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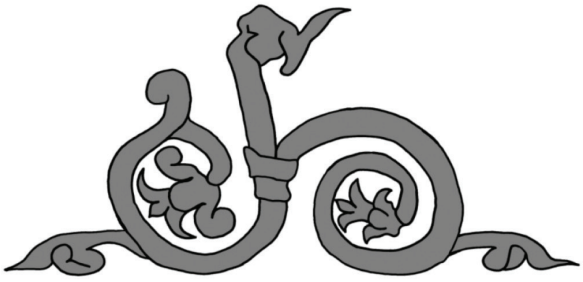

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Contents

Anthropological Analysis of Two Cremation Graves Discovered in the Settlement of Zimandu Nou (Arad County)*

Luminița Andreica-Szilagyi

Abstract: Works for the introduction of sewage inside the former Takátsy manor house in the settlement of Zimandu Nou, in Arad, have revealed two funerary urns dated to the Early Bronze Age. The anthropological analysis has noted the fact that the cremated remains belonged to two individuals, one subadult and one female young adult. The white color of the calcined fragments suggest that the firing temperature was of ca. 900–1000 ºC and the pattern of the fractures caused by the high temperature indicates the presence of soft tissue on the bones at the time of firing.

Keywords: cremation graves, Early Bronze Age, Zimandu Nou, fracture pattern, firing temperature.

Introduction

The bone material analyzed here was found in two cremation tombs dated to the Early Bronze Age. The graves were discovered by chance in the end of the nineteenth century during Works for the introduction of sewage at the former Takátsy manor house in the settlement of Zimandu Nou in Arad[1]. The archaeological context cannot be interpreted due to the lack of observations made by archaeologists. The bone remains had been placed inside two urns that are rather well preserved and have protected, to a certain degree, the bone fragments against the action of taphonomic factors.

During Prehistory cremation was a rather trying and complex process, requiring rigorous planning and a high consumption of time, effort and resources[2]. The process of cremation involved the dehydration and oxidation of the body's organic components and then of the skeleton under the influence of three factors: time, temperature and oxygen[3].

Materials and methods

After the separation of the human bones from the animal ones, I turned to identifying the first employing the osteology manual published by Matshes and his collaborators[4]. The cremation temperature was established on the basis of the scale elaborated by Walker and his collaborators[5] but also based on McKinley's recommendations[6]. In order to determine the gender of the adult individual I took into consideration the thickness of the femoral diaphysis[7] and the maximum diameter of the proximal epiphysis of the radius[8]; the approximation of the age was made following the degree of synostosis of the clavicle bone's medial end[9]. The subadult's age at death was estimated with the help of Ubelaker's diagram[10].

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* English translation: Ana M. Gruia.

1 Gogâltan, Sava 2016.

2 Lynch, O´Donnell 2007, 107.

3 McKinley 2000, 403.

4 Matshes *et al*. 2005.

5 Walker *et al*. 2008, 136, pl. 20–21.

6 McKinley 2000.

7 Wahl 1996, 352.

8 Robledo Acinas *et al*. 2007.

9 Buikstra, Ubelaker 1994, 43.

10 Ubelaker 1989.

Study

M1 (inventory no. 1168)

There were preserved 30 recognizable fragments from the skull; those part of the cap are more numerous and represent parts of the frontal, parietal and occipital; the left petrous pyramid was also preserved among the temporal fragments. From the viscerocranium there were recovered three fragments from the zygomatic, two from the maxilla and two other from the mandible.

From the vertebrae a number of four fragments of articular processes, two spinous processes and 13 vertebral bodies were identified, while from the second cervical vertebra one fragment consisting of the odontoid process with the upper articular processes was recovered. Still from the thoracic cage there were selected 24 rib fragments. The shoulder bone is represented by two fragments that could be attributed, namely one fragment from the glenoid cavity and another from the coracoid process. The coxal is rather better represented; there were identified the left pubic symphysis and the upper ileopubic ramus, one fragment from the right public symphysis, three fragments from the illiac crest and a number of five fragments from the illiac fossa.

Out of the long bones there were selected 19 recognizable epiphysis fragments: one distal epiphysis from the radius on the left side, the distal epiphysis of the tibia (the articular surface of the astragalus), four fragments from the proximal epiphysis of the femur, four fragments from the distal epiphysis of the humerus, 14 fragments of proximal epiphysis from the femoral head and the humeral head and one fragment from the upper articular face of the tibia. The diaphyses are represented by 84 fragments, of which one can recognize three fragments from the femur. To the bones of the upper limbs there was attributed one metacarpus, two distal extremities and two proximal extremities from the metacarpal bones, two phalanges, one of which was possibly from the thumb. The lower limbs are represented by the trochleae of the left astragalus and the posterior articular face of the calcaneus.

From the dental apparatus there were recovered one fragment from the left maxilla; one should note the alveoli of the two permanent incisors, of the permanent skull and the alveoli of the two deciduous molars. The second fragment recovered from the maxilla is from the right side and contains alveoli of the permanent incisor 2 (which is also the only dental item preserved in its alveolus), the alveoli of the skull (both the permanent and the deciduous one), of the two deciduous molars and of the first permanent molar.

The fragment recovered from the mandible on the left side corresponds to incisor 1, incisive 2 and of the skull (permanent ones), deciduous molars 1 and 2, and the alveolus of permanent molar 1; all dental items have the crowns destroyed.

Thus, according to the scheme of dental eruption elaborated by Ubelaker[11] one can approximate the fact that the individual under research was aged around 9–10 years at the time of death.

At the same time, I was able to note the fact that the osteological fragments measured between 5 and 78 mm in length, weighed 838 grams and that the firing temperature was of 900–1000 ºC.

M2 (inventory no. 1169)

Very few fragments were recovered in this case from the skull. There were recovered six recognizable cap fragments: one from the occipital and two others from the area of the occipital protuberance; from the temporal, the left petrous pyramid and one fragment from the right temporal squama, while a single fragment was identified from the frontal. There were also nine fragments from the cap that could be attributed precisely. The viscerocranium is not represented by any bone fragment.

The best preserved element of the spine is a thorax vertebra, missing the spinous process. The cervical vertebrae are represented by the relatively well preserved bodies of two vertebrae. Another recognizable fragment is one third from the body of a lumbar vertebra. There were also selected four fragments of spinous processes, one fragment of articular process, eight fragments from the vertebral bodies and one fragment from a transversal process with the corresponding vertebral foramen. The ribs are rather well preserved, being selected 25 rib fragments.

The scapular belt is represented by the medial epiphysis of one of the clavicles and two fragments

[11] Ubelaker 1989.

from the shoulder bone (one fragment from the glenoid fossa and one from the scapular notch). Parts of the pelvis were identified as like eight coxal fragments, out of which there were attributed two fragments to the public epiphysis, one fragment to the acetabular fossa and one to the illiac fossa.

The long bones are represented by 41 fragments of diaphyses, out of which one can recognize two fragments of radius diaphyses, one fragment from an ulna diaphysis and three fragments of femoral diaphyses. As for the epiphyses of the long bones, there were identified three fragments of proximal femur epiphyses and a single fragment of humeral head.

The bones of the limbs are represented by three fragments of tarsian bones and two fragments of phalanges.

The cremated bones measure between 5 and 69 mm, weigh a total of 524 grams, and were fired at a temperature of 900–1000 °C.

It is rather difficult to determine the gender of cremated bodies, as usually very few osteological elements that can be used as gender indicators are recovered. In the present case the maximum diameter of the radius head[12] (19.5 mm) and dimensions 2[13] (the thickness of the femur diaphysis) = 4.2 mm indicate the body of a female.

The only preserved bone element used as indicator of age is the medial end of one of the clavicles and it shows traces of suture (Fig. 1/4). This observation indicates an approximate age of 16–33 years[14].

From a pathological perspective, the trace of disk prolapse is visible on the posterior margin of the thorax vertebral body (Fig. 1/3). This pathological affliction may represent the bone's answer to severe mechanical pressure applied to the spine (for example lifting very heavy objects). Its onset can be directly related to physical exercise performed during life[15].

Results

Firing temperature and bone fracture pattern due to temperature exposure

When a fresh bone is submitted to certain temperatures and the firing of the external organic matter – fat, periost etc. – its surface becomes first black, shiny, almost like varnished. If the bone continues to be exposed to open fire, this effect gradually disappears, depending on the bone's thickness, and its surface gradually become gray. Along the firing of the organic component color changes relatively quickly from black to gray and then gray changes slowly and un-noticeably to almost white[16]. Some authors use these color variations to include the bones to certain firing degrees[17].

In the case of both individuals, the majority of bone fragments are colored white, suggesting a complete degree of oxidation of the organic components[18] and a firing temperature of 900–1000 °C[19]. The presence of some bluish-gray colored fragments among the completely oxidize bones is rather common. Bluish-gray spots are visible on the outer part of a fragment from the diaphysis of the femur (left/right) of the individual with inventory number 1168 (Fig. 1/1). On the other hand, this coloration was identified on two fragments from the diaphyses of the upper limbs, on the inner side of the cortex. This might suggest that these fragments were submitted to temperatures high enough to determine the oxidation of the outer surface of the cortex, but insufficient for the bone's inner structure[20].

Some of the studies performed by Baby[21], Binford[22] or Thurman and Willmore[23] have contributed to establishing the fracture pattern of bones submitted to incineration. In Zimandu Nou the transversal and concentric fissures, especially on the articular surfaces of the long bones and on fragments

12 Robledo Acinas 2007, 47.
13 Wahl 1996, 352.
14 Krenzer 2006, 82.
15 González, Concepción 2004, 118.
16 Holck 2008, 96.
17 Walker *et al*. 2008.
18 McKinley 2000, 405.
19 Holck, 2008, 96; Walker *et al*. 2008.
20 Murray, Rose 1993.
21 Baby 1954, 1–17.
22 Binford 1963, 98–110.
23 Thurman, Willmore 1981, 275–283.

of the skull cap (Fig. 1/2) suggest the presence of soft tissue on the surface of the bones at the time of incineration.

Fig. 1. 1. Fragment from the femur diaphysis (left/right), from the individual inventory no. 1168, showing bluish-grey areas specific to lower temperatures (300–400° C); 2. Cremated bones with transversal cracking and splitting, indicating that they were covered with flesh when incinerated (Inventory no. 1169); 3. The upper face of a thorax vertebra that displays disk prolapse (Inventory no. 1169); 4. Element for the determination of age – medial diaphysis of the clavicle with welding traces (Inventory no. 1169).

Weight of the osteological fragments

An evaluation of the quantity of recovered osteological fragments can provide data on the context of the incineration, the manner in which the remains were collected and deposited once the incineration process was completed. For example, McKinley[24] has recorded an average weight of 1752.6 g in the case of 15 incinerated skeletons (excluding the fragments smaller than 2 mm), while Warren and Maples[25] have estimated an average weight of 2430 g on a lot of 91 skeletons (including all osteological fragments). A study performed on 306 skeletons incinerated during the modern period has indicated the fact that the skeletons determined as male had an average weight of 3379 g and those determined as female weighed 2350 g[26]. In archaeological contexts, the rigor with which the incinerated osteological fragments are recovered plays a significant role in the final weight of the fragments[27]. For the Bronze Age McKinley[28] has estimated that the average weight of incinerated fragments recovered from an urn was of 1000 g.

Thus, the lower value of the weight of the osteological remains from Zimandu Nou (838 g in the case of the osteological material inventory number 1168 and 524 g in the case of the material number 1169) can be explained through the incomplete collection of the incinerated bones once the process ended or the incomplete recovery of the bone remains on the part of those who have discovered the funerary urns. The weight of the bone remains included in this study is similar to that identified in the case of some finds from Ireland dated to the Bronze Age; a percentage of 54% of adult graves have recorded a weight of over 700 g, while a weight of more than 400 g was identified in the case of 70% of incinerated skeletons[29].

Unlike other studies on the Bronze Age that have noted a certain model of collection of the incinerated items[30], the inventory of the osteological remains from Zimanu Nou suggest non-selective

[24] McKinley 1993.
[25] Warren, Maples 1997.
[26] Bass, Jantz 2004, 2.
[27] McKinley 1997, 139.
[28] McKinley 2001.
[29] Lynch, O´Donnell 2007, 121.
[30] Lynch, O´Donnell 2007, 121–122.

recovery; in both urns I have identified osteological remains from the skull, the scapular belt, ribs, vertebrae, long bones diaphysis and epiphyses, but also bones of the hands and feet.

Conclusions

The anthropological analysis has indicated that the incinerated osteological remains belonged to a subadult of the *infans II* age group and to a female individual approximately 20–30 years old. In both cases one can speak of complete incineration, at temperatures higher than 800 ºC. The more reduced final weight of the incinerated bones may suggest a lower rigor in the collection process of the incinerated remains both by the people of the Bronze Age and by those who have discovered the urns in the nineteenth century. Another interesting aspect relates to the random collection of the osteological fragments after incineration, a fact suggested by the inventory of incinerated bones.

Since only three osteological remains with bluish-gray coloration have been identified (on the individual with inventory number 1168), specific to a lower temperature (300–400 ºC), it is difficult to elaborate suppositions on the position of the body on the pyre. The presence of soft tissue on the surface of the bones at the time of incineration is suggested by the fracture pattern of the bone cortex.

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BIBLIOGRAPHY

Baby 1954 — R. S. Baby, *Hopewell Cremation practices. The Ohio Historical Society*. Papers in Archaeology 1, 1954, 1–17.

Bass, Jantz 2004 — W. M. Bass, L. R. Jantz, *Cremation Weights in East Tennessee*. Journal of Forensic Sciences 49, 5, 2004, 1–4.

Binford 1963 — L. R. Binford, *An analysis of cremation from three Michigan sites*. Wisconsin Archaeology 44, 1963, 98–110.

Buikstra, Ubelaker 1994 — J. Buikstra, D. Ubelaker, *Standards for data collection from human skeletal remains*. Arkansas Archeological Survey Research Series 44, 1994.

Gogâltan, Sava 2016 — F. Gogâltan, V. Sava, *An Older Bronze Age Funerary Discovery from Zimandu Nou (Arad County)*. ZSA 30, 2016, under print.

González, Concepción 2004 — E. González, M. Concepción, *Marcadores de estrés y actividad en la población Guanche de Tenerife*. Tenerife 2004.

Holck 2008 — P. Holck, *Cremated bones. A Medical-Anthropological Study of an Archaeological Material on Cremation Burials*, 3rd revised edition, Antropologiskeskrifter 1c, University of Oslo, 2008.

Krenzer 2006 — U. Krenzer, *Estimación de la edad osteólogica en subadultos*. In: U. Krenzer (Ed.) Compendio de metodós antropológico forenses. Para la reconstrucción del perfil osteo-biológico. Serie de Antropolgía Forense 4, Tomo IV, Guatemala, 2006, 1–121.

Lynch, O´Donnell 2007 — L. G. Lynch, L. O´Donnell, *Cremation in the Bronze Age: Practice, Process and Belief*. In: E. Grogan, L.O´Donnell, P. Johnston, M. Gowen (Eds.), The Bronze Age landscapes of the Pipeline to the West: an integrated archaeological and environmental assessment. England, 2007, 105–129.

Matshes *et al*. 2005 — E. Matshes, B. Burbridge, B. Sher, A. Mohamed, B. H. Juurlink, *Human Osteology and Skeletal Radiology. An Atlas and Guide*. United States of America, 2005.

McKinley 1993 — J. I. McKinley, *Bone fragment size and weights of bone from British cremations and the implications for the interpretation of archaeological cremations*. International Journal of Osteoarchaeology. London 3, 4, 1993, 283–287.

McKinley 1997 — J. I. McKinley, *Bronze Age 'barrows' and funerary rites and rituals of cremation*. Proceedings of the Prehistoric Society 63, 1997, 129–145.

McKinley 2000 — J. I. McKinley, *The Analysis of Cremated Bone*. In: M. Cox, S. Mays (Eds.), Human Osteology in Archaeology and Forensic Science. Greenwich Medical Media. London, 2000, 403–421.

McKinley 2001 — J. I. McKinley, *Bronze Age Cremation*. Transcript from a presentation made at the conference of The Cremation Society of Great Britain. Pharos International, 2001, 5–10.

Murray, Rose 1993 — K. A. Murray, J. C. Rose, *The Analysis of Cremains: A Case Study Involving the Inappropriate Disposal of Mortuary Remains*. Journal of Forensic Sciences 3, 1993, 98–103.

Robledo Acinas *et al.* 2007 — M. M. Robledo Acinas, J. A. Sánchez Sánchez, M. Pumar Martin, E. Labajo González, *Determinación del sexo según el diámetro de la cabeza del radio*. Revista de la Escuela de Medicina Legal, 2007, 43–51.

Thurman, Willmore 1981 — M. D. Thurman, L. J. Willmore, *A replicative cremation experiment*. North American Archaeologist 2, 4, 1981, 275–283.

Wahl 1996 — J. Wahl, *Erfahrungenzurmetrischen Geschlechtsdiagnose bei Leichenbränden*. Homo, 47/1 – 3, 1996, 339–359.

Walker *et al.* 2008 — P. L. Walker, K. M. D. Miller, R. Richman, *Time, temperature and oxygen availability: an experimental study of the effects of environmental conditions on the color and organic content of cremated bone*. In: C. W. Schmidt, S. A. Symes (Eds.), The analysis of burned human remains, Academic Press. London, 2008, 129–135.

Warren, Maples 1997 — M. Warren,W. Maples, *The anthropometry of contemporary commercial cremation*. Journal of Forensic Sciences. Colorado Springs 42, 3, 1997, 417–423.

White, Folkens 2005 — T. White, P. Folkens, *The human bone manual*. California 2005.

Abbreviations

Acta Ant et Arch Suppl	Acta Antiqua et Archaeologica Supplementum. Szeged.
AAC	Acta Archaeologica Carpathica. Krakow.
ACMIT	Anuarul Comisiunii monumentelor istorice. Secţia pentru Transilvania. Cluj.
ActaArchHung	ActaArchHung Acta Archaeologica Academiae Scientiarum Hungaricae. Budapest.
AEM	Archäologische Epigraphische Mitteilungen aus Österreich-Ungarn.
AIIA Cluj	Anuarul Institutului de Istorie şi Arheologie. Cluj.
AMP	Acta Musei Porolissensis. Zalău.
ATF	Acta Terrae Fogarasiensis. Făgăraş.
ATS	Acta Terrae Septemcastrenses. Sibiu.
Agria	Agria. Annales Musei *Agriensis*. Az egri Dobó István Vármúzeum évkönyve. Eger.
AnB S.N.	Analele Banatului. Timişoara.
ArchÉrt	Archaelogiai Értesítő. A Magyar Régészeti és Művészettörténeti Társulat tudományos folyóirata. Budapest.
ArchJug	Archaeologia Iugoslavica
Arh. Pregled	Arheološki Pregled. Arheološko Društvo Jugoslavije. Beograd.
AM	Arheologia Moldovei. Iași.
AMN	Acta Musei Napocensis. Cluj-Napoca.
ArchRozhl	Archeologické Rozhledy. Praga.
ASMB	Arheologia Satului Medieval din Banat. Reşiţa 1996.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BAR Int. Ser.	British Archaeological Reports. International Series. Oxford.
BCMI	Buletinul Comisiunii Monumentelor Istorice.
BerRGK	Bericht der RömischGermanischen Kommission, Frankfurt a. Main.
BHAB	Bibliotheca Historica et Archaeologica Banatica. Timişoara.
BMB. SH	Biblioteca Muzeului Bistriţa. Seria Historica. Bistriţa Năsăud.
BMÉ	Bihari Múzeum Évkönyve
BMI	Buletinul Monumentelor Istorice, Bucureşti.
BMN	Bibliotheca Musei Napocensis. Cluj-Napoca.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMMN	Buletinul Muzeului Militar Naţional, Bucureşti.
BThr	Bibliotheca Thracologica. Institutul Român de Tracologie, Bucureşti.
CAH	Communicationes Archaeologicae Hungariae. Budapest.
Carpica	Carpica. Muzeul Judeţean de Istorie și Arheologie Bacău. Bacău.
CAMNI	Cercetări Arheologice. Muzeul de Istorie al R. S. România/Muzeul Naţional de Istorie. Bucureşti.
CCA	*Cronica cercetărilor arheologice* (*din România*), 1983–1992 *sqq*. (și în variantă electronică pe *http://www.cimec.ro/scripts/arh/cronica/cercetariarh.asp*).
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania. Cluj-Napoca.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. Bucureşti.
Danubius	Danubius – Revista Muzeului de Istorie Galati. Galați.
DDME	A Debreceni Déri Múzeum Évkönyve. Debrecen.
DolgCluj	Dolgozatok az Erdélyi Nemzeti Érem- és Régiségtárából, Klozsvár (Cluj).
DolgSzeg	Dolgozatok. Arbeiten des Archäologischen Instituts der Universität. Szeged.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumentelor arheologice din Dacia Porolissensis.

FolArch	Folia Archaeologica. Budapest.
Forsch. u. Ber. z. Vor- u. Frühgesch. BW	Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg.
GPSKV	Gradja za proučavanje spomenika kulture Vojvodine. Novi Sad.
GSAD	Glasnik Srpskog Arheološkog Društva. Beograd.
HOMÉ	A Herman Ottó Múzeum Évkönyve. Miskolc.
HTRTÉ	Hunyadvármegye Történelmi és Régészeti Társulat Évkönyve
JAMÉ	A nyíregyházi Jósa András Múzeum Évkönyve. Nyíregyháza.
JahrbuchRGZM	Jahrbuch des RömischGermanischen Zentralmuseums Mainz.
Lohanul	Lohanul. Revistă cultutal ştiinţifică. Huşi.
MCA	Materiale şi Cercetări Arheologice. Bucureşti.
MCA-S.N.	Materiale şi Cercetări Arheologice-Serie Nouă. Bucureşti.
MA	Memoria Antiqvitatis. Complexul Muzeal Judeţean Neamţ. Piatra Neamţ.
MFMÉ	A Móra Ferenc Múz. Évkönyve. Szeged.
MFMÉ StudArch	A Móra Ferenc Múzeum Évkönyve, Studia Archaelogica. Szeged.
MN	Muzeul Naţional. Bucureşti.
Opuscula Hungarica	Opuscula Hungarica. Budapest.
OTÉ	Orvos- Természettudományi Értesitő, a Kolozsvári Orvos-Természettudományi Társulat és az Erdélyi Múzeum-Egylet Természettudományi Szakosztálya.
Palaeohistorica	Acta et Communicationes Instituti Archaeologici Universitatis Groninganae.
PamArch	Památky Archeologické. Praha.
Past *and* Present	Past and Present. Oxford.
PIKS/PISC	Die Publikationen des Institutes für klassische Studien/ Publicaţiile Institutului de studii clasice. Cluj-Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PMÉ	Acta Musei Papensis – Pápai Múzeumi Értesítő.
PZ	Prähistorische Zeitschrift. Berlin.
Rev. Muz.	Revista Muzeelor, Bucureşti.
RIR	Revista Istorică Română.
RMM-MIA	Revista Muzeelor şi Monumentelor. seria Monumente istorice şi de artă. Bucureşti.
RMMN	Revista Muzeului Militar Naţional. Bucureşti.
Ruralia	Ruralia. Památky Archeologické – Supplementum. Praha.
RVM	Rad Vojvodjanskih Muzeja, Novi Sad.
SCIV(A)	Studii şi Cercetări de Istorie Veche. Bucureşti.
SCN	Studii şi Cercetări Numismatice. Bucureşti.
SlovArch	Slovenská Archeológia. Nitra.
SIA	Studii de Istoria Artei. Cluj Napoca.
SIB	Studii de istorie a Banatului. Timişoara.
SKMÉ	A Szántó Kovács János Múzeum Évkönyve, Orosháza.
SMIM	Studii şi Materiale de Istorie Medie. Bucureşti.
SMMA	Szolnok Megyei Múzeumi Adattár. Szolnok.
SMMIM	Studii şi Materiale de Muzeografie şi Istorie Militară. Bucureşti.
Starinar	Starinar. Arheološki Institut. Beograd.
StCl	Studii Clasice, Bucureşti.
StComBrukenthal	Studii şi comunicări. Sibiu.
StudArch	Studia Archaeologica. Budapest.
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