharoi* which are cups with two handles, used for drinking wine (*Fiedler, Höpken, 2004, p. 510-516*).

Moreover the accessories of Dyonisos-Liber which are vineyards, kantharos, thyrsos' are within regular funeral motifs *(Bărbulescu 2003, p. 7*).

Among the pieces mentioned were discovered some with specific ritual connotations: a clay model for ritual cake-*Liba*; a clay model for creating ritual masks; a clay relief representing a satire and a bacchante (*Diaconescu et alii 2005, p. 47*).

Archaeobotanical analyzes

The archaeobotanical analyzes of samples picked during 2000-2003 has confirmed the fact that in the vicinity of sanctuary were been planted species of *Vitis vinifera*. After the flotation and determination of macro remains were been revealed grape pips of *Vitis vinifera* but also two dried berries (see fig. 4 and for comparing fig. 5). Grape pips and dried berries were been discovered in the *favisae* (ritual pits). Certainly in these deposits with ritual state were been placed also bunches of grapes. Besides *Vitis* specie were been found also other plant species, but worth mentioning the few caryopses of *Cerealia*.

The soil samples were been processed by water assisted flotation device. The sieves used in selection process measured 1,6mm and 0,8mm. 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 (*Beldie et alii 1972; Körber-Grohne 1994; Săvulescu et alii 1957; Renfrew 1973*).

Fig. 3. *Picture from Favisae I containing the cult vessels and the stones used for ritual objects breaking (apud I. Haynes, from Favisae Project, Apulum-Liber Pater Templum: http://www.bbk.ac.uk/hca/staff/haynes/favissae.htm;10.03.2010)*

Fig. 4. Picture from *Favisae II* containing the cult vessels (apud I. Haynes, from *Favisae Project, Apulum-Liber Pater Templum: http://www.bbk.ac.uk/hca/staff/haynes/favissae.htm;10.03.2010)*

Fig. 5. *Carbonized grape pips of Vitis vinifera (front and back view).*

Fig. 6. *Actual grape pips of Vitis vinifera (front and back view).*

Processing the grapes for wine in the roman times

In the following we describe the main antique processing steps for wine producing from grapes. The simplest method of grapes crushing in the Roman times was squashing with men's feet. After picking the grapes were put into special tanks/basins that were linked to the collector basin through a channel. From the collector basin the grape juice was recovered and deposited in special amphorae. The human squashes were been held each other not to fall. Sometimes they had in their hands sticks with hooks for clinging. Or were hanging with hands to a support fixed above them and often they were holding on the ropes that were placed over the basins (fig. 7-9).

Also during grape picking the squashes were sure to be respected a perfect hygiene during the operation of grape crushing, too. Their feet have to be in perfect clean avoiding accidentally remains of food to get among grapes. The leaves and any foreign bodies that were getting among the grapes were removed. The hygienic conditions were strictly respected because in the religious libations it could be used only a wine in the most perfect cleanliness (Guerin, Gomez Bellard 1999, p. 383-384).

Originally to the grapes crushing operations only men were taking part. But later were accepted also the virgins because to the assumption that their purity mixed with the flavor of the grapes will make a combination with a very special savor (*Valamoti et alii 2007, p. 54-61*).

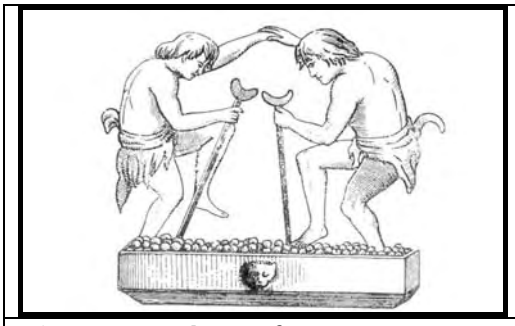

Fig. 7. *Squashing of grapes in Roman times (apud R. Billiard 1913, p. 267,*

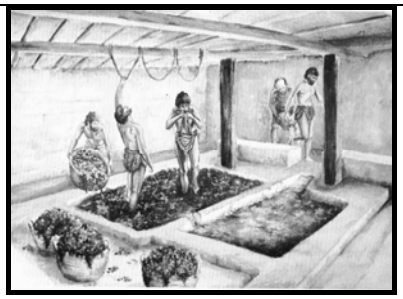

Fig. 8. *Scene representing the squash of grapes in basins from special*

fig.104).	*rooms (apud Guerin, Gomez Bellard 1999, p.383).*

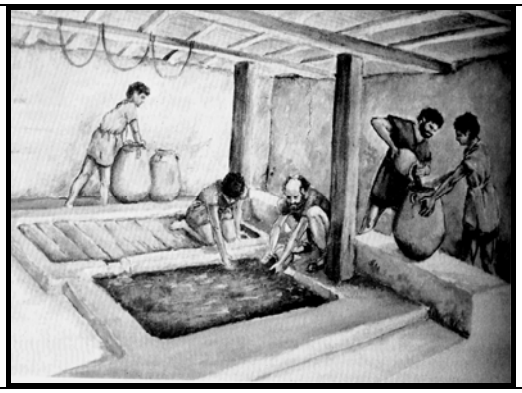

Fig. 9. *Scene representing the collecting of wine juice and depositing in special amphora's (apud Guerin, Gomez Bellard 1999, p. 384).*

Conclusions

In order to obtain the goodwill of gods and to be protected, the Romans were offered wine to them. Though during these rituals the adulators were consumed wine, too. The boozy caused by wine was turned in to ecstasy where were fall his adulators, wine being the strongest effect of the god in their beliefs.

It should still avoid the confusion between those two conditions: *soul state* at which god raised his adulators and the *physical state* both caused by wine. This confusion was always done, being currently sustained by the meaning of words "Bacchus orgy". Originally, as we have mentioned *Liber Pater* wasn't the god of wine, but later became. In this position, as agrarian god, he supervised various festivities and banquettes where his adulators abused from drinks. Often, the artists from roman times presented *Liber/Bachus* as a victim of such excesses, too.

These abuses must be carefully distinguished from religious festivities that instil the divine spirit. At these festivities, the *neurotic phenomena* raised until *hysteria*, plays the main role (*Teodorescu et alii 1966, p. 64*).

Also in Roman times wine was among the most commonly liquids used in rituals related to the cult of the dead. The cult of the dead was celebrated during: *Parentalia-Feralia* (13-21 February), *Lemuria* (9, 11, 13 May) and *Rosalia* (23 May) (*Bărbulescu 2003, p. 83*). At *Parentalia* celebration, in February, the family was met at the grave for the sacrifices, burning animals and making libations with perfume and wine. During *Lemuria*, in May, the family offered a small banquet for the dead who were not buried by tradition or who were not buried at all in order to calm their spirits wandering. By May-June, in *Rosalia*, a widespread celebration in Imperial era, the graves were covered with roses and feasts were offered to the dead. In those days the deceased relatives went to the grave with offerings for the dead. The graves were adorned with flowers and garlands and sprinkled with water and wine. (*Bărbulescu 2003, p.13*). During religious ceremonies, the Romans were

making libation with *mulsum* too: a mixture of cool sweet wine, prepared with honey and with milk. The wine was in Roman times used in ritual extinction of pyre after incineration of a family member. The family was richer as the more was the quality and price of the wine that was used for this purpose (*Bărbulescu 2003, p.12*).

Whatever was the destination and purpose of wine usage, this ranged in various destinations, being present both in daily life, and in the offerings for the gods and libations. Therefore the wine deserves its full formula: "*The Nectar of the Gods"*!

In conclusion, we could state that archaeobotanical analysis carried out on samples picked from Liber Pater sanctuary has confirmed that the *Vitis vinifera* species was used as wine and as a fruit during ritual offerings festivities. The presence of grape pips within *favisae*, support the theory that the *Vitis* sp. was a constant presence among the offerings to Liber Pater, the god of vines and vegetation.

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[i] However, Western people practise the reading of vertical texts when they search for items from lists in column, e.g. surnames from telephone directory or sequence of the stations from railway timetable (Laarni et alii. 2004, 75). It is also the instance for some coins (such as the Polish 10 and 200 ZL coins) and notes (like the Lithuanian 500 litas banknote). Huey (1908) Tinker (1955), Coleman and Kim (1961), Coleman and Hahn (1966) have studied reading a column format of text from paper. They conclude that if a vertical text is typically read slower than the standard horizontal text prior to practise, text comprehension may be comparable in the vertical - and standard - text conditions from the very beginning. No acute difference between horizontal and vertical orientation was found for native Chinese (Chen, Chien 2007).