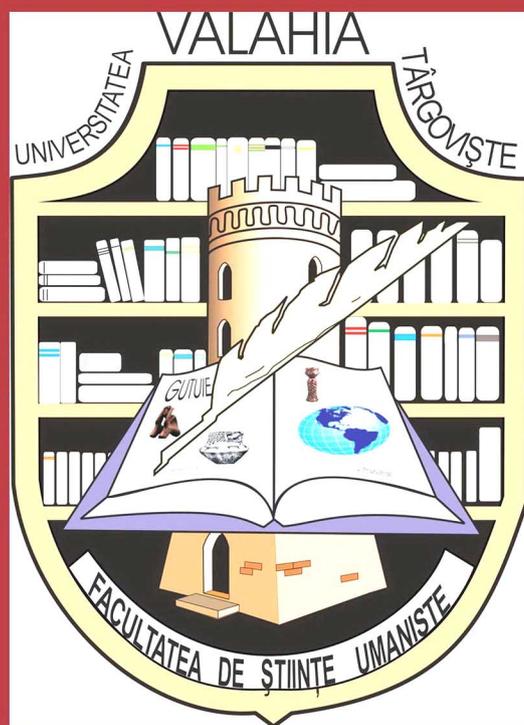


Ministère de l'Education Nationale  
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Faculté de Sciences Humaines

# ANNALES

## D'Université "Valahia" Târgoviște

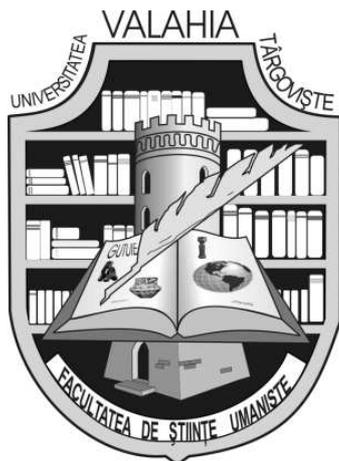


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# ANNALES



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## Exploitation du quartzite à la station du Paléolithique moyen à Érd (Hongrie)

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**Abstract: Exploitation of the quartzite at the Middle Palaeolithic settlement in Érd (Hungary)** Excavated by Veronika Gábori-Csánk in 1963 and 1964, Érd is a particular site of the Middle Palaeolithic in Hungary. Six occupation levels in two habitation zones have been identified. Their archaeological material have been attributed to the Charentian of South-east Europe. The main feature of this Mousterian facies is the dominant use of quartzite pebbles as raw material of tool production. The technology was compared to the Pontinian of Italy. Recent technological study of the lithic assemblage of Érd demonstrated that Prehistoric men applied several debitage methods for the exploitation of quartzite pebbles. The methods have been chosen according to pebble forms and to parameters of needed products.

**Key words:** Middle Palaeolithic, discoid debitage, Quina debitage, standardized production, quartzite

**Résumé: Exploitation du quartzite à la station du Paléolithique moyen à Érd (Hongrie).** La station d'Érd, fouillée par Veronika Gábori-Csánk en 1963 et 1964, est un site particulier du Paléolithique moyen de la Hongrie. Six niveaux d'occupation dans deux zones d'habitat ont été identifiés dont le matériel archéologique a été attribué au Charentien d'Europe sud-orientale. L'utilisation dominante des galets de quartzite pour la confection des outils constitue la caractéristique la plus importante de ce faciès moustérien dont la technologie fut comparée à celle du Pontinien en Italie. L'étude technologique récente de l'industrie d'Érd a révélé que les hommes préhistoriques ont appliqué plusieurs méthodes de débitage pour l'exploitation des galets de quartzite. Les méthodes ont été choisies en fonction de formes de galets et de paramètres souhaités des produits recherchés.

**Mots-clés:** Paléolithique moyen, débitage discoïde, débitage Quina, production standardisée, quartzite

### Introduction

La première version de cet article a été préparé pour les actes de la table ronde WS15, organisée par Sara Cura et Stefano Grimaldi au XVIème Congrès International de l'UISPP à Lisbonne en 2006 (S. Grimaldi, S. Cura, 2009) où elle n'a finalement pas paru pour raison technique. La naissance de cette nouvelle version est due à M. le Prof. Marin Cârciumarău qui m'a invité à publier l'article dans les Annales de l'Université Valahia, Section d'Archéologie et

d'Histoire. Il m'est agréable de le remercier ici vivement.

Le site en plein air d'Érd est considéré depuis longtemps comme gisement exemplaire du Paléolithique moyen de la Hongrie. Découvert en 1961, il a été soigneusement fouillé par Veronika Gábori-Csánk en 1963 et 1964. Grâce aux études pluridisciplinaires effectuées par une équipe composée des meilleurs spécialistes hongrois de l'époque et publiées dans une grande monographie, nombreux aspects des occupations

successives des hommes préhistoriques ont été dévoilés à partir des données sédimentologiques, paléobotaniques, paléontologiques et archéologiques (V. Gábori-Csánk, 1968b). L'industrie lithique qui a été définie comme Charentien (V. Gábori-Csánk, 1967, V. Gábori-Csánk, 1968a, V. Gábori-Csánk, 1968b, p.161-183) constituait l'une des trois variantes du Moustérien en Hongrie, représentées par les gisements de Tata, Érd et Subalyuk (M. Gábori, 1976, p.70-84).

Dans les années 1980, l'analyse typologique et stratigraphique du matériel lithique de la grotte Subalyuk a révélé la présence de deux faciès : le Moustérien typique riche en racloirs (industrie de la couche 3) et le Moustérien type Quina (industrie de la couche 11) (Zs. Mester, 1989, Zs. Mester, 1990). Nous avons relevé le problème de la forte analogie de la composition typologique de cette dernière industrie et de celle d'Érd, tandis qu'elles semblaient se différer au niveau de la technologie. Mais cette différence peut être due à la différence des matières premières. C'est dans cet optique que nous avons commencé l'étude technologique des assemblages lithiques de ces gisements (Zs. Mester, 2004a, Zs. Mester, 2004b).

### Le site en plein air d'Érd

La ville d'Érd fait actuellement partie de l'agglomération de Budapest, capitale de la Hongrie. Le site lui-même se situait dans la partie « Parkváros » qui n'était guère habitée au début des années 1960. (fig. 1) Là, le Plateau de Tétény est découpé par plusieurs vallées, dont la vallée Fundoklia, de direction nord-ouest/sud-est, conduisant vers le Danube. Les hommes préhistoriques s'y étaient installés dans deux vallons parallèles qui s'ouvraient sur la vallée Fundoklia.

Les fouilles ont excavé ces deux vallons sur une superficie d'environ 250 m c, ce qui représente la totalité du site, à l'exception d'une coupe stratigraphique transversale de référence (V. Gábori-Csánk, 1968 b). Les sédiments remplissant les vallons ont été des cailloutis calcaires et des niveaux loessiques plus ou moins épais, formations alloctones (loess) et autochtones (effritement du calcaire du Sarmatien). D'après Pál Kriván (V. Gábori-Csánk, 1968 b), les loess appartiennent au Pléistocène supérieur. Deux couches archéologiques ont été identifiées dont la

supérieure a été subdivisée en cinq niveaux d'occupation (a-e).

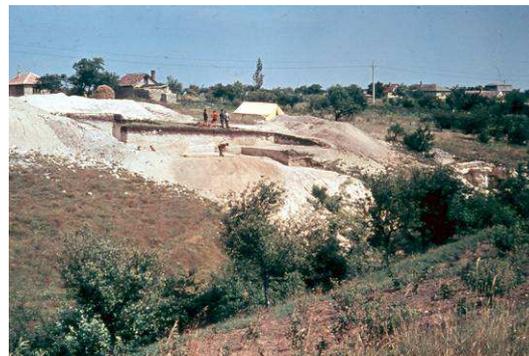


Fig. 1-Le site d'Érd pendant les fouilles en 1964 (cliché de M. Gábori). Fig. 1-The site of Érd during the excavations in 1964 (photo by M. Gábori)

Cette séquence a été attribuée au Würm ancien, ce qui a été appuyé par les données paléontologiques et paléobotaniques (M. Kretzoi in V. Gábori-Csánk, 1968b, p.59-104; J. Stieber in V. Gábori-Csánk, 1968b, p.39-55). À part les datations de > 50 000 B.P. (V. Gábori-Csánk, 1970) et de > 38 100 B.P. (GXO 200) (V. Gábori-Csánk, 1968 b), les dates au <sup>14</sup>C obtenues pour la couche archéologique supérieure semblent trop récentes par rapport à la position chronologique mentionnée : 44 300 ± 1400 B.P. (GrN-4444) pour le niveau e et 35 300 ± 900 B.P. (GrN-4443) pour le niveau d (V. Gábori-Csánk, 1968 b).

La faune est dominée par l'ours des cavernes dont la présence a été considérée comme le résultat de la chasse. L'analyse des amas d'ossements a conduit Miklós Kretzoi et Veronika Gábori-Csánk (V. Gábori-Csánk, 1968 b) à formuler des interprétations d'ordre paléoethnologique concernant les modes de chasse et le traitement des butins. Plusieurs fois dans les dernières années (Ph. Fosse et al., 2002; Zs. Mester, M.-H. Moncel, 2006) s'est relevée la question de savoir si les ours des cavernes du site ne représentent une accumulation naturelle, en tenant compte de la présence de toutes les régions du corps et des restes de nouveau-nés. Sur la base de ses études archéozoologiques et taphonomiques, Éva Daschek (2008) a conclu à la possibilité d'une alternance de tanières d'ours, de repaires d'hyène et d'occupations humaines de courte durée sur le site.

### L'industrie lithique

V. Gábori-Csánk a étudié les 808 outils retouchés en suivant la méthode Bordes (V. Gábori-Csánk, 1968 a; V. Gábori-Csánk, 1968 b). La répartition des 789 pièces, provenant de la couche archéologique supérieure, selon la liste-type montre la forte dominance des racloirs (IR=65,52) et l'absence des pièces Levallois, des pointes et des denticulés (types 1-4, 6-8 et 42-43 respectivement 0,63 %, 0,12 % et 4,68 %). Les indices charentien et Quina (IC=28,40 et IQ=5,8) argumentent également pour une attribution de cet outillage au Moustérien type Quina ou Charentien.

La caractéristique primordiale de l'industrie est l'utilisation prédominante de galets de quartzite: 76,2 % des outils ont été faits sur quartzite, tandis que le reste (23,8 %) l'ont été sur une gamme de différentes matières composée de silex, de jaspe, de calcaire nummulithique silicifié, de bois silicifié et de quelques autres roches en faible quantité (I. Dienes in V. Gábori-Csánk, 1968 b, p.111-114). L'auteur de l'étude pétrographique a supposé que l'ensemble du matériel provenait de la même formation géologique, plus précisément du cailloutis helvétien qui se situe sur un plateau à 500 m du site. Nous ne pouvons pas admettre cette position parce que, d'une part, nous avons reconnu dans l'assemblage des variétés de roches qui doivent provenir de lieux d'approvisionnement beaucoup plus éloignés comme le calcaire nummulithique silicifié ou le silex corné de type Buda (Zs. Mester, 2004 b; Zs. Mester, M.-H. Moncel, 2006), d'autre part, les recherches systématiques que András Markó a lancées ont mis en évidence que les sources de certaines matières premières sont beaucoup plus nombreuses dans la région (A. Markó, M. Kázmér, 2004).

Parmi les 15 catégories de matières premières que nous avons distinguées lors de notre étude d'après leurs caractères macroscopiques (MP01 à MP15), 7 présentent seulement du cortex, mais qui, dans beaucoup de cas, semblent être plutôt de cortex de rognons et non de néocortex de galets (M.-L. Inizan et al., 1995; V. Mourre, 1997; D. Colonne, V. Mourre, 2009). Quand même, la dominance de ces matières à cortex rend l'industrie d'aspect « faite sur galets ».

### La technologie

Selon V. Gábori-Csánk (1968 a; 1968 b), le débitage à Érd consiste à produire des tranches de

galets suivant des schémas assez simples. Comme analogie proche, elle évoque le Pontinien d'Italie, en faisant référence aux travaux d'Alberto C. Blanc. Elle a souligné qu'il y avait des différences considérables entre les modes d'obtention des éclats semblables des deux industries. Notamment, les tranches de galet du Pontinien ont été faites par deux éclatements parallèles ce qui conforme à la meilleure qualité de la matière première utilisée (silex). L'application du même mode d'obtention d'éclats est impossible à Érd à cause de la surface de fracture irrégulière du quartzite. Elle a interprété ce phénomène de modification technologique comme une adaptation parfaite à la matière première locale choisie intentionnellement.

Plus tard, Mariella Taschini (1979) a contesté la relation (génétique) supposée en raison de l'absence totale du débitage Levallois et du facettage des talons dans l'industrie d'Érd, tandis qu'ils sont toujours présents dans le Pontinien. Les valeurs maximales se rencontrent dans l'assemblage de la couche 2 de la Grotta Guattari où IL égale 11,11 ainsi que IF et IFs sont respectivement de 44,53 et de 39,84 (M. Taschini, 1979). À noter que les talons facettés sont quand même présents dans l'industrie d'Érd, comme Jacques Tixier l'a bien remarqué dans son compte rendu (J. Tixier, 1970).

L'introduction d'une nouvelle approche technologique du débitage Levallois (J. Tixier, 1967), puis l'élaboration du concept Levallois et des méthodes Levallois (E. Boëda, 1986; 1988; 1994) ont permis de reconsidérer le problème de la technologie pontinienne aussi (A. Bietti, S. Grimaldi, 1990-1991; A. Bietti, S. Grimaldi, 1993; A. Bietti, S. Grimaldi, 1996). Il s'agit là d'un débitage Levallois qui utilise plusieurs méthodes (unidirectionnelle, bidirectionnelle, centripète) pour obtenir d'éclats prédéterminés. Les méthodes se sont enchaînées pour pouvoir exploiter le plus possible la matière première sous forme de petits galets de silex. Ces comportements techniques s'observent dans d'autres industries plus anciennes de l'Italie centrale (S. Grimaldi, 1996; 1998).

Bien que notre étude ait révélé la présence de plusieurs modes de débitage plus complexes que les schémas publiés par V. Gábori-Csánk, les tailleurs de la station d'Érd n'ont point appliqué le concept Levallois de prédétermination. Cependant, la qualité de la matière première, telle

que le quartz et le quartzite, n'exclut pas la possibilité d'un débitage Levallois comme le montrent par exemple l'industrie du site du Rescoundudou en France du sud-ouest (J. Jaubert, V. Mourre, 1996).

Les galets de quartzite à Érd (notre catégorie MP14) sont plus ou moins grands, de couleurs variées, aux grains plus ou moins gros, à cortex lisse. L'assemblage de cette matière première comprend 29 nucléi dont la plupart est dans un état épuisé. L'étude de ces nucléi nous a permis de reconnaître la présence de deux modalités du débitage discoïde (unifaciale et bifaciale) et celle du débitage Quina (Zs. Mester, 2004 b; Zs. Mester, M.-H. Moncel, 2006). (fig. 2).

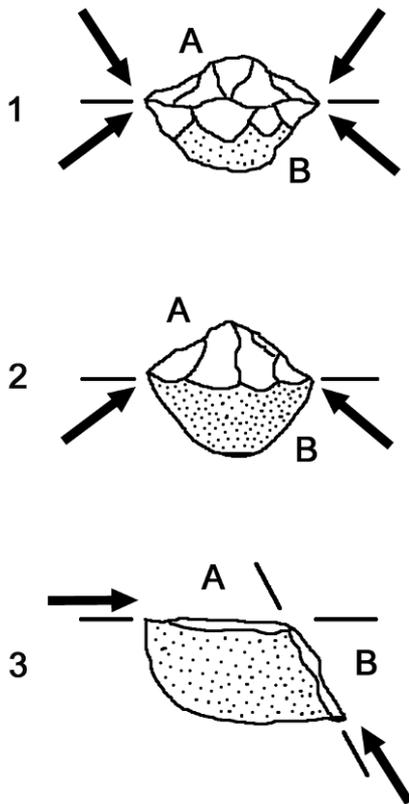


Fig. 2-Schémas des débitages observés dans les assemblages lithiques d'Érd (d'après Zs. Mester, 2004 b, fig. 3). 1: débitage discoïde modalité bifaciale; 2: débitage discoïde modalité unifaciale; 3: débitage Quina;

Fig. 2-Synthetic drawings of the different kinds of debitage observed in Érd (after Zs. Mester, 2004 b, fig. 3). 1: bifacial discoid debitage, 2: unifacial discoid debitage, 3: Quina debitage.

Le débitage discoïde à modalité bifaciale est représenté par les nucléi dont la configuration

présente deux surfaces sécantes (A et B) qui, au cours du débitage par enlèvements centripètes, jouent alternativement le rôle de la surface de débitage et la surface des plans de frappe (E. Boëda, 1993; 1994; J. Jaubert, V. Mourre, 1996; A. Turq, 2000). (fig. 2/1) Tenant compte de cette alternance des surfaces exploitées, les produits caractéristiques de ce débitage sont des éclats triangulaires ou subtriangulaires sans cortex à la base. Les talons sont donc lisses, dièdres, ou très rarement facettés (fig. 3/1-4).

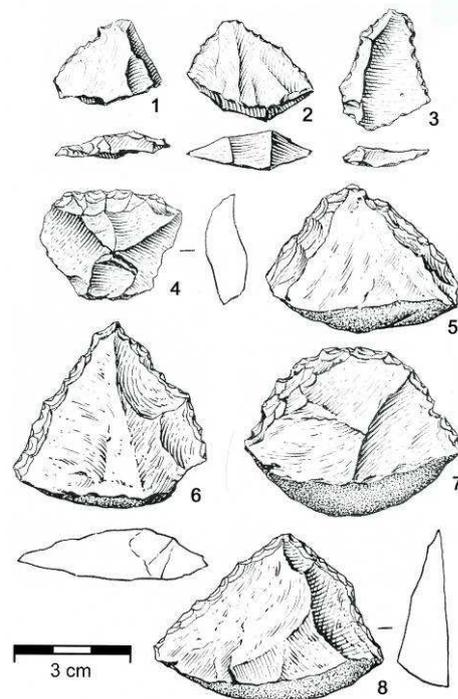


Fig. 3-Produits caractéristiques du débitage discoïde (d'après Zs. Mester, 2004 b). 1-4: modalité bifaciale; 5-8: modalité unifaciale.  
Fig. 3-Characteristic products of the discoid debitage (after Zs. Mester, 2004). 1-4: bifacial discoid debitage; 5-8: unifacial discoid debitage.

Les nucléi du débitage discoïde à modalité unifaciale ont une configuration semblable. Cependant, tout le long de l'exploitation du nucléus par enlèvements centripètes, l'une des surfaces (A) joue le rôle de la surface de débitage, tandis que l'autre (B) est celle des plans de frappe. Cette hiérarchisation des surfaces ressemble à celle du concept Levallois mais l'organisation des enlèvements et des plans de

## Exploitation du quartzite à la station du Paléolithique moyen à Érd (Hongrie)

débitage rapprochent ces nucléi nettement du concept discoïde (E. Boëda, 1993; 1994) (fig. 2/2) L'existence de cette hiérarchisation dès la phase initiale constitue une différence essentielle par rapport au concept de la modalité bifaciale. C'est pour cette raison que nous avons tendance à la nommer débitage semi-discoïde (Zs. Mester, 2004 b; Zs. Mester, M.-H. Moncel, 2006). Due à cette hiérarchisation, la surface B reste corticale le long de l'exploitation du nucléus. Par conséquent, les produits caractéristiques sont des éclats triangulaires ou subtriangulaires à base plus ou moins épaisse et à talon cortical (figure 3/5-8).

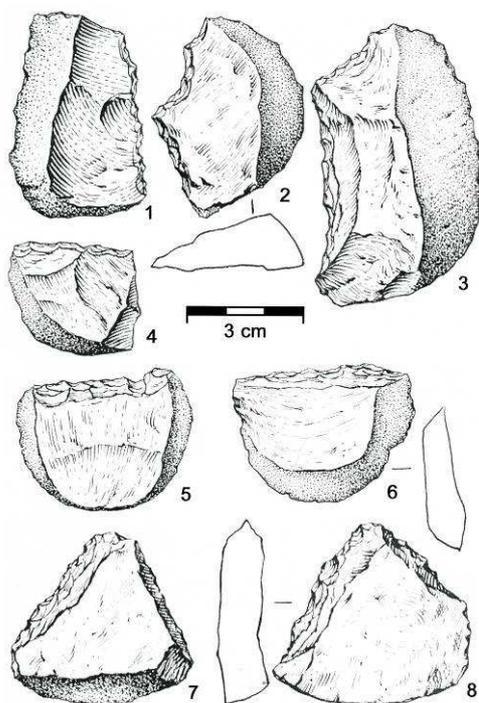


Fig. 4. Produits caractéristiques du débitage Quina (d'après Zs. Mester, 2004 b).

Fig. 4. Characteristic products of the Quina debitage (after Zs. Mester, 2004).

D'autres nucléi disposent d'une configuration qui évoque celle des nucléi du débitage Quina (L. Bourguignon, 1996). Le concept de ce débitage se caractérise par l'existence de deux surfaces sécantes, non hiérarchisées. L'une des surfaces est orientée parallèlement à l'un des axes morphologiques du bloc initial, et l'autre l'est obliquement. L'objectif du débitage Quina est l'obtention de supports épais, à section asymétrique (L. Bourguignon, 1996; A. Turq, 2000) (fig. 2, 3) Dans l'industrie d'Érd, ce sont les éclats latéralisés et les éclats en forme de

« tranche » qui correspondent à cette finalité (fig. 4).

Nous avons remarqué quelques pièces qui témoignent une autre type de production spécifique. Il s'agit des galets fendus suivant leur plan de symétrie longitudinal. C'est probablement à l'aide de la technique sur enclume. Puisque l'une de ces pièces a été transformée en racloir, nous envisageons une production intentionnelle.

Le matériel archéologique du site comprend également des galets de quartzite non-exploités ou juste testés. La comparaison de la morphologie de ces pièces et celle des nucléi a dévoilé que les Préhistoriques ont sélectionné les formes initiales de blocs (galets) en vue du débitage envisagé. La modalité bifaciale du débitage discoïde a été appliquée aux galets ovalaires ou arrondis (fig. 5/1), ce qui est également prouvé par un nucléus qui fut abandonné au début de son exploitation.



Fig. 5-Galets sélectionnés pour les différents débitage (clichés Zs. Mester). 1: débitage discoïde modalité bifaciale; 2: débitage discoïde modalité unifaciale; 3: débitage Quina.

Fig. 5-Selected pebbles for the different kinds of debitage observed (photos by Zs. Mester). 1: bifacial discoid debitage; 2: unifacial discoid debitage; 3: Quina debitage.

La modalité unifaciale du débitage discoïde (ou le débitage semi-discoïde) a exploité les blocs

qui disposaient d'une partie «conique» qui devenait enfin la surface des plans de frappe (fig. 5/2). Cela permettait de maintenir l'angle de chasse convenable et d'éviter que la surface A soit de plus en plus bombée comme à Coudoulous I (J. Jaubert, V. Mourre, 1996). Les blocs polyédriques ou en forme de parallélépipède présentant plusieurs faces assez plates, aux arrêtes arrondies qui n'ont pas été roulés très longtemps, se prêtaient au débitage Quina. Dans ces cas, l'exploitation du nucléus a été organisée de manière à garder l'intersection de deux faces formant un angle presque droit pour assurer l'asymétrie le long du débitage (fig. 5/3). Enfin, les galets très plats à deux faces parallèles ont été choisis pour fendre longitudinalement.

L'exploitation du quartzite suivant des méthodes apparentées est connue dans le Moustérien type Quina de la couche 5 de la grotte Scladina (Sclayn) en Belgique (M.-H. Moncel, 1998; K. Di Modica, D. Bonjean, 2009; K. Di Modica, 2011). Les schémas *d*, *e* et *f* de la figure 28 de M.-H. Moncel (1998) correspondent à ce que nous avons décrit dans l'industrie d'Érd comme les modalités unifaciale et bifaciale du débitage discoïde et le débitage Quina respectivement. K. Di Modica et D. Bonjean (2009) ont observé non seulement les mêmes modes de débitage mais la même sélection de morphologie initiale des blocs. K. Di Modica (2005) a démontré une telle adaptation dans l'industrie du Trou du Diable (Hastière-Lavaux, Belgique) aussi. Ces analogies sont très frappantes et très intéressantes.

### Standardisation de l'outillage

V. Gábori-Csánk (1968 b) a déjà remarqué que la production d'éclats de l'industrie d'Érd paraissait standardisée à un haut degré. Elle a cherché l'origine de cette standardisation dans les éléments constants du débitage: la forme roulée des galets et le mode de taille qui conditionnent des types d'éclats constants.

D'après ce que nous avons démontré plus haut, il doit s'agir ici un système de production lithique (J.-M. Geneste, 1991) complexe avec des objectifs techniques (S. Grimaldi, 1996; 1998) bien définis. L'analyse morphométrique de l'outillage a révélé une standardisation accentuée (Zs. Mester, 2004 b; Zs. Mester, M.-H. Moncel, 2006). Du point de vue métrique, nous avons tenu compte des longueurs, des largeurs et des

épaisseurs des outils. L'aspect morphologique du support dépend plutôt des rapports de ces valeurs. À côté du rapport longueur-largeur ( $R_{Ll} = L/l$ ), généralement utilisé, nous avons calculé le rapport qui exprime le caractère épais et que nous avons défini par l'expression  $R_{ép} = \min(L,l)/e$  (Zs. Mester, 2004 b; Zs. Mester, M.-H. Moncel, 2006). Pour caractériser l'industrie sur quartzite à Érd, les données ont été évaluées par l'analyse statistique (tab. 1).

N=575	L	l	e	$R_{Ll}$	$R_{ép}$
minimum (mm)	16	13	4	0,4 7	0,8 0
maximum (mm)	108	100	84	3,1 1	5,6 7
médiane (mm)	41, 0	35, 0	14, 0	1,1 8	2,3 3
premier quartile (mm)	33, 0	27, 0	11, 0	0,9 4	1,9 3
troisième quartile (mm)	49, 5	42, 0	18, 0	1,4 6	2,8 2
nombre dans l'interquartile	269	284	288	287	287
moyenne (mm)	42, 27	36, 23	14, 86	1,2 4	2,4 1
écart type	13, 8	13, 1	6,3 3	0,4	0,7
nombre entre la moyenne $\pm$ écart type	412	422	465	405	417

Tab. 1-Évaluation statistique de l'étude morphométrique de l'outillage sur quartzite de l'industrie d'Érd.

L = longueur; l = largeur; e = épaisseur;  $R_{Ll}$  = rapport longueur-largeur;  $R_{ép}$  = caractère épais.

Tab. 1-Statistical evaluation of the morphometrical study of the toolkit on quartzite in the industry of Érd.

L = length; l = width; e = thickness;  $R_{Ll}$  = length-width ratio;  $R_{ép}$  = character of being thick.

Les valeurs dessinent un large éventail quant aux minimums et maximums: la longueur, la largeur et l'épaisseur varient dans un intervalle de 93 mm, de 88 mm et de 81 mm respectivement,

## Exploitation du quartzite à la station du Paléolithique moyen à Érd (Hongrie)

tandis que les écarts entre les valeurs minimum et maximum des rapports  $R_{LI}$  et  $R_{ép}$  sont de 2,65 et de 4,88. L'analyse de la distribution de ces valeurs démontre que leur majorité se concentre dans un intervalle bien limité. L'interquartile qui embrasse la moitié des valeurs autour de la médiane couvre seulement 17 à 20 % de l'écart total entre le minimum et le maximum, et il se diminue même à 9% dans le cas de l'épaisseur. Si on regarde la distribution des valeurs autour de la valeur moyenne, on constate que 70,5 à 80,9 % en se trouvent à l'intérieur de l'intervalle marqué par l'écart type (fig. 6). En plus, 50,78 % des outils disposent des dimensions où la longueur, la largeur et l'épaisseur sont toutes dans cet intervalle. Et cette standardisation est également valable à la morphologie parce que la moitié des outils (53,57 %) ont tous les deux rapports à l'intérieur de l'intervalle ainsi calculé (fig. 7).

La corrélation des rapports  $R_{LI}$  et  $R_{ép}$  visualise assez bien la morphologie générale de l'assemblage (tab. 2). Nous remarquons que, pour  $R_{LI}$ , les valeurs inférieures à 1,0 signifient les supports courts, les valeurs entre 1,0 et 1,9 les supports ordinaires, tandis que les valeurs égales ou supérieures à 2,0 les supports allongés ou laminaires. De même, pour  $R_{ép}$ , les valeurs inférieures à 3,0 peuvent être considérées comme l'indice de supports épais (où l'épaisseur dépasse le tiers de l'autre dimension tenue en compte), tandis que les valeurs égales ou supérieures à 5,0 représentent déjà des supports minces. Entre 3,0 et 5,0, l'indice montre des supports ni épais, ni minces, que nous appelons normaux. D'après cette interprétation des indices, nous pouvons constater que les outils sur quartzite à Érd ont été façonnés de préférence sur supports épais et courts ou ordinaires (Tab. 3).

L'étude du matériel archéologique de la couche supérieure, en tenant compte de la subdivision en niveaux d'occupation, a conduit V. Gábori-Csánk (1968b, p.183-196, 1968c) à reconnaître une évolution interne dans l'industrie qui se manifestait par les modifications dans la composition typologique, dans le taux des matières premières autres que le quartzite et dans la composition de la faune qui reflète les changements de l'orientation de la chasse. Les résultats de notre étude technologique ne nous a pas convaincu de l'existence de cette évolution interne pour ce qui concerne l'industrie lithique. Certes, la proportion des autres matières premières à l'intérieur de l'outillage augmente

dans les niveaux b et a, mais la tendance n'est pas si.

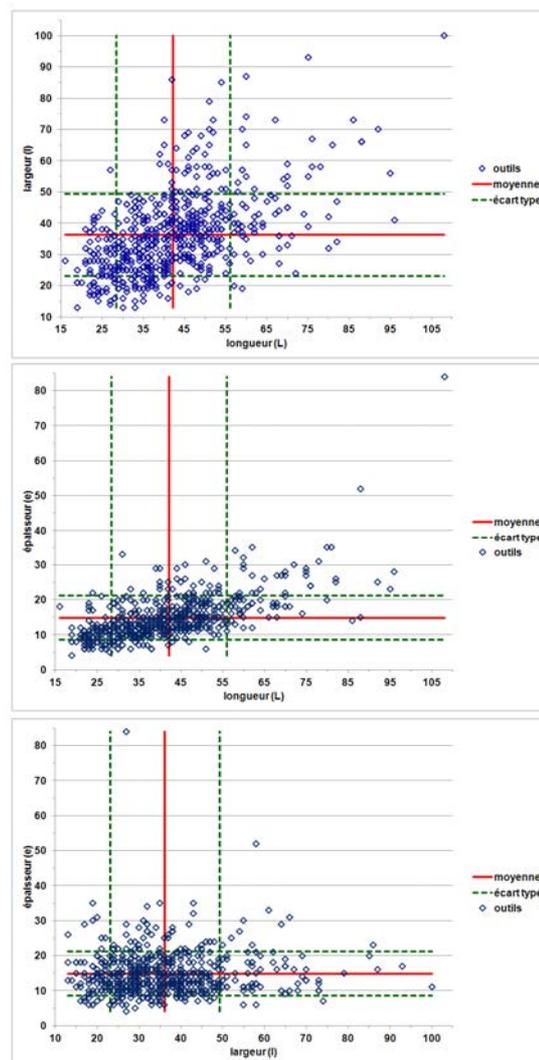


Fig. 6-Standardisation métrique des outils sur quartzite à Érd.

Fig. 6-Metrical standardisation of the tools on quartzite in Érd.

Le comportement n'a rien changé le long de la séquence des niveaux. Ni la répartition des indices métriques  $R_{LI}$  et  $R_{ép}$  (Zs. Mester, M.-H. Moncel, 2006, Fig. 11 et 12), ni le choix des supports (Figure 8) ne révèle aucune modification dans le temps.

Il est difficile à interpréter ce phénomène, surtout si on tient compte du laps de temps qui pourrait séparer les niveaux le plus inférieur et le plus supérieur. Dans la synthèse sur la chronologie du site, V. Gábori-Csánk (1968b, p. 105-110) a placé l'accumulation des sédiments

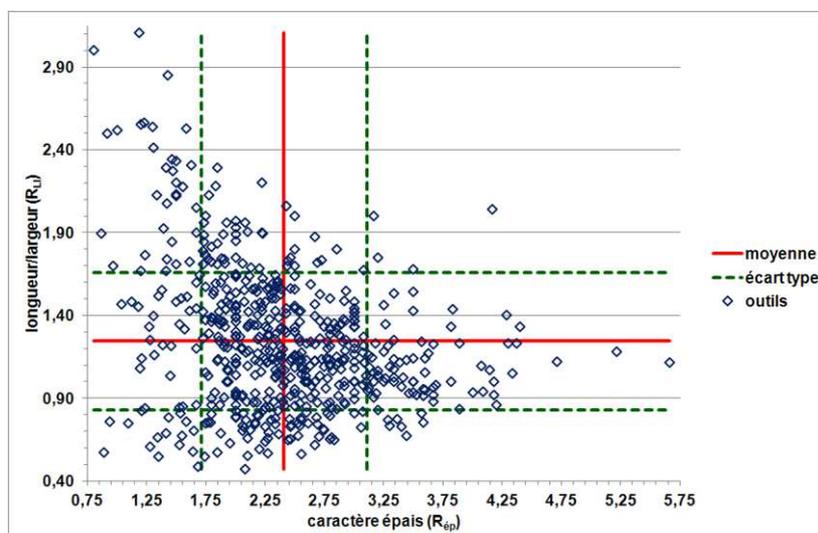


Fig. 7-Standardisation morphologique des outils sur quartzite à Érd.  
Fig. 7-Morphological standardisation of the tools on quartzite in Érd.

		R <sub>Ll</sub>						total	%	
		0,1–0,4	0,5–0,9	1,0–1,4	1,5–1,9	2,0–2,4	2,5–2,9			3,0–3,4
R <sub>ép</sub>	0,5–0,9		2		1		1	1	5	0,87
	1,0–1,4		8	7	11	4	5	1	36	6,26
	1,5–1,9		22	38	32	15	1		108	18,78
	2,0–2,4		50	72	48	4			174	30,26
	2,5–2,9		39	81	17	1			138	24,00
	3,0–3,4		14	50	5	1			70	12,17
	3,5–3,9		10	16	2				28	4,87
	4,0–4,4		4	8		1			13	2,26
	4,5–4,9			1					1	0,17
	5,0–5,4			1					1	0,17
	5,5–5,9			1					1	0,17
	>5,9									
<b>total</b>		<b>149</b>	<b>275</b>	<b>116</b>	<b>26</b>	<b>7</b>	<b>2</b>	<b>575</b>	<b>100,00</b>	
<b>%</b>		<b>25,91</b>	<b>47,83</b>	<b>20,17</b>	<b>4,52</b>	<b>1,22</b>	<b>0,35</b>	<b>100,00</b>		

Tab. 2-Corrélation des rapports longueur-largeur (R<sub>Ll</sub>) et du « caractère épais » (R<sub>ép</sub>) des outils sur quartzite à Érd.

Tab. 2-Correlation between length and width (R<sub>Ll</sub>) and the character of being thick (R<sub>ép</sub>) for the tools on quartzite in Érd

	court	ordinaire	al-longé	total
épais	121	307	33	461
normal	28	82	2	112
mince		2		2
<b>total</b>	<b>149</b>	<b>391</b>	<b>35</b>	<b>575</b>

Tab. 3-Répartition des outils sur quartzite selon le caractère de leur support.  
Tab. 3-Pattern of the tools on quartzite by the characteristics of their support.

## Exploitation du quartzite à la station du Paléolithique moyen à Érd (Hongrie)

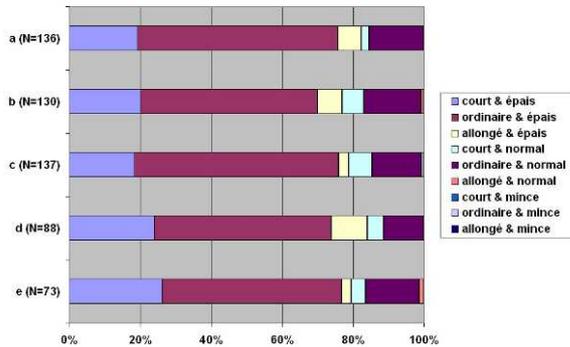


Fig. 8-Pourcentage des différents types morphologiques des supports selon les niveaux d'occupation de la couche supérieure à Érd.

Fig. 8-Percentage of the different morphological types of the supports by occupation levels of the upper layer in Érd

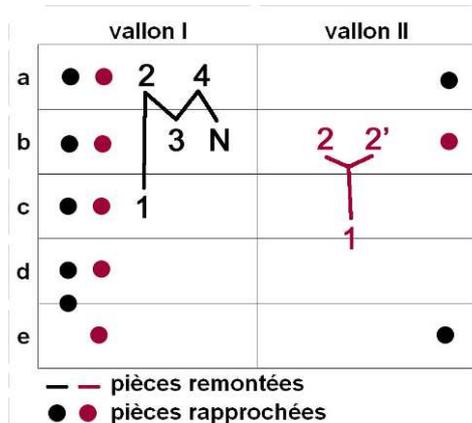


Fig. 9-Position stratigraphique des pièces remontées.

Fig. 9-Stratigraphical position of the refitted pieces

renfermant les niveaux d'occupation entre le début de la glaciation würmienne et son premier maximum de froid. Cela couvrirait plusieurs dizaines de milliers d'ans, parce que la fin de l'interglaciaire aurait dû être vers 110 ka et le premier Pléniglaciaire autour de 70 ka (J. Labeyrie, 1984). D'après l'étude sédimentologique, P. Kriván (in V. Gábori-Csánk, 1968b, p.37-38) a limité l'existence de l'habitat à la période d'entre la fin du Riss/Würm

et la fin de l'interstade du Brørup qui serait donc entre environ 110 et 100 ka. Les dates au radiocarbone disponibles montrent un décalage de 9 ka entre les niveaux d'occupation *e* et *d*, ce qui ferait également penser à des fréquentation par les gens de la même culture pendant extraordinairement longtemps.

Une solution possible est que l'homogénéité du matériel archéologique est due à la spécificité des activités des hommes sur le site. D'après l'analyse des bords retouchés ou non et des angles des tranchants de l'outillage, M.-H. Moncel a formulé l'avis que la standardisation observée s'explique par des raisons d'ordre fonctionnel (Zs. Mester, M.-H. Moncel, 2006, p.233-238). Les débitages décrits plus haut ont permis aux hommes préhistoriques d'avoir des produits aptes, déjà en état brut, à être utilisés pour certaines fonctions. Dans ce contexte, la retouche sert plutôt à réaffûter les bords usés ou à prolonger la dureté de vie des tranchants.

En cherchant l'explication de la standardisation observée, une autre possibilité est de supposer que la séquence des niveaux archéologique représente une période beaucoup plus courte que nous ne l'avons pensé jusqu'ici. Les remontages que nous avons déjà reconnus permettent de contester la réalité des niveaux d'occupation. La chronologie des enlèvements dans la séquence technologique ne correspond pas à celle des niveaux dans lesquels les pièces ont été mises au jour. Nous n'en présentons ici que deux exemples : l'un en quartzite gris, l'autre en bois silicifié (Figure 9). Dans le cas du premier, le premier éclat latéralisé s'est retrouvé au niveau *c* et/ou *d*, tandis que le second éclat latéralisé (cassé en deux, au moment de son débitage ou ultérieurement) était au niveau *b*. Dans l'autre cas, cinq pièces se remontent dont le nucléus. Le nucléus et le troisième éclat ont été découverts dans le niveau *b*, le second et le quatrième dans le niveau *a*, mais le premier dans le niveau *c*. Le tableau est encore plus intéressant si nous également regardons les pièces rapprochées (J.-G. Bordes, 2000, p.391) dont la matière première est la même. Ainsi, nous pouvons constater que les 18 pièces du premier remontage les 25 pièces du second concernent tous les niveaux. Pour les pièces rapprochées du remontage en quartzite gris, il n'est pas exclu qu'elles appartiennent à plusieurs blocs en réalité, mais le bloc du bois silicifié (le nucléus) est

tellement particulier que l'appartenance y est évidente. L'histoire de la formation de l'accumulation des ossements et des artefacts est donc à reconsidérer.

### Perspectives

Comme nous l'avons mentionné maintes fois, l'étude des matériels mis au jour sur le site d'Érd est loin d'être terminée. Plus elle avance, plus de nouvelles questions se formulent. Ce que nous avons vu et entendu à l'occasion de la table-ronde WS15 au congrès de l'UISPP a largement contribué de progresser la future recherche.

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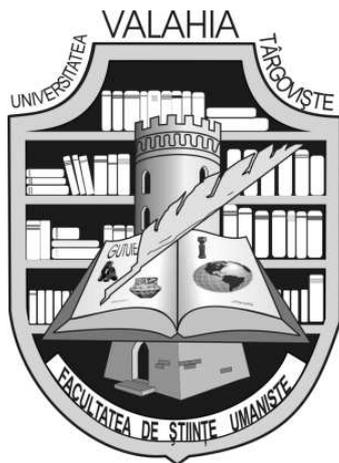
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# ANNALES



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## The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamţ [25.760±160 –27.321±234 B.P. (31.969 ka)]

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**Abstract:** The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamţ [25.760±160 –27.321±234 B.P. (31.969 ka)]. The settlement of Poiana Cireşului-Piatra Neamţ may be indisputably considered, especially through the hard animal material industry found here and mostly through its ornaments and art objects, the most significant in Romania and probably in this part of Europe. The settlement is located 4 km far from Piatra Neamţ, on the right bank of the Bistrița river, close to the confluence with the Doamna brook. In the Gravettian III level, dated, as we have already mentioned, between 25.760 ± 160 B.P. and 27.321 ± 234 B.P. (C. Zeeden et al., 2009), the archaeological campaign of 2004 revealed only 12 pierced snail shells, found at an average depth of approximately 375 cm. they were assigned to the *Lithoglyphus naticoides* species. As the freshwater snail necklace of Poiana Cireşului is the oldest testimony of this kind in Romania, we can presume the transmission, for future cultural stages, of a powerful tradition in this respect. Furthermore, we cannot ignore that it is unique, from a certain point of view, in the European Gravettian. Experimental reconstitution was essential in understanding the reason of choosing certain materials to make mobiliary art objects. This type of research resulted in revealing data on the relations between gesture, material and tool, the transformation of the blank into a symbol depending on its behaviour during the engraving or piercing operation. The snail shell necklace from the Gravettian of Poiana Cireşului is an illustrative example. The Gravettian man, acting according to a tradition which was deep-rooted in his conscience, exploited what the environment was offering him, the necessary symbolic message being obtained through adaptive means.

**Key words:** Gravettian; snail; *Lithoglyphus naticoides*; Romania.

### Introduction

The settlement of Poiana Cireşului-Piatra Neamţ may be indisputably considered, especially through the hard animal material industry found here and mostly through its ornaments and art objects, the most significant in Romania and probably in this part of Europe. The settlement is located 4 km far from Piatra Neamţ, on the right bank of the Bistrița river, close to the confluence with the Doamna brook. It stands on a level of erosion carved by the Bistrița in the flysch substratum, equivalent of the 45-metre river bench. The absolute altitude ranges from 395 to 405 metres because of the wavy surface

resulted from erosion and differential accumulation, and also from the anthropic alterations occurred during historic times (M. Cârciumaru et al., 2006).

Researches were conducted in several stages (V. Căpitanu, 1969; C. Scorpan, 1976; M. Cârciumaru et al., 2002; 2002-2003; 2003; 2004; 2005; 2006; 2007; 2007-2008; 2010; 2011), and the cultural classification varied from the Eastern Upper Aurignacian to the Gravettian and even Epigravettian.

Ever since 1998 the site has been investigated by an international team which brings together specialists from various interdisciplinary fields

who have performed significant excavations, allowing a profound change both of the geological and the archaeological stratigraphy and especially of the cultural succession. By 2011 nine sections had been executed, totalling 83 m (M. Cârciumaru et al., 2002-2003; 2003; 2004; 2005; 2006; 2007; 2007-2008; 2009; 2010; 2011). The deposit was investigated and completely recovered, with the utmost care, by scrapings of maximum 2 cm thick in the cultural strata and by efficient screening of the sediment. All artefacts related to a unique zero point (situated at the absolute altitude of 398 m), being recorded by three coordinates specified in standard charts, and the entire material was then transposed on graph paper.

As regards the archaeological stratigraphy, four levels of Palaeolithic occupation have been initially reported: the first two were attributed to the Epigravettian, and the last two to the Gravettian. Several instances of absolute dating recently obtained regarding the Poiana Cîreșului deposit (C. Zeeden et al., 2009), complete the existing ones (table 1). A re-evaluation of the chronostratigraphic situation and, partly, of the archaeological material composition have allowed another definition of strata succession (M. Cârciumaru, I. Lazăr, E.-C. Nițu, M. Țuțuianu-Cârciumaru, 2011; M. Cârciumaru, M. Țuțuianu-Cârciumaru, 2011):

- on the upper part of the deposit an Epigravettian level was identified (more than 1,500 lithic pieces);

- Gravettian I level between 170-210 cm (initially considered, before the absolute dating, as Epigravettian II), dated between  $19.459 \pm 96$  B.P. (ER 12.162) and  $20.154 \pm 97$  B.P. (ER 12.163). The recovered lithic material is extremely rich, totalling approximately 15,000 pieces;

- Gravettian II level (former Gravettian I) between 290-310 cm, dating  $25.135 \pm 150$  B.P. (Beta Analytic 244.072). This level revealed a small number of lithic pieces, around 200 items;

- Gravettian III level (former Gravettian II) between 375-415 cm, dating between  $25.760 \pm 160$  B.P. (Beta Analytic 244.073) and  $27.321 \pm 234$  B.P. (ER 11.859). This level, as it was excavated in fewer sections, delivered only around 2,600 pieces.

Following some probing investigations performed in 2005 using a mechanical core drill, we can presume, as shown in table 1, the

existence of three more levels of habitation: at 530-540 cm (menilite and coal chips), 595 cm (a bone fragment) and 690 cm (sandstone fragment) (M. Cârciumaru et al., 2007; L. Steguweit, 2009; M. Cârciumaru, M. Țuțuianu-Cârciumaru, 2011).

In the Gravettian III level, dated, as we have already mentioned, between  $25.760 \pm 160$  B.P. and  $27.321 \pm 234$  B.P. (C. Zeeden et al., 2009), the archaeological campaign of 2004 revealed only 12 pierced snail shells, found at an average depth of approximately 375 cm. they were assigned to the *Lithoglyphus naticoides* species (M. Cârciumaru et al., 2002-2003; 2003; 2004; 2006; 2007; 2010; 2011) and represent the oldest snail necklace discovered on the Romanian territory so far.

### **A brief retrospect of the technological and experimental researches in the study of mobiliary art in general and of Palaeolithic ornaments in particular**

In order to further understand the meaning of our approach, we shall try to review some of the concepts regarding the necessity of technological studies and the role of experiment in the modern research of prehistoric mobiliary art.

With the acknowledgment of Palaeolithic art at the end of the 19<sup>th</sup> century, technological researches performed on hard animal materials raised the interest of many prehistorians. Although, initially, most of the approaches regarding the Palaeolithic art were mainly dedicated to the stylistic and chronological analyses, in time the importance of “technological reading” (examining the surface of the object in order to decode, to read the methods of intervention on the blank) has been not only recognized but, mostly, applied in the majority of studies.

In this sense, a first opinion belongs to the researcher L. Leguay (1877), without a doubt the first one who made experimental pieces with a view to pertinently supporting his own observations. His main concern was to prove the authenticity, while the technique of manufacturing objects remained a secondary interest.

The decisive step, in this sense, was taken by A. Leroi-Gourhan’s studies (1943), followed by those of L. Pales and T. de Saint-Péreuse (1969; 1976; 1981; 1989) when a new body and tools vision, a new approach to the analysis of

**The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamţ [25.760±160 –27.321±234 B.P. (31.969 ka)]**

No.	Depth (m)	Culture	Type of material	Laboratory	Age B.P. (uncal.ka)	Age (ka)
1.	3.83	Gravettian	Charcoal	Beta 206.708	10.590±60 (?)	-
2.	-	Gravettian I (Epigravettian II)	OSL	BT 499	-	22.66±1.81
3.	-	Gravettian I (Epigravettian II)	-	ER 12.162	19.459±96	23.24
4.	1.92-1.93	Gravettian I (Epigravettian II)	Charcoal	Beta 224.156	20.020±110	-
5.	2.10	Gravettian I (Epigravettian II)	Charcoal	Beta Analytic 244.071	20.050±110	-
6.	2.07	Gravettian I (Epigravettian II)	Charcoal	ER 9.964	20.053±188	23.978
7.	2.10	Gravettian I (Epigravettian II)	Charcoal	ER 9.965	20.076±185	24
8.	-	Gravettian I (Epigravettian II)	-	ER 12.163	20.154 ± 97	24.096
9.	3.03	Gravettian II (Gravettian I)	Charcoal	Beta Analytic 244.072	25.135±150	-
10.	3.64	<b>Gravettian III (Gravettian II)</b>	Charcoal	Beta Analytic 244.073	25.760±160	-
11.	3.71	<b>Gravettian III (Gravettian II)</b>	Charcoal	Beta 206.707	26.070±340	31
12.	3.82	<b>Gravettian III (Gravettian II)</b>	Charcoal	Beta 224.157	25.860±170	-
13.	4.08	<b>Gravettian III (Gravettian II)</b>	Charcoal	ER 9.963	26.185±379	31.057
14.	4.15	<b>Gravettian III (Gravettian II)</b>	Charcoal	ER 9.962	26.347±387	31.141
15.	-	<b>Gravettian III (Gravettian II)</b>	-	ER 11.860	26.677±24	31.379
16.	-	<b>Gravettian III (Gravettian II)</b>	-	ER 11.859	27.321±24	31.969
17.	6.90	-	-	ER 11.858	-	55.92±12.196

Table 1 – C-14 Dating at the settlement of Poiana Cireşului – Piatra Neamţ.

mobilier art objects was noted, having deep influences on researches to come. They compiled a data base resulted from technological observations (analysis of raw matter, forms, natural accidents), emphasizing the importance of used for engraving. Undoubtedly, it was the first time that a study of art objects highlighted the importance of the quality of the blank in engraving.

A huge contribution to the study of Palaeolithic art was made by A. Marshack (1970). Ever since the 60's of the last century, he has systematically applied microscopic analysis in studying objects, making use of new notions and methods in order to get, out of an object, multiple data and a dynamic vision of gesture. One of Marshack's initiatives was to have emphasized the importance of microscopic analysis, placing this type of research within an autonomous framework, independent from the stylistic study.

In this stage of research, almost a century after L. Leguay's studies (1877), experiment reappears. Highlighting the real difficulty in engraving some materials, H. Delporte and L. Mons (1973; 1975) tried to decipher the gestures of the artisan, thus defining the "operational sequence". Their method offered valuable information regarding the time required to make an engraving and the type of tool used for such an operation. Following their study, several types of incisions were identified, defined according to profile (*V*, asymmetric *V*, symmetric *U* / asymmetric *U*) and the active part of the tools. The result of H. Delporte and L. Mons's researches was re-launching the experiment and proving its fundamental contribution.

The path to this type of research was completely open. The technical study of prehistoric art is increasingly being taken into account and described in publications and is supplemented by experimental stages. Most experts made their own observations starting from this kind of research. A significant example is that of A. Roussot (1990) and G. Tosello (1997) who made imitations of Palaeolithic works with a view to observing the interaction between blank and tool and reconstituting the technique used.

M. Dauvois (1977) was equally interested in explaining the marks observed on the active part of the tools. At this level, a turning point, which

opened new perspectives, was the work of the Russian researcher S. A. Semenov (1964) entitled "*Prehistoric Technology*". The results of his activity in microscopically studying the traces of manufacture and wear of lithic and hard animal material pieces became the basis of the traseological discipline, applied to the field of prehistory.

Starting with the second half of the 20<sup>th</sup> century, such studies have widely spread and perfected in many western European countries, the USA and Canada. Using the electronic microscope, traseologists observed the traces left on stone or bone tools as a result of their usage, which they later compared to those obtained experimentally (F. d'Errico, G. Giacobini, P. Puech, 1984; P. Anderson-Gerfaut, E. Moss, H. Plisson, 1987; L. H. Keeley, 1980; P. Vaughan, 1983). The type of research was to bring fundamental clarifications regarding the way the prehistoric men manufactured then used tools.

F. d'Errico's approach (1988; 1991; 1993; 1994) was based on the above stated principle, namely that of combining research and experiment, an important part of his work relying on microscopic observations. The data obtained answer many of the important questions regarding the origin of settings: the type of tool used, the number of passages through the same incision, reconstitution of gestures, the sense of motion of the tool, chronology of engraving.

In his study on mobiliary engravings, M. Crémadès (1991) delivered a series of observations based on experiments and microscopic analyses. Following a procedure developed by L. Pales (L. Pales, T. de Saint-Péreuse, 1969), namely using the binocular magnifier for the analysis of incisions, he revealed different technical features between figurative art and geometrical art.

A significant contribution to the technological study of mobiliary art objects belongs to the researcher C. Fritz (1999). Her results and observations (reproducing Palaeolithic traces through experiment, confronting experimental results with microscopic observations, reconstituting the operational sequence by decomposing the engraver's gestures and spotting the decision moments etc.) came righteously to the attention of the experts.

The importance of applying experiment in the analysis of hard animal material objects was also

**The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]**

appreciated by I. Sidéra and A. Legrand (2006). That is precisely why it was considered as essential in understanding the origin of marks, of wear mechanisms, of how both material and type of tool behave, of working conditions required. The aim is to analyze and experimentally reconstitute the Palaeolithic engraver's gestures, to identify the direction of execution of the incisions and alterations of the implement, to find if they were made in one or several movements, to determine the time interval between them, to know whether it is a unique graphical event or the process unfolds in time. To many technologists, gesture may become a means which allows the identification of the significance of the engraving (F. d'Errico, 1994).

The results obtained by D. Stordeur (1983) and Y. Taborin (1993) in analyzing hard animal materials and snail shells are also to be mentioned.

A definitive contribution to the study of hard animal materials was made by Henriette Camps-Fabrer, whose activity in the field started in the 70's of the last century. Among the major results of her research, we should mention organizing international conferences on prehistoric bone industry, setting up the Committee of Nomenclature of Prehistoric Bone Industry, the Committee of Nomenclature's launching the project of the Books of Typological Cards (1974; 1977). In this sense, between 1988 and 2003, *11 Books* were published, representing indispensable tools for the study of artefacts, providing definitions and methodological criteria accepted and used particularly by French and Francophone researchers.

The application of technical studies carried out by efficient means of observation, often completed by experimental stages, led to the identification of techniques and methods of making artefacts and, at the same time, conduced to a real progress in cultural technology (F. Poplin, 1974; M. Dauvois, 1974; H. Camps-Fabrer, A. d'Anna, 1977; M. H. Newcomer, 1977; D. Stordeur, 1977; H. Barge-Mathieu, 1982; J. G. Nandris, H. Camps-Fabrer, 1993; I. Sidéra, 1993; E. David, 1999; A. Averbouh, 2000; N. Goutas, 2004; A. Legrand, 2005).

The researches of A. Marshack (1996) and F. d'Errico (1996) relied on the compared theories and patterns risen from ethnographic data. On the other hand, applying these patterns and especially

verifying assumptions lead, inevitably, to the technological study of traces, which involves the use of microscope and experiment.

During the last decade, technological analyses of mobiliary art objects have received increased attention in Romanian studies as well.

A number of approaches to the phenomenon of mobiliary art focused mainly on general aspects: repertory, description, analogies (M. Cârciumaru, M. Mărgărit, 2002; M. Cârciumaru et al., 2003; M. Cârciumaru et al., 2004; M. Mărgărit, 2003). Essential data on the technological study of mobiliary art objects were obtained by C. Beldiman (2003; 2004 a, b, c.) following a thorough analysis of traces preserved on several items.

The different interpretations regarding the method of study prompt the scientists to reflect upon choosing the most efficient methods of analysis and conceive their theoretical bases more rigorously. We consider the level of observation or the thoroughness with which objects are studied to be important and so are the interpretative principles, the questions which derive from such an analysis. It is precisely from this point of view that the analytical means are essential in answering questions and verifying assumptions.

Once the conclusions drawn and especially proved by experiments, the hesitations between several interpretations with phrases like "*we cannot exclude*" or "*in all probability*" are not justified, at least when it comes to differentiating anthropic from natural traces (M. Lorblanchet, 1999, p. 177).

**Considerations on the morphometry, morphology and elements of technological study of Gravettian shells of Poiana Cireşului**

The properties of the raw material chosen to make mobiliary art objects can determine their function and the methods of manufacture. That is why it is necessary to introduce in technological analyses some concepts regarding the physics of the blank. Therefore, we have considered it useful to mention several general notions concerning the structure of snail shells.

*The shell*, of various shapes and sizes, plays an important role in determining genera and species, alongside other characteristics (fig. 1). It consists of several layers. On the surface, the external part is covered with a very thin

membrane, called *periostracum*, which is often coloured or has certain stripes, dots or spots of different colours.

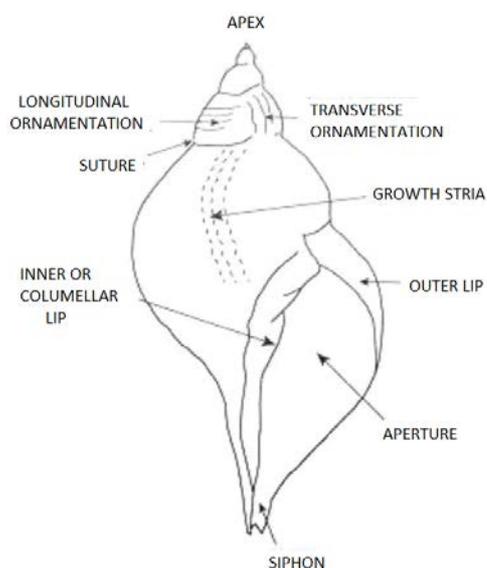


Fig. 1 – Morphological scheme of a shell (acc. to F. Poplin, 2004, fig. 5).

As it is organic, this membrane quickly wears off on dead or old snails and the shell takes on a whitish colour. Under this membrane there is the chalky layer, the *ostracum*, which forms the principal thickness of the shell, and which is composed of several layers of calcium carbonate or aragonite. Under this chalky layer comes another inorganic, chalky layer, namely the nacreous layer or the *hypostracum*. With land snails and freshwater snails, the nacreous layer may be absent or may be very thin (F. Poplin, 2004).

Under all these layers there is the mantle, a membrane which covers the innermost part of the shell. The mantle ends at the edge of the shell where it forms a particular hump. The growth is marked by humps and notches, always parallel with the edge or the aperture of the shell (A. V. Grossu, 1955).

As the shells found at Piatra Neamț (the only findings of this sort belonging to the Gravettian in Romania) were attributed to the *Lithoglyphus naticoides*, we shall present a few characteristics of this species.

The shell is ovoid, with a finely and irregularly ridgy, mat-smooth surface, whose colours range from greyish-white to green-yellow. It has 5 pretty convex whorls which broaden sharply, separated by a deep suture, like

a trough. It lives in running waters, brooks, rivers, streams as well as in lakes, channels or the detritus on the bottom of these (A. V. Grossu, 1956).

In order to avoid any confusion, the twelve *Lithoglyphus naticoides* snails discovered in the Gravettian III stratum of Poiana Cireșului (fig. 2) were numbered from 1 to 12, depending on the moment of discovery of each of them (fig. 3).

### Morphometry

Shell no. 1: height (maximum diameter) – 7.5 mm, width – 6.9 mm; shell no. 2: height (maximum diameter) - indeterminable, width – 6.1 mm; shell no. 3: height (maximum diameter) – 7.6 mm, width – 6.7 mm; shell no. 4: height (maximum diameter) – 7.2 mm, width - 6.4 mm; shell no. 5: height (maximum diameter) - 7.7 mm, width - 6.6 mm; shell no. 6: height (maximum diameter) - 7.8 mm, width - 6.9 mm; shell no. 7: height (maximum diameter) – 7.7 mm, width – 7.0 mm; shell no. 8: height (maximum diameter) - 7.8 mm, width – 6.7 mm; shell no. 9: indeterminable sizes; shell no. 10: height (maximum diameter) – 6.9 mm, width – 5.9 mm; shell no. 11: height (maximum diameter) – 7.5 mm, width – 6.9 mm; shell no. 12: indeterminable sizes (fig. 2, 3).

### Morphology

The shells belong to *Lithoglyphus naticoides*, a species which has survived until our days, even in the region where the settlement of Poiana Cireșului is located. The biotope specific to this species is represented by running waters, rivers or streams, the detritus on the bottom of lakes or even stones on the banks of waters (A. V. Grossu, 1955). The modest sizes of the species exclude the interest in these snails for nourishing reasons.

Of the 12 pieces, 9 are intact (fig. 3/1, 3-8, 10-11), while the others are more or less fragmented (fig. 3/2, 9, 12). All of them were pierced in order to obtain an orifice for hanging. As a matter of fact, it is the only anthropic intervention on the shells found in the Gravettian III layer from Poiana Cireșului. Moreover, one of the shells was burnt (fig. 3/7), perhaps for aesthetic reasons, without, however, ruling out completely the possibility of an accident. Consequently, it is black, unlike the others, which are white (fig. 2-3). This means that for the snail shells of Poiana Cireșului making the orifice was essential in

**The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamţ [25.760±160 –27.321±234 B.P. (31.969 ka)]**



Fig. 2 – The *Lithoglyphus naticoides* snail shell necklace belonging to the Gravettian III, found at Poiana Cireşului–Piatra Neamţ.

determining their function as adornment objects, possibly in the form of a necklace. As it is an important operation, it is necessary to find how the orifice was made, the technical methods and tools used. In order to do that, modern researches involve experiment with a view to getting closer and closer to the Gravettian man's gestures and thinking.

### Technological study

#### *Piercing*

Lately, various experts in the field such as Y. Taborin (1993 a, b), d'Errico Fr., P. Jardón-Giner, B. Soler-Mayor (1993), B. Avezuela (2010) etc. have made technological considerations on choosing gastropods to turn into hanged objects functioning as adornments, how to make the orifice or set the most appropriate spot, depending on a number of factors, the area to be pierced, etc.

Unfortunately, experimental studies suggested by various authors were performed on marine gastropods whose shell has a totally different structure and texture, being generally more consistent and more solid than that of freshwater snails. Therefore, freshwater gastropod shells are much more fragile and behave rather different in the process of making the orifice for hanging. This has prompted us to attempt our own experimental studies which focused exclusively on freshwater gastropods of various sizes.

To understand the sense of the experimental studies, we shall make a brief review of the assumptions shaped during those particular attempts.

Y. Taborin (1993 a, b) implies that the shell was pierced from the outer part, by previously preparing the surface through different techniques (fig. 4-5). In contrast, F. d'Errico, C. Henshilwood, M. Vanhaeren and K. van Niekerk (2005), following laborious experimental studies supported by traseological observations, suggest a totally different scenario (fig. 6). The main feature of the pattern they provide lies in the way the orifice was made, more specifically by pressure, from the inside of the shell, which is contrary to Y. Taborin's opinion (1993 b).

In his turn, Avezuela (2010) offers an experimental study of obtaining the orifice on marine gastropods by indirect percussion, using a lithic implement, both from the inside and from the outside of the shell. The advantage of this experiment is that it presents the marks observed under the microscope for each of the two cases (fig. 7).

These are the most important references, often supported by experimental studies, to how the orifice was made on the gastropods found in prehistoric archaeological contexts we were provided with when we began to study, from a technological point of view, the Gravettian necklace from Poiana Cireşului.

From the very beginning, we must mention that the great advantage of our approach (fig. 8) was the ability to research every shell of the Poiana Cireşului necklace using the VHX-600 digital microscope, which gave us unexpected resolutions of the image and marks on the orifices that might have been impossible to obtain through conventional means of microscopy (fig. 9-15).

The most striking aspect which was difficult to explain at a first glance, following the microscopic study, was the generally geometrical shape of the orifice, its blunt edges, as if cut with an instrument held bevelled at approx. 45°. This operational sequence imagined was hard to accept, as the *Lithoglyphus naticoides* snail shells are small-sized, less than 8 mm long, and their fragility is an additional handicap.

Such being the case, the experimental studies on freshwater or land snail shells, having a similar fragility, have become indispensable. They verified, from the start, Y. Taborin's assumption (1993 b), according to which the orifice would be the result of several interventions from the outside of the shell.



Fig. 3 – Piercings in *Lithoglyphus naticoides* snail shells from the Gravettian III stratum of Poiana Cireșului.

The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Ciresului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]

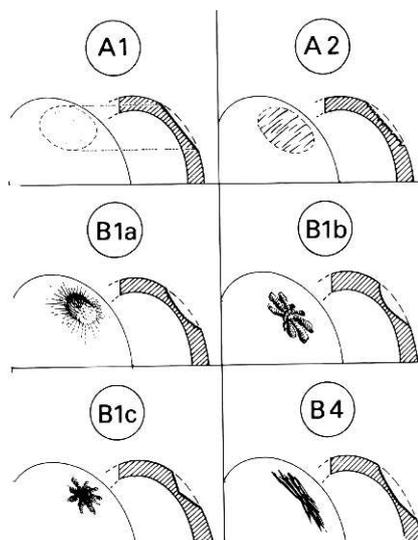


Fig. 4 – The most frequent preparation techniques used on shells. **A.** Flat preparations. **A1.** flat and smooth surface. **A2.** flat and ridged surface. **B.** Deep preparations. **B1a.** small grated *cuvette*. **B1b.** *cuvette* with hard stria. **B1c.** small *cuvette* with hard stria. **B4.** narrow notch (acc. to Y. Taborin, 1993 b, fig. 2, p. 259).

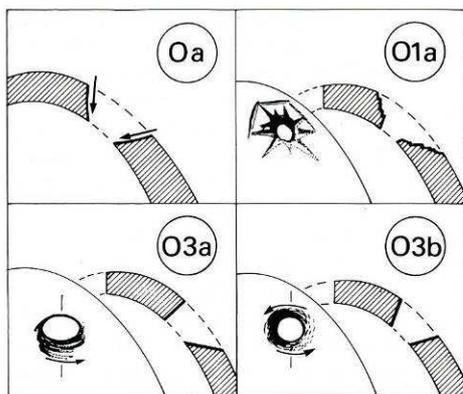


Fig. 5 – The most frequent piercing techniques used on shells. **Oa.** Orifice made using the preparation technique until piercing. **O1a.** piercing by launched percussion, with traces of impact. **O3a.** Orifice made by indirect percussion. **O3b.** Orifice made by an alternative circular motion (acc. to Y. Taborin, 1993 b, fig. 4, p. 260).



Fig. 6 – Shells of *Nassarius kraussianus*. Experimental action performed by piercing the aperture with a lithic point (a-e); from the outside with a lithic point (f-h); from the outside with a bone point (i-k); through the aperture with a bone point (i-o) and crab pincers (p); (h și k) micro-chipping on the inner wall of the shell, (d-e, m-p) micro-chipping on the outer wall of the shell (acc. to F. d'Errico et al., 2005, fig. 7, p. 17).

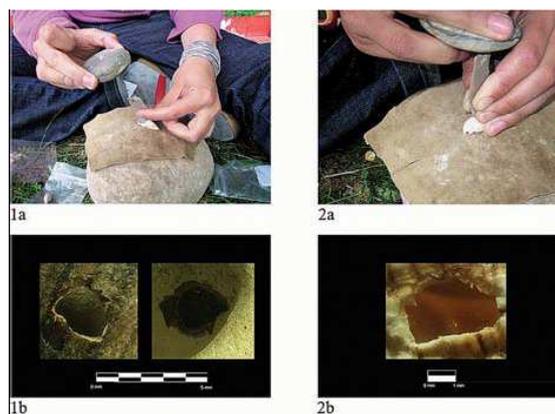


Fig. 7 – Making the orifice on marine snail shells by indirect percussion with an intermediate flint implement: 1 a-b from the inner side of the shell; 2 a-b from the outer side of the shell (acc. to B. Avezuela, 2010, fig. 5, p. 51).



Fig. 8 - Experiment regarding the method of piercing the shells of freshwater or land snails with fragile shells: 1-collection of snail shells; 2-samples for experiment and the deer antler with which the orifice was made; 3-snail shell and deer antler; 4-antler branch used for piercing; 5-piercing from the inside of the shell, by pressure on a blank; 6- the resulting orifice; 7-observation of marks using the VHX-600 digital microscope; 8-9 marks on the upper side (8) and on the lower side of the shell piercing (9).

**The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]**

Unfortunately, our attempts did not have the expected results, the main impediment being precisely the freshwater or land gastropods' fragility as compared to the marine ones. The orifices on the Gravettian shells from Poiana Cireşului were by no means obtained by penetrating from the outer part of the shell.

Moreover, we do not consider it the most advantageous method of piercing the shell, neither from the inside nor from the outside, by indirect percussion, for between the striker and the surface of the shell a flint tool (a sort of *chasse lame*) is interposed, according to the scenario suggested by Avezuela (2010). The main cause may be the fragility of the shell. Under such conditions, one of the experiments proposed by F. d'Errico, C. Henshilwood, M. Vanhaeren, K. van Niekerk (2005) may be virtually applied with more success. It is the assumption which involves piercing through the aperture with a bone point or even one arm of the crab claw. Our experiment (fig. 8) started from the idea that, due to fragility of the *Lithoglyphus naticoides* snail shells and even the very small sizes of this species, the piercing, most plausibly, could not have been done but from the outside of the shell, which had been previously fixed on a support, by direct pressure.

After using several lithic implements, the most efficacious tool used for piercing proved to be the fairly sharp point of a young antler branch. We preferred the use of the deer antler in its natural state, without preparing a special instrument for this operation as it turned out to be extremely beneficial especially because it allowed an efficient hand grip to exercise adequate pressure, necessary for a quick penetration (fig. 8/3-5). This option, commonplace at first sight, was in agreement with that fact that the snail species chosen to be used as ornaments was commonplace, without any particular natural aesthetic ambitions.

The position of the orifice on the last whorl of the shell was chosen so as not to endanger the position of the blank, for efficiency reasons for hanging, so that the centre of gravity should determine a relatively similar position for all items and, not least, answers the aesthetic requirements intended.

Interesting discussions on identifying and specifying marks resulted from usage by hanging

were started by Y. Taborin (1993 a, b) and refined by F. d'Errico (1993) through observations relying on modern means of electronic microscopy and even experimental studies which pointed to the mechanically determined wear or that caused by normal wearing by a person, over a certain period of time.

As regards the pierced snail shells of the Poiana Cireşului Gravettian, due to using the digital microscope to analyze them, we have succeeded in capturing extremely revealing images on wear areas caused as a result of hanging (fig. 9/3; 10/2-3; 11/2-3; 12/2, 6; 13/2-3; 15/2-3).

It is interesting that the wear spot on each shell is in direct accordance with its position when it hangs on a thread, determined by the centre of gravity (fig. 2-3).

### **Symbolic implications**

Of the many forms of expression of Palaeolithic arts, adornment represents the most common category in sites, whether it is made of bone, horn, ivory, nacre or various rocks. The preference to transform, by perforation, the objects of natural origin such as animal teeth, shells, etc. proves the Palaeolithic man's aptitude and motivations to take certain forms from the natural environment and place them in a totally different environment (M. Lorblanchet, 1999). The aim was to apply the objects on clothes or wear as necklaces. The aspect, colour and natural shape were, sometimes, the only basis for harvesting, often revealing enough to assign a symbolic function to them. Turning them into jewellery is a particular attitude towards the environment he perceives, in this situation, not only as a source of subsistence but also as a provider of elements bearing a spiritual value. Thus, body adornment, with all its aspects (necklace, garment, make-up), becomes the means by which an individual or social group can express themselves. Beyond the undeniable aesthetic value, it is the element which distinguishes them from another social group or individuals. More specifically, body decoration is closely related to social identity. In this respect, R. White (2006) stated that adornment "*ne symbolise pas simplement un statut mais définit le statut social de celui qui les porte*" (p. 27).

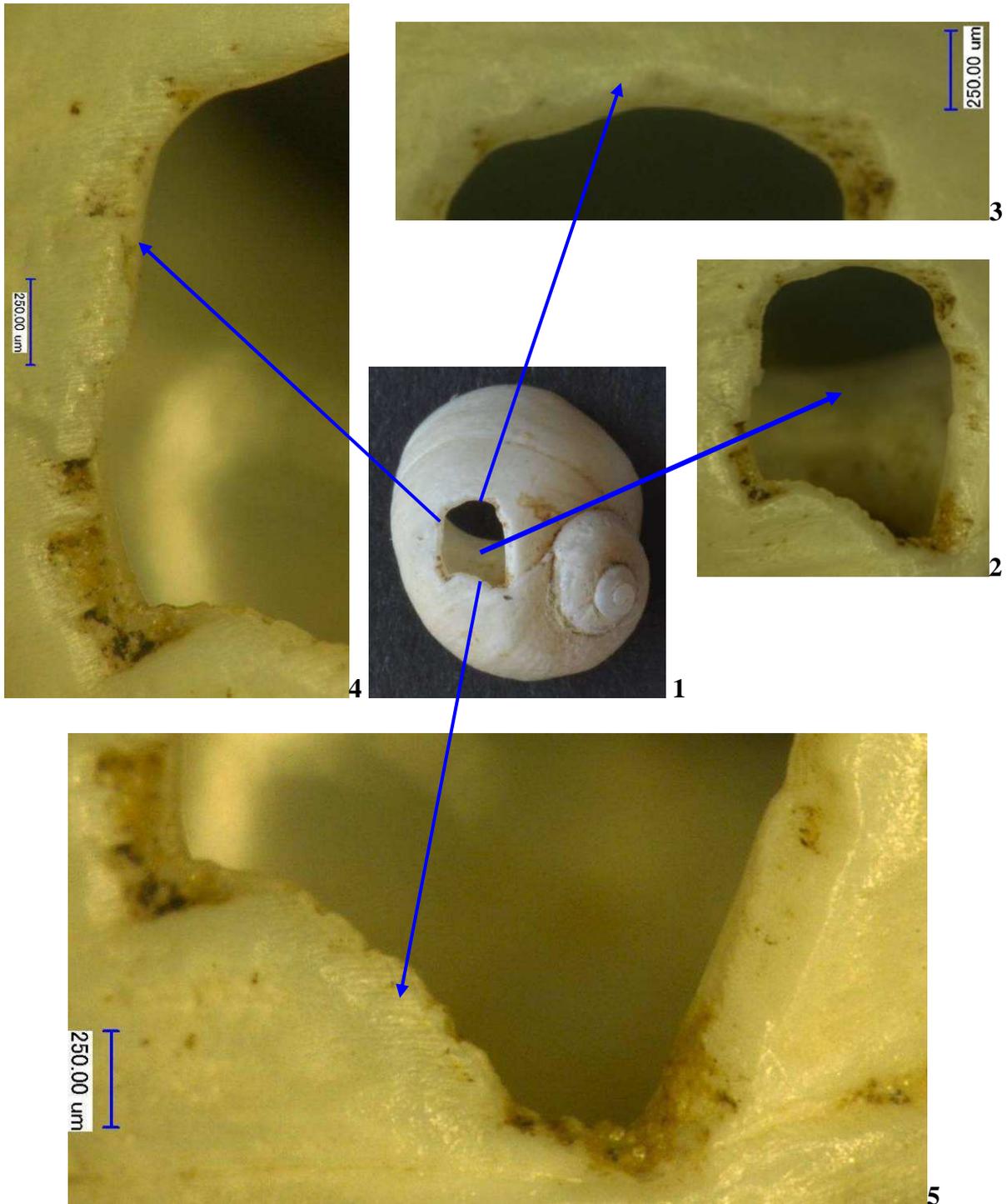


Fig. 9 – Details of manufacture for shell no. 1 (details obtained with the VHX-600 digital optical microscope).

The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Ciresului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]

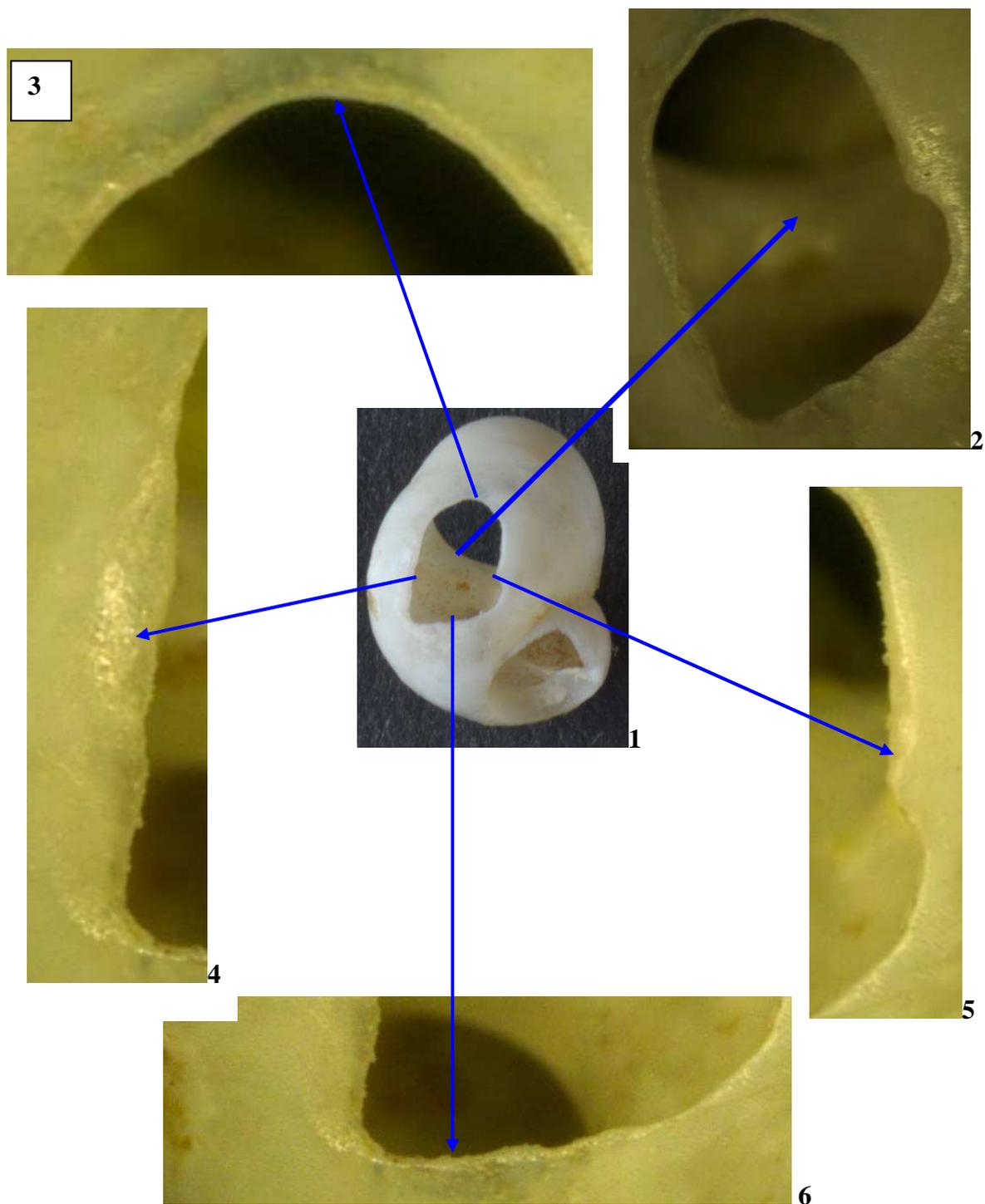


Fig. 10 - Details of manufacture for shell no. 2 (details obtained with the VHX-600 digital optical microscope).

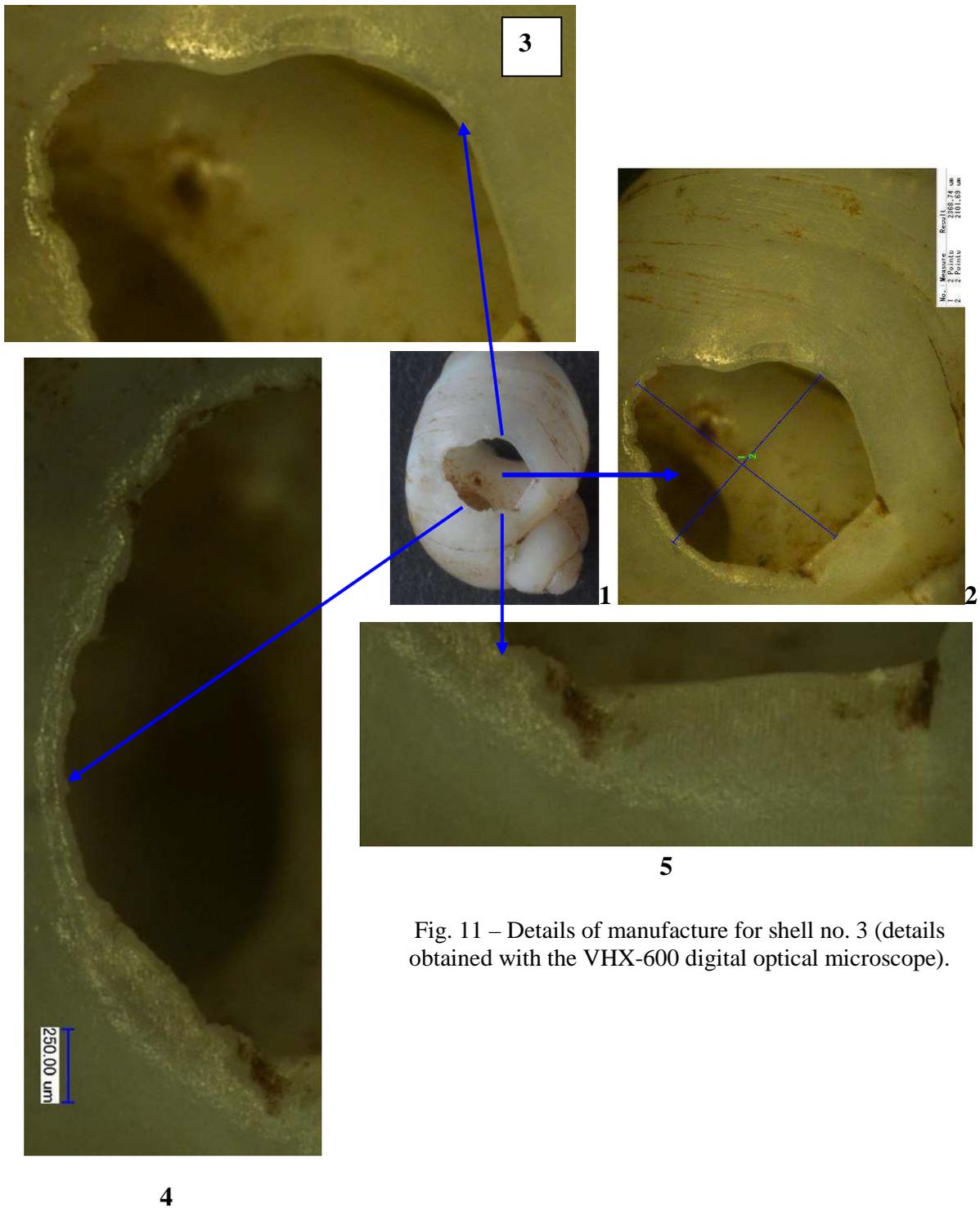


Fig. 11 – Details of manufacture for shell no. 3 (details obtained with the VHX-600 digital optical microscope).

The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Ciresului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]

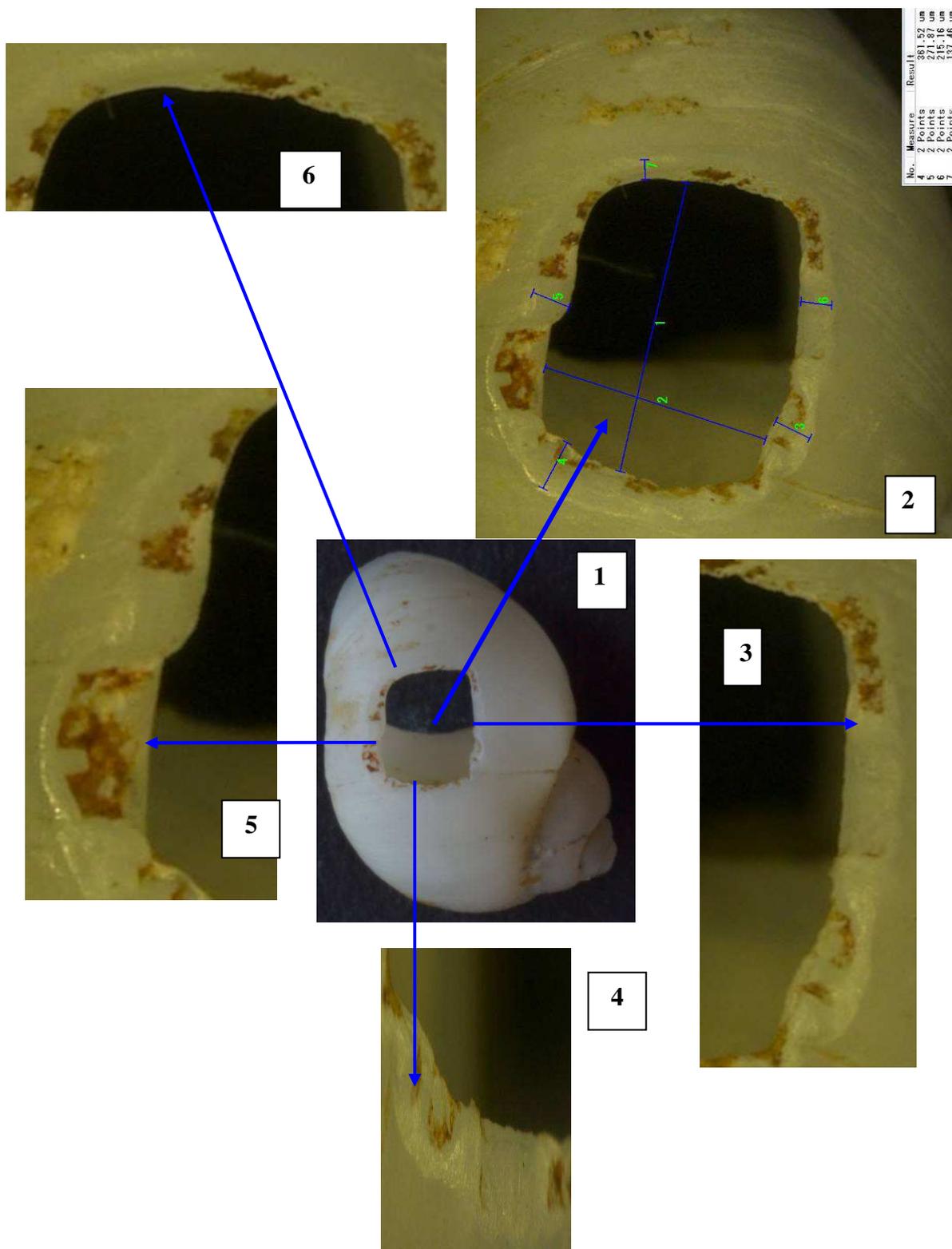


Fig. 12 - Details of manufacture for shell no. 5 (details obtained with the VHX-600 digital optical microscope).

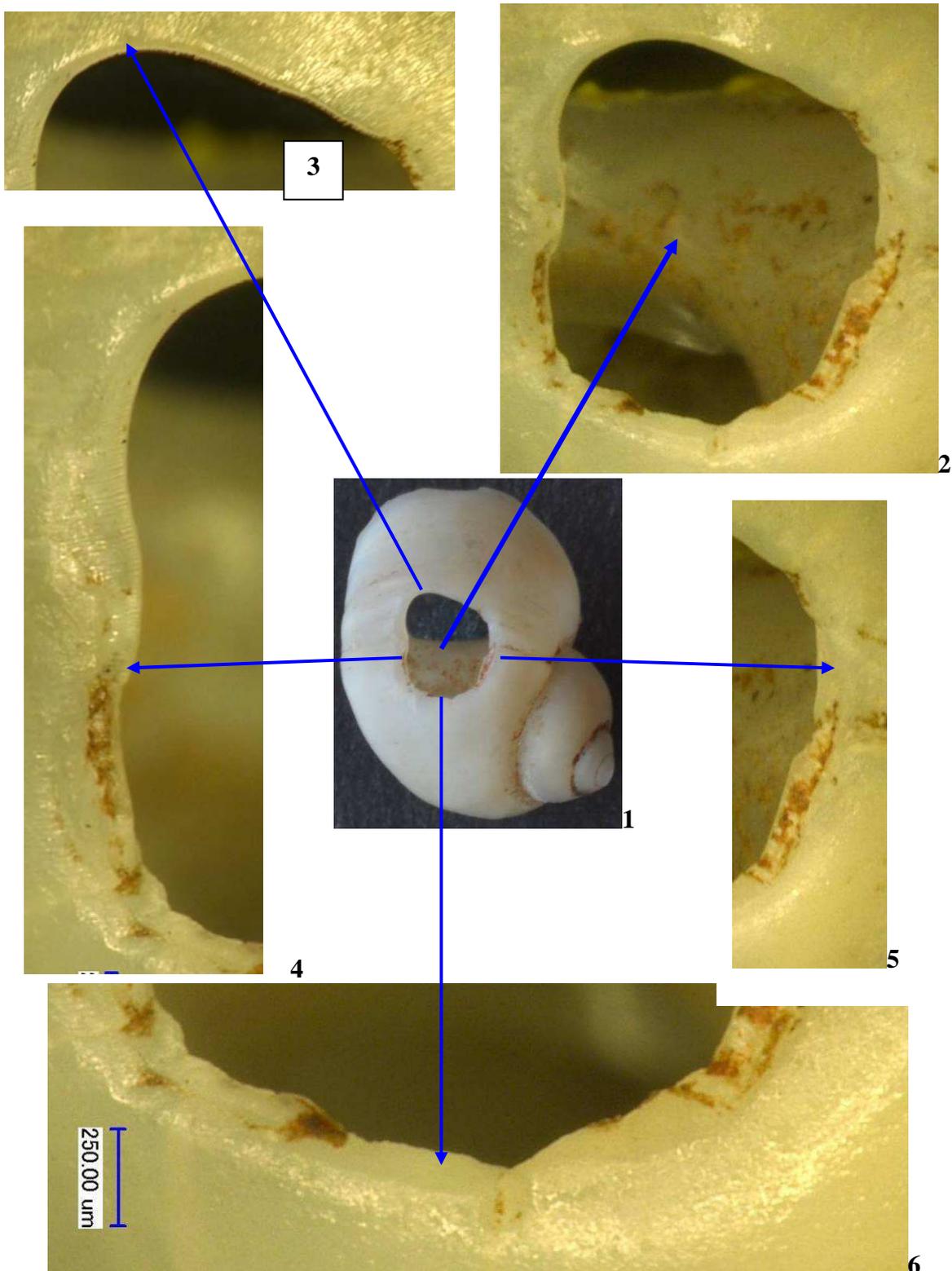


Fig. 13 – Details of manufacture for shell no. 6 (details obtained with the VHX-600 digital optical microscope).

The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Ciresului-Piatra Neamt [25.760±160 –27.321±234 B.P. (31.969 ka)]

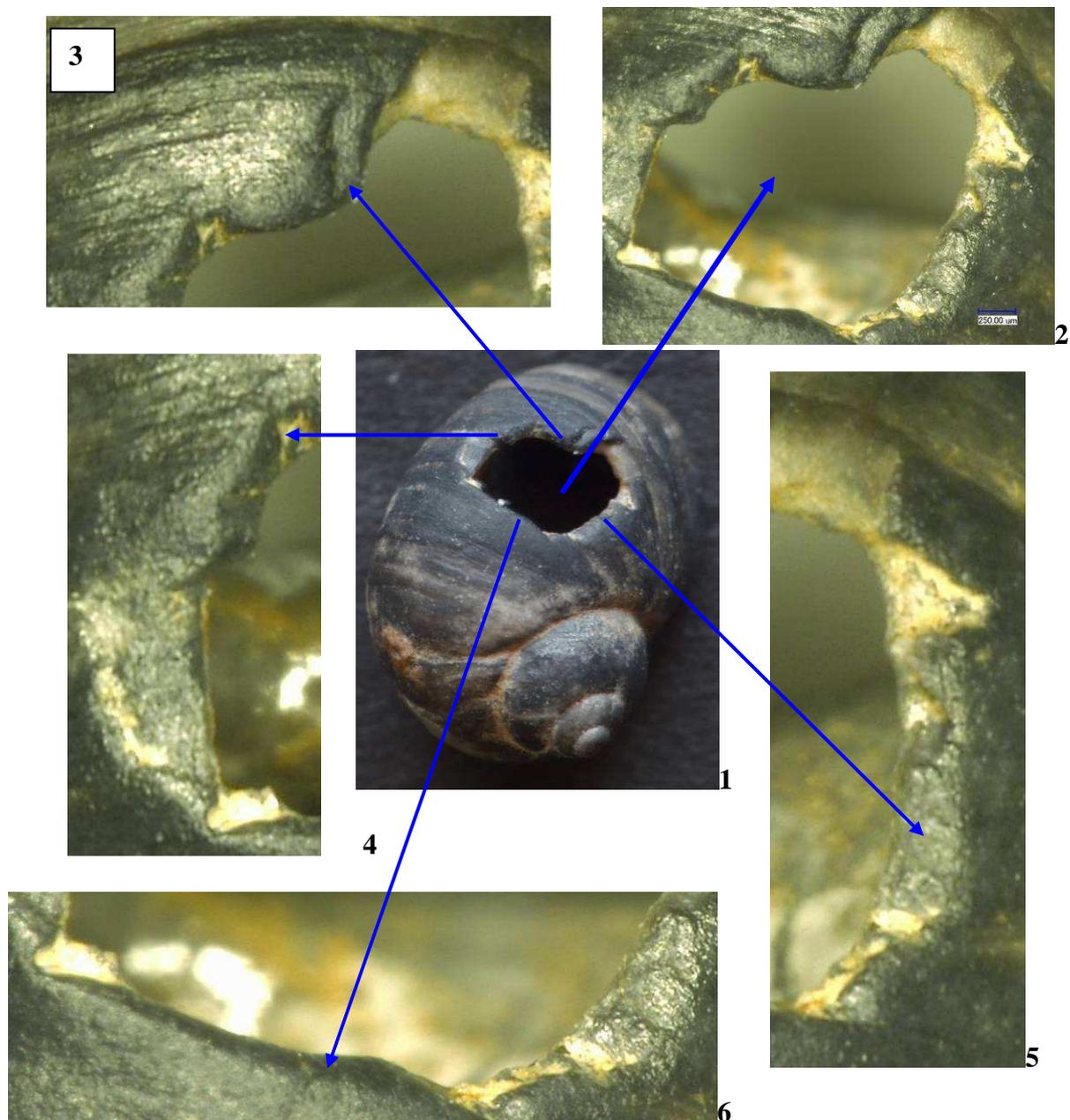


Fig. 14 – Details of manufacture for shell no. 7 (details obtained with the VHX-600 digital optical microscope).

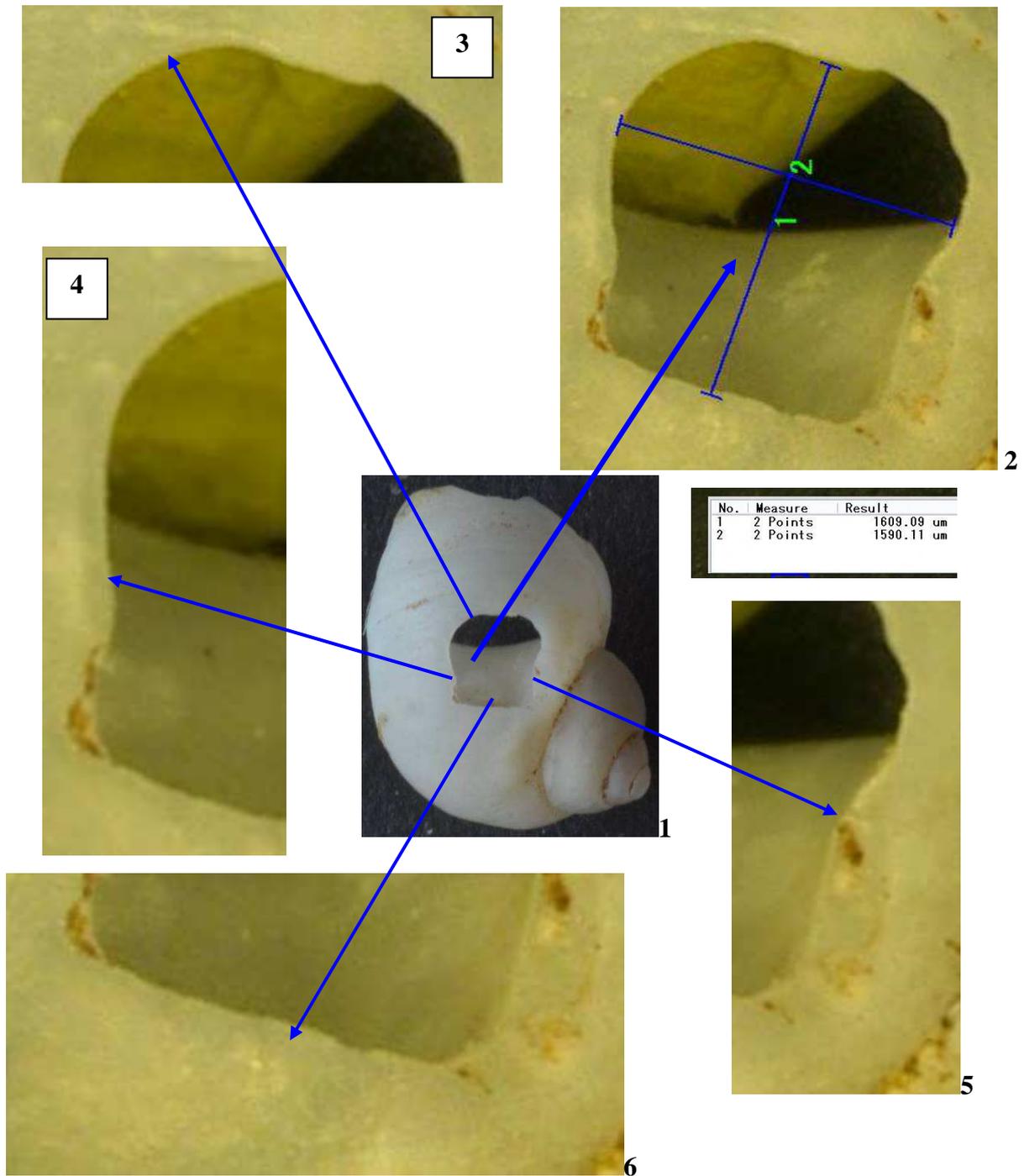


Fig. 15 – Details of manufacture for shell no. 8 (details obtained with the VHX-600 digital optical microscope).

**The oldest snail (*Lithoglyphus naticoides*) necklace discovered in Romania in the Gravettian III stratum of Poiana Cireşului-Piatra Neamţ [25.760±160 –27.321±234 B.P. (31.969 ka)]**

The snail shells found in the Gravettian settlement of Poiana Cireşului-Piatra Neamţ (fig. 2-3) fall in the same category of natural objects turned into adornment elements. Transformation and, implicitly, use of shells as adornment objects are one of *Homo sapiens sapiens*'s preoccupations expressed at the beginning of the Upper Palaeolithic. The diversity of data provided by these objects prompted the emergence of new paths of research (Y. Taborin, 1993; 2004; F. d'Errico, 1993).

The shells were often turned into ornaments by piercing and the various marks could be the result of their use. By identifying the traces, one could also reconstitute the way shells were fastened: hanged or sewn. The wear of piercing is a clue of how important the adornment was to those who wore it. As some ornaments were deposited with the deceased, as part of the funerary inventory, we may assume that their role was preserved after the death of the individual as well. In this sense, S. A. de Beaune (2004) remarked that "*leur role se prolongeait meme dans l'au- dela puisque nombre d'entre eux ont été retrouvés sur des corps inhumés*" (p. 179). Thus, they may be interpreted as personal attributes which individuals did not separate from even after death. Others were passed from generation to generation or made the object of exchanges.

The Upper Palaeolithic people were obviously more and more interested in natural objects they sought to turn, according to their thinking, into an idea, thus giving a certain meaning to them, a personalized shape. They harvested the shells in order to make adornment items, one criterion of selection being linked to a number of features, such as shape, size or colour. Evidently, this tendency to collect natural objects which drew attention through their distinct aspect, apparently without having a well-defined utility, would go beyond a mere curiosity and get a symbolic value. Y. Taborin (2004) noticed how difficult it was to recognize the real criteria of selection and especially to identify the meaning assigned to each shell, nuancing the importance of knowing the origin as an essential indicator of the relations among human groups, "*un document essentiel pour connaître le dynamisme social*" (p. 68).

The fundamental role of the adornment is to communicate, the adornment is a sign which has to be grasped, understood. The diversity of methods of transformation (choosing the elements as blank, type of hanging) involves a diversity of meanings expressed (Y. Taborin, 1993).

As a means of representation, shells may be in general embellishment objects attached to hairdos, various garments, in necklaces or rings adorning arms and feet (A. Leroi-Gourhan, 2001). As is well known, an embellishment can be either represented by a single suspended pendant or included in an ensemble of several distinct elements, both as raw material and shape or size, as is the case of the necklace discovered at Poiana Cireşului-Piatra Neamţ, which is made of *Lithoglyphus naticoides* snail shells. The shells' not coming from particular marine species or not being rare (as shape, size, colour, importance in nourishment) does not mean that their symbolic value should be reduced because of this.

Natural forms were more or less accepted in their initial state, they were often preferred because of their particular features which eased the creation of the desired object. Making adornment objects out of what was at hand, out of materials which did not excel as raw matter did not entail a fall in their symbolic value. The intimate significance, where it came from (inheritance, gift), the remembrance of an event etc., which represented their undeniable symbolic value, were important for the person who was wearing the adornment.

The technological and mainly the experimental study performed (fig. 8) emphasized the easiness with which snails resembling the *Lithoglyphus naticoides* were turned into embellishment items, by hanging, a feature of which the Gravettian people of Poiana Cireşului made use and, therefore, exploited. Their coming from a common species (land and freshwater snails), without any particular aesthetic ambitions, seems not to have been a handicap in their selection, on the contrary, it was an opportunity to give an apparently common, ordinary object a very special value transmitted by its usage as an embellishment item, part of a

necklace.

Consequently, harvesting snail shells existing in the habitat of the settlement was determined by a powerful cultural tradition of the Gravettian communities, that of turning gastropods and Lamellibranchiata into adornment items.

Combining technological study with the shells' significance, transmitted by having turned them into objects of embellishment, we have to say that, with the species encountered at Poiana Cireșului site, a few elements that are rather difficult to explain were identified:

- Choosing a freshwater species instead of a marine one. In this sense, those particular communities had to choose between using marine species, dictated by a tradition proved by Gravettian communities from other regions, and accepting a common species, without any particular aesthetic ambitions, which was present in the habitat exploited by Poiana Cireșului communities.

- Fragility of freshwater or land species. First of all, this reality entails questions regarding how the orifices for hanging were made. This paradox, at first sight, could be later understood following the experimental studies which showed that making the hole was fairly easy when the most adequate accessories were used. During the technological study, we revealed such aspects, we only wish to underline that, probably, the easiness of making the orifice through adequate procedures practically annulled the unreliability of the products obtained. In other words, for the Gravettian artisan and even the hunter, the much more rapid deterioration of adornment objects made of such species, as opposed to the marine ones for instance, was made up for by the possibility of quickly manufacture similar ones. This does not mean that the symbolic value of the shells transformed into necklace was diminished by the ephemeral character of the blanks used.

According to the outcome of our analyses, it is clear that we cannot rule out the desire to turn the shells into personalized items, and their value increases precisely by the attention paid to the selection of the form which inspires a certain symmetry and aesthetic interest, even though they did not excel in outstanding colours and shapes.

As the freshwater snail necklace of Poiana Cireșului is the oldest testimony of this kind in Romania (the Gravettian III level where it was found was dated as follows: Beta Analytic

244.073: 25.760 ± 160 B.P. – ER 11.859: 27.321 ± 234 B.P. (31.969 ka) (C. Zeeden et al., 2009), we can presume the transmission, for future cultural stages, of a powerful tradition in this respect. Furthermore, we cannot ignore that it is unique, from a certain point of view, in the European Gravettian.

In conclusion, experimental reconstitution was essential in understanding the reason of choosing certain materials to make mobiliary art objects. This type of research resulted in revealing data on the relations between gesture, material and tool, the transformation of the blank into a symbol depending on its behaviour during the engraving or piercing operation. The snail shell necklace from the Gravettian of Poiana Cireșului is an illustrative example. The Gravettian man, acting according to a tradition which was deep-rooted in his conscience, exploited what the environment was offering him, the necessary symbolic message being obtained through adaptive means.

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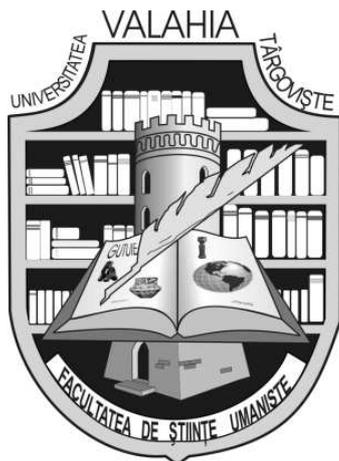
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# ANNALES



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## Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania

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**Abstract:** *Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania.* The article presents an Early Neolithic assemblage made of 11 artefacts of bone and antler discovered recently in South-Western Transylvania, Hunedoara and Alba Counties. The osseous materials artefacts were discovered at Lunca Târnavei-“Valley” during a periegesis and at Şoimuş/“Pe Teleci”/“Teleghi” where due to the extent of the Deva-Orăştie Motorway, more than 500 m of the site were excavated. The Western part of the site was researched by a team from Museum of Dacian and Roman Civilisation of Deva (Cătălin Rişcuța, Ioan Alexandru Bărbat and Antoniu Marc); the artefacts analysed in this article were discovered in this sector. Even if they are only few (N = 13), the pieces are both ordinary and rare or even unique ones. The typology comprises ordinary pieces like: points made of fragments of long bones or scrapers made of ribs. The rare pieces are: red deer antler sleeve, the blank of bone spoon and the fragment of red deer skull cap. Artefacts discovered at Şoimuş can be dated from Starčevo-Criş IC-III B.

**Keywords:** Alba County, bone and antler industry, Hunedoara County, prehistoric technology, Starčevo-Criş culture, Transylvania.

The archaeological research recently carried out has enriched our perspective regarding the osseous materials industry by identifying new types of artefacts, but especially by identifying aspects related to the artefacts’ morphology and functionality (C. Beldiman 2007; D.-M. Sztancs, 2011).

The archaeological excavations carried out by Ioan Alexandru Bărbat, Cătălin Rişcuța and Antoniu Marc in two Early Neolithic sites from Alba and Hunedoara County provided new objects made of bone and antler.

### The geographical area and the history of research

Lunca Târnavei

The archaeological periegesis carried out in the spring of 2009 in Alba County, Lunca

Târnavei-“Valley” (comm. Şona) (fig. 1), led to the identification of a Starčevo-Criş settlement. Unfortunately, in the 20<sup>th</sup> century, it was destroyed by clay and sand exploitations from a nearby quarry. In what concerns the earlier discoveries done in this area, the following bibliography may be consulted: V. Moga, H. Ciugudean, 1995, p. 121; I. A. Bărbat, 2005, p. 13-30; I. A. Bărbat, 2008a, p. 13-14; I. A. Bărbat, 2008 b, p. 49. The inhabitants do not use a specific toponym for this area of the village. “On the Valley”, “The Valley”, “Coast” or “Ierdaş” are some of the terms used to designate this part of the village. From a geographical point of view, the site is placed in the South-Western part of the village, on the left shore of the Târnavă Mică River, being limited in the West by a small river and in the North by the last houses and gardens

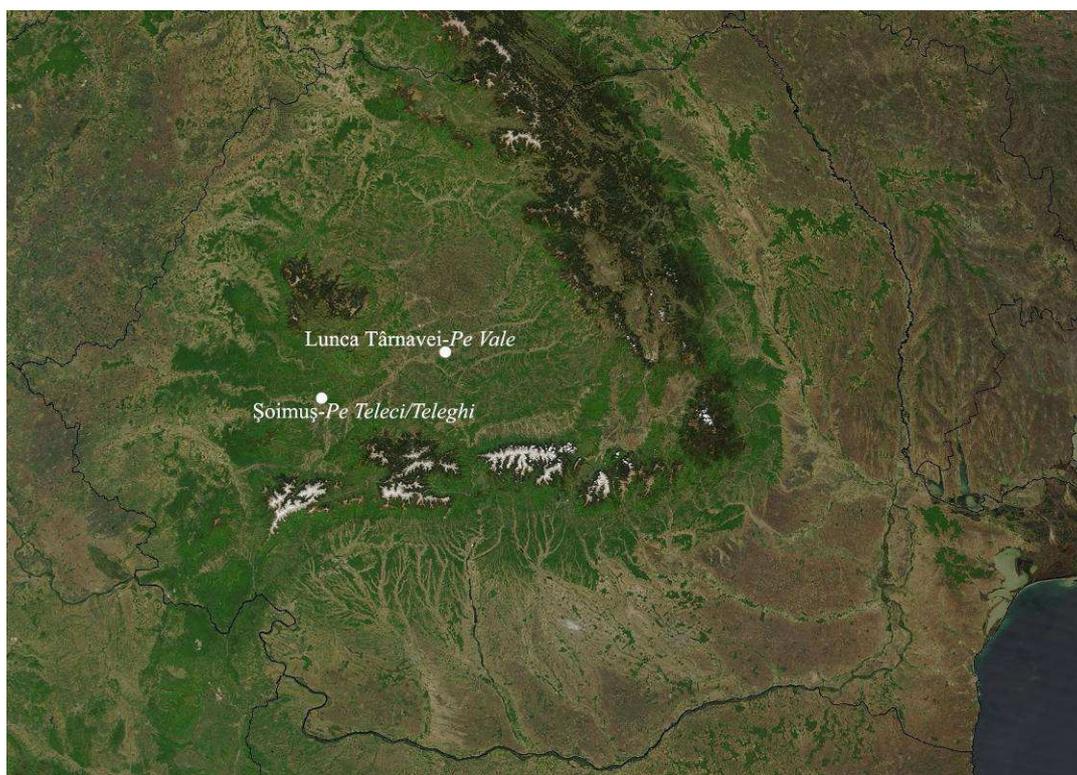


Fig. 1 – 1 Localisation of the Lunca Târnavei-“Valley” and Şoimuş/“Pe Teleci”/“Teleghi” archaeological sites (after [http://www.eurfedling.org/maps/Satellite\\_Romania.jpg](http://www.eurfedling.org/maps/Satellite_Romania.jpg)); 2 localisation of the Lunca Târnavei-“Valley” and Şoimuş/“Pe Teleci”/“Teleghi” archaeological sites (after <http://www.maps.google.com>).

## Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania

from the actual village. Unfortunately, the existence of a quarry in the nearby area determined the destruction of a significant part of the site. The pieces that we will present in this article were recovered after a periegesis.

### Șoimuș

The archaeological site of Șoimuș from Hunedoara County is placed in the vicinity of the village bearing the same name (Șoimuș Commune) (fig. 1), more exactly in its Eastern part, on the second terrace of the right shore of the Mureș River. This place is known as “Pe Teleci” or “Teleghi”.

The area found between Șoimuș and Bălata where “Pe Teleci”/“Teleghi” is placed was quoted very often in the archaeological literature and many discoveries have been made here (M. Roska, 1942, p. 165, nr. 113; O. Floca, 1969, p. 17; O. Floca, 1972, p. 13-14; I. Andrițoiu, 1979, p. 27, nota 34; I. V. Ferencz, D. Ferencz, 2001, p. 132; S. A. Luca, 2005, p. 151; S. A. Luca, 2008, p. 165).

In the old inventory register (Prehistory) of the Museum of Dacian and Roman Civilisation Deva, the inventory numbers between 5055 and 5079 refer to archaeological pieces (potsherds and osteological pieces) “... found at Șoimuș – Bălata...”. (MDRC, Old Inventory Register, Prehistory, no. 1 – 11625, ms.).

The discoveries dated from the Roman period are documented by numerous debris of building materials found between Șoimuș and Bălata. A part of these artefacts were recovered and registered by G. Téglás. In these conditions, Dumitru Tudor was determined to state that a Roman *vicus* might have existed there (D. Tudor, 1968). Liviu Mărghitan includes Șoimuș in the catalogue of Roman discoveries made in Hunedoara County. The information he provided was then used in the Romanian archaeological literature (L. Mărghitan, 1975).

A first archaeological excavation was led in 1973 by Ion Andrițoiu who conducted a survey in the Northern part of the site, after some fortuitous discoveries were made while the poultry farm of Șoimuș was being built. The area is known as “Poultry Farm” or “Farm no. 2” (I. Andrițoiu, 1979; F. Drașovean, M. Rotea, 1986; Gh. Lazarovici, Z. Kalmar-Maxim, 1991; Z. Maxim, 1999; S. A. Luca 2005; S. A. Luca, 2008).

The most recent discoveries were made in the autumn of 2011 while the Southern part of the “Pe Teleci”/“Teleghi” archaeological site was affected by the Project Deva-Orăștie Motorway between km 29+750-30+300 (fig. 2). Due to its extent on more than 500 m of the area bounded for research, the site was divided for excavation between teams of archaeological research. The members of the teams came from: the Museum of Dacian and Roman Civilisation of Deva (the Western part – B Zone), the “Vasile Pârvan” National Institute of Archaeology and the National Museum of Romanian History of Bucharest (Eastern part – A Zone) (Schuster *et al.*, 2012).



Fig. 2 – Aerial view of the B Zone (western) of the Șoimuș/“Pe Teleci”/“Teleghi” archaeological site (after <http://www.jurnalul.ro/observator/autostrada-deva-orastie>).

### Discovery context of bone and antler artefacts

#### Lunca Târnavei

During a field archaeological research done in Lunca Târnavei-“Valley”, two bone artefacts (fig. 3), an important quantity of ceramics and osteological materials were recovered. It is considered that these were part of a complex discovered near the profile of the above-mentioned quarry.

#### Șoimuș

In the Western part of the archaeological site Șoimuș-“Pe Teleci”/“Teleghi” a series of complexes were researched. They were dated

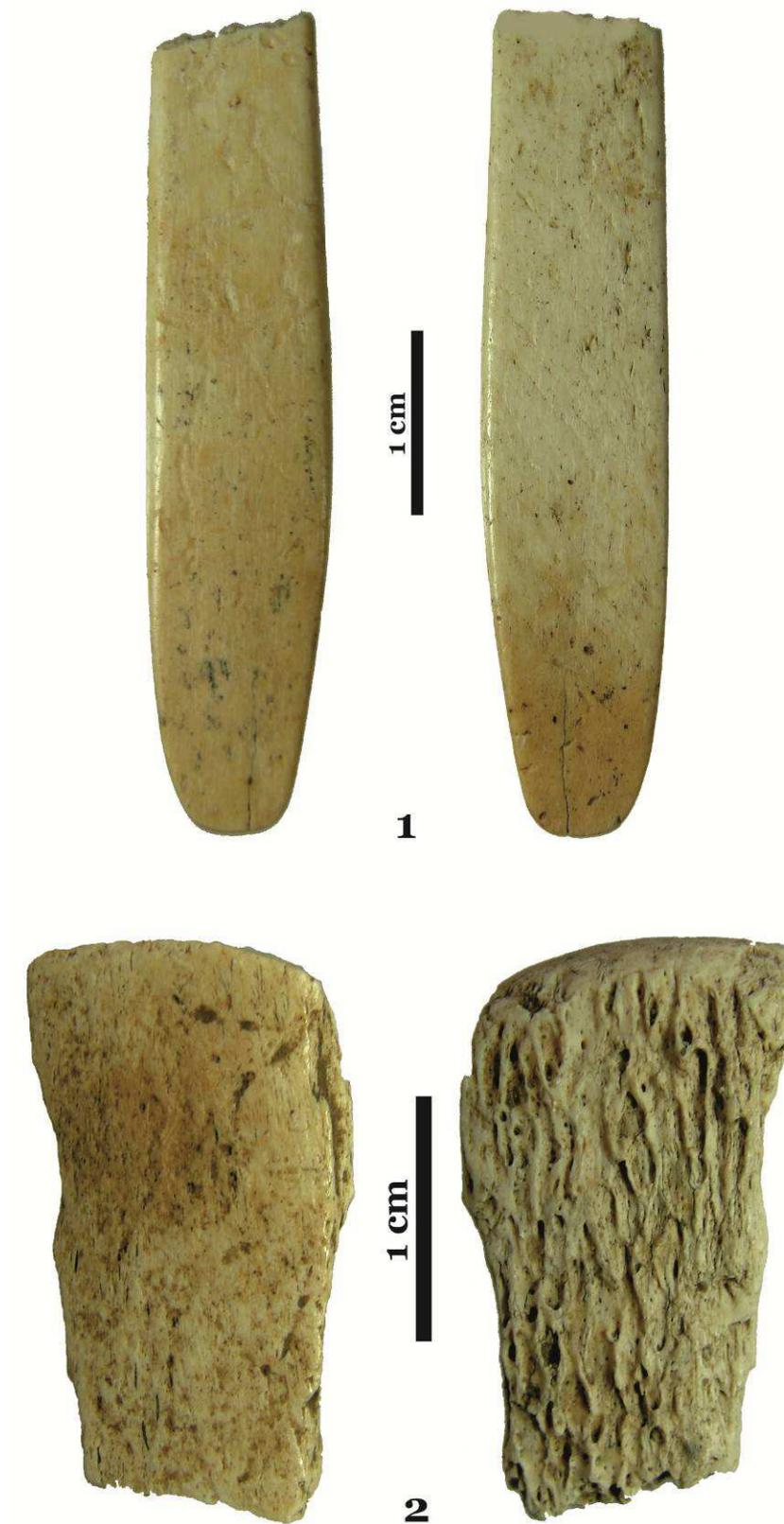


Fig. 3 – Lunca Târnavei-“Valley”: 1 LTV 1; 2 LTV 2.

## Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania

from the Early Neolithic, Starčevo-Criș culture (Schuster *et al.* 2012, p. 292). Among the archaeological materials discovered, some bone and antler objects were identified (fig. 4- 8). The Neolithic archaeological materials and the documentation were kindly offered for study by our colleagues PhD. C. Rîșcuța and A. Marc (MDRC Deva) whom we would like to thank on this occasion.

Because the study of archaeological materials is at the beginning, osseous materials artefacts were identified only in few complexes until now. These were taken from different levels of digging. At the middle of the past century, land improvement works were done on the entire surface of the site. Consequently, the upper archaeological levels were damaged and each researched complex had to be reported to the actual ground-level.

*C18 (Km 30+260 - 30+280)*. It is a surface archaeological complex that overlaps a semi-subterranean structure. From a cultural and chronological point of view, the two habitation horizons are dated from Starčevo-Criș IC – IIA (semi-subterranean house) up to IIA – IIB (house).

Two pieces were discovered in the most recent complex – the surface one – encountered at a depth of 0.55-0.75/0.80 m. The other pieces of inventory were discovered in the semi-subterranean structure (0.75/0.80 – 1.20/1.30 m).

*Complex placed at the edge of the site (Km 30+300 - 30+320)*. The hut was randomly identified during some activities that had as a purpose the rehabilitation of the Western part of the site. We have to mention that more than 80% of the surface of the archaeological complex was discovered without specialised survey. The pieces gathered belong to an archaeological surface complex that, according to the Northern profile of the house, is placed at a depth of 0.20-0.40 m. Unfortunately, the strong fragmentation of the osteological materials and thus of the bone and antler artefacts is related to the mechanical interventions that destroyed most of the archaeological complex.

### Cultural and chronological classification of artefacts

Lunca Târnavei

According to the ceramics discovered at Lunca Târnavei-“Valley”, the site was built somewhere around the end of Starčevo-Criș IIIA. Other specifications are hard to state due to the character of the research. Despite the fact that the *impress* ornamentation is very frequent in numerous combinations, there are no pieces with incised surfaces or with slip in the ceramic assemblage that was gathered from the surface (high-quality pottery), and the shapes illustrate pots included in the bowls category, or in the one of cups with short/high foot and sometimes slightly ringed.

#### Șoimuș

The discoveries are very recent, consequently we should emphasize the fact that the inclusion of the findings into one of the phases of the Starčevo-Criș culture is provisory. The names of the complexes are in the same situation.

As we mentioned above, the earliest pieces were dated from the Starčevo-Criș IC – II A (Gh. Lazarovici, 1977; Gh. Lazarovici, 1979; Gh. Lazarovici, 1984; Gh. Lazarovici, Z. Maxim, 1995; Z. Maxim, 1999) or Precriș I/II (I. Paul, 1989; I. Paul, 1995; M. M. Ciută, 2000; M. M. Ciută, 2005; M. M. Ciută, 2009) and they were recovered from the inventory of the semi-subterranean complex.

The hut is characteristic especially for the end of the Starčevo-Criș IIA culture and the beginning of the next one, IIB (M. Nica, 1971; Gh. Lazarovici, 1977; Gh. Lazarovici, 1979; Gh. Lazarovici, 1984; Gh. Lazarovici, Z. Maxim, 1995; Z. Maxim, 1999).

The functioning period of the hut discovered at the Western edge of the site can be very easily mentioned. The archaeological material (ceramics) is specific to the Starčevo-Criș IIIB (Gh. Lazarovici, 1977; Gh. Lazarovici, 1979; F. Drașovean, 1981; N. Ursulescu, 1983; N. Ursulescu, 1984; Gh. Lazarovici, 1984; Gh. Lazarovici, Z. Maxim, 1995; Z. Maxim, 1999; E. Popușoi, 2005; S. Băcuet-Crișan, 2008).

### Catalogue

The methodological parameters of the description and analysis are presented in various publications and we will not insist upon them (C. Beldiman, 2007; D.-M. Sztancs, 2011).

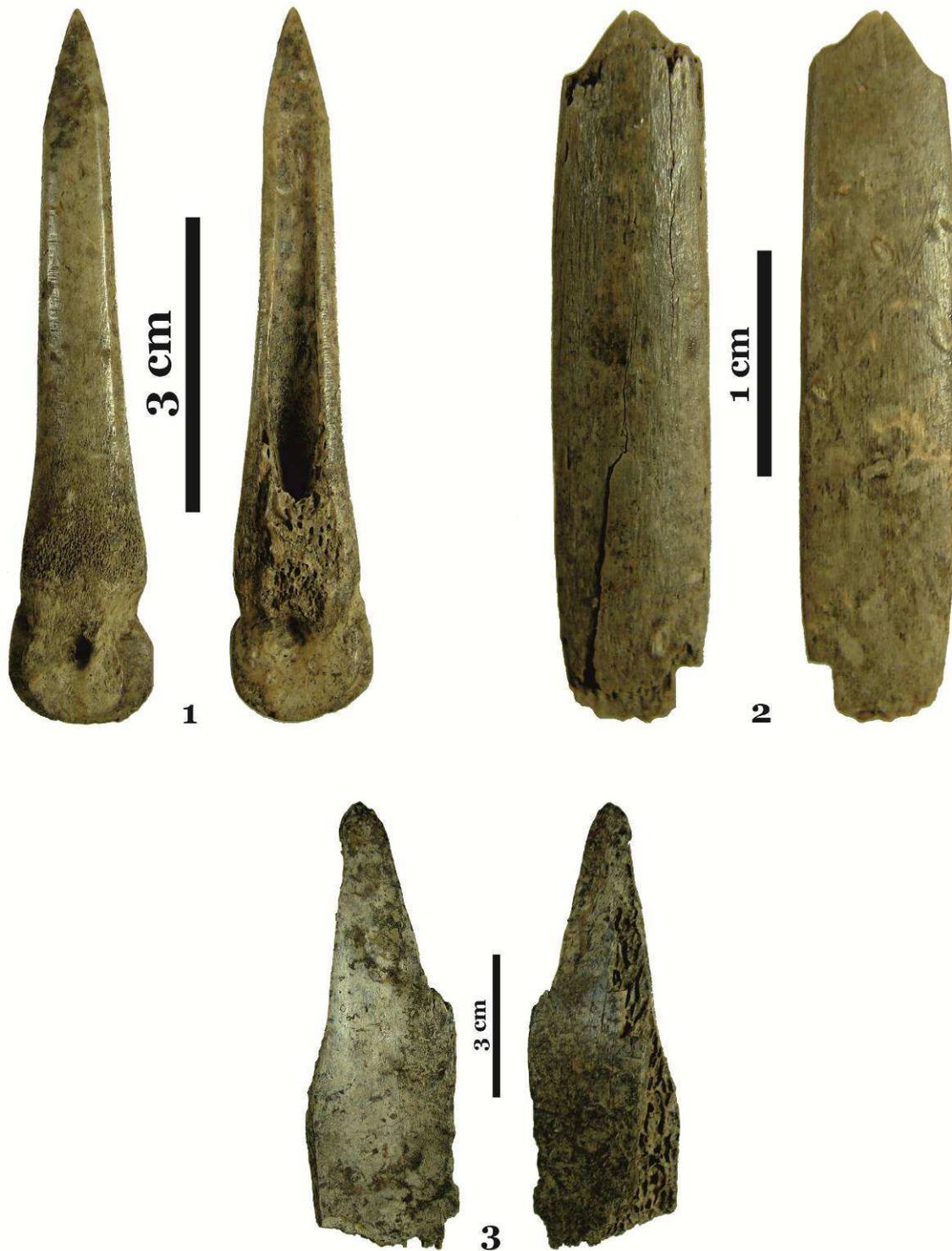


Fig. 4 – Şoimuş/“Pe Teleci”/“Teleghi”: 1 SMT 1; 2 SMT 2; 3 SMT 3.

**Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania**

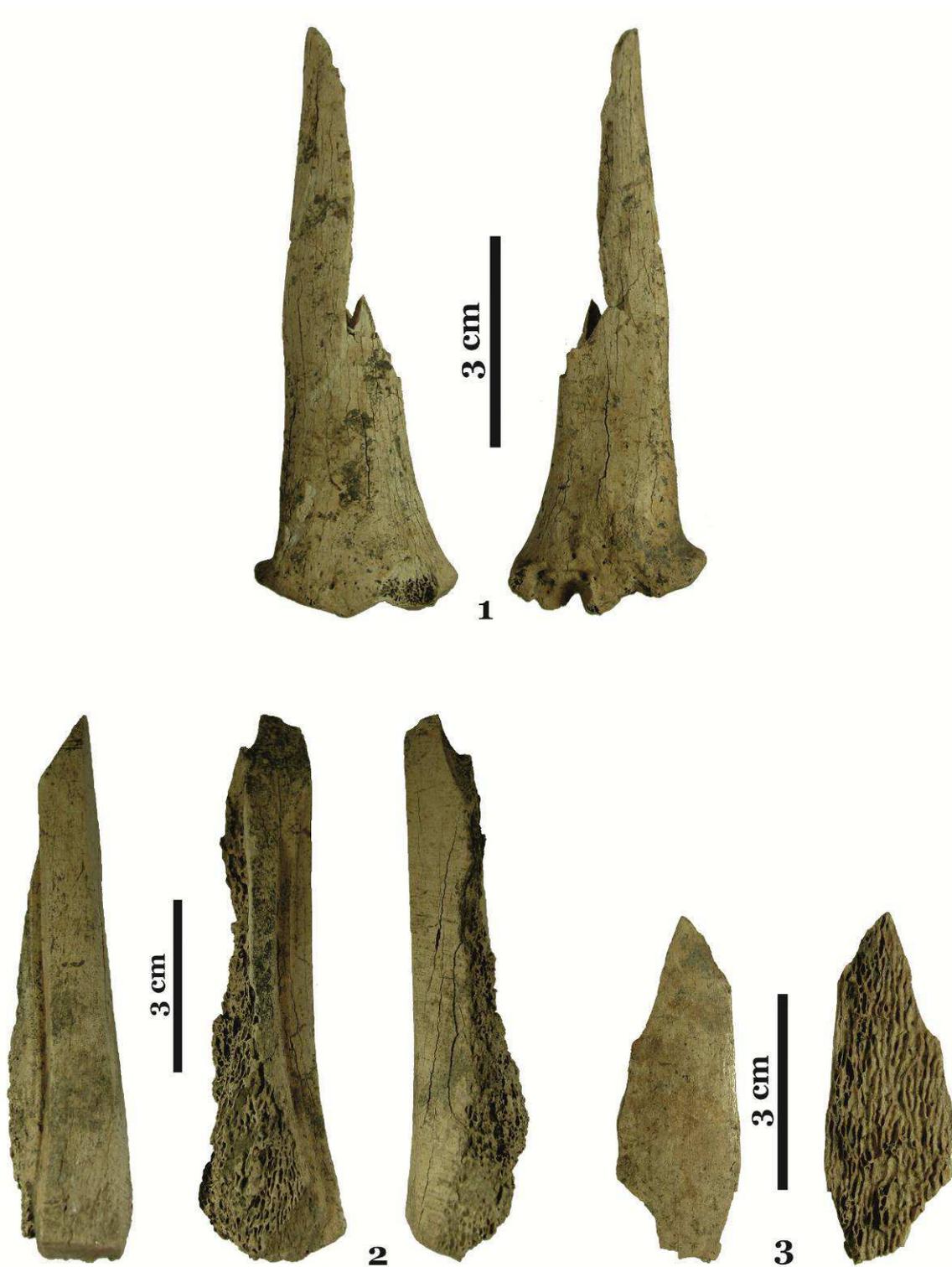


Fig. 5 – Şoimuş/“Pe Teleci”/“Teleghi”: 1 SMT 4; 2 SMT 5; 3 SMT 6.



1



2

Fig. 6 – 1 Artefact SMT 7 *in situ* – complex C18; 2 artefact SMT 3 *in situ*, lower level of complex C18.

**Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania**

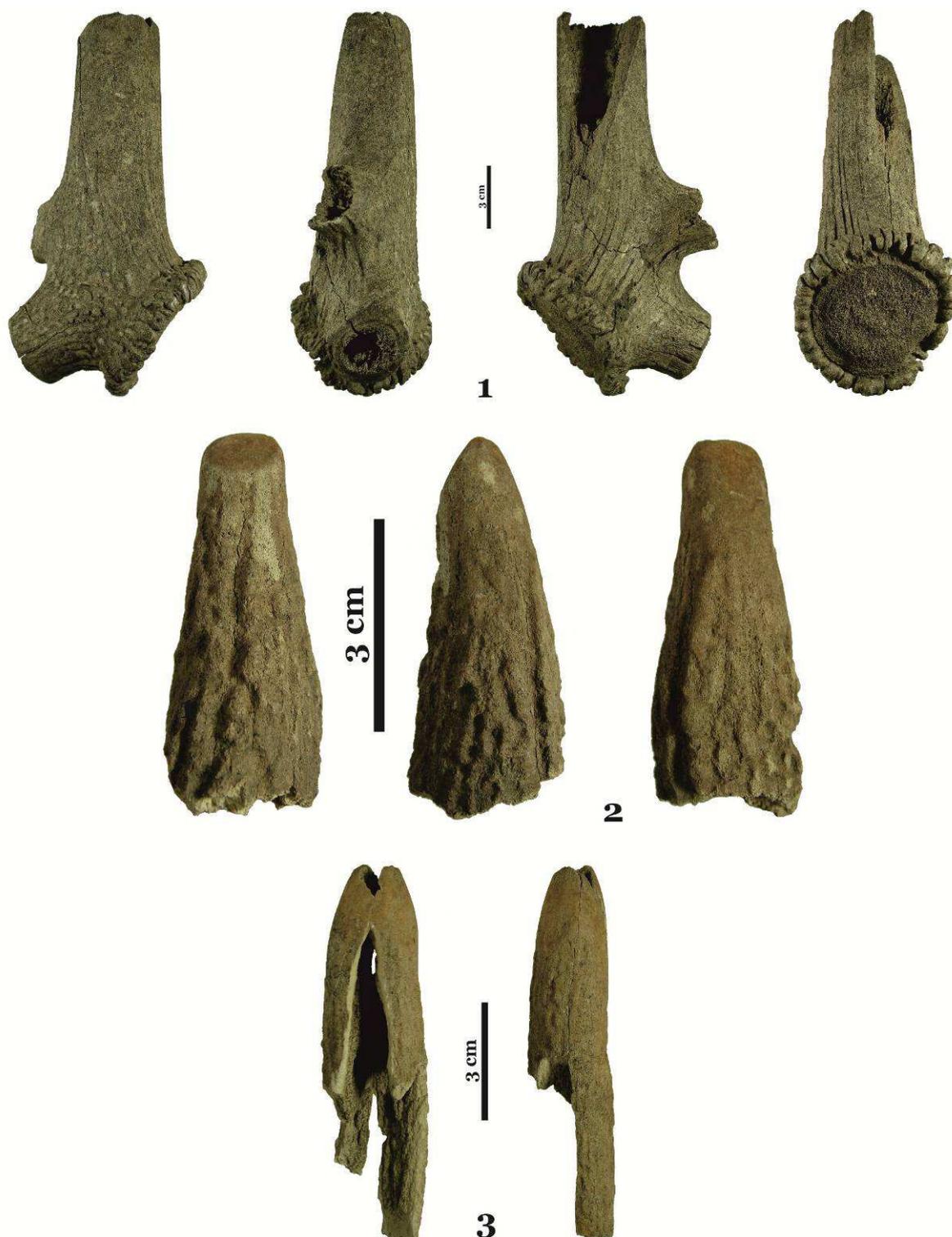


Fig. 7 – Şoimuş/“Pe Teleci”/“Teleghi”: 1 SMT 7; 2 SMT 8; 3 SMT 9.



Fig. 8 – Şoimuş/“Pe Teleci”/“Teleghi”: 1 SMT 10; 2 SMT 11.

## Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania

On this occasion, we present the results of a first evaluation of the assemblage comprising bone and antler artefacts discovered at Lunca Târnavei and Şoimuş coming from the researches carried out by Ioan Alexandru Bărbat, Cătălin Rîşcuţa and Antoniu Marc. Some considerations regarding the typology and technology, as well as a minimal necessary illustration, are presented here. In the future, a detailed analysis of these pieces will be published.

The pieces are stored in the collection of the Museum of Dacian and Roman Civilisation of Deva, momentarily without inventory numbers.

### Lunca Târnavei-“Valley” (LTV)

LTV 1 (fig. 3/1)

Scraper made of a rib (*I B4* type)

Fragment of cattle rib. Medium state of conservation; old-fractured, calcinations. A small central sector of the distal end is preserved with a unilateral, short active part manufactured by abrasion. The débitage consisted in direct percussion/chopping – direct percussion/fracture.

L 24.36; minimal width 10.09/3.22; maximal width 12.69/3.16; LPA 2.65.

LTV2 (fig. 3/2)

Bone spoon made of a rib fragment (*I F* type).

Well preserved. About 1/3 from the length of the piece is preserved – the proximal/medial part. The shaping was done using abrasion. The surfaces are well-preserved, the edges are rounded, the proximal end is symmetrical convex, the end is thinned/ on its surfaces by abrasion.

L 45.33; EP 6.48/0.94; PP 9.99/2.24; PM 9.28/2.22.

### Şoimuş-“Pe Teleci”/“Teleghi” (SMT)

SMT 1 (fig. 4/1)

Point made of a caprine demi-metapodial

(*I A7 a* type; Beldiman 2007 typology).

Piece entirely preserved; good state of conservation. At the distal parts, on the upper surface – deposits of concretions. Caprine metapodial. The débitage was done using the groove and splinter techniques, followed by

direct percussion/fracture. On the inferior side, the edges were finished using abrasion. The active part is entirely preserved and it is faceted (in the case of points, this situation is rare). Use-wear traces: superficial bluntness and polish at the active part. It was probably used as a perforator for hides or textiles.

L tot 71.64; EP 14.14/9.77; PM 7.99/4.35; LPA 11.75; CD 5.86/3.70.

SMT 2 (fig. 4/2)

Point made from a segment of rib (*I A20* type).

Fragmentary piece; the distal end was fractured in the past. Good state of conservation. Segment of small mammal rib. Débitage was done using direct percussion/fracture; the shaping of the active part was done using abrasion. Use-wear traces: superficial bluntness and polish at the active part. It was probably used as a perforator for hides or textiles.

L tot 32.63/31.82; EP 6.60/1.88; PM 6.84/2.41; LPA 4.25/3.85.

SMT 3 (fig. 4/3; 6/2)

Point made from a fragment of long bone (*I A1* type).

Piece entirely preserved. Good status of conservation. Fragment of cattle scapula. The Débitage was done using direct percussion/splitting and direct percussion/fracture, followed by direct percussion/splitting on the left edge on 1/2 of its length. The other part of the edge is anatomic. The right edge is shaped using direct percussion/fracture. Use-wear traces: bluntness and polish placed at the distal end.

L tot 107; EP 28.30/9.28; PM 28.29/10.88; LPA 48.15; CD 9.81/6.62.

SMT 4 (fig. 5/1)

Point made of a caprine radius (*I A25* type).

Fragmentary piece, fractured both in the past and recently. Medium state of conservation. On the inferior side/left edge there are some traces of shaping using direct percussion/chopping and abrasion. This part is affected by corrosion.

L 86.17; EP 29.13/13.48; PM 16.10/8.07; LPA 33.

SMT 5 (fig. 5/2)

Blank of bone spoon (*IF* type).

Fragment, fractured in the past. Good state of conservation. Cattle metapodial. The proximal end preserves traces of transversal cutting, with a lithic piece (maybe a flint blade). Traces of débitage (the groove and splinter technique) are preserved on one of the sides. On the opposite side, intense abrasion was applied. Shaping using abrasion was applied on the left edge on 1/2 of its length, to the mesial part. Traces of superficial transversal cutting are preserved at the level of the mesial part. It is possible that the piece was fractured during the procedure of cutting.

L 88.44; EP 17.85/17.79; PM 15.52/12.83; depth cutting groove la EP 7.27; depth max groove 6.40.

SMT 6 (fig. 5/3)

Spatula/spoon made of a rib fragment (*IF* type).

Fragmentary piece. Cattle rib. Good status of conservation. Fractured in the past and recently. The fracture of the piece in the past produced an edge. Another edge preserves traces of shaping using direct percussion/chopping and abrasion. It probably is a fragment of a spatula/spoon.

L 59.43; PM 21.18/3.80; LPA 37.50.

SMT 7 (fig. 6/1; 7/1)

Red deer antler sleeve (*IV C3* type).

Fragmentary piece, fractured in the past. Good status of conservation. Deposits are preserved inside the perforation. The surfaces are affected by axial cracks. Shed red deer antler – right side. The first tine was detached using fibre sawing (cutting using linear abrasion) applied on the entire circumference and direct percussion/fracture. On the posterior/medial side of the first tine there is a residual trace of cutting. It is placed at a distance of 12.54 mm of the cut end. The second tine was detached from its base using direct percussion/chopping applied on the median side on 1/3 of the circumference and detached using direct percussion/fracture with a large piece split from the lateral side. The beam was detached using direct percussion/chopping probably applied on the entire circumference. 1/2 of the circumference is preserved. The other part was fractured in the past. The distal part seems to have been fractured during the use of the piece. At the distal part, an axial perforation was done

in the spongy tissue by carving and by alternative rotation using a massive lithic point. Traces of the procedure are preserved on the walls of the perforation. The fracture at the perforation level highlights its morphology – an asymmetrical cone, partially finished on the distal end on a length of 19 mm. This is a rare situation in which the perforation done in a spongy tissue was not affected by the ulterior procedures. This situation was possible because of the concretions deposited on the walls of the hole, which acted as a kind of a “seal”. There are no traces of perforation for the transversal fitting of a wooden shaft. The artefact is probably unfinished or most probably a sleeve in which a lithic piece such as a chisel or a hammer was fixed. It was used by hand. There is no clear evidence of bluntness and polish that would sustain the idea of the use of a possibility that the piece was not used, being damaged because of the fixing in the perforation of the lithic piece.

L tot 194; EP (burr) 75.50/69.95; PM (tine 2) 76.78/45.25; base tine 1 43.68/33.40; base tine 2 36.58/33.20; PD (beam) 45.65/44.00; ED cca 44.60/44; diam pf ED cca 32.65/30; depth pf 68; L finished part of pf 19.

SMT 8 (fig. 7/2)

Oblique double point made of terminal segment of tine (*IGI* type).

Medio-distal segment of red deer tine. Fragment – the distal segment of piece is preserved, recently fractured. Medium state of conservation. Double asymmetric active part. It was shaped by direct percussion/chopping and abrasion. There are no use-wear traces on its surfaces.

L 54.68; PM/PD 22.96/21.78; LPA 1 12.30; width LPA 1 11.56; LPA 2 3.30; width LPA 2 10.94; ED 10.6/4.

SMT 9 (fig. 7/3)

Double oblique point made from a terminal segment of tine (*IGI* type).

Distal segment of a crown tine. Medium state of conservation. Fragmentary piece,

fractured in the past and recently; glued. The active part is bilateral shaped using direct percussion/chopping and abrasion. The fracture of the distal end was done in the past, probably during the use of the piece.

L 117.89/111.89; PM/PD 28.30/23.56; LPA 1

## Bone and antler artefacts dated from Early Neolithic discovered recently in South-Western Transylvania, Romania

cca 32; width LPA 1 16.94; LPA 2 cca 26; width LPA 2 14.80.

### SMT 10 (fig. 8/1)

Fragment of red deer skull with pedicle. Hunting trophy. Medium state of conservation. Traces of superficial sawing by dog? The pedicle is preserved entire, the beam had shed. This indicates that the animal was slaughtered between October and February. This is a rare case in which this type of piece is preserved in an archaeological context.

Skull cap 72.13/58.05; thickness 11.40-13.50; diam base pedicle 44.94/38.90; surface pedicle/beam 37.47/32.09.

### SMT 11 (fig. 8/2)

Scraper made of a rib segment (*IB3* type)

Cattle rib. Fragmentary piece – sectors of distal and medial part are missing. They were fractured in the past and recently. Medium state of conservation. The extraction of the rib segment was done using direct percussion/chopping – direct percussion/fracture. The proximal end is unfinished, has the aspect produced during the débitage stage; the surfaces and the edges have anatomic aspect. The active part is convex, asymmetric and it was shaped by abrasion on the plane of fracture, broader on the inferior part of the piece (the convex side of the rib) and very narrower on the opposite side. The use-wear traces are highlighted on the right edge and they illustrate the use with the right hand. The traces of bluntness and polish at the active part and proximal one appeared because of the holding in hand.

L tot 205; EP 20/13.12; PM 30.64/9.88;

ED 29.80/2.12; LPA 1 (IS) 21.50; width LPA 1 27.90; LPA 2 (SS) 5.38; width LPA 2 22.

### Conclusions

Even if they are only few ( $N = 13$ ), the pieces analysed above are important because they attest in a meaningful manner, the presence of the paleotechnological phenomenon related to osseous materials industry in some archaeological sites that have never been studied until now: Lunca Târnavei (on the Valley of the Târnavă Mică River) and Şoimuş (on Mureş Valley). The artefacts discovered at Şoimuş come from certain archaeological contexts (huts) dated

from a cultural point of view from Starčevo-Criş IC-III B. They could also be absolutely dated, this fact being an added value of the research.

In this assemblage ordinary types of artefacts and rare or unique ones are present. Points made of fragments of long bones and ribs are included in first category, while the red deer antler sleeve, the blank of bone spoon and the fragment of red deer skull cap are the rare or unique pieces.

These artefacts increase the catalogue of Early Neolithic bone and antler artefacts from Transylvania.

### Acknowledgements

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### Abbreviations in text

CD – distal diameter; Diam – diameter; ED – distal end; EP – proximal end; IS – inferior side; L – length; L tot – total length; LPA – length of active part; Max – maximum; MDRC – Museum of Dacian and Roman Civilisation Deva; N – number; PD – distal part; Pf – perforation; PM – mesial part; PP – proximal part; SS – superior side.

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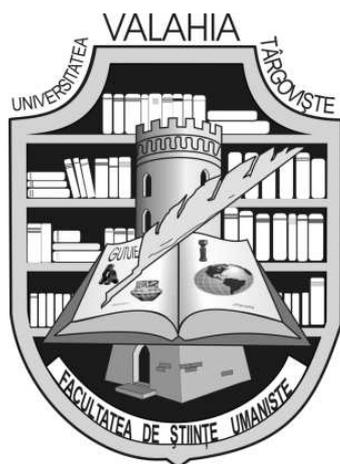
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# ANNALES



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## Eneolithic zoomorphic vessels from Wallachian Subcarpathians

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**Abstract:** *Eneolithic zoomorphic vessels from Wallachian Subcarpathians.* In Eneolithic settlements some vessels considered special were discovered, including those shaped like animals - zoomorphic vessels, and those imitating the human body - anthropomorphic vessels. Archaeological research in Romania has provided a number of zoomorphic vessels, included in a poor typological diversity. The eneolithic discoveries in northern Wallachia follow a similar pattern. In this study we aim to discuss several aspects that may be considered relevant to the functionality and role of this category of vessels. Along with the descriptive and typological analysis, we will make some correlations concerning the relationship between the primary context of discovery and the sparseness of these pieces, between the identified fauna and the executed model, the artistic quality and how representative it is of the typology of artefacts specific to this community. We will also reconsider certain findings, even though a critical analysis doesn't represent the central object of this study.

**Key words:** eneolithic, zoomorphic, typology, pots, ritual

**Résumé:** *Pots zoomorphes eneolitique dans le Sous-Carpathes de la Valachie.* Dans les établissements énéolithiques certains pots considérés comme spéciaux ont été découverts, y compris ceux en forme d'animaux - les pots zoomorphes, et ceux imitant le corps humain - les pots anthropomorphes. La recherche archéologique en Roumanie a fourni un certain nombre de pots zoomorphes, inclus dans une faible diversité typologique. Les découvertes énéolithiques dans le nord de la Valachie suivent un schéma similaire. Dans cette étude nous cherchons à discuter plusieurs aspects qui peuvent être considérés comme pertinents à la fonctionnalité et le rôle de cette catégorie de pots. Parallèlement à l'analyse descriptive et typologique, nous ferons quelques corrélations concernant la relation entre le contexte primaire de la découverte et la rareté de ces pièces, entre les animaux identifiés et le modèle exécuté, la qualité artistique et la façon dont elle est représentative de la typologie des artefacts spécifiques à cette communauté. Nous allons aussi revoir certaines conclusions, même si une analyse critique ne représente pas l'objet central de cette étude.

**Mots clés:** énéolithique, zoomorphe, typologie, pots, rituel

### Introduction

Pottery is a category of archaeological finds that constitutes the subject of a large amount of bibliography, numerous analyses and more or less conventional approaches have been published, classifications and typologies according to a wide range of criteria. Along with containers that have a domestic utility, two types of vessels are noticeable: those

shaped like animals - zoomorphic vessels, and those imitating the human body - anthropomorphic vessels. Research made in Romanian Eneolithic archaeological sites has provided a series of zoomorphic vessels; however, their typological diversity is rather poor. Along with vessels, zoomorphic plastic representations were also discovered, all of them being modelled in clay. Analysis usually relates zoomorphic representations

to magic and religious behaviour, and secondly to prehistoric art. In most approaches the functionality of these pieces was subsumed under the spiritual life of Eneolithic human communities.

Within the present-day territory of Romania, zoomorphic vessels appeared in the Early Neolithic, in Starčevo-Criș cultural horizon, being defined as altars or zoomorphic shrines (Z. Maxim, 1999; S. J., Sztancsuj 2007; A. Frînculeasa, 2011) and their presence increased in frequency during the Eneolithic Age (A. Frînculeasa, 2004; V. M. Voinea, 2005). In most of the cases, they were identified in Gumelnița settlements at Sultana, Gumelnița, Calomfirești, Aldeni, Hârșova, Măgura Jilavei, Căscioarele, Medgidia, Bordușani, Măriuța, Vlădiceasca, Vânătorii Mici, Ulmeni, Târgșoru Vechi, Dobrotești, Vitănești (S. Marinescu-Bîlcu, 1961, 1990; A. Nițu, 1972; R. R. Andreescu, 1997; R. R. Andreescu, T. Popa 2003; A. Frînculeasa, 2004, 2004a; V. M. Voinea, 2005; K. Moldoveanu, 2012) and Precucuteni-Cucuteni-Ariușd settlements at Târpești, Târgu Frumos, Ariușd, Păuleni-Ciuc, Drăgușeni, Izvoare, Hăbășești, Prigoreni Mici, Poienești, Cucuteni, Scânteia, Ghelăiești, Traian *Dealul Fântânilor*, Moldoveni, Trușești, Hoisești, Giurgești, Ruginoasa, Poienești, Mihoveni, Gura Văii, Poduri, Văratic, Sipeniți (A. Nițu, 1972a, 1972-1973; C. M. Mantu, 1994; A. Frînculeasa, 2004; G. Bodi, 2006; C. Bem, 2007; S. J. Sztancsuj, 2007; V. Chirica, M. Văleanu, 2008; D. Garvăn, 2009; D. Boghian, 2000; 2010a). They can also be found as isolated finds in Petrești culture at Rahău (I. Paul, 1992), in Sălcuța culture at the eponymous site (D. Berciu, 1939), in Vinča-Turdaș culture at Turdaș (A. Nițu, 1972; Vl. Dumitrescu, 1974).

In northern Wallachia only a limited number of such pieces was discovered (fig. 1/c), coming from the following archaeological sites: Teiu (Argeș), Ziduri (Argeș), Geangoiești (Dâmbovița), Târgșoru Vechi (Prahova), Colceag (Prahova), Mălăieștii de Jos (Prahova), Seciu (Prahova), Aldeni (Buzău), Sudiți (Buzău) (A. Frînculeasa, 2004, 2007, 2010a, 2011; A. Frînculeasa, O. Negrea, 2010; D. Măndescu, 2007; A. Ilie, Fl. Dumitru, 2008; E. Paveleț, L. Grigoraș, 2011).

Zoomorphic vessels are well known in the Balkans, Anatolia, the Levant, Western and Eastern Europe (H. Todorova, 1978; C. Epstein, 1985; V. G. Zbenovic, 1989; M.

Gimbutas, 1991; V. Marchevici, 1996; E. Banffy, 1997; C. Becker, 1997; G. C. Doumas, 2000; R. R. Andreescu, 2002; N. Kaliz, P. Raczky, 2002; V. Voinea, 2005; S. J. Sztancsuj, 2007; L. Stratulat *et alli*, 2008; G. Naumov, 2011).

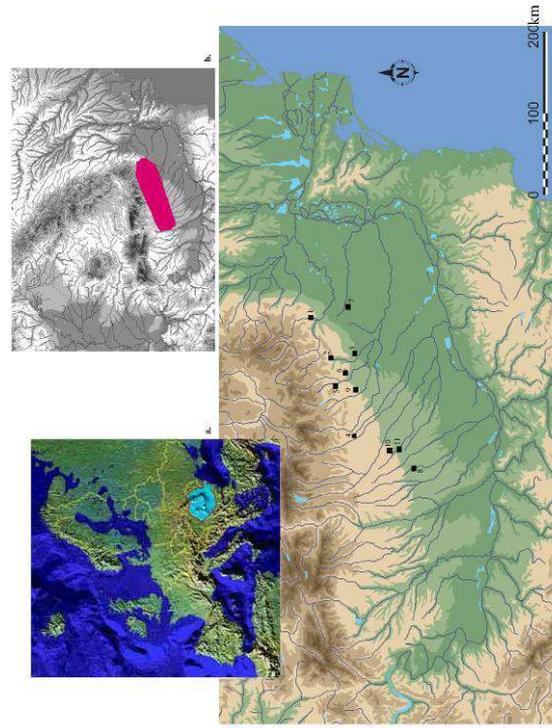


Fig. 1 – Map of Romania showing the distribution of the zoomorphic vessels discovered in northern Wallachia: a. the position of Romania in Europe, b. the area approached, c. settlements where zoomorphic vessels were discovered - 1. Aldeni, 2. Apostolache, 3. Colceag, 4. Geangoiești, 5. Mălăieștii de Jos, 6. Seciu, 7. Sudiți, 8. Surdulești, 9. Târgșoru Vechi, 10. Teiu, 11. Ziduri.

### Methodological considerations

Along with the descriptive and typological analysis, we will make some correlations concerning the relationship between the primary context of discovery and the sparseness of these pieces, between the identified fauna and the executed model, between the artistic quality and how representative it is of the ceramic typology. Having as a starting point the symbolism of these representations, we prefer to focus the analysis on the piece, not on the image or shape.

### Landscape, settlements, cultural context

In Wallachian Subcarpathians the landscape is fragmented, the area being bordered on the north side by the Southern Carpathians, on the South by the piedmont plain (150 m altitude), on the western

and eastern sides there are the basins of two major rivers, Olt and Buzău. There is a diversity of relief forms ranging from plain to hills, the area being crossed by rivers with high flow rates, flowing in a north-south direction, with their source in the Carpathian Mountains, which some of them cross. This situation ensured communication lines between the north Carpathian communities from Transylvania and the south Carpathian ones from Wallachia. These contacts are confirmed by the existence of cultural influences, or by the so-called „imports”.

Within this area rich mineral resources are present, especially salt in the form of surface outcrops or deposits, but we can also find salt springs. Amber is another important resource, which apparently was exploited in a limited manner at that time, but the process intensified throughout the Bronze Age. It was also the case that in an area covered with extensive forests, wild fauna was largely exploited, both for primary and secondary products. Of great importance is the fact that this geographical area is crossed by a rich network of rivers. All these elements seem to have provided prehistoric human communities with necessary resources in order to inhabit this area for a long period of time; the existence of archaeological sites with deposits of 1.5 to 4 m thick is relevant in this regard. Settlements are located mainly near secondary rivers, that have reduced flows, on hill plateaus (Aldeni, Seciu), terrace edges (Mălăieștii de Jos, Târgșoru Vechi, Sudiți) or at their base (Ziduri), but also in open flood-plains (Teiu, Geangoiești, Colceag).

The chronological frame is marked by Gumelnița-Karanovo VI-Kodjadermen culture, this area has a certain particularity determined by its peripheral position that seems to have ensured the contact between three cultural and geographical blocks: Boian-Gumelnița, Precucuteni-Cucuteni, Petrești-Ariuşd. As a consequence, within this area a local cultural aspect emerged, known as Stoicani-Aldeni, which comprised and synthesized some of the defining elements of these cultures (A. Frînculeasa 2007). The few 14C data available for this area show a cultural evolution in a chronological interval placed between 4300-3.900 B.C. (A. Frînculeasa, 2011).

### Fauna

Analyses of wild or domestic palaeofauna

from the Eneolithic period in northern Wallachia indicate the presence of cattle, ovicaprids, suids, cervids, as the most important animals bred or hunted, to which we can add less important ones as dogs, rabbits etc. (A. Bălăşescu, V. Radu, D. Moise, 2005). Along with animal breeding, intensive hunting is also practiced, animals like cervids, wild suids, bovids were largely exploited (E. Popa, V. Radu, A. Bălăşescu, 2011).

Archaeozoological information about northern Wallachia is limited to a few series of fauna samples found at Aldeni, Drăgănești-Tecuci (A. Bălăşescu, V. Radu, D. Moise, 2005), Lișcoteanca (S. Haimovici, 1998), Însurăței (D. Moise, 1999; V. Radu, 1999; A. Bălăşescu, V. Radu, D. Moise, 2005), Glavacioc (S. Haimovici, 2005), Urlați (A. Frînculeasa, L. Niță, V. Dumitrașcu, 2008), Seciu (E. Popa, V. Radu, A. Bălăşescu, 2011), Mălăieștii de Jos (A. Frînculeasa *et al.*, 2012). The total number of collected and analysed fauna remains is of about 3200. In settlements from northern Wallachia, apart from Seciu, animal breeding is very important; there are a high percentage of domestic mammals, exceeding 88% at Lișcoteanca and 70% at Glavacioc. Cattle are the predominant species, followed by ovicaprids and suids. Dogs are sparsely present. In terms of palaeo-economy, the settlements found in this area, especially those of Stoicani-Aldeni cultural aspect, are more like Precucuteni and Cucuteni settlements than those belonging to Gumelnița communities in the South, where sometimes hunting tends to exceed animal breeding. In the South, due to a diversified environment, Gumelnița communities had different exploitation strategies. The presence of suids increased significantly as compared to previous periods, which indicates that the population began to develop a more sedentary lifestyle. Cattle maintain their predominant role, followed by ovicaprids (A. Bălăşescu, V. Radu, D. Moise, 2005).

### Typology

The typology of Gumelnița zoomorphic representations is poor, represented by containers, protomas and plastic modelled pieces, decorations. Containers and protomas are interrelated, the attachment of a zoomorphic protoma gives to a vessel its main zoomorphic feature, the container shape (rectangular or hemispheric) in most of the cases doesn't realistically design the depicted animal. It is also possible to attach a protoma to a vessel that is typical of the local pottery. A general classification, in several categories, of Eneolithic zoomorphic representations would easily include discoveries in northern Wallachia:

✓ Zoomorphic vessels – this category is composed of four subtypes of vessels: animal-shaped vessels, lids, askos pots and rhytons. In the case of animal-shaped pots we mention other subcategories: containers with lids, tubular vessels lacking the head, askos vessels.

✓ Protomas – they represent animal heads or cattle horns attached to vessel walls. In the same category we note the appearance of bucrania (I. Torcică, 2012).

✓ Figurines and statuettes - they are the most numerous, yet aesthetically modest. They depict mainly domestic animals (cattle, ovicaprids, suids, dogs), but also wild fauna (cervids). The modelling is rather simplistic, without a careful attention paid to anatomical details, which are only discreetly marked. Only few pieces are decorated with stitches that seem to represent anatomical details.

✓ Decoration - is less present in Gumelnița culture, more frequent in Cucuteni culture; on a vessel found at Teiu there was a representation of a goat associated with a snake (A. Nițu, 1972).

container, bounded by the cylindrical neck of about 1.5 cm high, is a circular mouth covered by a lid.



Fig. 2 – Zoomorphic pot discovered at Mălăieștii de Jos in dwelling 6.

### About the pieces

In northern Wallachia 22 pieces were discovered, included in this study as follows: Ziduri (askos), Teiu (askos, three zoomorphic vessels), Geangoiești (askos, two zoomorphic vessels), Mălăieștii de Jos (three askos vessels, a rhyton, two zoomorphic pots, a lid, a pot with protoma), Seciu (askos, rhyton), Colceag (zoomorphic vessel), Târgșoru Vechi (lid), Aldeni (zoomorphic vessel), Sudiți (askos). The most numerous are the askos pots, 8 pieces of this kind are known.

*Zoomorphic vessels:* the pot discovered at Mălăieștii de Jos in dwelling 6 (fig. 2), is made out of fine, reddish colour paste, secondary burnt. The container is rectangular with slightly rounded body. On the body, both on the dorsal and lateral sides, a V decoration placed upside down is modelled in relief. The legs and corners of the vessel are marked by a rib applied in relief, vertically disposed. On the short sides of the container there are attached the head and tail of the zoomorphic representation.

The head is faceted, lacking other anatomical details, it is continued by a short conical neck. Above the shoulder of the

The pot had four feet that were broken in ancient times and holes in the area between the shoulders and neck and in the dorsal part, communicating with small ears made for the lid, which allowed users to suspend the entire set, both container and lid. Protoma and container together are 105 mm long and 75 mm high and the lid has a diameter of 78 mm and a height of 30 mm. A rectangular container with rounded short sides was found in dwelling 6 at Mălăieștii de Jos (fig. 3/1-3). It had four legs broken in ancient times, being modelled of medium quality paste, reddish coloured. It has a shoulder that probably supported a lid. The vessel is 68 mm long, 39 mm wide, 37 mm high.

Another vessel is that from Colceag, coming from a fortuitous discovery (fig. 4/4-8). The pot represents a cattle with horns and legs broken in old times. The ovoid shaped container has a 50 mm diameter hole in the back and it was probably covered by a lid. The head is elongated towards the muzzle and extended towards the frontal part. The eyes are represented by a horizontal incision, the ears are also visible. The head and the short neck were modelled separately from the container and attached to it using a hole made in the vessel wall. The tail is drawn from the paste. The piece gives the impression of massiveness, suggested

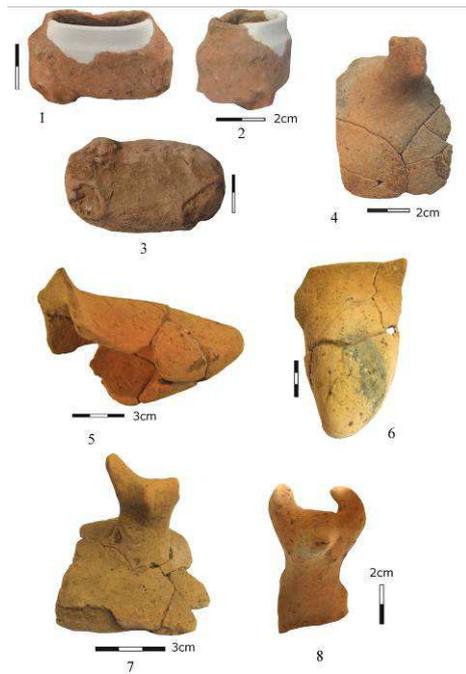


Fig. 3 – Zoomorphic pots from Mălăieștii de Jos: zoomorphic miniature pot (1, 2, 3); pot with zoomorphic decoration (4); rhyton pot (5, 6), lid with zoomorphic protoma (7); zoomorphic protoma (8).

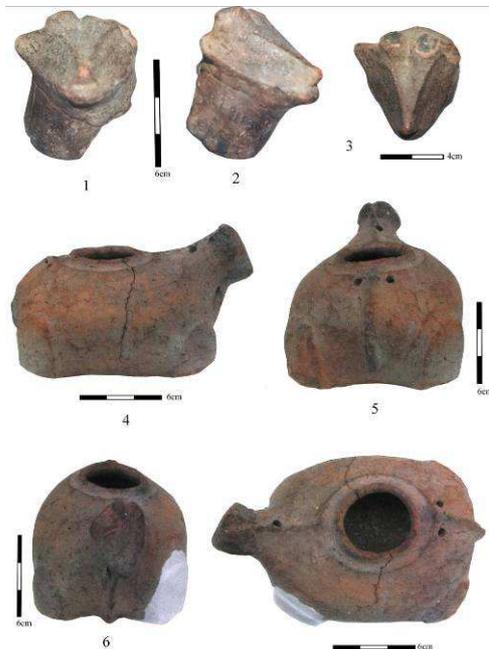


Fig. 4 – Zoomorphic lid discovered at Târgșoru Vechi (1, 2, 3); zoomorphic pot discovered at Colceag (4, 5, 6, 7, 8)

by the unnatural relation between the maximum length of 227 mm and maximum

width of 114 mm. The height at the top of the head is of 108 mm.

From Aldeni comes a vessel fragment that preserves the front part, with a zoomorphic protoma depicting a bovid provided with massive horns that are attached to the shoulders of the zoomorphic representation (fig. 5/3).



Fig. 5 - Zoomorphic pot discovered at Geangoiești (1, 2); zoomorphic pot discovered at Aldeni (3); bucranium discovered at Seciu (4); zoomorphic protoma discovered at Apostolache (5), pot with zoomorphic representations discovered at Teiu (6, 7)

At Geangoiești (fig. 6/4, 6) and Teiu (fig. 6/3, 5) two headless zoomorphic vessels were found, which had tubular body, four legs and tail. They are about 10 cm long and show parallels with pieces found at Căscioarele and Gumelnița (V. Dumitrescu, 1965; A. Frînculeasa, 2004). In the same category we can fit the pot discovered at Teiu, similar in shape, but with inseparable head, attached to the pot after being modelled separately (fig. 6/2). Is it probable that the other two pots from Teiu and Geangoiești were made in a similar manner but had lost the detached ends. From the same site comes a vessel without protoma (head), which has a cavity shaped in the dorsal part of the animal body (fig. 6/1). They are present both in Gumelnița culture at Măgura Jilavei, Vidra, and Cucuteni culture at

Drăgușeni, Scânteia, Prigoreni Mici, Cucuteni, Poduri (A. Frînculeasa, 2004; D. Garvăn, 2009).

*Rhytons*: the rhyton vessel discovered at Mălăieștii de Jos, in dwelling 5 (fig. 3/5, 6), is fragmentarily preserved, conical in shape and it is circular in section. The paste is of

good quality, yellow coloured. It has a length of 110 mm and a maximum diameter of 65 mm. The rhyton from Mălăieștii de Jos is included into cone type according to the classification of R. Koehl, even if the typology is made for Minoan and Mycenaean civilizations (K. Kristiansen, T. B. Larsson, 2005). The containers from this category were employed as libation vessels (N. Marinatos 1993). Another pot that could be included to the same type was found at Seciu (fig. 9/4-6). It is slightly curved and fragmentarily preserved, it has tubular shape. The eccentric part, better preserved, is slightly flared, funnel shaped, with perforated walls. The preserved part has a maximum length of 120 mm and a diameter of 45 mm.

*Askos*: the one found in dwelling 5 at Mălăieștii de Jos (fig. 8/1, 2), modelled in a relatively coarse paste, yellowish coloured, is missing the handle. The body is elongated, but still slender, with a height of 128 mm and a maximum length of 210 mm. The second askos was discovered in dwelling 6, is yellowish-reddish coloured, modelled in good quality paste, missing the handle (fig. 8/3, 5). Its body is slim, 123 mm high, and a maximum length of 165 mm. Another askos vessel coming from Seciu is elongated, hand modelled, with a height of 133 mm and a length of 225 mm (fig. 9/1-3). Other askos pots were identified at Teiu, Ziduri, Geangoiești, Sudiți (fig. 7). The one found at Teiu is 17.5 cm long (fig. 7/7, 8), and the one discovered at Ziduri has a length of 14.3 cm (fig. 7/5, 6). Several aspects must be noted: the medium quality paste used for modelling, the pots had no decoration, their use was prolonged as shown by their wear and lack of handles. In the case of Mălăieștii de Jos askos pots were stored together with other common vessels.

*Lids*: from Târgșoru Vechi comes a piece that represents a cervid head modelled by combining three distinct facets: the central part represents the frontal that, starting below the broken horns, is gradually narrowing, two other sides that individualized the mandible (fig. 4/1-3). Certain details are visible: the nose,

the mouth depicted by a horizontal cut, the ears rendered schematically, the left one being damaged. The horns are broken, only the basis can be found. The neck has cylindrical form, slightly flared base, only a small part of the lateral portion was preserved. The clay used for modelling contains pounded ceramic. It is light brown coloured, black on the inside. Dimensions: the length of the head on the antero-posterior line is of 6.6 cm, the maximum diameter of the neck is about 6.8 to 7 cm. The vessel shape seems to indicate the function of a sceptre attached to a wooden support, a situation that may find analogies in the pot found at Geangoiești (fig. 5/1, 2). From Mălăieștii de Jos comes a fragmentary lid that seems to have a rectangular shape, which probably overlapped a rectangular pot (fig. 3/7). A zoomorphic protoma with a height of 62 mm is preserved. The neck has a horizontal perforation that allowed the lid to be suspended.

Vessel with zoomorphic decoration: from the tell at Teiu comes a pot with spherical body, a height of 168 mm, a well defined cylindrical neck (fig. 5/6, 7), discovered in 1959 in dwelling X. On the outer wall two zoomorphic representations appear, a horned-animal and a snake (A. Nițu, 1972; Z. Maxim, 2005). We also mention three bucrania found at Seciu (fig. 5/4), Teiu (fig. 6/7, 8), Surdulești (I. Torcică, 2012) and zoomorphic protomas well known at the time, discovered at Apostolache (fig. 5/5), Mălăieștii de Jos etc (fig. 3/8).

### Analogs and chorological marks

In northern Wallachia archaeological research uncovered animal-shaped pots, lids, rhytons, askos pots and zoomorphic cups or cups with protomas attached to them (fig. 1/c). Animal-shaped pots were found at Colceag, Mălăieștii de Jos, Aldeni, Geangoiești, Teiu (A. Frînculeasa, 2004; A. Ilie, Fl. Dumitrescu, 2008; E. Paveleț, L. Grigoraș, 2011). They can be classified into two subtypes: a. cattle-shaped containers; b. pots with tubular body and a depiction of the legs and tail of the animal. Containers with lids, representing bovinds, were found at Colceag, Mălăieștii de Jos, Aldeni. Vessels with tubular body, representing suids, that could have had animal-shaped lids were discovered at Teiu and Geangoiești (A. Frînculeasa, 2004). However, it was rather difficult to attach the head/lid, considering the morphology of these vessels. In addition, lids or protomas that can be attached/joined to such vessels have not been discovered yet. Most likely the lid (head) was glued, similarly to a pot discovered at Teiu.

A zoomorphic lid shaped in the form of a

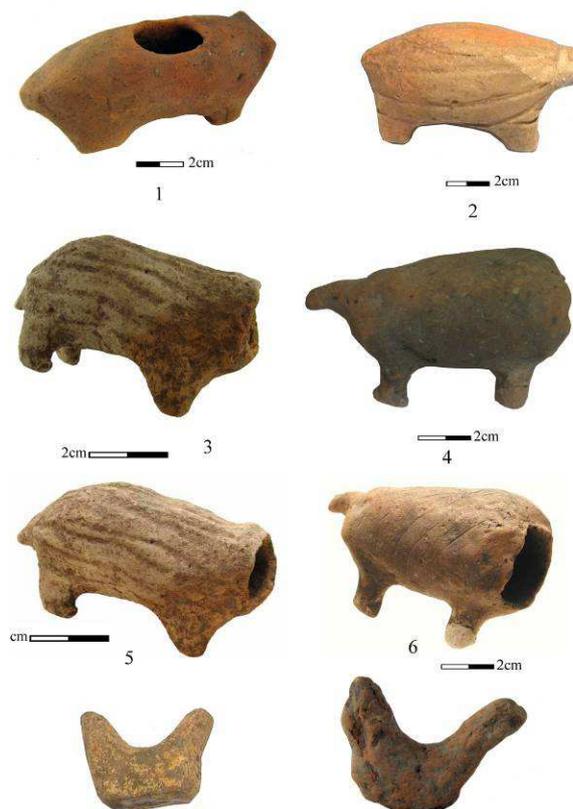


Fig. 6 – Zoomorphic pots discovered at Teiu (1, 2, 3, 5), Geangoiești (4, 6); bucranii discovered at Teiu (7, 8).



Fig. 7 – Askos pots discovered at Sudiți (1, 2), Geangoiești (3, 4), Ziduri (5, 6), Teiu (7, 8)

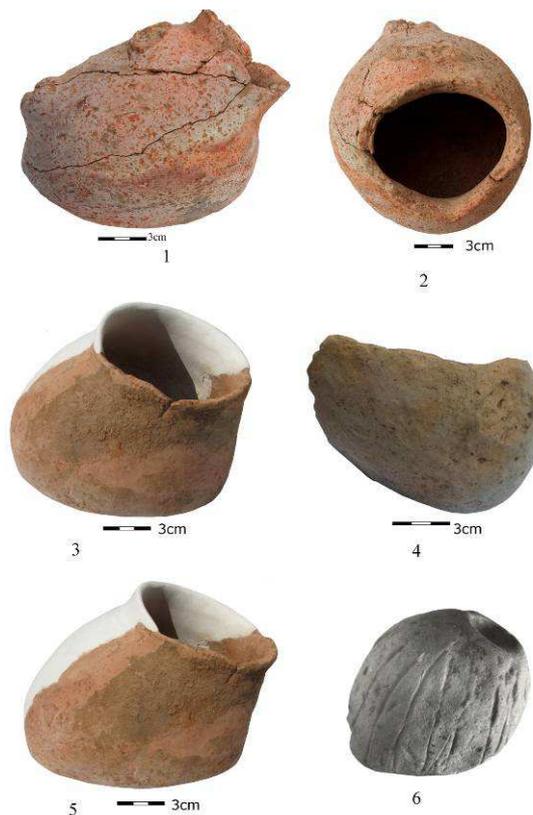


Fig. 8 – Askos pots discovered at Mălăiești de Jos from dwelling 5 (1, 2), dwelling 6 (3, 5), pit (4); miniature askos from surface discovery, without scale (6).

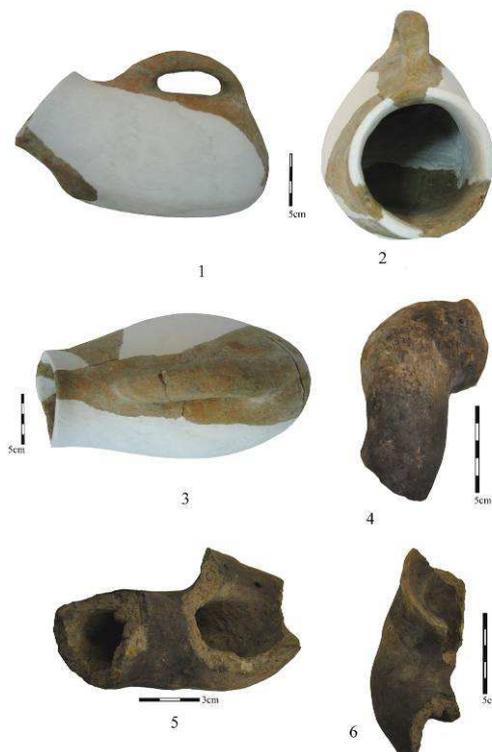


Fig. 9 – Askos discovered at Seciu (1, 2, 3); fragmentary rhyton discovered at Seciu (4, 5, 6).

cervid's head, with cylindrical neck, comes from Târșoru Vechi (A. Frînculeasa, 2007). Although not very numerous, zoomorphic lids appear in Gumelnița-Karanovo VI-Kodjadermen culture. We mention here the pieces found at Vidra - two pieces, Gumelnița, Vitănești, Goljamo Delcevo, Ruse, Goliamo Izvor - pot with anthropo-zoomorphic lid, Gorni Pasarel - anthropo-zoomorphic lid *etc.* (A. Frînculeasa, 2007; K. Moldoveanu, 2012). Lids that don't have a cylindrical neck, but a broader base can be related to zoomorphic vessels of rhyton or askos type, without head, which were found at Turdaș, Luncavița, Gumelnița, Vânătorii Mici *etc.* (A. Frînculeasa, 2004; V. M. Voinea 2005). Those with cylindrical neck could rather be protomas of zoomorphic sceptres. The piece from Târșoru Vechi shows similarities with a lid found at Vidra, which is a depiction of a cervid head (D. V. Rosetti, 1938).

At Geangoiești was discovered a tronconical vessel provided with two cattle horns (A. Ilie, Fl. Dumitru, 2008; D. Iamandi, 2009). Its form and some anatomical details seem to indicate a hybrid combination of anthropomorphic and zoomorphic features, type of representation known in Gumelnița-Karanovo VI-Kodjadermen cultural environment (Vl. Dumitrescu, 1977; R. R. Andreescu, 2002; K. Moldoveanu, 2012). Considering the fact that only the top part is preserved, we cannot exclude the possibility that this piece was a protoma of a zoomorphic sceptre, attached to a wooden support.

A form with special resonance, both by its occurrence and origins, is the askos type pot. Having southern roots and making their appearance in Neolithic period, askos pots were discovered in Anatolia, Greece, Bulgaria and Serbia (A. Nițu, 1972; C. Perles, 2003; V. M. Voinea, 2005). In the North of the Danube they appear in the developed Eneolithic period and continue to be present during the Bronze Age. In Romanian territory they appear mostly in the southern area, only few samples come from Moldavia. We can also find them in Republic of Moldavia and Ukraine (V. Slavcev, 2005). In Transylvania we only know the discoveries from Ariușd (S. J. Sztancsuj, 2007) and a pot from Turdaș (E. Lazurcă, 1977), that seems to be a hybrid form between zoomorphic vessels and askos pots, analogous

to those found at Vinča (A. Nițu, 1972), Luncavița (E. Lazurcă, 1977), Luca-Vrublevețkaia (A. Nițu, 1972). In northern Wallachia askos pots were found at Mălăieștii de Jos, Seciu, Ziduri, Teiu, Geangoiești, Sudiți (A. Frînculeasa, 2010).

Askos vessels appear in Gumelnița-Karanovo VI culture at Căscioarele, Caracliu, Jilava, Sultana, Vidra, Ciolăneștii din Deal, Seciu, Ruse, Hotnica, Banjata, Asmak, Stara Zagora, Dolnoslav, Mečkur (M. Șimon, 1986; S. Marinescu-Bîlcu, 1990; V. M. Voinea, 2005; A. Frînculeasa, 2010; 2011), in Precucuteni culture at Traian, Isaiia, Poduri, Luca-Vrublevețkaia, Coșernița, Alexandrovka (S. Marinescu-Bîlcu, 1974; V. Sorokin, 2001; D. Monah *et alli*, 2003; V. Slavcev, 2005; N. Ursulescu, F. A. Tencariu, 2007), but also Cucuteni-Ariușd culture at Rădășeni, Brad, Klișev and Ariușd (A. Nițu, 1972; V. Ursachi, 1991; S. J. Sztancsuj, 2007; C. Bem, 2007). For Sălcuța culture we know the finds from Sălcuța and Verbicioara (D. Berciu, 1961). They were also discovered in Stoicani-Aldeni settlements at Stoicani, Suceveni, Dodești (I. T. Dragomir, 1970, 1983), Vulcănești (Vl. Bielecki, 1978).

They were until recently considered reference points for the relative chronology of Gumelnița culture, with their earliest appearance in the A2 stage (V. M. Voinea, 2005; A. Frînculeasa, 2010), but the findings from Stoicani-Aldeni and Precucuteni cultural environments complicate the situation. M. Șimon considers that the askos vessel included in the Stoicani-Aldeni typology has Precucuteni origins (M. Șimon, 1986). Its presence in early Precucuteni III settlements on the eastern side of the Prut and in Stoicani-Aldeni settlements, leaves place for speculations about the origin and the chronological horizon when such pieces occur at the north of the Danube (A. Frînculeasa, 2012).

Rhyton type vessel - one piece comes from Mălăieștii de Jos and another one from Seciu (A. Frînculeasa, 2011). Both pieces are fragmentarily preserved, and the one from Seciu is questionable, so more sophisticated analysis are unnecessary. Rhyton vessels, although rare findings, were discovered in Gumelnița levels at Gumelnița, Căscioarele, Vidra, Sultana, Stara Zagora (S. Marinescu-Bîlcu, 2000; V. M. Voinea, 2005). They can also be found in Precucuteni culture at Poduri (D. Monah *et alli*, 2003), or Cucuteni at Trușești (M. Petrescu-Dîmbovița, 1999). These two pieces from northern Wallachia appear to be earlier than those from southern Romania and at the same time they appear in the area defined by Stoicani-Aldeni discoveries.

Rhyton vessels (including those with

anthropomorphic features) appear in the Balkans on a chronological horizon situated around 6000 BC, the earliest findings come from Achileion, then towards west from Vashtemi (Albania), Crno Vrilo (Dalmatia), Cave Elia, Le Macchie (Italy), all in Impressed Ware contexts (P. Biagi, 2003; D. Mlecz, 2007). A few hundred years after 6000 BC, the rhyton became a characteristic element of the Western Balkans, it can be found at Danilo, Kakanj, Smilčić, Cakran, Dunavec, Topoljanm, and after 5000 BC it appeared from Peloponnese, towards east in Kosovo, Bosnia and towards west in Italy (D. Mlecz, 2007; G. Naumov, 2011).

The pot found at Teiu (fig. 5/6, 7), which has its outer wall decorated with a horned animal and a snake (A. Nițu, 1972; Z. Maxim, 2005) is still a unique discovery within Gumelnița culture, the presence of zoomorphic decoration on vessels is much more significant in Cucuteni settlements (A. Nițu, 1972, 1975).

Along with vessels, we can also find plastic modelled statuettes and protomas, present throughout the Romanian territory during the Neo-Eneolithic Age. For this category of pieces some general features must be noted: an usually uncertain discovery context, small dimensions, fragmentation, a lack of anatomical details, modest modelling, the raw material is represented mostly by coarsely prepared clay, with pebbles, ceramic fragments and sand used as a degreaser, an uneven burning.

### Discussions

The primary context of discovery for these pieces is usually the settlement, they were found inside dwellings or pits containing domestic filling. The zoomorphic vessels are represented in most cases by a single piece in the repertoire and ceramic typology identified in the settlement. This situation finds its correspondent all over Romania, it is a rare situation that two zoomorphic vessels from the same category appear at the same level of an archaeological site. An exceptional case is the site of Ariușd where 14 zoomorphic vessels were found, but the site has a very complex stratigraphy (S. J. Sztancsuj, 2007). As for plastic representations, they occur mostly outside complexes, with some exceptions they are usually fragmentary.

However, these observations cannot be applied to askos type vessels. At Mălăieștii de Jos three such pots were found (fig. 8/1-5), to which we can add a miniature piece that seems to fit in the same type or an imitation (fig. 8/6), at Seciu one pot was found, but also fragments belonging to a second one. From Teiu only a single vessel was recovered, although the site was fully investigated. At Sudiți, Geangoiești, Ziduri, research covered only small areas. The richest sample is that from the site of Mălăieștii de Jos, that was object to extensive research, but the pieces appear in complexes that define various stages of habitation and development of the settlement. The askos pot that has the form of a bladder or a duck may be included in the category of zoomorphic representations, in this case we mention the anthropo-zoomorphic vessel from Gumelnița, whose body is shaped like an askos (R. R. Andreescu, 2002) or the zoomorphic askos pots from Turdaș, Luncavița, Gumelnița, Vânătorii Mici (E. Lazurcă, 1977; R. R. Andreescu, 1997; A. Frînculeasa, 2004), and in the south of the Danube the ones from Voina, Goljamo Izvor, Nova Zagora (A. Frînculeasa, 2004). It is also noteworthy the association between askos and bull representations, attested by a discovery from Koumasa (P. P. Betancourt, 1985; N. Marinatos, 1993).

The zoomorphic vessel with lid from Mălăieștii de Jos was (fig. 2) discovered in a burnt house along with other pieces that may be related to the spiritual component of this community's life: a zoomorphic miniature bowl, an askos, a phallus, two anthropomorphic statues that seem to be imitations of the ones specific to Cucuteni cultural environment, another two fragments of anthropomorphic representations, numerous vessels gathered around the fireplace. Inside the askos from dwelling 5 (fig. 8/1-2) were deposited two anthropomorphic representations made of bone (A. Frînculeasa, 2010), that are unique to this site.

No zoomorphic vessel appeared in funerary context. For rhyton vessels this assertion must be nuanced because a copy made out of marble was found in the cemetery at Varna, in funerary context (V. M. Voinea, 2005).

Zoomorphic vessels are made of a paste that is common for the usual ceramic. It is noteworthy for the askos vessels from Ziduri and Teiu the presence of coarse sand that is specific to late Gumelnița ceramics and at Mălăieștii de Jos the presence of pounded ceramic. The rhyton from Mălăieștii de Jos is the only pot that seems modelled from a finer paste (fig. 3/5, 6).

## Conclusions

All zoomorphic vessels and pieces that we identified depict images of domestic animals or wild fauna, species known and accessible to that community. The domestic animals represented are cattle, ovicaprids, suids, dogs and from the ones that represent wild fauna cervids and cattle are easier to identify. These are the mammalian species that are highly present in Neolithic fauna (A. Bălăşescu, V. Radu, D. Moise, 2005). Two mammals have priority in zoomorphic modelling: cattle and ovicaprids. Cattle are marked including by the presence of protomas and even bucrania. The latter are found in this area at Teiu, Surduleşti, Seciu.

The modelling is realistic, even simplistic, the pieces are small, the statues are up to 10 cm, the vessels don't exceed 25 cm. All zoomorphic vessels were provided with a lid. Also, for the vessels found at Mălăieştii de Jos, Colceag the presence of holes in the neck and coxal area allowed them to be suspended using ropes. The existence of lids could be a clue about the storage of substances, possibly spices, the possibility to suspend the vessels supports the same assertion. Similar vessels, that had the same type of holes, were found at Colceag, Traian, Sipeşti. Finally, the form cannot belong to a container with a common, household utility.

Vessels like rhytons and askos seem rather props pieces used in ritual activities involving the consumption of liquids and maybe libations. The statues are perhaps symbolic representations of zoomorphism and the decorations seem to induce a certain symbolic charge to the vessels.

In northern Wallachia there have not yet been identified fantastic representations, hybrid combinations or species eccentric to the natural environment of this area. Although few in number, hybrid representations are not lacking in Gumelniţa culture, in this regard we mention anthro-zoomorphic representations (R. R. Andreescu, 2002, 2012; C. Lazăr, V. Parnic, 2011; K. Moldoveanu, 2012). The findings seem to represent cult themes, possibly mythological. In this respect we note the vessel with zoomorphic decoration from Teiu where a horned animal is associated to a snake.

In the Neolithic Age zoomorphic representations, with the four types that are container, figurine, protomas, decoration,

follow the same coordinates as the anthropomorphic ones. The technical details and representation follow the same technique and artistic parameters. The figurines are small, lacking in most cases the anatomical details, only fragmentarily preserved, broken from old times. Schematic incised decorations, appear in relief or painted on vessel walls. Protomas generally represent human or animal heads. Zoomorphic containers are of better artistic quality and at the same time their dimensions exceed other representations, a situation similar to anthropomorphic vessels. Also, in both cases numerous plastic representations are androgynous. In zoomorphic plastic, sexual characteristics are exceptions, but the presence of gender duality is not ruled out, for example through the existence or lack of horns in the representation of cattle.

An association of the two symbols, zoomorphic and anthropomorphic is to be found at Mălăieştii de Jos, in the case of the askos vessel that had inside two anthropomorphic bone statuettes, but also in dwelling 6, where four anthropomorphic statuettes were discovered, along with a phallus and two zoomorphic vessels. It is also noteworthy the pot from Teiu that has represented on the exterior wall a horned mammal together with a snake (fig. 5/6, 7), whose head was shaped by pressing the soft clay and the realization of two lobes separated by a rib, a situation that finds direct analogies in the technical modelling of human faces for Gumelniţa anthropomorphic plastic art (R. R. Andreescu, 2002a). We highlight the association at a symbolic level of phallus representation and bucrania, both images are related to virility and fertility.

Similarities between anthropomorphic and zoomorphic plastic can be found concerning the context, the fragmentary state of the statues, probably result of the nature of the rituals. Both zoomorphic and anthropomorphic statuettes seem abandoned after their use in rituals involving their destruction. All these findings and conclusions express the existence in the Eneolithic period of religious beliefs and themes related to plant world, but also some where animals had a well-defined representation, both reflected in these plastic images that constitute symbols.

The premises are not the most relevant for drawing definitive conclusions. We ascertain the existence of vessels that find their utility only in recurrent manifestations in which we can guess the presence of a certain distinct character within the settlement. Regular manifestations can be inferred from the presence of these pieces in settlements, kept inside houses. Another clue is their wear, the

lack of legs or horns (for cattle representations), that seem to have been broken in ancient times. The presence of an important personage is indicated by the exceptional character, in most cases unique, of these pieces. The uniqueness within a settlement makes us think about totems rather than taboos, plastic zoomorphic representations have their correspondents fauna remains consumed by that community. Also, access to the symbol was large, marked by the presence of numerous animals modelled in clay, identified in all settlements. Finds seem to mark rather a symbolic character of these representations, the shape, size and detail seemed to be in many cases secondary marks. In most cases, in order to create an immediate visual effect, size is a first and important criterion. The few elements exposed report the possible presence of zoomorphism in the eneolithic age.

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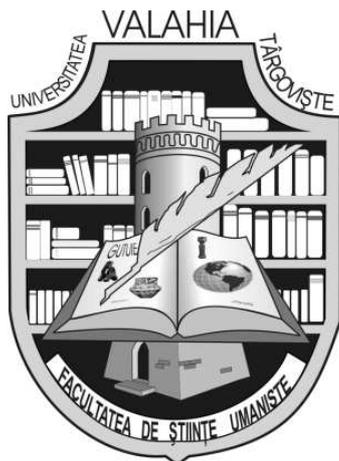
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# ANNALES



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## The Dacian red deer antler sleeve discovered at Unip, Timiș County

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**Abstract: The Dacian red deer antler sleeve discovered at Unip, Timiș County.** Complex no. 7 was discovered during the 2011 archaeological campaign in the multi-layered fortified settlement from Unip – „Dealul Cetățuica” / “Little Fortress Hill” – dated from the Second Iron Age (Geto-Dacian culture, probably 1<sup>st</sup> century AD). It is a ritual pit containing ceramic pots, other small pieces in clay, stone and metal, a bone handle and a red deer antler sleeve. The antler sleeve is a piece quite rare, less studied in the area of Dacian civilisation. It is entirely and in exceptional state of conservation. It is cone-shaped and he has 40.30 mm length and 50.42 mm maximum diameter. The surfaces were carefully finished. Three of the exterior surfaces were engraved with 14 double circles with a central dot. The circles are arranged in two rows, each of them having seven circles. This type of ornamentation is usual for bone and antler artefacts corresponding to the same chrono-cultural level both from Romania and Europe (handles, combs etc.). In order to analyse the piece, the optical and digital microscopic techniques were used (x10 – x200 magnifications). The artefact was probably used as sheath for a sword or a dagger. The use-wear traces revealed the fact that the sleeve was used before it had been put in the pit, quite habitual situation in the Geto-Dacian area. As analogies we may mention the pieces discovered in the sites from Sighișoara-“Wietenberg”, Mureș County and Poiana, Galați County. The close analysis of the artefact discovered at Unip offers an example regarding the way in which the methodology of study of osseous materials industry can be applied for Geto-Dacian materials.

**Keywords:** ancient technology, osseous materials artefacts, Preroman Dacia, red deer antler, ritual pit, Romania, sleeve.

### Context

The multi-layered fortified settlement (*dava* type) from Unip-“Dealul Cetățuica” (“Little Fortress Hill”) dated from the First and Second Iron Age, and is the only one known until nowadays in the Banat Field (fig. 1). During the excavation carried out in 2011 by a team led by Professor PhD Adrian Bejan, Lecturer PhD Liviu Măruia and Lecturer PhD Dorel Micle (West University of Timișoara) the archaeological complex no. 7 was identified in S2. This appeared at the depth of 0.80 m as a quasi-circular pit, with an opening of 1.50 m / 1.40 m having a depth of 0.6 m of the contouring level. Inside the pit, various clay artefacts (especially entire and fragmented clay pots, spindle whorls and an anthropomorphic protoma), metal pieces

(iron piece, perforated bronze plate), lithic objects (whetstone and grinder) and osseous materials artefacts (a bone tube and a red deer antler sleeve) were disposed in groups (fig. 3/3). Inside a fragmentary jar, a bone object having the shape of a tube was found. It has the length of 5 cm and it is well-preserved.

In the South-Eastern corner, close to the central area of the pit, few fragmentary clay lamps were found, above which a red deer antler was deposited on a red deer antler sleeve above were found (fig. 3-4).

All these artefacts had been covered with earth mixed with Hallstadian and Dacian ceramic fragments. In the filling of the first level of the pit, traces of burning were observed *in situ* and many of the pots preserved traces of a secondary

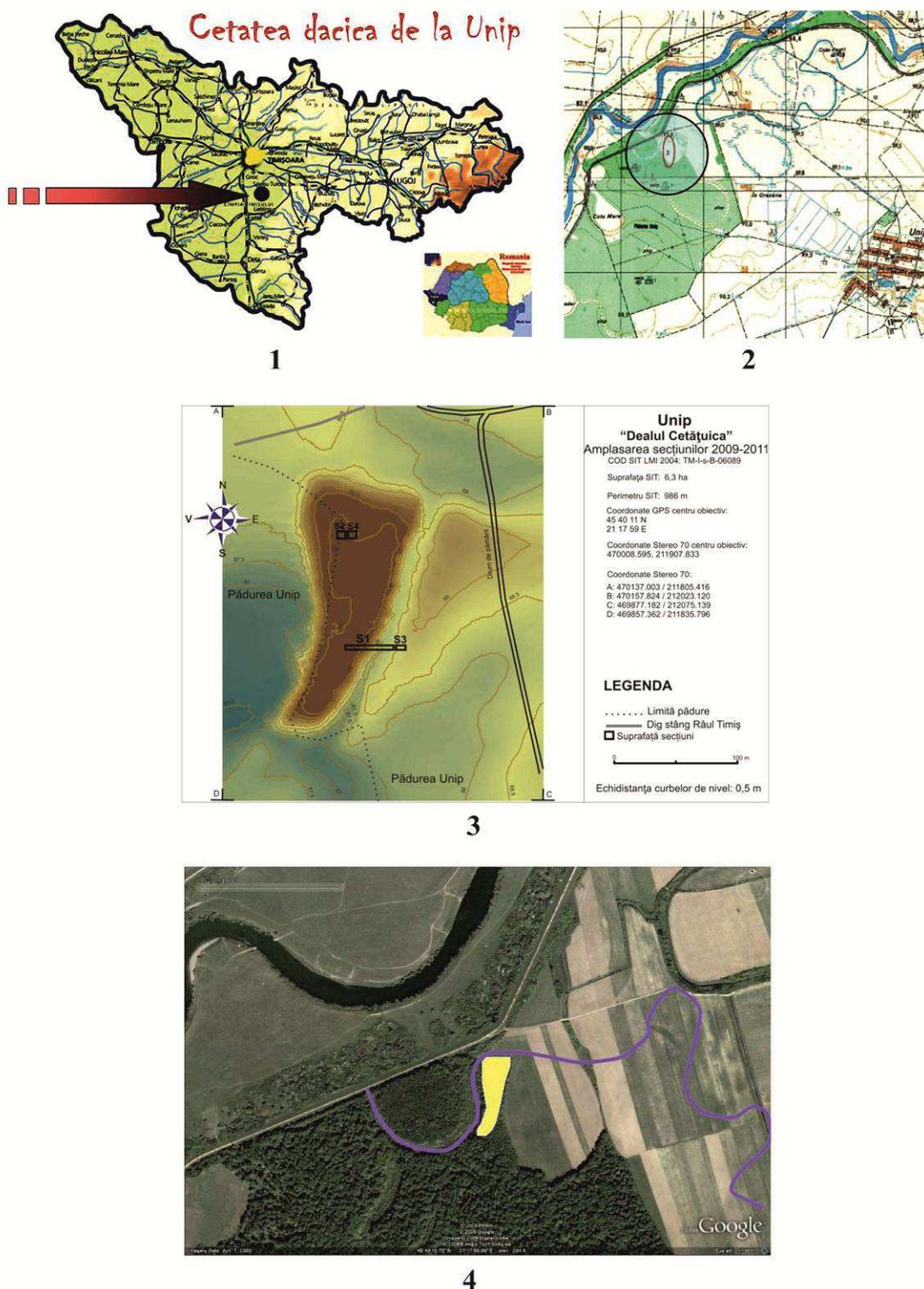
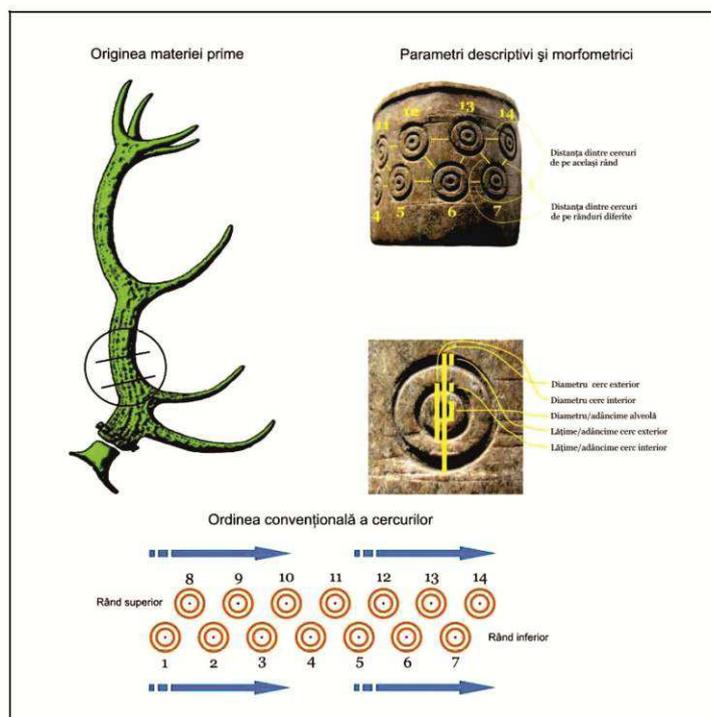


Fig. 1 – Unip-“Little Fortress Hill”: 1 location of Unip Commune, Timiș County; 2 location of the site (map); 3 plan of the site and excavated areas; 4 location of the site (yellow surface) and the ancient course of the Timiș river (adapted by Liviu Măruia after <http://www.earth.google.com>). Images provided by Liviu Măruia.

## The Dacian red deer antler sleeve discovered at Unip, Timiș County



1



2

Fig. 2 – Unip-“Little Fortress Hill”: 1 red deer antler sleeve: origin of raw material, elements of description and dimensions; 2 general views (drawing and photos by Corneliu Beldiman).



1



2



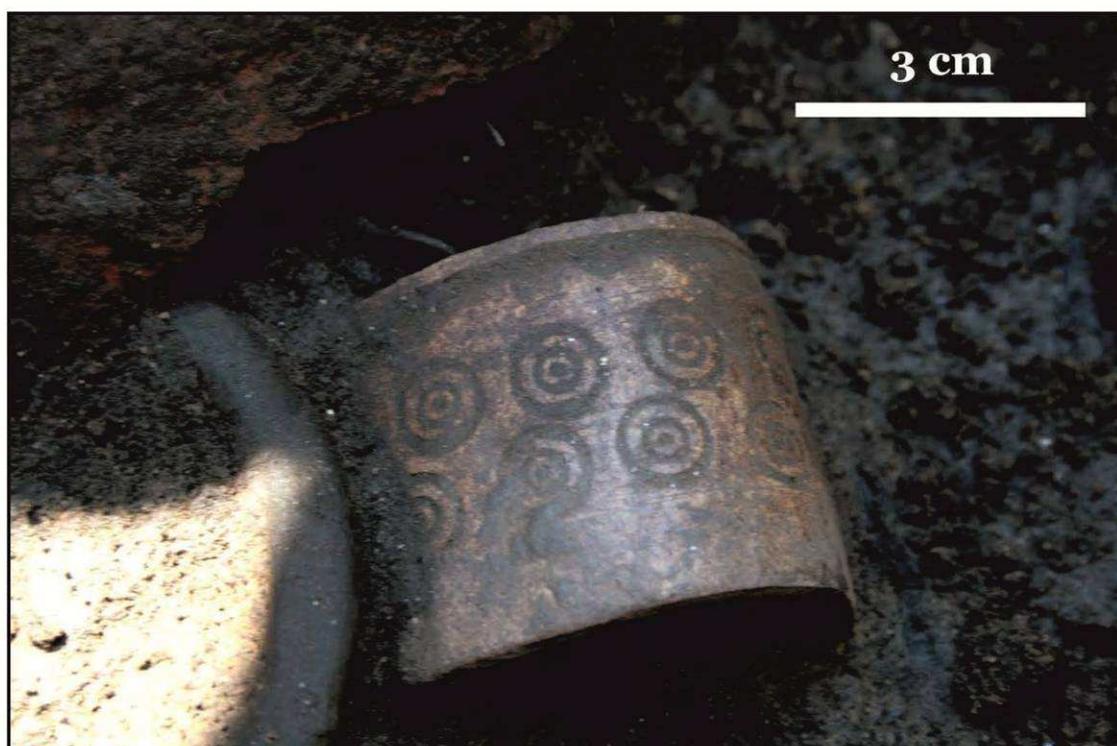
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Fig. 3 – Unip-“Little Fortress Hill”: 1-2 Complex 7/2011 (ritual pit) - red deer antler sleeve, detailed views, *in situ* context; 3 Complex 7/2011 (ritual pit), general view (photos by Liviu Măruia).

The Dacian red deer antler sleeve discovered at Unip, Timiș County



1



2

Fig. 4 – Unip-“Little Fortress Hill”: 1-2 Complex 7/2011 (ritual pit) – red deer antler sleeve, detailed views, *in situ* context (photos by Liviu Măruia).

burning. Nevertheless no traces of burning were observed on the walls of the pit. The special pieces had not traces of burning. Maybe the pots were burnt somewhere else and then deposited in the pit with the rest of the cremation.

From a functional point of view, the authors of the research considered that the complex played the role of a cultic pit.

This could be provisionally dated from the 1<sup>st</sup> century AD (A. Bejan, D. Micle *et al.*, 2011; A. Bejan, L. Măruia *et al.*, 2012; L. Măruia, D. Micle *et al.*, 2011; C. Beldiman, M. Cârciumară *et al.*, 2012).

### Description

The red deer antler sleeve is a rare piece among the Dacian osseous materials artefacts. The artefact was offered for study by Lecturer PhD. Liviu Măruia (West University of Timișoara, Faculty of Letters, History and Theology) and Professor PhD. Marin Cârciumară. It is preserved entirely in good conditions, without deposits and taphonomic damages (due to the two millennia deposit in the soil - flaking, corrosion, cracks, etc.) (fig. 2).

The piece has a length of 40.30 mm, the maximal diameter of 50.42 mm. Its general shape is conical, slightly asymmetric due to the raw material morphology. The transversal sections are oval, asymmetric, due to the same reason. The piece is made of a segment of an adult red deer antler beam, right side. The segment was most probably taken from the base of the beam, above the tine no. 2.

The object is shaped by removing almost entirely the natural aspect of the antler – the upper superficial part of the compact tissue (*compacta*, the channelled and gutter anatomic aspect). On the inside, the spongy tissue was almost entirely removed using the carving technique. The edges are linear, quasi-parallel.

At the distal extremity a border wide of 2.3 – 3.3 mm and high of 1 mm is observed (fig. 6). In the central part, on a strip wide of 89 mm ornamentation was engraved. This comprises 14 double circles with a central dot, with a conic and hemispheric profile that looks conic and hemispheric profile (fig. 3/3; fig. 5; fig. 7-9). The circles are quasi-identical and they were obtained by engraving with two special metallic tools like compasses, with sharp extremities that allowed the drawing of circles with different diameters.

Previously, the dot had been designed by rotation using the metallic sharp point of a compass or the tip of a knife. The circles are arranged on two rows (2 x 7). The decoration does not cover the inferior part of the sleeve probably because this part of the object was not seen when the piece was used. The circle and dot ornamentation are frequent on the artefacts from Preroman Dacia, especially on bone and antler handles and combs (A. Ganciu 2003).

### Manufacture

The manufacture of the artefact was done in several stages whose type and succession were identified through macroscopic and microscopic analysis of the preserved traces. The classic optical microscope, zoom x10 – x40 and the digital one, zoom x40 – x 200 were used. The technical transformation of the raw material was probably done using a prior water immersion in order to soften the tissue. This procedure makes the manufacture easier, especially in the first stages (*débitage* and shape of the surfaces). We also have to underline the fact that the techniques of sleeve manufacture (cutting, chopping, and carving using a knife or a chisel, the decoration engraving) are identical to the ones applied in case of woodworking. As a consequence, we may have an appropriate view regarding the way in which the wood was worked in order to obtain small-sized objects in Geto-Dacian times. The used tools and the specifics of the technical traces could also be analysed.

The *débitage* (in order to obtain a blank) consisted in removing a segment long of cca 40.5 mm from the base of the right red deer beam, above the tine no. 2. The techniques used in order to achieve this blank were: the transversal cutting on the circumference using a knife and the fracture by direct percussion.

The shaping includes few stages, defined according to the specific traces preserved on the surface of the object: 1. the finishing of the edges by transversal cutting and chopping with a knife; 2. the removal of the exterior aspect of the antler in order to obtain a flat aspect. This procedure was done through the chopping procedure using a knife; 3. the removal of almost all the spongy tissue was done by bipolar carving in an axial direction using a knife blade or a chisel with a long and narrow active part; 4. the shaping of the interior part of the piece in order to remove the

The Dacian red deer antler sleeve discovered at Unip, Timiș County



1

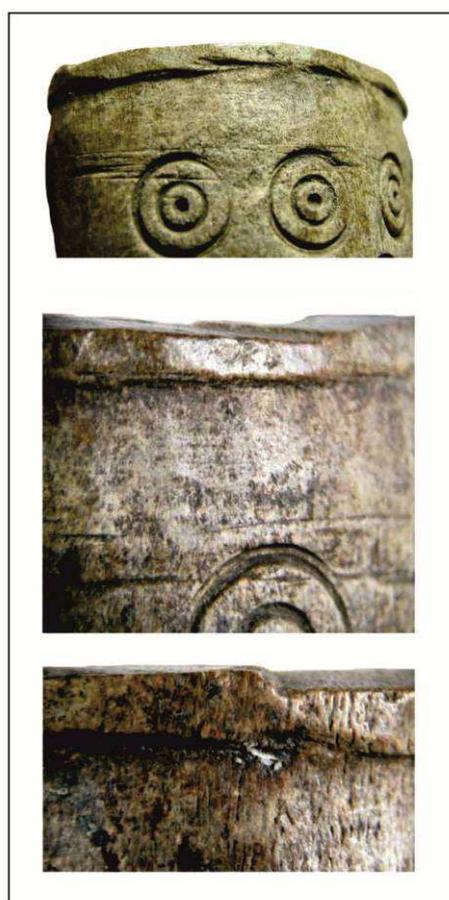


2

Fig. 5 – Unip-“Little Fortress Hill”: red deer antler sleeve – 1 general views; 2 the decorated surface (photos by Corneliu Beldiman).



1



2

Fig. 6 – Unip-“Little Fortress Hill”: red deer antler sleeve – 1-2 details of proximal and distal ends (photos by Corneliu Beldiman).

The Dacian red deer antler sleeve discovered at Unip, Timiș County

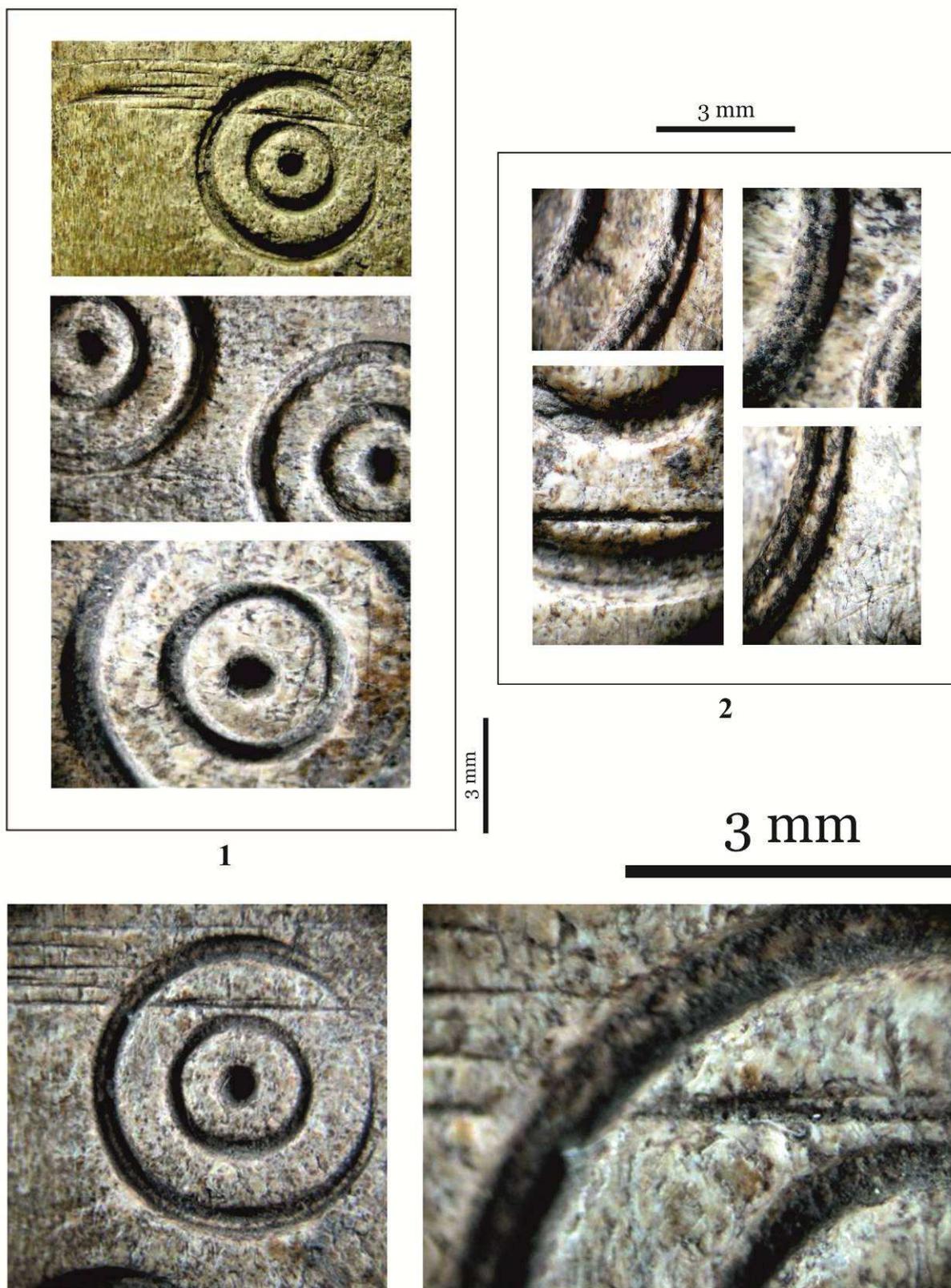
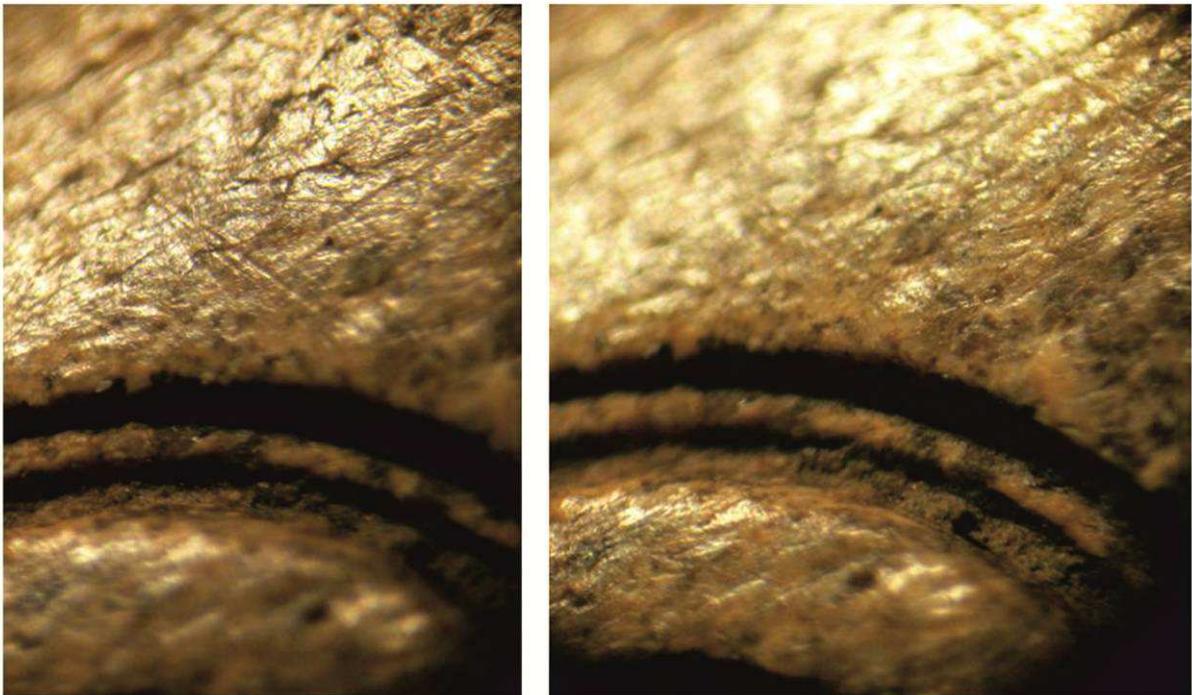


Fig. 7 – Unip-“Little Fortress Hill”: red deer antler sleeve – 1-3 details of the engraved ornamentation (photos by Corneliu Beldiman).



1



2

Fig. 8 – Unip-“Little Fortress Hill”: red deer antler sleeve – 1-2 details of the engraved ornamentation (photos by Corneliu Beldiman).

## The Dacian red deer antler sleeve discovered at Unip, Timiș County

superimposed traces of carving. This procedure was done using a knife blade, abrasion with a lithic piece or with leather/textile and wet sand. In this way an almost flat surface was obtained; 5. the shaping of the exterior surface by chopping in the border area; 6. the engraving of the ornamentation made of 14 double circles with dots, arranged on two parallel rows (2 x 7 circles); the engraving may have started with the lower row and then it continued with the upper one (fig. 2/1). The exterior circles have the diameter of 9 – 9.20 mm and the interior ones of 4.80 – 4.84 mm. The diameter of the dot is 1.4 mm.

The exterior surfaces and the extremities, as well as the edges of the circles present traces of bluntness and polish that probably appeared either by repeated contact with a leather or textile support or due to the intense use. On the exterior surface, in the central area – in the register reserved for the ornamentation – fine, superficial striations may be observed. They are randomly disposed and were resulted during the use of the artefact (fig. 6; fig. 8-9). The sleeve was probably a decorative or functional object that exposed three sides. These three sides are decorated while the side that was not seen remained without ornamentation.

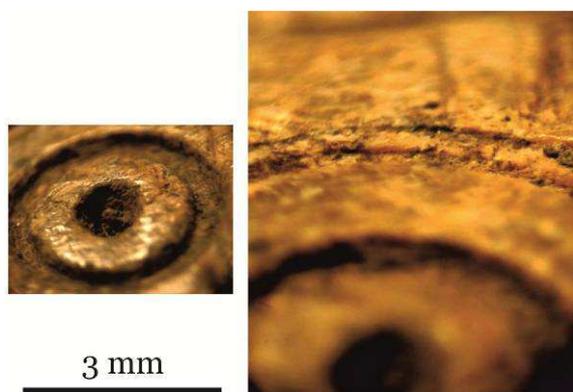


Fig. 9 – Unip-“Little Fortress Hill”: red deer antler sleeve – details of the engraved ornamentation (photos by Corneliu Beldiman).

### Utilisation

We can advance the hypothesis that the artefact was used as a sleeve fixed on the terminal part of a wooden sheath, of a knife or of a sword. The sheath was made of two symmetrical pieces of wood that were plated with tin and that were assembled at the proximal end

by applying the sleeve (fig. 10). This conclusion, as well as the observation of the use of a special tool in order to decorate the piece, determined us to advance the hypothesis that the piece was manufactured in a specialised workshop (C. Beldiman, M. Cârciumaru *et al.*, 2012).

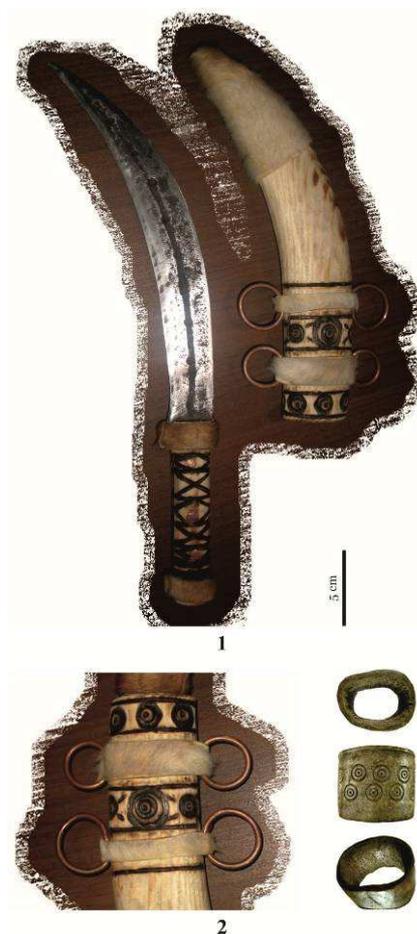


Fig. 10 – Replica of Dacian iron curved fight knife (*sica*) made by Marius Barbu (photos by Marius Barbu).

It was common in those times that some warriors' equipment (this artefact, together with other osseous material pieces – bone knife handle?) to be deposited as an offering in a pit. Another example can be the deposition of a *lorica squamata* armour piece in a pit discovered at Sânsimion, Harghita County site (research led by PhD. Corneliu Beldiman in 1987) (C. Beldiman, 1990; C. Beldiman, 1991).

### Analogies

As analogies, we may mention here: the Geto-Dacian sites from Sighișoara-“Wietenberg”,

Mureș County and Poiana, Galați County (K. Horedt, 1943; K. Horedt, C. Seraphin, 1971; I. Andrițoiu, A. Rustoiu, 1997, p. 294, fig. 124/6-7; R. Vulpe, S. Teodor, 2003, p. 562-563, fig. 83/5, 7, 9; fig. 84/1).

### Short conclusion

We underline once more the importance of the object, importance offered by the exceptional state of conservation, rarity and by the artistic values of its geometrical ornamentation. It was manufactured by a Dacian craftsman in a specialised workshop and it illustrates very well the value of the osseous materials artefacts in Geto-Dacian times.

### Acknowledgements

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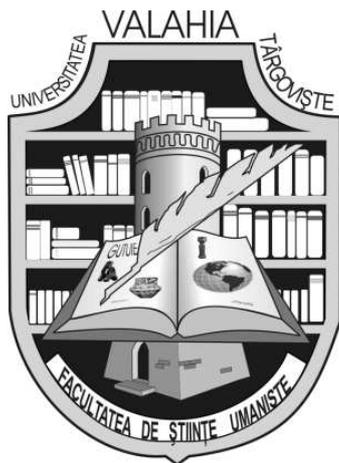
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# ANNALES



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## A candidate to the Walachian throne. Vlad Țepeș and his exile in Moldavia (1449-1452)

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**Key words:** candidate, voivode, times of wandering, assassinate, alliance treaty.

**Abstract:** *A candidate to the Walachian throne. Vlad Țepeș and his exile in Moldavia (1449-1452).* The exile of the young Wallachian Prince was of great interests for the Romanian and foreign historiographers for more than a century. Because of the rapid sequence of events, these times seem to transcend the our purely historical narrative and appear to belong to a chivalry romance. Vlad Țepeș' refuge in Moldavia is a very significant moment in history; it is also the time when he became an opponent of the Ottoman Empire. Just like in other states, towards the middle of the 15<sup>th</sup> century, intrigues, conspiracies and political biases were part of the political scene of the Moldavian State. As Prince Vlad managed to successfully overcome all the obstacles that he encountered, he became once again one of the candidates to the throne of Wallachia. This time he was supported by Iancu de Hunedoara, the powerful ruler of Transylvania.

The young Vlad, son of the late ruler Vlad Dracul, one of the supporters of the Christian fight, had become, maybe without wishing it, a close friend of the empire during the almost six years spent both at the court of the sultan Murad II and in Minor Asia (R. Florescu, R. T. McNally, 1992). The international situation is favourable to the young prince, who becomes the ruler of Walachia in the autumn of 1448. The historical documents remind that prince Vlad was endowed with money, ornaments and horses and sent to Walachia with honours to rule, after having agreed to come every year to the High Porte to bring his tribute and to be submitted to the empire\*.

Surprisingly, the Ottoman Empire was passively accepting his removal, just two months later. The specialized literature brings forward the idea that Vladislav II reoccupied the throne being helped by an army of Moldavia, led by Peter II. The argument in this sense was found in a paragraph of the Byzantine historian Laonic Chalcocondil, in which it is mentioned that a messenger was sent to the Moldavian voivode by

means of whom a peace and a matrimonial alliance was concluded, and the Moldavian Voivode received help in his war against Vlad Dracul (L. Chalcocondil, 1958).

We do not eliminate the hypothesis that Vladislav II may have represented the Turkish interests in the area much better, compared to the Hungary defeated on the battlefield of the Christian suffering, at Kossovopolje. It is in this framework that the letter sent by the young voivode Vlad to the citizens of Brașov, in which he announced that he will make peace with Iancu of Hunedoara after his return from the anti-Ottoman campaign. It sheds a new light on the philo-Ottoman politics of Vlad Țepeș during his short reign (C. Șerban, 1976)

Defeated, Vlad set out to Adrianople to recover his throne. Without definite evidence, the historians support, with certain justified reserves, this series of events (Ș. Andreescu, 1998). At shelter in the Imperial Court, the wandering voivode was going to wait for a new timely moment to acquire power. Yet, the former ruler no longer represented, in the imperial capital, not

even a reserve solution. Supplementary explanations concerning this fact have been impossible to find. The lack of a reaction from the Ottoman power consolidates the idea of a momentary understanding with the new voivode of Walachia, Vladislav II. Information in this sense can be seized from the writing of the chronicler Laonic Chalcocondil who mentions that the new Walachian voievode has decided that – given the uncertain political situation – he should send emissaries to the sultan and should reconnect with the empire (L. Chalcocondil, 1958).

Vlad's choice to turn to a state engaged in the anti-Ottoman fight can only be interpreted in one way. His life must have been seriously endangered since he rapidly left the capital of the Ottoman Empire. In this context, the issue of an eventual assassination should not be considered reticently. The voivode Vladislav II's desire to get rid of the young candidate who had already occupied the throne before and had benefited of the imperial favours is perfectly explicable in the spirit of the times.

So, the presence of Vlad Țepeș in the area ruled by the Ottoman power was becoming impossible. With any sacrifice, the countries leading the anti-Ottoman fight had to be convinced that the submission to the Turkish power, in the year 1448, had represented a momentary option and not a political credo.

Only the memory of his father could have justified, initially, in a certain way, the choice made. The reception of Vlad Dracul in the Dragon's Order, in 1431, was no ordinary thing. The defense of Christianity and the anti-Ottoman crusade was at the root of this military-religious society (C. Rezachevici, 1998). Even though in many of the events in which he was later on involved, as the Turkish invasion of Transylvania in 1438 (V. Ciocâltan, 1976), he acted against the norms imposed by this distinction, the title received by the former Walachian sovereign at Nurnberg in the presence of the great sovereign, Sigismund of Luxemburg, symbolized a moment whose solemnity could not have been wiped away easily. The victory won in front of Giurgiu and of the fortified city of Turnu, along with the voivode Iancu of Hunedoara, attenuated some of the proportions of the Christian disaster from Varna (November 10, 1444) and of the controversial image of his reign.

Returning to the chain of events, we can notice that the handiest decision for Vlad Țepeș

was Moldova which, under Bogdan II, acquired a firm anti-Ottoman direction in its external politics. The treaty concluded with Hungary, mentioned in a letter sent from the town of Roman by the reigning prince Bogdan II, at the beginning of 1450, confirms this political direction\*\*.

The stage of the presence of the former ruler in Moldova remains, however, one of the most mysterious during the epoch of his pilgrimages of about eight years (1448-1456). The chronology of the events appears unclear, because of the lack of documentary information able to clarify the political situations in which the young Draculea certainly may have got involved.

Admitting that Vlad Țepeș avoided the Ottoman Empire and headed directly towards Moldova, some imagine that he may have ended up here even before the ephemeral reign of Alexander II. At present there are two hypotheses formulated concerning the origin of the character in control of the Moldavian state during the brief lapse of time under analysis.

The documents highlight that the last act bearing the seal of Petru II dates from October 10, 1448\*\*\*. Until the first months of 1449, it is considered that the country of Moldova was led by a certain Ciubâr, seen either as a member of the family of Alexandru cel Bun (Alexander the Good) (N. Iorga, 1904) or as a Hungarian commander of the Csupor lineage, sent by the Transylvanian ruler to assure Moldova's defense (C. Rezachevici, 2001). Whichever thesis we may accept, it is clear that the party governing at the time was faithful to the Christian alliance formed around Hungary.

At least beginning with February 1449\*\*\*\*, the throne of Moldavia was occupied by the minor Alexander the Young under the protectorate of Poland and of an internal boyar party. Young Alexander, a child aged around 11, did not have the capacity to control the country's affairs, which were in the hands of the same boyars of the divan of Petru II (C. Hriban, 2005). It is with their help that Vlad Țepeș must have obtained the permission to stay in Moldova.

We do not know the arguments that were important when this decision was made: the fact that the former Walachian ruler had been a vassal of the Empire or the very change of his political option. The boyars of the Princely Divan had also participated, most of them, to the vassal's homage expressed by Petru II to Poland in August 1448. So, it is natural to think that he was

### **A candidate to the Walachian throne. Vlad Țepeș and his exile in Moldavia (1449-1452)**

received and accepted as a former protégé of the Ottoman power with which the Polish Kingdom was maintaining peaceful relations at the time.

At the same time, we do not have any piece of evidence demonstrating that at the respective date, the Hungarian Kingdom was interested in any way in supporting him. The good relations with the Walachian ruler Vladislav II and the preparation of a candidate for the Moldavian throne (Bogdan, nephew or son of Alexander the Good) situated Vlad Țepeș rather among the undesirable characters.

The appointment of Bogdan II as ruler by the end of 1449, with military support from Transylvania\*\*\*\*, did not generate the modification of prince Vlad's situation in the Moldavian state. Brought to power by Iancu of Hunedoara, Bogdan II is constrained, even since the first months of his enthronement, to get in touch with the Polish nobles who could provide military help for young Alexander at any moment. This evolution is confirmed by the letter sent by the Moldavian ruler to the noble Ditrich Buczacski, on December 2, 1449, in which he was asked to no longer give support to young Alexander\*\*. On an eventual pressure from Hungary to chase away Vlad Țepeș, there are no available data.

So, the support given to the former ruler by Bogdan II was justly considered starting from the existence of certain kinship relations. His mother had been the sister of Roman II, the niece of Alexander the Good, and Vlad Țepeș, in his turn, was the nephew of Bogdan II (N. Stoicescu, 1976).

Moreover, the similarities between the two were not missing. Walachia had represented a shelter for the actual Moldavian ruler during the very dangerous years of his youth, even at the court of the ruler Vlad Dracul (N. Iorga, 1904). The return of this possible help remains a probable hypothesis.

The connections established by Bogdan II with the Hungarian Kingdom have rather a formal character. The weakening of the power of the governor Iancu in Hungary is the reason for it. Strong families such as Cilli or Garai now contest the offensive anti-Ottoman politics promoted by Iancu (C. Mureșan, 1968). It was the beginning of the diplomatic negotiations with the Ottoman power, concluded in 1451. The weakening of Iancu of Hunedoara's position was also felt in the relations with the extra-Carpathian

Romanian states, where the rulers had to assure, in order to remain on the throne, a minimum balance in the relations with the other states of the area as well.

From the perspective of Moldova, getting close to Hungary becomes a necessity. It can be grasped in the framework of the two alliance treaties concluded with Iancu of Hunedoara on February 11\*\*\*\*\* and July 5, 1450\*\*\*\*\*, both initiated in the context of certain Polish military actions aiming to reenthroned young Alexander.

The fights to keep the throne of Moldova proved extremely difficult, the Polish candidate managing for a while to occupy the capital from Suceava. Bogdan II will maintain his control over a part of Moldova with the town of Roman, from where he will send his first alliance letter to the voivode of Transylvania. Very probably, the ruler's son, Ștefan III, participated in the military confrontations, especially as the experience during the decisive battle of Crasna (September 6, 1450) will be used, decades later, by him, in two more famous clashes, at Vaslui and Codrul Cosminului (C. Rezachevici, 2001). The good relations with Ștefan during the period of the pilgrimages after the year 1451 can make us think that Vlad Țepeș was an active participant to the then Moldavian-Polish confrontations.

After just one year of peace, the former voivode of Walachia was once again in a very dangerous hypostasis that had not been anticipated by any of the members of the Moldavian ruler's entourage. On the night of October 15 to 16, 1451 Bogdan II fell prey to a plot, being killed in the locality of Răuseni\*\*\*\*\*. The choc must have been all the greater, as the killing was plotted by a relatively little known candidate, Petru, supported by the Polish through the intervention of the former ruler young Alexander with whom he was to share the power.

Vlad Țepeș was, for the first time since his arrival in Moldova, in a real danger. His fidelity to the deceased ruler apparently created an impossible barrage between the new power and his pretensions. The pressure was just as strong for Petru Aron, who, during a 4 months reign (October 1451 - February 1452) did not manage to emit any document and did not obtain the support of either Poland or Hungary to keep the throne.

However, the brutal changes in Moldova gave an impetus to Prince Vlad to leave these places

together with young Ștefan, the target being the south of Transylvania (L. Șimanschi, 2003).

Yet, all the problems in Moldova did not mean anything, compared to the evolution of the relations among the great powers of the area. The conclusion of the treaty from Adrianople, on November 20, 1451, between the Ottoman Empire and Hungary, built a new barrier in the way of Vlad Țepeș's plans, consolidating the position of the Walachian ruler Vladislav II.

When Mehmet II came to power, in February 1451, the Walachian voivode gets close to the Ottoman power, sending rich gifts to the sultan and to the high dignitaries, yet at the same time preserving the relations with Hungary. Thanks to the agile politics meant to maintain the balance between the two forces, the Walachian state obtained important guarantees by signing the 3 year armistice. Walachia was paying the tribute to the Porte, and the two states guaranteed Vladislav II's reign and their non-involvement in his internal problems.

From the perspective of the former ruler, Vlad Țepeș, the situation seemed without solution. Maybe this is why he tried the extreme solution: attacking Walachia and taking over the power. This piece of information can be grasped from a document sent by Iancu to the people of Brașov, on February 6, 1452, by which he was asking that the former ruler should be sent back to Moldova and no military support should be given to him, as he was trying to go against Vladislav II without informing or taking into account Iancu's will\*\*\*\*\*. Such an action situated Hungary in a delicate position, as long as a claimant started out from Transylvania to acquire the throne of Walachia. Iancu of Hunedoara was seriously endangering the good enacting of the Turkish-Hungarian treaty through his non-involvement in such an action.

The question that remains is what support may Vlad Țepeș had relied on at the beginning of 1452. It must have existed, at least theoretically; otherwise the concern of Hungary's governor appears meaningless.

A hypothesis admitted in this sense was the existence of a boyar party faithful to Vlad Țepeș, since his first reign, who had found shelter, even from the end of the year 1448, in the south of Transylvania (R. Ș. Ciobanu, 1979). The short period during which he occupied the throne makes it hard to admit the coalition of some boyar forces able to give him support after almost half a decennium. Even if we were to accept the

hypothesis, we need to think that such a boyar party had a philo-Ottoman orientation and, in this given context, any military action against Walachia would have been directed directly against the Ottoman Empire.

Eliminating this supposition, the only hypothesis remains the formation of an army in the area of Brașov out of his own resources or by engaging in some debts to the rich urban habitants. Such actions would have been enough to trigger the reaction of the Transylvanian voivode.

While the document of February 6 makes allusions to the return to Moldavia of the Walachian candidate, the following letter sent by Iancu of Hunedoara, on March 30, 1452, sheds even more light on this case\*\*\*\*\*. By means of it, the Transylvanian voivode announced the people of the town of Brașov that Vlad had returned to Moldavia. His return to Moldavia, regarded from the perspective of these two documents, is, in our opinion, indubitable.

Could a Moldavian state led for the second time by young Alexander still have provided shelter for the Walachian adventurer? The young ruler of Moldavia needed a balanced politics, especially with Transylvania, where the fugitive Petru Aron had taken refuge, and the eventual acceptance of Țepeș may have been made even based on Iancu of Hunedoara's suggestion, in order to exert a supplementary pressure on the ruler of Walachia.

The gap intervened in the Walachian-Hungarian relations marked the beginning of the ascension of Vlad Țepeș. The crisis intervened somewhere in the autumn of 1452 was strictly connected to the monetary reform introduced by Vladislav II by means of which the Romanian ducat was assimilated to the Turkish asper. The first official reaction from Iancu de Hunedoara appeared in October 1452, when he asked the people of Brașov to accept neither the Turkish nor the Romanian coin (N. Stoicescu, 1976). The acme of this conflict will be illustrated by the confiscation of the two Walachian properties in Transylvania, Amlaș and Făgăraș, which had belonged for about a century to the Walachian rulers.

The return of Vlad Țepeș in Transylvania must have occurred in the context of the breakup appeared between Iancu de Hunedoara and the Walachian ruler, so around the end of the summer of 1452.

On September 24, Vladislav II rebuked the

**A candidate to the Walachian throne. Vlad Țepeș and his exile in Moldavia  
(1449-1452)**

people of Brașov for sheltering some of his enemies, mentioning the Walachian Cernica, who had caused serious economic damages to him\*\*\*\*\*. The enemies from the above-mentioned document may have been the allies of Țepeș or, why not, may have even acted with the tacit agreement of the Transylvanian voivode.

To conclude, the whole political network the young voivode had got involved in after having left his first reign seemed to finally clarify little by little, although some tense episodes would still exist. The most representative remains the plot from Geoagiu, related by the ruler himself, in a letter sent to the people of the Sibiu Town, in which he had been drawn by two supporters of Vladislav II\*\*\*\*\*.

Prince Vlad arrived in Transylvania under the wing of the great protector of the Christian Europe, Iancu of Hunedoara. It was just a matter of time until the captain of the Hungarian army would send him to rule over Walachia. The sinewy road allowing him to reacquire the power was drawing to an end.

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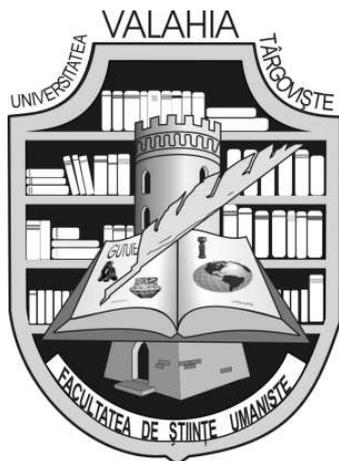
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# ANNALES



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## Funerary Venus cult in Roman Dacia

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**Abstract:** *Funerary Venus cult in Roman Dacia.* Nine Venus representations were discovered in Roman Dacia tombs as part of funerary inventory. Venus clay and bronze statues had an apotropaic role in protecting the soul after death. Goddess attributes like beauty, virtue and modesty had new connotations during the Empire becoming essential virtues for access to Elysian Fields. Therefore Venus iconography will be imitated by mortals in an attempt to acquire these virtues. The *invocatio in formam Veneris* phenomenon starts inside the imperial family then spreads among ordinary people.

**Key words:** Venus, Dacia, statues, graves, cult.

**Résumé:** *Le culte funéraire de Vénus dans la Dacie romaine.* Neuf Venus représentations ont été découverts dans les tombes romaines de Dacia dans l'inventaire funéraire. Venus statues d'argile et de bronze ont joué un rôle apotropaïque dans la protection de l'âme après la mort. Déesse attributs comme la beauté, la vertu et la modestie avait des connotations nouvelles au cours de l'Empire deviennent des vertus essentielles pour l'accès aux Champs Elysées. Par conséquent Vénus iconographie sera imitée par les mortels dans le but d'acquérir ces vertus. L'*invocatio in formam Veneris* phénomène commence à l'intérieur de la famille impériale, puis se propage parmi les peuples ordinaires.

**Mots clés:** Venus, Dacia, statues, tombes, culte.

### Roman funerary cult

Most of religious cults from the Roman Empire promised soul survival after death to their believers. The idea of soul immortality was brought to Rome from the east, from the Greek and Oriental world, once with the cult for Dionysus, Sabazius, Cybele, Attis, Isis or Mithras, to which we could also add a series of philosophical trends like the Pythagoreanism or Neopythagoreanism (G. C. Picard, 1939; J. P. Salathe, 1997). The Romans' belief in the soul immortality is best highlighted by the cult for *Di Manes*. During the Republic period, the Manes Gods were the collective embodiment of ancestors' souls, unidentified as individuals. Once with the Empire the Manes acquired

individuality on the funerary inscriptions, as, next to their names was also mentioned the deceased's name, which, to a certain degree personalized the ancestors' souls (J. M. C. Toynbee, 1971; J. P. Salathe, 1997). The ceremonies for the dead with offerings of food, drinks, furniture or clothing necessary for the daily life are a direct result of the belief that the souls still live after death (F. Cumont, 1922; J. M. C. Toynbee, 1971).

The answer to the question "where do souls go?" differs depending on time, location or individual. The Neopythagoreanism stated that pure souls go to the Moon where the Elysian Fields are located. Yet, not all souls can reach the Moon, those of murderers or of the faithless are doomed to stay prisoners in atmospheres in order

to be purified (F. Cumont, 1922; J. P. Salathe 1997). The manner of providing immortality also depends on the type of deity worshiped. Oriental deities and the mystery cults offered the most successful methods. Nevertheless, under the influence of Roman traditions and of the different philosophical trends, the saviour deities coming from the Orient were worshiped in an original manner by the Romans (G. C. Picard, 1939). Moreover, some Roman traditional deities were invested with assignments pertaining to the saviour deities. This is how Venus ended up having funerary attributions (fig. 1).

### Venus cult in Dacia

In Dacia were discovered about 260 figurines of Venus, of which 200 of terracotta, 50 of bronze and 10 of stone. These figurative representations of Venus represent 80 % of the total of those made of terracotta showing Greek-Roman deities in Dacia, 24 % of those made of bronze and 5 % of those made of stone. Despite the numerous figurative representations, the presence of Venus in inscriptions is rare, representing only 2 % of the total of inscriptions with deities discovered in Dacia. The iconographic types which the figurines in Dacia imitate are those from the *statuaria maiores*: Venus *Cnidos*, Venus *Genetrix*, Venus *Capitolina* or Venus *Anadyomene*. The differences between *statuaria minores* and the models from *statuaria maiores* are sometimes so big that these original models are difficult to identify. Generally, the differences consisted in a simplification of the representations: the emphasis is not laid on the facial details, the anatomy proportions are not taken into consideration, changes appear (the hands' position in most cases is inverted so that the right hand would slip near the body and have the palm directed towards the viewer), some elements are eliminated (*hydria*) and some are introduced (the crown usually placed in the right hand).

Of the total of those 260 pieces discovered in Dacia, the exact discovery context can be stated only for half of them. These 130 pieces may be divided in four big categories: 1 - civil contexts, with reference especially to the habitation 2 - military context, mainly the *castra* and forts; 3 - cult contexts, like *favissae*, temples and sanctuaries; 4 - funerary contexts, meaning necropolises and monuments related to the funerary space. Most of the figurines with Venus

were discovered in military contexts, about 34 %, closely followed by the cult contexts, 33 %, and civil contexts – 26 %, the funerary contexts being the less encountered, of only 7 % (Fig. 3).

### Venus funerary cult in Dacia

Of all discovery contexts spotted in Dacia, Venus has the lowest frequency in the funerary context, as there are only six terracotta figurines, a bronze one, a statuette and a marble relief. Most of the figurines from funerary environment, five in number, come from Alba Iulia - *Apulum* (Catalogue no. 1-5, fig. 5/a-d), but the particular contexts of discovery in the necropolis are only partially identified (D. Anghel *et al.*, 2011; A. Cserni, 1899; M. Gligor *et al.*, 2009). In a funerary context a Venus figurine was also spotted at Turda - *Potaissa* (Catalogue no. 9, fig. 5/f). Its discovery place on the right bank of Arieş river was related to eight graves, the piece was found in a circular shaped complex, where ceramic remains were found, bones and a few figurines among which a horse's head. They could not establish with accuracy if such complex was used for funerary banquets as it was subsequently turned into a waste pit or if there was a place where they would make funerary type of depositions (M. Pâslaru, 2007). Another discovery comes from Sarmizegetusa - *Ulpia Traiana Sarmizegetusa* (Catalogue no. 7, fig. 5/e). It is about a good quality bronze figurine representing Venus and found in the eastern area of the town's necropolis, not far from the Aurelii Mausoleum (C. Pop, T. Albulescu, 1976; D. Alicu, C. Pop, V. Wolmann, 1979; L. Marinescu, 1991; C. Pop, 1998).

Obviously, taking an overall look upon the necropolis from Dacia, Venus goddess is not the only deity presented in the funerary inventory. A few anthropomorphic vases may be linked with other deities, like that of Hecate at Celei - *Sucidava* (H. Nubar, 1971) or Clotho at Cluj-Napoca - *Napoca* (D. Isac, M. Bărbulescu, 1976), plus the medallion with *Sol* from Locusteni (S. Cociş, D. Ruscu, 1995). Nevertheless, the deities do not appear in the funerary inventory as much frequently as the terracotta birds, like cocks (D. Anghel *et al.*, 2011) or pigeons (A. Căţinaş, 1995), wild animals, the lion who has a significant role (N. Man, 2002), the anthropomorphic vases or *Risi* figurines (I. Țigăra, 1960; D. Anghel *et al.*, 2011).

The presence of Venus in the funerary

environment is a general phenomenon in the Empire. In Gallia the discoveries of terracotta figurines of the goddess in necropolises are very few in comparison to the rest of the complexes, despite the great number of Roman graves identified (G. Coulon, 1996; I. Faudet, 1997; S. Talvas, 2007). Among the deities which appear in the Gallo-Roman graves, Venus is the best represented followed by Minerva, the Mother Goddess, Diana or Mercury. The Venuses mainly come from incineration graves, the dead are usually young people or children, and this would explain their relation in the inventory with *Risi* and *Cucullati* (S. Talvas, 2007). Venus's figurines are also spotted in the funerary complexes from Britannia, yet very small in number. A special case is that of the necropolis from London - *Londinium* where in a lead coffin were found three terracotta figurines, two of them coming from the same pattern. In the same site were also found four *aediculae* of Venus (B. Barber, 1990).

Placing terracotta figurines in the graves seems to be related to the Greek tradition, such figurines of Aphrodite being discovered in funerary complexes (E. Pottier, S. Reinach, 1887). A good example of the association of Aphrodite with death seems to be that of the necropolis from Constanța - *Tomis*: on the door of a funerary grave are painted several mythological events, Herakles and Isis are also joined by Aphrodite and Eros (G. Bordenache, 1969; C. Chera, 1997). In the necropolis from *Tomis* were discovered several amphorae on which deities are represented, among which there is Venus; nevertheless the terracotta statuettes were not found despite the fact that for other deities like Nemesis or Cybele these statuettes have been identified (C. Chera, 1997).

Aphrodite had funerary attributes in the Greek world, probably some of them being taken by Venus afterwards. The Homeric episode of the Aphrodite's adultery and the death of Adonis, killed by Ares, is a significant episode in the Roman world (G.C. Picard, 1939). Salvation of Adonis from the inferno, and his premature death are celebrated once with *Adonaia* festivity. On this ceremony the courtesans or the lovers lament Venus's pain by planting seeds under the roof. The plant growing from these seeds will have Adonis's fate: a quick death for a short life. The obvious symbol of the episode is that of death and rebirth (G.C. Picard, 1939).

Starting from these mythological scenarios, Aphrodite played a significant role in the dead cult. In Corinth a temple for Aphrodite *Melainis* was found on the road to the city, nearby the necropolis, and the cult here had an obvious funerary role. The "black one" epithet also used by Demeter will be transferred to Venus, as well. At Delphi during the honouring ceremonies of the dead, Aphrodite *Epitymbia* of the graves was also honoured, who, probably had a statue near the necropolis where the libations were made (V.P. Delforge, 1994).

In the Roman world, Aphrodite *Epitymbia* is similar to Venus *Libitina*. It is very likely that behind such epithet is hidden an assimilation by Venus of an archaic deity, Libitina, the goddess of corpses and decomposition (G. Wissowa, 1912). The denomination is of Etruscan origin, which could suggest influences coming from this world and not only from the Greek world. A temple of Venus *Libitina* was erected at Rome on Esquilin, nearby a necropolis (R. Schilling, 1954) and those who were in charge of the funerary service, of the undertakings being called *libitinarii* (G. Wissowa, 1912).

Besides the discoveries from necropolises, Venus can also be linked with the funerary environment by a series of attributes rendered in the goddess's iconography. Such a symbol is *lunula*, representing the moon as a reaping hook. In Dacia the pendant appears on a bronze figurine from Vețel - *Micia* (L. Marinescu, C. Pop, 2000; C. Pop, 1998), but also on four figurines of terracotta from Turda - *Potaissa* (I. Mitrofan, 1969; M. Jude, C. Pop, 1973; A. Căținaș, 2005), Moigrad - *Porolissum* (N. Gudea, 1989), Sarmizegetusa - *Ulpia Traiana Sarmizegetusa* (D. Alicu, C. Pop, V. Wolmann, 1979; I. Andrițoiu, L. Mărghită 1972), and Reșca - *Romula* (C. M. Tătulea, 1994; D. Bondoc, D.R. Dincă, 2005). Also, at *Romula*, the *lunula* appears on three patterns of clay for figurines representing Venus (D. Bondoc, D.R. Dincă, 2005). *Lunula* was also used as an amulet; children usually were given such protecting *lunulae* at birth (E. Beu-Dachin, 2010).

The association of Venus to the moon originates in the Greek or Oriental world. The Greeks were preoccupied with the soul's fate after death and many religious cults provided scenarios in such meaning. Thus, some Plato beliefs were inculcated, according to which the world of dead and the Elysian Fields were on the

Moon, celestial body of the night and darkness (F. Cumont, 1922). One of the Pythagorean beliefs was that Venus represented the soul, being imprisoned by Mars (the physical body). Through death Venus was released. Due to such beliefs love scenes were represented with Mars and Venus on the Roman sarcophaguses. At the same time, the love scenes are seen as the moment when Harmony is created; born between Venus and Mars, the harmony in the Pythagorean doctrine was indispensable to the soul in order to gain celestial harmony (R. Schilling, 1988).

Presence of Venus in the funerary contexts mentioned above should be seen rather as a part of the private not public cult. The funerary canons and the tutelary deities are generally those accepted by the Roman authorities, but the burial ritual is coordinated by *pater familias*, according to own beliefs and customs. Nevertheless, for some of the Romans the funerary cult also acquired strong public features. The death of an emperor or of a member from the imperial family was a public event. Even after death, most of them will have a public cult, being worshiped. But, as it often happens in the Roman world the death of the important people was imitated by the more modest people. The phenomenon of *invocatio in formam deorum*, in this case *in formam Veneris*, is the best example in this meaning. *Invocatio in formam deorum* refers to an iconographic imitation of a deity by a member of the imperial family or by a private individual. But, only in case of the imperial family we can speak about *apotheosis*, the transformation into deity after death. For the other mortals it is just an *imitatio* of the transformation, a simulation of *apotheosis* (H. Wrede, 1981). The representation of Alexander the Great as Achilles, Herakles, Zeus, Apollo or Hermes is probably the best example used by the Romans. The rendering during life of an emperor/empress as deity relates to some divine forces or origins, in very few cases they being considered actual gods. For private individuals the choice of deity relates to the trend launched by the imperial family, to the deity's function in the existence after death, as well as the profession, age, sex or virtues of the deceased person. Yet, it is certain that *invocatio in formam deorum*, just as Jupiter is a privilege only of the imperial house but other deities like Venus are imitated by all social classes (H. Wrede, 1981).

*Invocatio in formam formam Veneris*, appears

once with the cult organized by Caesar for Venus *Genetrix* in the 1<sup>st</sup> century B.C., but it is generalized in the Roman world only in the 2<sup>nd</sup> century A. D. It is a phenomenon which progresses simultaneously with adopting the image of the divine couple Mars and Venus by the imperial couples, like Hadrian and Sabina or Commodus and Crispina (E. Kleiner, 1981). Starting from this point, the majority of women in the imperial family are associated with Venus, as proven by the great number of epigraphic, literary, numismatic, sculptural, glyptic or handcrafted discoveries (M. Mikocki, 1995). The empresses were then imitated by the women from aristocrat families, and less than 130 cases of *invocatio in formam formam Veneris* were archaeologically identified on the scale of the entire Empire (J.P. Salathe, 1997). Most of these representations have a funerary nature.

The empresses and the princesses were iconographically linked to Venus mainly due to the dynastic tradition started by Caesar with Venus *Genetrix*. This association is more obvious in case of going from one dynasty to another. In the *nimfeum* of Claudius from Baies are represented Augustus and Livia, together with Drusus and Antonia Minor (parents of Claudius). Antonia Minor, rendered as Venus *Gentrix*, identifies a relation between the Julian and Claudian families. We should also notice that children of Drusus and Antonia Minor are pictured: Claudius, Messalina and Octavia Claudia, the last one also rendered as Venus *Genetrix* (M. Mikocki, 1995).

Beyond this selection which relates to the Empire's policy, choice of Venus involves the idea of beauty, virtue and modesty, qualities taken by the goddess from the Greek Aphrodite. Perhaps the first example of divine association of an empress in the oriental parts of the Empire was not made randomly: in an inscription from Chios Livia is named Aphrodite (M. Mikocki, 1995). The phenomenon had a well known antecedent in these places: Cleopatra and her son Caesarion were pictured on a coin discovered in Alexandria as Aphrodite and Eros (R. Schilling, 1988). Rendering of women *in formam Veneris* does not have negative, ambiguous or immoral connotations. Once with Domitian the image of Venus goddess, nude and semi-nude becomes the image of modesty and chastity, features so different from those of Greek Aphrodite. The husband who represents the nude deceased wife

## Funerary Venus cult in Roman Dacia

*in formam Veneris* wants her to be remembered for her beauty and modesty. Imitation of some draped iconographic types is mostly related to the financial context and the political status rather than to morality and chastity (E. D'Ambra, 1993). Venus's virtues are considered indispensable by poets for a woman to reach the Elysian Fields.

In Dacia, two representations may be attributed with a certain probability to the phenomenon of *invocatio in formam Veneris*: a sarcophagus from Băile Herculane (Catalogue no. 6, fig. 4/b), which is lost at present and a figurine from *Ulpia Traiana Sarmizegetusa* without a precise discovery context (Catalogue no. 8, fig. 4/a). Other two figurines found in the collection of the Romanian National History are most likely a part of the same phenomenon: a figurine of the type Venus *Syracusa* and a figurine of which only the head is preserved. But, in these two cases the provenience from Dacia is disputable (J.P. Salathe, 1997; G. Bordenache, 1969).

The sarcophagus wall from Băile Herculane (Catalogue no. 6, fig. 4/b) was discovered in the 17<sup>th</sup> century, but the piece was lost and only an engraving from the era was preserved (F. Grisellini, 1780). On a sarcophagus wall the deceased is represented in the centre, semi-nude lying on *kline*, surrounded by two divinities, Hercules and Diana (N. Gostar, 1956; D. Tudor, 1968; M. Bărbulescu, 1977; M. Bărbulescu 2003b). Hercules appears on several funerary monuments from Dacia (M. Bărbulescu, 1977), the funerary aspect of the cult – conqueror of death is related to the episode of bringing the Cerberus to earth (M. Bărbulescu, 2003b). As a vegetation goddess, the presence of Diana makes a referral to the idea of rebirth and regeneration.

The type used in the rendering of the defunct is that of Venus *Capua*, in a semi-nude variant adapted and simplified for the funerary environment. Generally, in the representations of *invocatio in formam deorum* appear particularities like the bracelet from the deceased's wrist, exceptions or deviations from the imitated type. The best analogy for the discovery from Băile Herculane is at the Vatican Museum (fig. 2) where on a sarcophagus the dead was rendered as Venus *Capua*, lying on a *kline*, with a Flavian hair style and her eyes closed (F. Cumont, 1966; W. Amelung, 1908; M. Collingnon, 1911). Other similar examples are

found in the collections of the Vatican Museum: the funerary monument of Ulpia Epigone during Domitian period or a cover of a sarcophagus during the Antonini period on which the defunct is rendered as draped (F. Cumont, 1966; W. Amelung, 1908; H. Wrede, 1977).

The other monument from Dacia which could picture an *invocatio in formam Veneris* is a marble statue from *Ulpia Traiana Sarmizegetusa* (Catalogue no. 8, fig. 4/a) with the inscription *Cla(udius) Saturnin(us) sculpsit* (A. Diaconescu, 2005; D. Alicu, C. Pop, V. Wolman, 1979; M. Gramatopol, 1982; M. Bărbulescu, 2003a). The figurine imitates the type Venus *Genetrix*, being almost completely draped and leaving just the left breast uncovered. Simplification of composition, the disappearance of the ribbon from the hips or the altar on which the inscription is and on which Venus rests with her left elbow are just a few of the arguments which make the representation from *Ulpia Traiana Sarmizegetusa* differ from the classical iconographic pattern of Venus *Genetrix* (fig. 3/a). These particularities could suggest this is a case of *invocatio in formam formam Veneris*. Having no head to see the hair style or the individual features and with no clear discovery context this reference is just hypothetical. We should notice that the statue is the only representation is natural sizes of Venus goddess in Dacia.

The representation trend in the shape of Venus *Genetrix* starts with the empresses from the Julio-Claudian period, the earliest statues being those of Antonia Minor or Agripina Minor, both discovered in the theatre from Vicenza (J.P. Salathe, 1997). For the Hadrian period we could remind Sabina, who appears on coins with the epithet *Genetrix*, and whose statue from the Ostia Museum (fig. 3/b) is a good analogy for the statue from *Ulpia Traiana Sarmizegetusa* (M. Mikocki, 1995). For the later period we will remind the coins of Faustina Minor and Crispina. For the private the type appears on different reliefs from sarcophaguses or statues like Manlia Scantilla from Tauriac (H. Wrede, 1981).

The presence of terracotta figurines of Venus in graves highlights the apotropaic role of the goddess, for the protection of the dead in the other life. The matrons' representations rendered posthumously *in formam Veneris*, underlie the virtues which the goddess represents (beauty, harmony, modesty) and the hope that through their embodiment they can save their soul after

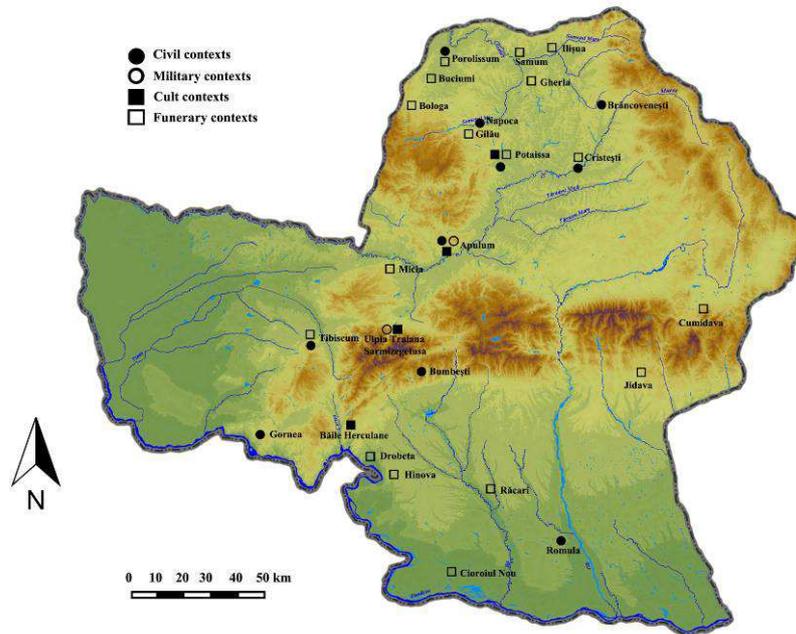


Fig. 1 - Material distribution on discovery contexts in Roman Dacia

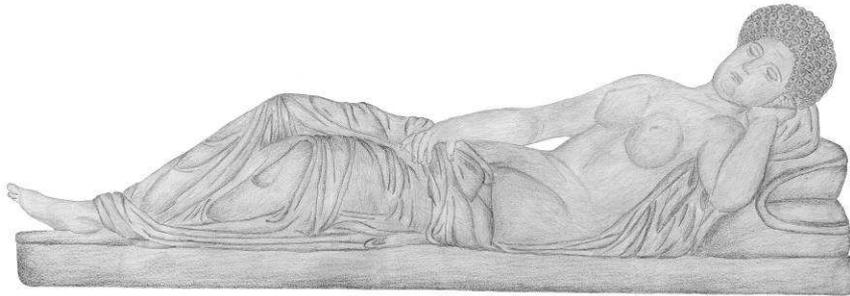


Fig. 2 - Sarcophagus cover, Vatican Museum



Fig. 3 - Venus Genetrix, Louvre Museum (a); Vibia Sabina rendered as Venus Genetrix, Ostia Museum (b)

## Funerary Venus cult in Roman Dacia



a.



b.

Fig.4 – a: Ulpia Traiana Sarmizegetusa (after A. Diaconescu 2005); b: Băile Herculane (after F. Grisellini 1780).



Fig.5 – a: Apulum (after D. Anghel *et al.* 2011); b: Apulum (after D. Anghel *et al.* 2011); c: Apulum, after D. Anghel *et al.* 2011); d: Apulum (after D. Anghel *et al.* 2011); e: Ulpia Traiana Sarmizegetusa (after A. Diaconescu); f: Potaissa (after M. Pâslaru 2007).

death.

**Catalogue**

**1. Alba Iulia – Apulum (Alba County);** deposit: The National History Museum of Unification Alba Iulia; inventory number: R 10137; find spot: north necropolis, piece of funerary inventory (M2/SX); brick-colored clay; h = 8, 1 cm; the conservation status is fragmentary; the lower parts of the body are missing. Venus *Capitoline* type (fig. 5/c).

The goddess was portrayed with a nude torso, with the right breast covered by the left hand and the right arm parallel with the body and with the palm facing towards the viewer. The goddess hair was parted in the middle, tight in a loop at the back with two twisted strands lying on the shoulders. Venus wears a tiara on her head, two bracelets on her arms and one on her left wrist (H. Ciugudean *et al.* 2003; D. Anghel *et al.* 2011).

**2. Alba Iulia – Apulum (Alba County);** deposit: The National History Museum of Unification Alba Iulia; inventory number: R 10724; find spot: Dealul Furcilor – Podei necropolis; red – brick colored clay; h = 7, 1 cm; the conservation status is fragmentary, the upper part of the body and the foot are missing (fig. 5/a).

The goddess was portrayed nude in front, having the back side covered with a many oblique folds *palla*. The right arm was parallel with the body probably with the palm facing towards the viewer (D. Anghel *et al.* 2011).

**3. Alba Iulia – Apulum (Alba County);** find spot: Dealul Furcilor – Podei necropolis, piece of funerary inventory; brick - colored; conservation status: lost. Venus *Cnidus* type (fig. 5/d).

Venus was portrayed half nude with a *palla* covering the lower parts of the body. The left hand covers her groin, making so a well-known bashfulness gesture. The right arm was parallel with the body with the palm facing towards the viewers. The garment has many oblique folds and it is tied with a knot. The goddess face was not well preserved and it is difficult to distinguish her features: the curly hair was parted in the middle and gathered in a loop at the back with two twisted strands lying on the shoulders. The goddess wears a tiara on her head, two bracelets on her arms and one on her left wrist. The goddess was placed on a rectangular pedestal decorated with two parallel grooves (A. Cserni 1899; A. Cerni 1901, p. 239).

**4. Alba Iulia – Apulum (Alba County);** deposit: The National History Museum of Unification Alba Iulia; inventory number: R 10733; find spot: Dealul Furcilor – Podei necropolis; red clay; h = 7, 3 cm; the conservation status is fragmentary; only the left foot, a part of garment and a corner of the pedestal was preserved (fig. 5/b).

The goddess was probably portrayed half nude, with a *palla* covering her lower body parts, having only the left foot out. The goddess was placed on the rectangular pedestal, decorated with two parallel grooves (D. Anghel *et al.* 2011).

**5. Alba Iulia – Apulum (Alba County);** deposit: The National History Museum of Unification Alba Iulia; find spot: Dealul Furcilor – Podei necropolis; brick – colored clay; the conservation status is fragmentary (M. Gligor *et al.* 2009).

**6. Băile Herculane (Caraș-Severin County);** marble; sarcophagus wall; conservation status: lost; only an engraving of the object was preserved. Venus *Cnidus* type (fig. 4/b).

The engraving shows three characters, placed each one on a different pedestal. The deceased woman lying on the sarcophagus cover was placed in the scene center portrayed as goddess Venus. She is half – nude as the Venus *Cnidus* type. A *palla* covers her lower body parts, being then brought forward on the left shoulder, leaving the whole torso naked. The deceased left elbow rests on a pillow while the right arm is lying over the body. On the left arm a bracelet could be noticed. The head and the legs lower parts are missing. Right side of the deceased woman, Hercules was portrayed nude and standing. His right arm is missing. On Hercules left shoulder rests the *exuvia leonis* and near his right leg is a sea monster. Left side of the deceased woman, Diana was portrayed also standing. Her right arm is missing. The goddess is dressed with a short *chiton* that leaves the right breast uncovered and she wears sandals. Near her left leg two dog paws could be noticed (F. Grisellini 1780; N. Gostar 1956; M. Bărbulescu 1977; M. Bărbulescu 2003b).

**7. Sarmizegetusa – Ulpia Traiana Sarmizegetusa (Hunedoara County);** deposit: Sarmizegetusa Museum; inventory number: 1613; find spot: eastern necropolis, 100-150 meters west of the *Aurelii Mausoleum*; bronze with green patina; h = 28, 3 cm; the conservation

status is good; the arms lower part, the right leg fingers and the left leg than are missing. Venus *Cnidos* type (fig. 5/e).

Venus was portrayed nude. The body weight is on her left foot, while right foot is brought forward. The goddess body was carefully rendered. The head is slightly bent to the right, with round face, straight nose, easily open mouth and wide eyes with inlay pupils. The breasts have small holes instead of nipples, holes which were probably filled with silver or red enamel. The hair was parted in the middle, tight in a loop at the back with three twisted strands lying on the shoulders. Venus has *krabylos* knot on her forehead and a tiara on her head (C. Pop, T. Albulescu 1976; D. Alicu, C. Pop, V. Wolmann 1979; L. Marinescu 1988; C. Pop 1994).

**8. Sarmizegetusa – Ulpia Traiana Sarmizegetusa (Hunedoara County);** deposit: Museum of Dacian and Roman Civilization Deva; marble; h = 140 cm; the conservation status is good; the head, right arm and left hand are missing; Venus *Genetrix* type (fig. 6/a).

Venus was portrayed dressed with a long *chiton* that slipped off her left shoulder, revealing her left breast. The body weight is on her left foot, while right foot is slightly brought forward. The goddess left elbow rests on a shrine with the inscription *Cl(udius) Saturnin(us) sculpsit*. The shaping was rudimentary, the left breast was not well marked, the folds were rendered through simple grooves and the legs coming out under the robe have no fingers. The statue was placed on a round pedestal (D. Alicu, C. Pop, V. Wolmann 1979; M. Gramatopol 1982; M. Bărbulescu 2003; A. Diaconescu 2005).

**9. Turda – Potaissa (Cluj County);** deposit: History Museum Turda; find spot: on the right side of the Arieș river, near eight Roman graves, from a circular complex; brick-colored clay; the conservation status is fragmentary; only the back side of the statue was preserved (fig. 5/f).

Venus was portrayed half - nude, having the lower body parts covered with a *palla*. The hair was tight in a loop at the back. The goddess had a tiara on her head (M. Pâslaru 2007).

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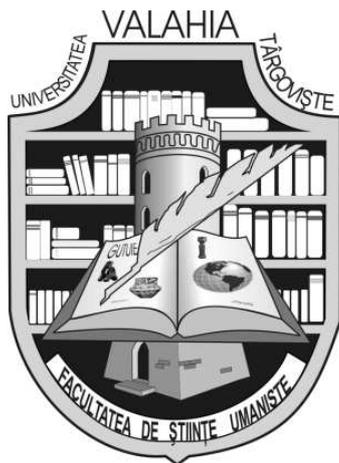
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# ANNALES



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## Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns

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**Abstract: Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns.** Processing hard animal materials in Roman times was an important occupation. In any Roman settlements there were certainly workshops where objects were being made out of the bones and horns of domestic animals. One such workshop was found on Insula 3 of the ancient Roman town named Colonia Dacica Augusta Ulpia Traiana Sarmizegetusa, and a similar case was registered in Histria. The workshop provided residual bone ends, cut segments, finished items, in the process of being made or discarded. Upon closer analysis, I found that the horny part of the cattle, sheep and goat horns are lost in time as they are 100% organic nature, this being the reason why in the Roman sites there are no artefacts made out of these horn parts. Experimental archaeology has helped to restore some parts of the bovine and goat horns, to see differences or similarities with antlers, in terms of processing. Thus, I made a comb, different chips for games, a hair pin, a pendant and a dagger button of bovine horn, as well as a dice and a needle of goat horn. After processing the horns of domestic animals, I could see that they can be altered by heat (so they can be shaped), that they are as suitable for making items as the horns of wild animals, that they have a pleasant translucent appearance and that they were certainly used by the Romans in making different types of objects.

**Keywords:** cattle, experimental archaeology, hard materials of animal origin, processing, Roman times, sheep and goat horns.

### Archaeological Data

Bone and horn were the raw material for making people's weapons, ornaments and tools ever since the Palaeolithic (C. Beldiman, 2007).

During Roman times, processing hard materials of animal origin was an important occupation of artisans. The presence of bone or horn artefacts in most Roman sites, be they urban or rural settlements, legion or auxiliary forces camps, leads us to conclude that the processing of such materials was very well represented in Roman settlements.

As far as the province of Dacia is concerned, here objects of bone or horn are plentiful in settlements. C. Timoc (2007) made a "repertoire" of settlements with traces of bone, horn and ivory processing in the province. These locations are:

Apulum, Brâncovenești, Cristești, Cumidava, Drobeta, Ilișua, Mehadia, Micia, Pojejena, Porolissum, Potaissa, Romita, Romula, Sucidava, Tibiscum and Ulpia Traiana Sarmizegetusa.

In the province capital, a workshop processing hard material of animal origin could be investigated. Following the archaeological excavations led in the summer of 2009, in the area located west of Forum Vetus of Colonia Dacica Augusta Ulpia Traiana Sarmizegetusa (Fig. 1), generically named „Insula 3” a building with wooden walls (Fig. 2/1-2) that apparently housed such a workshop was partially found (G. Băeștean, M. Barbu, 2010). In this building, but also in the nearby areas, we have identified numerous fragments of bone and horn, which were raw material (Fig. 3/1-2), residual bone

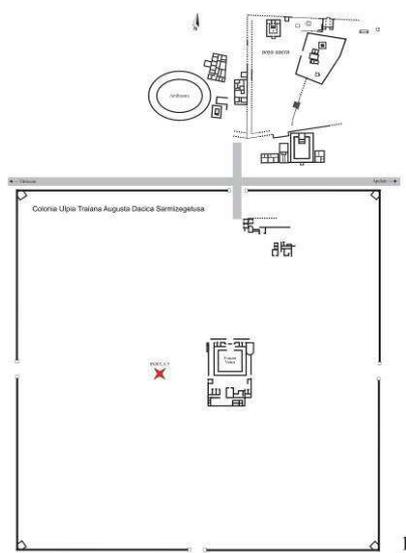


Fig. 1 – Topographic Plan of Colonia Dacica Augusta Ulpia Traiana Sarmizegetusa (G. Băeștean, M. Barbu, 2010).



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Fig. 2 – 1-Workshop for processing bones and horns, before emptying the complexes, discovered on Insula of Colonia Dacica Augusta Ulpia Traiana Sarmizegetusa (G. Băeștean, M. Barbu, 2010); 2 – Workshop for processing bones and horns, before emptying the complexes, discovered on Insula 3 of Colonia Dacica Augusta Ulpia Traiana Sarmizegetusa (G. Băeștean, M. Barbu, 2010).



Fig. 3 – 1-Deer bone with cutting marks found in the workshop on Insula 3 (G. Băeștean, M. Barbu, 2010); 2–Antler found in the workshop on Insula 3 (G. Băeștean, M. Barbu, 2010); 3 and 4-Residual bone ends found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 5–Cattle bone fragment with cutting marks found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 6–Antler fragment with cutting marks found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 7–Discarded plate made of antler found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 8 – Discarded hair pin made of deer bone found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010).

ends (Fig. 3/3-4), cut segments (Fig. 3/5, 6) finished items (Fig. 4/1-4) being processed (Fig. 3/7) or discarded (Fig. 3/8) (G. Băeștean, M. Barbu, 2010).

Studying the existing hard material of animal origin items in these contexts we have seen that, as far as the raw material used is concerned, a significant amount was represented by horns of domestic herbivores, especially cattle and goats (Fig. 5/1). Researcher Sabine Deschler-Erb (2005) shows that in Roman times the workshops

## Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns

processing animal hard material use mainly the bones and horns of domestic animals, this being due to community development and the human settlements that have and sacrifice a big number of cattle, sheep and goats (Fig. 5/2-3). Also, the excessive hunting led to a scarcity of wildlife in the vicinity of Roman towns.

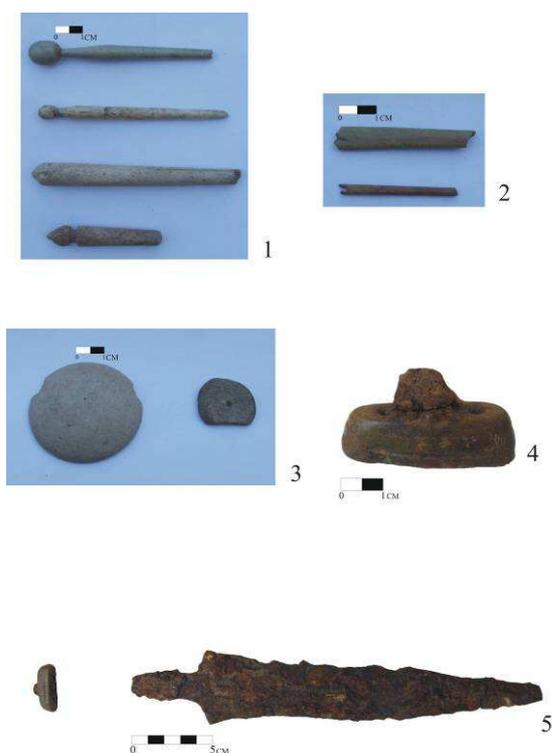


Fig. 4 – 1-Hair pin fragments made of bone and horn found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 2– Sewing needle fragments made of bone found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 3–Chip fragments made of bone found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 4–Roman dagger button made of antler found on Insula 3 (G. Băeștean, M. Barbu, 2010); 5–Roman dagger dating from the beginning of the 2<sup>nd</sup> century AD found on Insula 3 (G. Băeștean, M. Barbu, 2010).

We have been surprised as, although the cattle and goat horns appeared in large numbers, we have found no item – either finite, discarded or being processed – made of such material. The cattle horns show traces of axe cutting for

separation from the skull, while the sheep and goat horns, whose skull end is cut with the axe or saw, are treated with more attention, probably being more appreciated. In all cases the tips of goat horns are missing because they were always cut with the saw (G. Băeștean, M. Barbu, 2010).

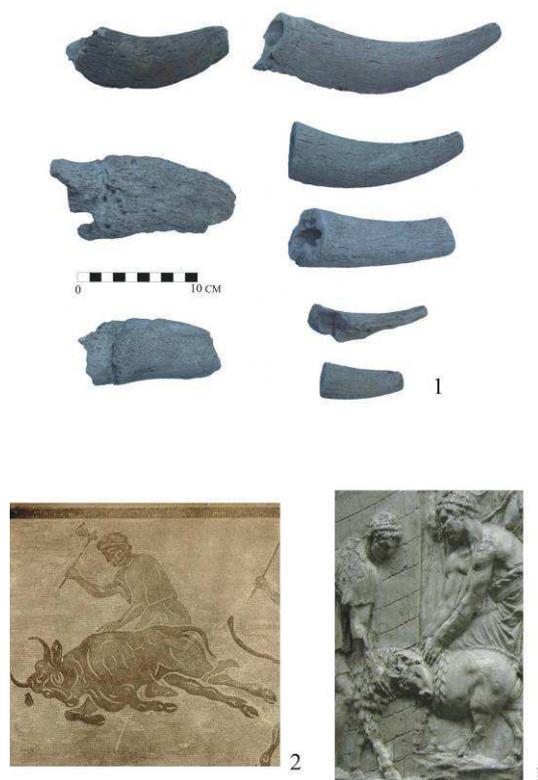


Fig. 5 – 1-Cattle, sheep and goat horns found in the workshop area on Insula 3 (G. Băeștean, M. Barbu, 2010); 2–Roman mosaic representing the killing of cattle Ostia (Photo: Marius Barbu); 3–Relief detail on Trajan's Column representing domestic animals (Photo: Marius Barbu).

A similar situation can be observed in the case of Histria – Basilica Extra Muros Sector. Here, out of a total of 77 hard material of animal origin items investigated, 16 were segments of cattle, sheep and goat horns (C. Beldiman *et al.*, 2010). We find out that these processes are “spare parts of the skull separated through carving, fracturing or transverse saw cutting, segments of various lengths (proximal-mesial, mesial, mesio-distal), sawn to make artefacts (rings?, muffs?, other still unspecified types of items). These items show the fact that they come from a hard animal material processing workshop.” (C. Beldiman *et al.*, 2010,

p. 33).

The absence of finished items can be explained by the fact that what has been discovered in archaeological excavations is the centre of the horn, namely the bone, with a spongy appearance, without any value in making the objects. However, the large number of items of this kind shows that the outer horny shell was used in these workshops, but because of its 100% organic nature it did not last in time, decomposing (S. Deschler-Erb, 2005).

### **Conducting the experiments**

Since the Roman items made of horns of cattle, sheep and goats cannot be investigated because they have not been preserved to this day, I have tried to revive this craft experimentally, to see how this type of hard material of animal origin looks like and how it behaves, compared with the items made of deer bone and antler that we know and whose properties we have previously investigated experimentally (M. Barbu, 2009).

### **Obtaining raw material and primary processing**

The domestic herbivore horns (Fig. 6/1) are a readily available raw material in the settlements of the Roman period. They are always taken from dead animals, as they can be detached from the skull by saw cutting or axe chopping. This type of hard material of animal origin can be processed immediately after killing an animal, as there is no need for special treatment like with bones (M. Barbu, 2009). In a few days later after killing an animal (time varies depending on the environment and storage temperature), the bone inside the horn can be easily removed due to the decomposing of the highly vascularised soft tissue which covers it. The fact that many goat horn bone fragments archaeologically discovered bear sectioning traces shows that the horn was cut quickly, with the bone still inside (Fig. 5/1).

Horn length and thickness vary from one individual to another depending on species, breed, sex and age. Comparing the central bone part of the horns with the exterior horny one, I noticed that, for the cattle, the first is about 2/3 the length of the second. For goats, the bone part is approximately half the length of the horny side (Fig. 6/2). The difference between the length of the bone part and the horny part is represented by

a full horny tip. It is this horny tip that is most suitable for processing, the massive tissue proper for processing being superior to any deer bone or antler thickness. From this point of view, the cattle horn tip is a processing material superior to animal bones and deer horns, being surpassed only by ivory.

### **Physical characteristics**

The physical nature of the material is problematic for the débitage of cattle, sheep or goat horn segments. The growth of the horny wall as superposed layers makes it almost impossible for it to be cut through carving. The results of such actions are the splintering and cracking of the horny tissue (Fig. 6/5). The only method suitable for primary processing of this type of material is sawing.

Another important feature of cattle, sheep and goat horns is their elasticity, which recommends them to be used in order to obtaining objects that are to be subjected to mechanical stress. Also, I have noticed that these horns can be modelled, as they are thermally deformable. A first attempt was direct exposure to flame, but the horny tissue caught fire, being destroyed. A much better method is to immerse it in boiling water. I have experimented this by boiling a curved cattle horn segment (Fig. 6/3) for three minutes. After removal from boiling water, I placed the segment under a 20 kg metallic weight, and after several minutes of cooling I could see that the segment under discussion had been distorted considerably (Fig. 6/4).

### **Obtaining the items**

I have tried to manufacture items from cattle and goat horns similar to the items made of deer bone and antler found in Roman sites.

#### *Comb*

In Roman times there is a variety of combs made especially from antler (D. Ciugudean, 1997). As far as the combs are concerned, this preference for antler at the expense of deer bone can be seen in other epoch as well (A. Ganciu, 2001-2002), the best explanation for this being the increased elasticity of the horn. This type of object requires high elasticity because the thin teeth break very easily if made of a brittle material such as bone. Therefore, the superior elasticity of domestic herbivore horns probably made them an ideal raw material for making

Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns

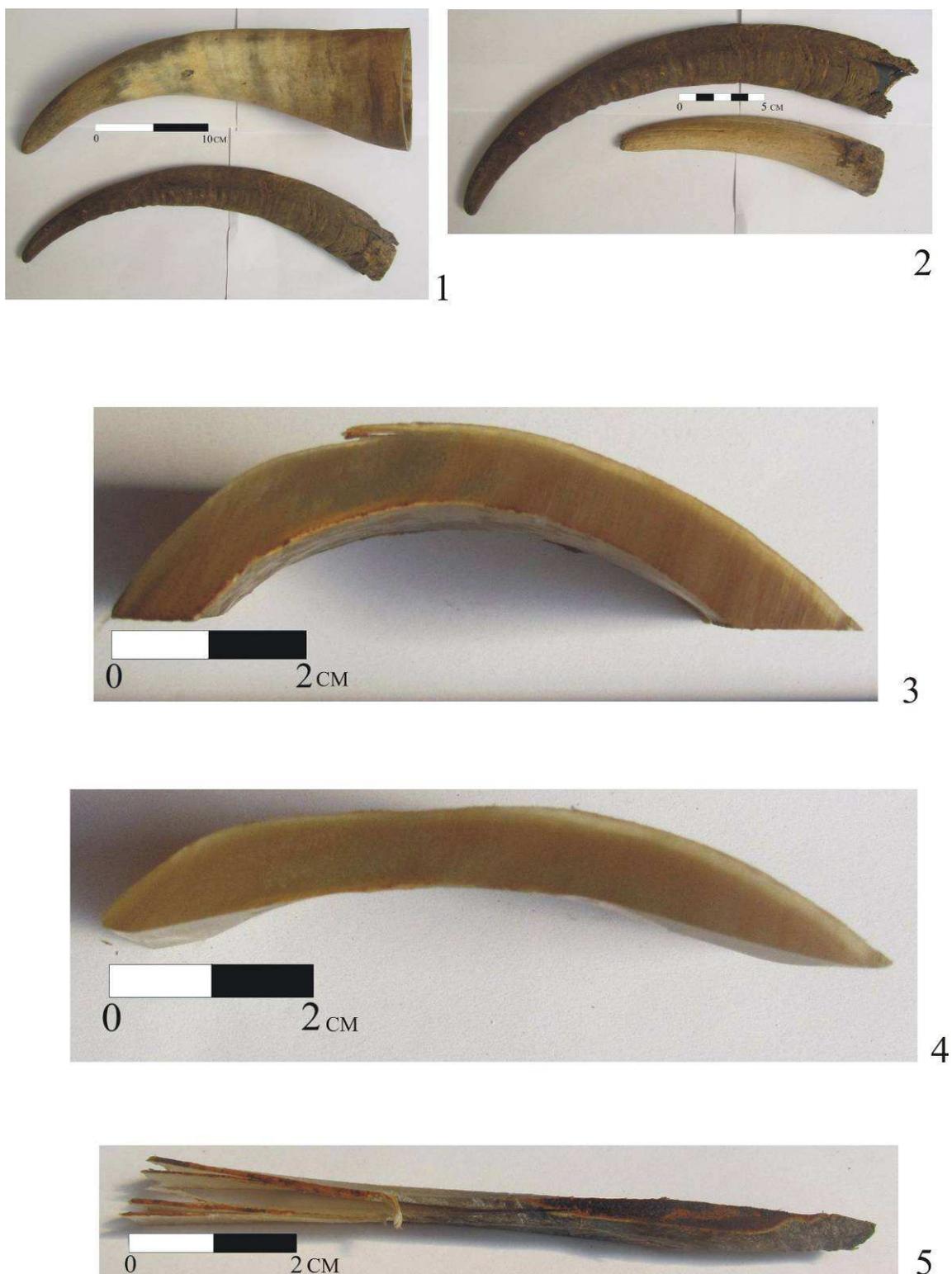


Fig. 6 – 1-Cattle and goat horns; 2–Horny and bony parts of a goat horn; 3–Cattle horn segment; 4- Cattle horn segment thermally distorted; 5-Cracked cattle horn segment.

these types of items.

Initially, I cut a segment from a cattle horn base, using a saw with small teeth (Fig. 7/1). By chopping with a knife and then by superficial grinding I gave this segment a semicircular shape (Fig. 7/2). The most difficult part was cutting the comb teeth. I made fifteen parallel cuts (Fig. 7/3), using the same saw with small teeth. The comb teeth obtained were finished with a knife blade, the tips being sharpened with an iron file. The applied decoration is typically Roman and consists of several engraved concentric circles (Fig. 7/4). To be more visible, red paint based on iron oxide was applied into the incised circles (Fig. 7/5).

#### *Chips*

The Roman chips, in the form of disks of variable diameters, were often made of bone and served as game items for ancient games. These items are almost always decorated with concentric circles (D. Alicu *et al.*, 1994).

To make such cattle horn chips, I could use two different areas of these horny processes, the manufacturing method varying depending on the chosen area. The first method is similar to the method used to manufacture bone chips (M. Barbu, 2009) and consists of extracting a relatively straight plate from the horn base which I ground to give it a round shape. The second method consists of cutting cross sections of the horn tip, thus quickly obtaining round disks. This part of the horn is usually dark; therefore, the chips obtained are black or dark brown (Fig. 10/1), which is very convenient because for any game it was necessary to have two sets of items, different in colour, just like in the modern backgammon games, for example.

The decoration with concentric circles was as follows: first I calculated the item center and incised a small socket in that place (Fig. 8/1). Using a set of simple tools such as compasses and using the central socket as a fixed point, I incised fine concentric circles, which I then deepened with the same tools. It should be noted that these concentric circles must be made from the inside out (from small to large) as the gradual deepening of the center point makes it difficult to draw small circles (Fig. 8/2-4). The decoration in this case was also inserted with red paint (Fig. 8/5).

#### *Hair pin*

Hair pins are objects with a dual role. On the one hand, they have a practical role, holding the hair or fixing accessories in order to achieve different hair styles, and on the other hand, they are ornaments, often being beautifully decorated. They were made of different materials (bronze, silver, gold, bone, horn and probably wood) and are found in all types of sites (towns, villages, villa rustica, castra and cemeteries) and in all provinces of the Empire (M. Barbu, 2009). The main criterion by which these artifacts are classified is the shape and type of ornament on top (N. Gudea, I. Bajusz, 1990-1991).

To make a hair pin I have extracted a longitudinal segment from a cattle horn. Because it was slightly curved, I straightened it using thermal deformation. The conical shape was obtained by carving and scraping with an iron knife. The finish was obtained by grinding the item with two different grain sandstones. A spiral decoration was incised by hand with an iron file. It should be noted that the manufacturing time was reduced to two hours, which is about half the time required to make a similar bone pin (Fig. 9/1).

#### *Sewing needle*

Sewing needles made of bone are a tool category with a very long life. To make a Roman sewing needle I have extracted a longitudinal segment of a goat horn. Carving was similar to that described at the previous item, in this case the most important operation being the perforation. The hole was made by pressing the item with a very thin knife tip. During this time, the needle was rotated under the iron tool pressure. The operation was repeated on the opposite side and in just forty seconds the horn item was completely perforated (Fig. 9/2). The increased elasticity of the goat horn reduces considerably the risk of breaking the opening area, which is the weakest point of bone needles.

#### *Dice*

The most popular of the Roman gambling games were the dice games. The Roman dice are cubical (or tend to be) and have six sides with engraved points from one to six. The six sides have a standard point position, the sum of the points on two opposite sides always being equal to seven. In this way, the one-point side will be opposed by the six-point side, the two-point side by the five-point one, and the three-point side by the four-

Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns

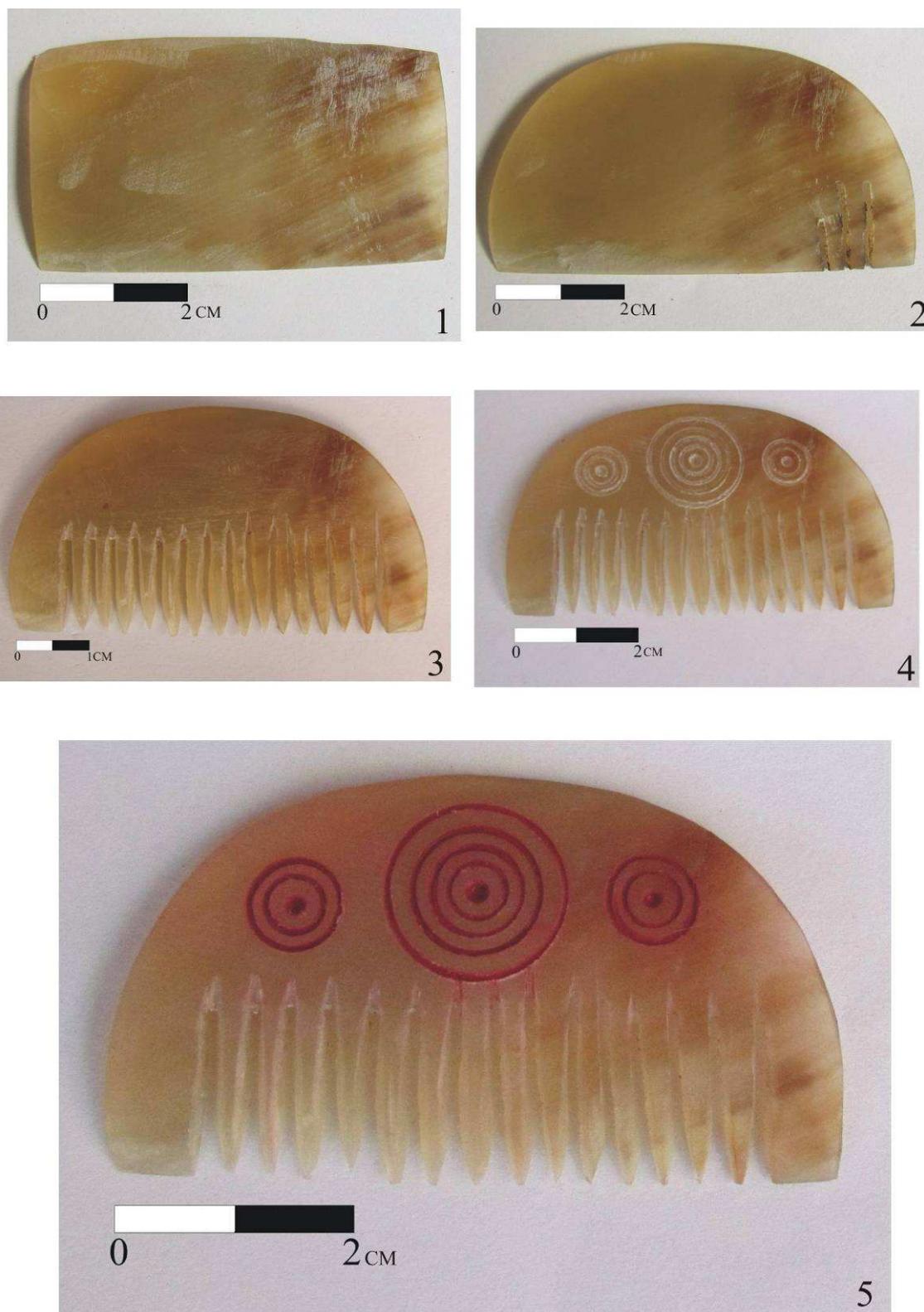


Fig. 7 – 1-Cattle horn plate; 2-Semicircular plate made of cattle horn; 3-Making comb teeth; 4-Decorating combs; 5-Cattle horn comb.

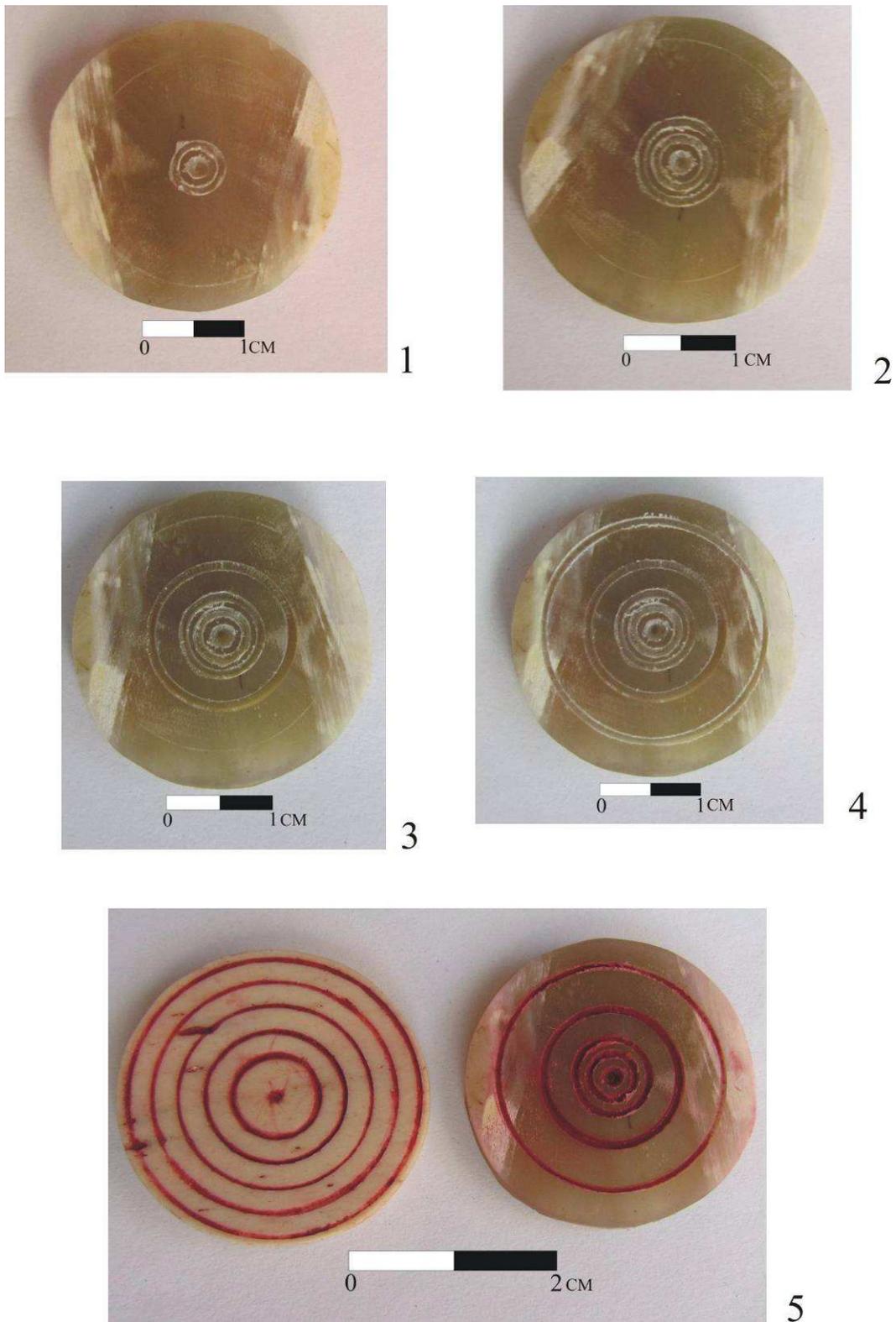


Fig. 8 - 1-4-Decorating stages of a cattle horn chip. 5-Chips made of cattle bone and horn.

Data regarding the experimental manufacture of Roman objects made of domestic herbivores horns

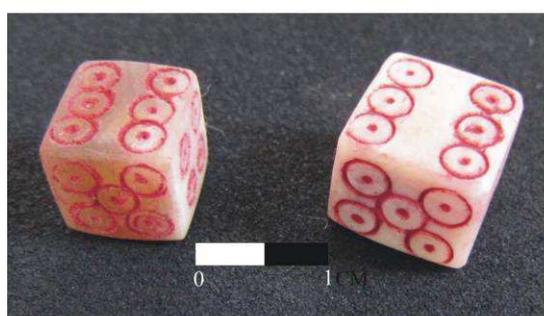


Fig. 9 – 1-Hair pins made of cattle bone and horn; 2-Sewing needles made of goat bone and horn; 3-Dice made of goat horn and antler; 4-Pendant made of cattle horn; 5-Roman dagger replica; 6-Roman dagger button made of cattle horn.



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Fig. 10 – 1-Items experimentally made of cattle horn; 2–Usage of cattle horn comb.

point one. It is possible that this rule appeared in order to prevent cheating (M. Barbu, 2009).

Thick bone segments needed for making dice. For this reason, tubular cattle bones or deer horn tips are preferred (M. Barbu, 2009). The problem of wall thickness is void for dice made of sheep and goat horns or especially cattle horns. In this case, I have used the tip of a goat horn which I cut with a saw. The resulting segment was polished on coarse sandstone until a cube was obtained. The engraved circles were made with a small iron compass, dipping the item in water for several hours, which made marking easier (Fig. 9/3)

#### *Pendant*

A range of pendants made of antler or teeth of various animals are present in Roman sites. In the specialised literature, these items are considered to be amulets with symbolic and magical value (D. Ciugudean, 1997).

Such an amulet was obtained by cutting the tip of a cattle horn. It was perforated in a similar manner to that used in piercing the sewing needles. The decoration (Fig. 9/4) was done with an iron file. Pendants made of other organic materials such as hooves or claws (elements of strong symbolic importance) belong to the same category of items.

#### *Dagger button*

The Romans, organized in a professional army, had military equipment as standardized as possible. However, the very complex fighting equipment, the regular change of fighting technique and tactics (and therefore of the equipment) and the many auxiliary troops gathered from the whole Empire, lead to a wide variety of Roman military equipment items. Among these items there are a number of weapon elements made of horn or bone (M. Bishop, J. Coulston, 1993; L. Boca, 1983). These elements made of bone and horn did not represent the working part of any weapons, but were grips or accessories for various weapons.

In this case, I could make a Roman dagger button, the making of the dagger (Fig. 9/5) itself being discussed in another paper. This button (Fig. 9/6) was made of cattle horn tip cut with a saw. The item was finished with sandstone, the decoration with an iron file, and the three holes with a narrow knife blade.

## **Conclusions**

Following the completion of the experiments described above, I could draw certain conclusions regarding the items made of domestic herbivore horns.

I have seen that these horns can be modelled, as they are thermally deformable. Moreover, their high elasticity makes them suitable for manufacturing certain types of objects such as combs (Fig. 10/2).

I have noticed that this material can be processed like wood, the processing time for objects made of cattle, sheep and goat horns being reduced by almost 50% of the time required to make the same types of bone items.

The pleasant, translucent appearance which gives the adornment items a unique beauty should not be overlooked.

The main conclusion is that this material is as at least suitable for processing as bones or antlers. I have noticed that a wide range of Roman objects with different uses can be made starting with ornaments and ending with tools, game chips or military equipment items.

Given all this, and corroborating the experimental data with the archaeological traces of the presence of cattle, sheep and goat horns in the Roman workshops processing hard material of animal origin, I can say that, in Roman times, the items made of the horny coating of the horny processes of domestic herbivores were used on a large scale.

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Carciumaru Marin, 1994, *Paleoenvironnement et chronostratigraphie du Paeolithique moyen et superieur en Roumanie, Paleoecologie et geochronologie des industries du Paleolithique superieur ancien de la Roumanie*, în *“El Cuadro geochronologico del Paleolitico superior inicial”*, Museo y Centro de Investigacion de Altamira. Monografias, No. 13, ISBN 84-8181-024-X, p. 15-23.

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Geneste J.-M., 1985, *Analyse lithique d'industries moustériennes du Périgord: une approche technologiques du comportement des groupes humains au Paléolithique Moyen*, These présentée à L'Université de Bordeaux I pour l'obtention du titre de Docteur, Université de Bordeaux I, 572 p.

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Last name(s), Initial(s), year, Book title (Italic, bold), Publisher, City of publication, no. of pages, no of figures, tables, ISBN

Carciumaru M., Anghelinu M., Nitu E.-C., Cosac M., Muratoreanu G., 2007, *Geo-Archeologie du Paleolithique moyen, Paleolithique superieur, Epipaleolitique et Mesolithique en Roumanie*, Editura Cetatea de Scaun, Targoviste, 187 p., 48 fig., ISBN 978-973-8966-38-3

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Carciumaru M., 1978, *Studiul paleoclimatic si geocronologic asupra unor statiuni paleolitice din Banat*, in Florea Mogosanu, *Paleoliticul din Banat*, Editura Academiei Romane, Bucuresti, 152 p., 53 fig., p. 83-101.

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e) Unpublished thesis or reports

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Geneste J.-M., 1985, *Analyse lithique d'industrie moustერიennes du Perigord: une approche technologiques du comportement des groupes humains au Paleolithique Moyen*, These presentee a L'Universite de Bordeaux I pour lobtention du titre de Docteur, Universite de Bordeaux I, 577 p.

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Patrulius D., Dimitrescu R., Dessila-Codarcea M., Gherasi N., Popescu I., Popa E., Bandrabur T., 1968, *Harta geologica, Scara 1:200.000*, Brasov, Comitetul de Stat al Geologiei, Institutul Geologic, Bucuresti, 68p

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2012

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