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Beyond archaeological finds and sites: multidisciplinary research projects in Hungary

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ABBREVIATIONS

AARGnews	AARGnews. The newsletter of the Aerial Archaeology Research Group (E-Journal)
ABSA	Annual of the British School at Athens (London)
ACSS	Ancient Civilisations from Scythia to Siberia. An International Journal of Comparative Studies in History and Archaeology (Bedfordshire)
AAL	Acta Archaeologica Lovaniensia (Leuven)
ActaArchCarp	Acta Archaeologica Carpathica (Kraków)
ActaArchHung	Acta Archaeologica Hungarica Academiae Scientiarum Hungaricae (Budapest)
ActaMN	Acta Musei Napocensis (Cluj)
AES	Archaeological Exploration of Sardis (Cambridge)
AJA	American Journal of Archaeology (Boston)
Alba Regia	Alba Regia. Annales Musei Stephani Regis (Székesfehérvár)
AmAnt	American Antiquity (Gainesville)
AnAnt	Anatolia Antiqua (Istanbul)
AnatArch	Anatolian Archaeology (Cambridge Journals Online)
Annalen	Annalen. Zoologische wetenschappen (Tervuren/Belgium)
AnSt	Anatolian Studies (Ankara)
Antaeus	Antaeus. Communicationes ex Instituto Archaeologico Academiae Scientiarum Hungaricae (Budapest)
AnthrKözl	Anthropológiai Közlemények (Budapest)
Anthropozoologica	Anthropozoologica (Paris)
Antiquity	Antiquity. A quarterly review of archaeology (Cambridge)
APA	Acta Praehistorica et Archaeologica (Berlin)
AR	Archeologické Rozhledy (Praha)
ArchA	Archaeologia Austriaca (Wien)
Archeometriai Műhely	Archeometriai Műhely. E-journal (Budapest)
Archaeometry	Archaeometry. The Bulletin of the Research Laboratory for Archaeology and the History of Art (Oxford)
ArchÉrt	Archaeologiai Értesítő (Budapest)
ArchHung	Archeologica Hungarica (Budapest)
Arrabona	Arrabona. A Győri Xantus János Múzeum Évkönyve (Győr)
BAH	Bibliothèque Archéologique et Historique (Beirut)
Balcanica	Balcanica. Annuaire de l'Institut des Etudes Balkaniques (Beograd)
Banatica	Banatica (Reşiţa)
BAR BS	British International Reports, British Series (Oxford)
BAR IS	British International Reports, International Series (Oxford)
BCH Suppl	Supplements au Bulletin de Correspondance Hellenique (Athens)
	BIAA British Institute of Archaeology at Ankara (Ankara)
BudRég	Budapest Régiségei (Budapest)
Byzantion	Byzantion. Revue Internationale des Études Byzantines (Paris)
BZ	Byzantinische Zeitschrift (München)
CEFR	Collection de l'École française de Rome (Roma)
CommArchHung	Communicationes Archaeologicae Hungaricae (Budapest)

Cumania	Cumania. A Bács-Kiskun megyei Múzeumok Közleményei (Kecskemét)
Das Altertum	Das Altertum (Berlin)
DMÉ	A Debreceni Déri Múzeum Évkönyve (Debrecen)
DocPraehist	Documenta Praehistorica (previously: Poročilo…) (Ljubljana)
DOP	Dumbarton Oaks Papers (Washington D.C.)
DOS	Dumbarton Oaks Studies (Washington D.C.)
EJA	European Journal of Archaeology
Ethnographia	Ethnographia (Budapest)
FÖ	Fundberichte aus Österreich (Wien)
FolArch	Folia Archaeologica (Budapest)
FontArchHung	Fontes Archaeologici Hungariae (Budapest)
GCBI	Godišnjak Centra za Balkanološka ispitivanja Akademije Nauka i Umjetnosti Bosne i Hercegovine (Sarajevo)
Germania	Germania. Anzeiger der Röm.-Germ. Kommission des Deutschen Archäologischen Instituts (Mainz)
Helinium	Helinium (Wetteren/Belgium)
Hesperia	Hesperia. Journal of the American School of Classical Studies at Athens (Princeton)
HOMÉ	A Herman Ottó Múzeum Évkönyve (Miskolc)
Homo	Homo, Zeitschrift für die vergleichende Forschung am Menschen. (Göttingen – Berlin – Frankfurt)
IJO	International Journal of Osteoarchaeology
IstMitt	Istanbuler Mitteilungen (Tübingen)
JAMÉ	A nyíregyházi Jósa András Múzeum Évkönyve (Nyíregyháza)
JAS	Journal of Archaeological Science (London)
JÖB	Jahrbuch der Österreichischen Byzantinistik (Graz)
JPMÉ	A Janus Pannonius Múzeum Évkönyve (Pécs)
JRA	Journal of Roman Archaeology (Portsmonth, Rhode Island)
JRA Suppl.	Journal of Roman Archaeology Supplementum Series (Portsmonth, Rhode Island)
JRS	The Journal of Roman Studies (London)
KRMK	A kaposvári Rippl-Rónai Múzeum Közleményei (Kaposvár)
LAA	Late Antique Archaeology (London)
Levant	Levant. Journal of the British School of Archaeology in Jerusalem (London)
MAGW	Mitteilungen der Anthropologischen Gesellschaft (Wien)
MFMA	Monographien zur Frühgeschichte und Mittelalterarchäologie (Innsbruck)
MFMÉ	A Móra Ferenc Múzeum Évkönyve (Szeged)
МИА	Материалы и исследования по археологии (СССР: Ленинград) / Materialy i Issledovanija po Arheologii SSSR (Moskva)
MittArchInst	Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften (Budapest)
MMMK	A Magyar Mezőgazdasági Múzeum Közleményei (Budapest)
MŐK	Magyar Őstörténeti Könyvtár (Szeged – Budapest)
MR/HA	Magyar Régészet / Hungarian Archaeology – E-journal http://www.hungarianarchaeology.hu/ (Budapest)
Muqarnas	Muqarnas: An Annual on the Visual Cultures of the Islamic World (Boston)
Offa	Offa. Berichte und Mitteilungen des Museums Vorgeschichtlicher Altertümer in Kiel (Neumünster)
Opuscula Archeologia	Opuscula Archeologia (Zagreb)

Ősrégészeti Levelek	Ősrégészeti Levelek / Prehistoric Newsletter (Budapest)
Paleo-Aktueel	Paleo-Aktueel (Groningen)
PBF	Prähistorische Bronzefunde (München)
PrilInstArheolZagrebu	Prilozi Instituta za arheologiju u Zagrebu (Zagreb)
PZ	Prähistorische Zeitschrift (Berlin – New York)
Radiocarbon	Radiocarbon. Publ. by the American Journal of Science (New Haven)
RCRF	Rei Cretariae Romanae Fautores Acta (Bonn)
RégFüz	Régészeti füzetek (Budapest)
RGZM	Römisch-Germanisches Zentralmuseum (Mainz)
RKM	Régészeti Kutatások Magyarországon – Archaeological Investigations in Hungary (Budapest)
Sargeţia	Sargeţia, Buletinul Muzeului judeţean Hunedoara (Deva)
SASTUMA	SASTUMA. Saarbrücker Studien und Materialien zur Altertumskunde (Saarbrücken)
Savaria	Savaria (Szombathely)
SBF CM	Studium Biblicum Franciscarum. Collectio Minor (Jerusalem)
SEMA	Studies in Eastern Mediterranean Archaeology (Turnhout)
SlA	Slovenská Archeológia (Bratislava)
SMK	Somogyi Múzeumok Közleményei (Kaposvár)
Speculum	Speculum. Journal of Medieval Studies (Cambridge, Mass.)
SprawArch	Sprawozdania Archeologiczne (Kraków)
SSz	Soproni Szemle (Sopron)
Starinar	Starinar (Beograd)
StCom	Studia Comitatensia. A Ferenczy Múzeum Évkönyve (Budapest)
StudArch	Studia Archaeologica (Budapest)
Századok	Századok. A Magyar Történelmi Társulat folyóirata (Budapest)
Topoi	Topoi. An International Review of Philosophy (Roma)
VAH	Varia Archeologica Hungarica (Budapest)
VMMK	A Veszprém Megyei Múzeumok Közleményei (Veszprém)
WMMÉ	A Wosinsky Mór Múzeum Évkönyve (Szekszárd)
ZalaiMúz	Zalai Múzeum (Zalaegerszeg)

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JÁNOS JAKUCS – VANDA VOICSEK

THE NORTHERNMOST DISTRIBUTION OF THE EARLY VINČA CULTURE IN THE DANUBE VALLEY: A PRELIMINARY STUDY FROM SZEDERKÉNY-KUKORICA-DŰLŐ (BARANYA COUNTY, SOUTHERN HUNGARY)

Keywords: settlement structure, Transdanubia, 6th millennium BC, Vinča culture, Sopot culture

New advances in the research on Neolithic in south-eastern Transdanubia have been principally made as a result of the large-scale salvage excavation of extensive Neolithic sites along the track of the M6 Motorway, especially in Tolna county, in the Tolna Sárköz region.[1] The goal of this study is to present recent advances in Neolithic research in Baranya county, a region to the south, which can contribute new insights into the Neolithic of Transdanubia and of the adjacent areas in the Danube region. The discoveries discussed in this study also shed new light on the relations between the Neolithic communities of the Balkans and Central Europe in the later 6th millennium BC.

Some aspects of archaeological research on the 6th millennium BC in southern Transdanubia

The basic and still accepted division of archaeological units making up the cultural spectrum of the Transdanubian Neolithic was essentially identified by the early 1990s.[2] The first Transdanubian settlement of the Starčevo culture, marking the arrival of the pioneering farming communities to this region, was discovered at Lánycsók-Bácsfapuszta in the south-eastern part of Baranya county.[3] The excavations at Lánycsók confirmed that the distribution of the Starčevo culture extended north of the Drava, to Transdanubia too, a possibility indicated earlier by the finds from Harc-Nyanyapuszta and Medina-Margitkert.[4] Recent investigations in Baranya county and Tolna county have demonstrated that similarly to the Srem region and eastern Slavonia, the Starčevo culture had also an extensive settlement network with large settlements along the Danube in south-eastern Transdanubia.[5]

Regardless of the different approaches to the problem, most theories on the emergence of the Linearbandkeramik (LBK) agree that the Starčevo culture, as a catalyst, played a decisive role in the formation of the LBK.[6] The sites of the formative LBK (Szentgyörgyvölgy-Pityerdomb, Zalaegerszeg-Andráshida, Brunn am Gebirge II) appearing during the late Starčevo period are to be found in western Transdanubia and north of Lake Balaton,[7] while during the following period (Bicske–Bíňa phase, i.e. early LBK), the culture's sites lie across the entire former Starčevo distribution in Hungary.[8] Interestingly enough, while increasingly more LBK sites from the latter period have been found in northern, central and south-western Transdanubia, none have yet been discovered in south-eastern Transdanubia or, more precisely, between the

[1] *Bánffy – Marton – Osztás 2010*; *Marton – Oross 2012*; *Osztás – Zalai-Gaál – Bánffy 2012*.
[2] *Kalicz 1988*; *Kalicz 1993* 85–86.
[3] *Kalicz 1977* 137–156; *Kalicz 1990* 33–34.
[4] *Kalicz – Makkay 1975* 254.
[5] *Kalicz 2009* 159; *Bánffy – Marton – Osztás 2010*.
[6] *Oross – Bánffy 2009* 176.
[7] *Oross – Bánffy 2009* Abb 1.
[8] *Kalicz 1993* 86, fig. 15; *Kalicz 1994* 68.

Karasica and the Danube – in the area previously intensively occupied by the Starčevo culture. Even though early LBK finds are only known from Szentlőrinc-Strandfürdő in the foothills of the western Mecsek Mountains,[9] the distribution maps in studies published until recently suggested that the occurrence of the Bicske–Bíňa type assemblages in Baranya county could be traced as far as the modern Croatia–Hungary country border in the south and the Danube in the southeast.[10] The distribution of the Keszthely group representing a later phase was also extended to the same region.[11] However, when assessing the presence of the Keszthely group in this area it must be borne in mind that the sites associated with the period (Pécs-Makárhegy, Szava-Bocsok-dűlő) can be exclusively found west of the Karasica Valley.[12]

From the very beginning of systematic Neolithic research, it has been tentatively suggested that LBK pottery assemblages reflect Balkanic cultural impact starting from the early phases of the Vinča culture. These influences were mainly seen in the Danube Valley.[13] In the discussion on the early LBK finds from Bicske-Galagonyás in northern Transdanubia, János Makkay emphasised the possible links with the Vinča world.[14] Somewhat later it has been also suggested by him that the Vinča type sites might have existed in south-east Transdanubia.[15] In southern Hungary, findings that clearly reflect mixing of the early LBK and Vinča cultures appeared on the left Danube bank at Bajaszentistván-Szlatina and Fajsz-Garadomb.[16] In south-east Transdanubia, on the right bank of the river, pottery forms recalling the vessel types of the early Vinča culture can be detected in the assemblages from the already mentioned Szentlőrinc-Strandfürdő[17] and Medina-Margitkert.[18] At Tolna-Mözs, a recently investigated settlement on the right Danube bank, pottery in the early Vinča style dominated the finds from the settlement's earliest occupied, southern part, which also yielded early LBK (Bicske–Bíňa style) ceramics. In the area of the middle and northern house clusters, LBK vessels (Bicske–Bíňa and Notenkopf styles) and ceramics in the early Vinča style occurred in roughly the same proportion.[19] In the light of the discoveries made at Tolna-Mözs, Tibor Marton and Krisztián Oross argued that the frequent occurrence of Vinča type finds in the Tolna Sárköz region indicates that early Vinča sites in south-eastern Transdanubia were possibly present in the Danube region south of the Mecsek Mountains and in the Danube-Drava confluence area.[20]

Following up on Stojan Dimitrijević's research,[21] Croatian (and, earlier, Yugoslavian) research assumed the survival of the Starčevo culture during the Vinča A1–A3 period in the Danube-Drava confluence area and south of the Drava, along the Danube section in eastern Slavonia.[22] In this framework, the early Sopot culture (Sopot IA) emerged from the interaction between the latest Starčevo and the early Vinča communities during the Vinča B1 period, while the Ražište type of the early Sopot culture made its appearance in eastern and central Slavonia (Sopot IA–IB).[23] North of the Drava, the Sopot culture's appearance was initially dated to Sopot IB–II at the latest and synchronised with the Vinča B2 period.[24]

[9] At the time of its publication, this assemblage was regarded as representing the earliest LBK by Nándor Kalicz and János Makkay. *Kalicz – Makkay 1975* 254, *Kalicz – Makkay 1979–80* 16, Abb. 11.
[10] *Kalicz 1993* fig. 15; *Oross – Bánffy 2009* fig. 4.
[11] *Kalicz 1991* 5–32, *Oross – Bánffy 2009* fig. 7.
[12] *Gläser 1993* Taf. 198. 9–10; 231. 13–16; 232. 1–20; 233. 1–8.
[13] *Kalicz – Makkay 1972* 95; *Makkay 1978* 30–31, *Makkay 1982* 31; *Kalicz 1994* 71–72, Abb. 2–4; *Horváth 2006* 313.
[14] *Makkay 1978* Tab. 5. 1a–b.
[15] *Makkay 1982* 48.
[16] *Kalicz – Makkay 1972* 95.
[17] *Kalicz – Makkay 1978–1979* Tab. 11. 2–3.
[18] *Kalicz 1993* fig. 17. 9–10.
[19] *Marton – Oross 2012* 237.
[20] *Marton – Oross 2012* 233.
[21] *Dimitrijević 1968* 18–119.
[22] *Marković 1994* 145, chronological chart.
[23] *Markovic 1985* 65, Abb. 8, *Marković 2012* 58; *Burić – Težak-Gregl 2010* 64.
[24] *Kalicz – Makkay 1972* 12; *Regenye 2002* fig. 1.

Nándor Kalicz and János Makkay explained the appearance of the Sopot culture with the northward migration of the Vinča population,[25] regarding it as a brief episode in the Neolithic of Transdanubia between the late LBK (Zseliz) period and the advent of the Lengyel culture.[26] Ferenc Horváth published finds representing the Ražište type of the early Sopot culture from Villány-Villányvirágos in the Karasica Valley, demonstrating thereby that Sopot-Ražište (Sopot IA–B) type assemblages also occur north of the Drava.[27]

New findings in Baranya county

The large-scale archaeological salvage operations in Baranya county preceding the construction of the M6 Motorway led to a dramatic increase in the archaeological source material.[28] The most important excavation regarding both the extent of the investigated area and the number of uncovered features and finds was conducted at Szederkény-Kukorica-dűlő. The fieldwork was carried out by the archaeologists of the Janus Pannonius Museum in Pécs between 2005 and 2008.[29] The site lies at the meeting point of the southern Baranya hill range and the terraced Mohács Plain in the central part of Baranya county, on a double hill ridge with a gentle southward slope bounded in the east and south by the Monyoród watercourse and by the Karasica Stream in the west. The area excavated along a 1700 m long section of the planned motorway totalled over 12.5 hectares. In addition to the Neolithic settlement features, finds and features of later ages such as the Copper Age (Balaton-Lasinja, the Baden), the Bronze Age (Encrusted Pottery, the Urnfield), the La Tène and the late Roman period were unearthed alongside a late Roman and early Migration period cemetery.

This study describes the layout and structure of the Neolithic settlement together with a preliminary overview of the most distinctive elements of the material culture, primarily the pottery finds.

Settlement layout and structure

The Neolithic settlement features formed three distinct clusters across a nine hectares large area in the eastern, middle and western part of the excavated surface. The eastern settlement part lies on an elevation overlooking the Monyoród watercourse and is bounded by a double ditch in the east, while on the western side, the settlement's boundary is marked by a former watercourse (*fig. 1*). The middle settlement part *(fig. 2)* extends over the eastern area of the plateau rising on the western side of the watercourse. This area is separated from the western settlement part lying on the plateau's western side towards the Karasica by a roughly 150 m wide zone devoid of any Neolithic features *(fig. 3)*.

The building remains unearthed on all three settlement parts of the Szederkény site represent the general architectural principles of the Central-European LBK. Hitherto, a total of 66 Neolithic houseplans could be identified. However, well preserved rows of internal posts were only recorded in a single case *(fig. 2)*; most often, the traces of the wooden framework were poorly preserved, and no more than a few post-holes and the longpits *(Längsgrube)* were documented. One reason, obviously, is soil erosion. The examination of the field documentation revealed though, that the houseplans were not recognised for what they were

[25] *Kalicz – Makkay 1975* 257.
[26] *Kalicz 1993* 86.
[27] *Horváth 2006* fig. 1. 1–12.
[28] *Nagy 2007* 21–25.
[29] *Kovaliczky 2009* 276–277. We would here like to thank Gergely Kovaliczky for his kind permission to publish the Neolithic finds from the site. Thanks are due to Dr. Erzsébet Nagy, head of the Department of Archaeology of the Janus Pannonius Museum in Pécs, and to all her colleagues in the department for their invaluable help and assistance during our work.

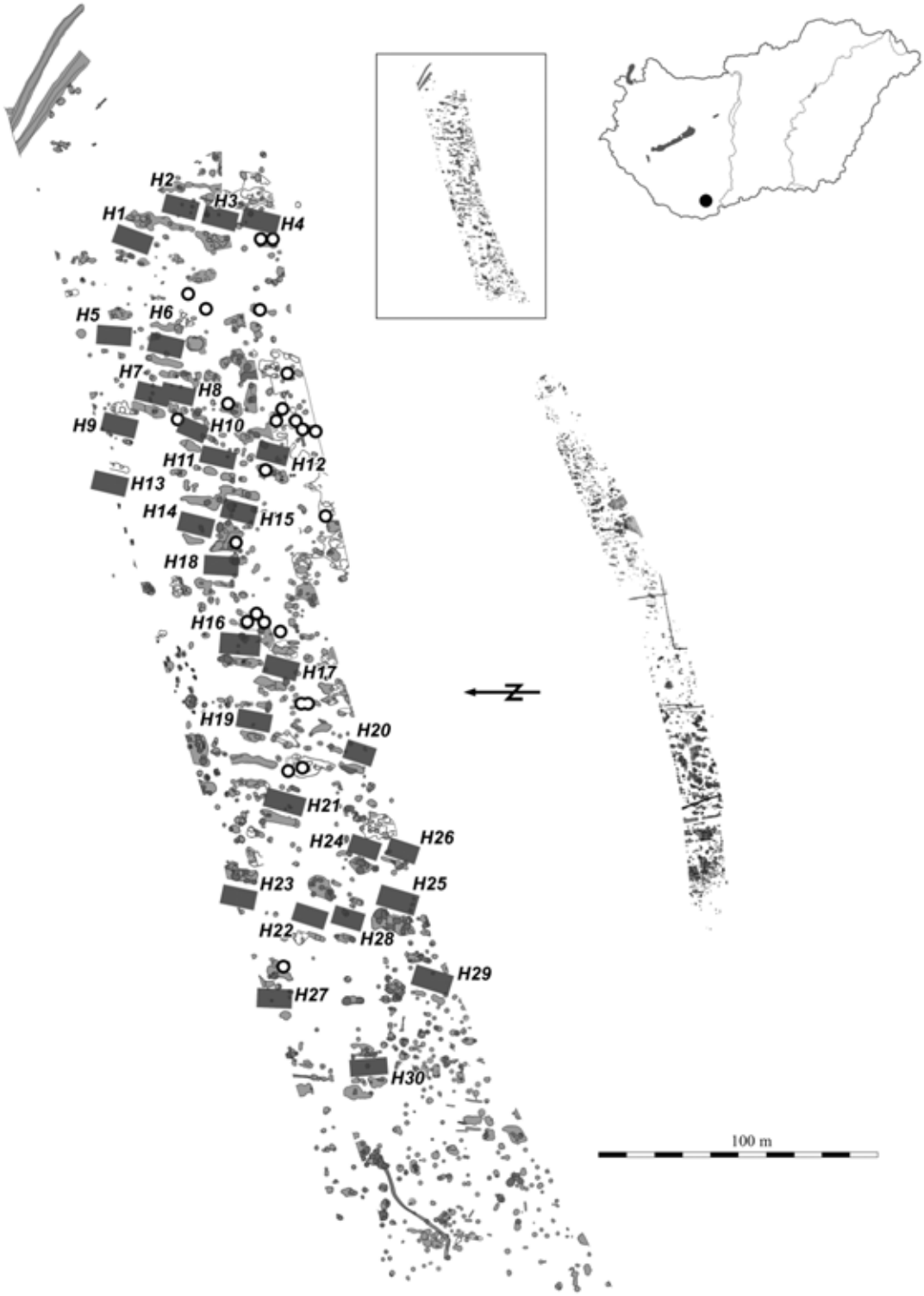

fig. 1. Szederkény-Kukorica-dűlő. Plan of the eastern settlement part with the reconstructed house plans

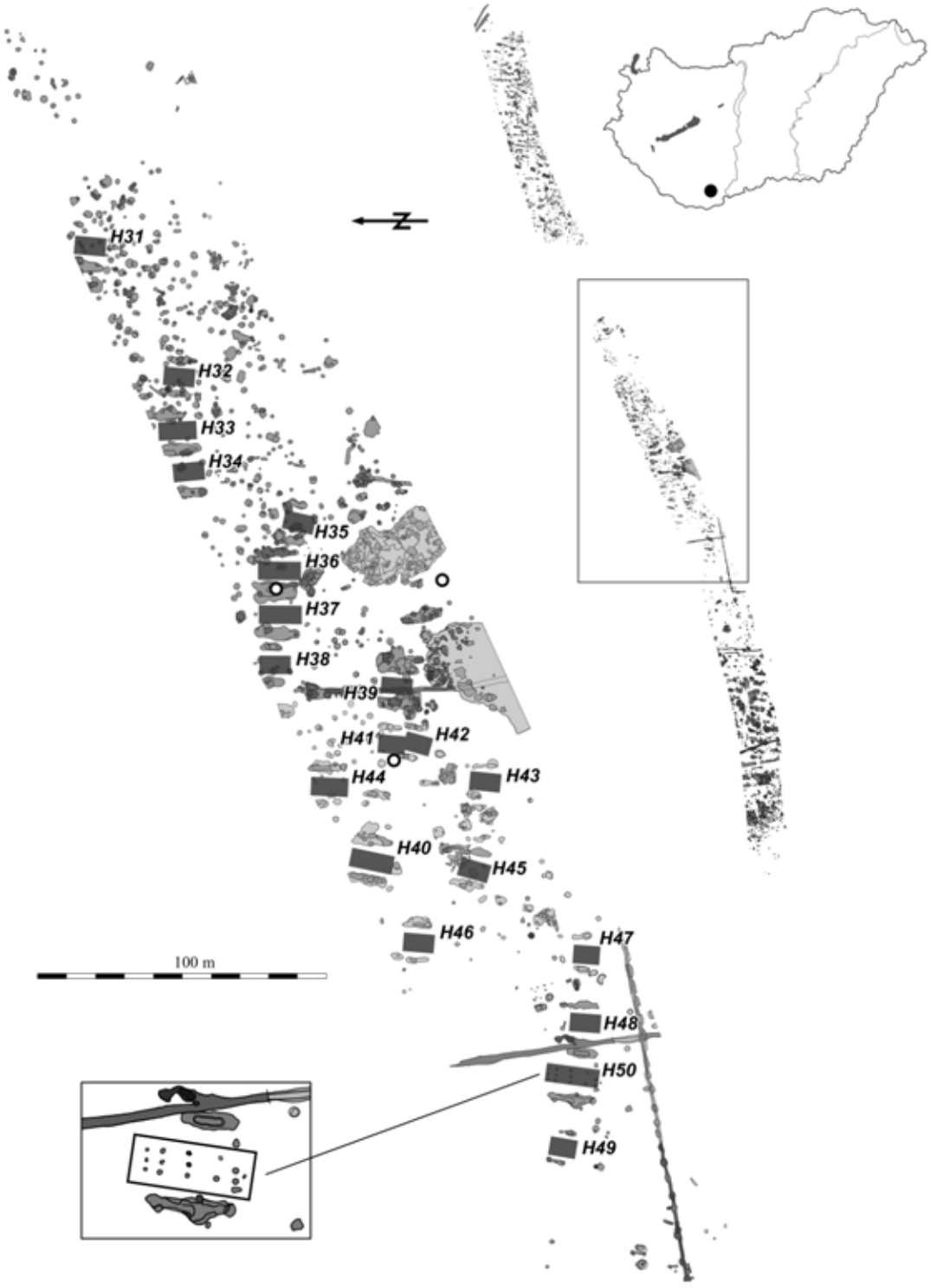

fig. 2. Szederkény-Kukorica-dűlő. Plan of the middle settlement part with the reconstructed house plans

fig. 3. Szederkény-Kukorica-dűlő. Plan of the western settlement part with the reconstructed house plans

during the excavation and that the longpits lying at regular distances from one another were first believed to be remains of drainage ditches.[30] It is therefore possible that the remains of the timber framework were missed and that this is the reason that they were only rarely uncovered or not at all. In the vast majority of cases, the settlement's buildings can thus only be identified from the longpits, oriented in the same direction, primarily flanking the two sides of the houses.[31]

Bearing the above in mind, we identified 30 potential houseplans in the eastern settlement part. Even though this area was heavily disturbed by the features of later periods, it would appear that the Neolithic buildings were more densely spaced in this area. The secure identification of houseplans was also complicated by the fact that very often, only the longpit extending along one side of the building could be unambiguously determined.

The houseplans could be much better observed in the middle settlement part, where we identified 20 potential houseplans *(fig. 2)*. In the case of House 50, the post-holes indicated a groundplan of three longitudinal rows and five cross-rows of timber uprights. The position of the two outermost rows of posts supporting the long walls could not be documented for this building. The measurable length of the building was 17.75 m, its width was 4.9 m. Given that there was no indication of any internal division, this building can probably be assigned to the *Kleinbau* type structures of Pieter J. R. Modderman's building typology,[32] although it must be noted that this building is unusually long within this category.[33] The highest number of *Kleinbau* type buildings in Transdanubia has been uncovered at the Balatonszárszó-Kis-erdei-dűlő settlement, where 36 houseplans, accounting for over 60% of the evaluable houseplans, represented this type.[34] The proportion of this building type among the currently known structures is much lower on the LBK settlements west of the Carpathian Basin.[35]

The western settlement part was perhaps most heavily disturbed by intrusions from the Late Copper Age, the Late Bronze Age, the Roman period, and the Migration period. We identified 16 potential houseplans in this settlement part *(fig. 3)*, although this figure is highly uncertain owing to the disturbances from later periods.

The reconstructed houseplans were without exception north-east to south-west oriented, with only minor deviations. The houses apparently formed smaller clusters and were arranged into rows within the clusters. This could best be seen in the eastern and middle settlement parts. Three to four buildings made up one row. The house rows ran parallel to one another, perpendicular to the buildings' long axes. Based on stratigraphic observations, we can assume successive building horizons: the chronological differences between the houses in the different rows is indicated by the partial superposition at the shorter (southern) gable ends in some cases and the superposition of the longpits. Such stratigraphic relationships could be especially well observed in the eastern and western settlement part, for example in the case of Houses 1 and 2, Houses 7 and 8, Houses 14 and 15, as well Houses 16 and 17 in the eastern settlement part, and in the case of Houses 57 and 59 in the western settlement part. In contrast, apart from a very few cases where the longpits of adjacent buildings partially overlap (Houses 15 and 18, and Houses 36 and 37), superpositions along the longitudinal walls of houseplans could not be detected. Thus, there is no direct stratigraphic evidence for chronological differences between adjacent buildings of the same row.

In the light of the above, many resemblances can be noted between the layout of the Tolna-Mözs and Szederkény-Kukorica-dűlő settlements. Several distinct occupation areas

[30] *Kovaliczky 2009* 276.

[31] Most of the houseplans can be assigned to Category B as defined by Tibor Marton and Krisztián Oross at Balatonszárszó-Kis-erdei-dűlő: these houseplans were incomplete and only a few surviving elements of the one-time structure could be documented: *Marton – Oross 2009* 56*; Oross 2013* 189.

[32] *Modderman 1972* 80. Abb. 49.

[33] *Coolen 2004* 92–93.

[34] *Oross 2013* 191, Tab. 1.

[35] *Oross 2013* 192.

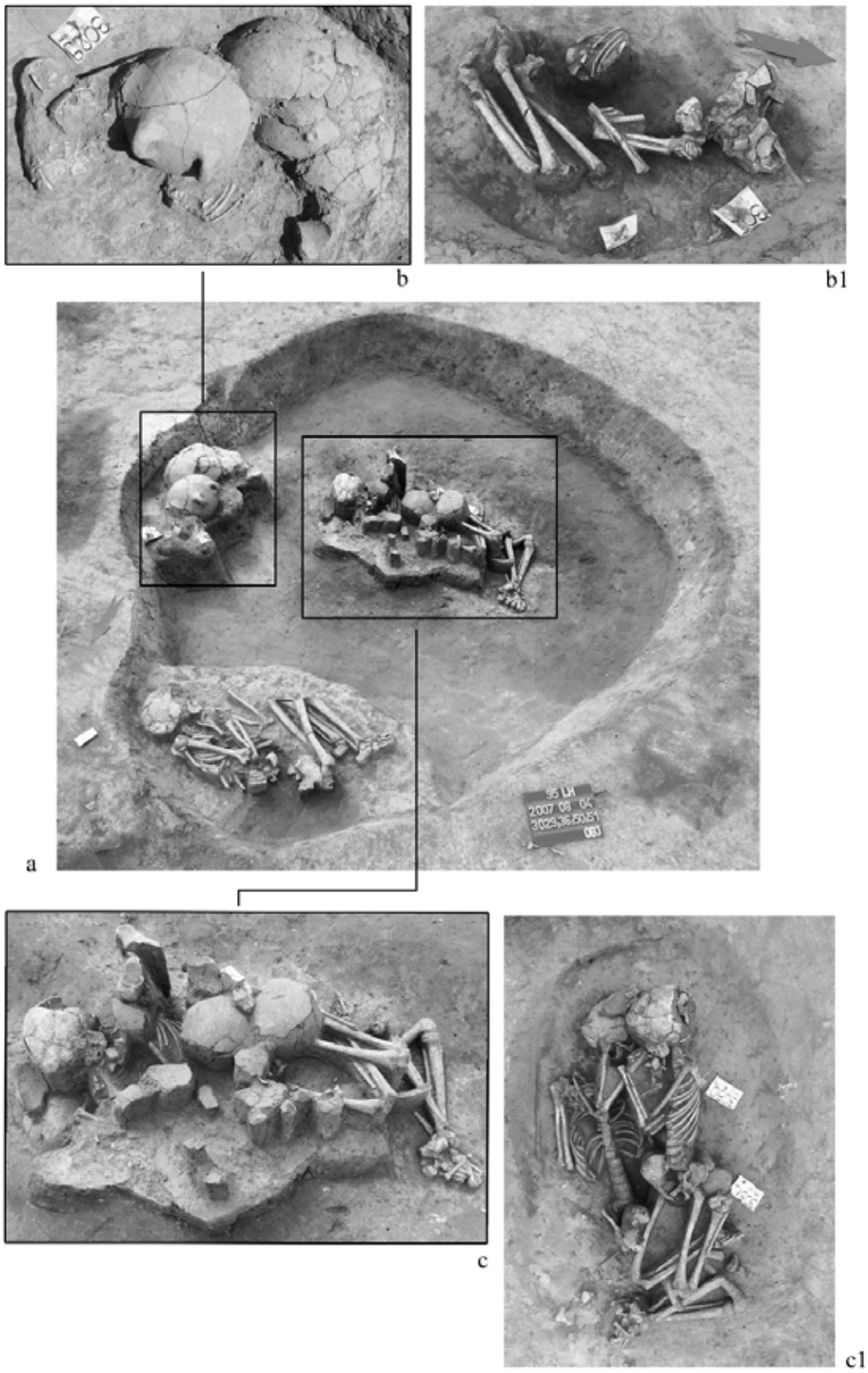

fig. 4. Szederkény-Kukorica-dűlő. The burials uncovered in Feature 3036. Burials 3036 (a), 3029 (b, b1), 3050 and 3050 (c, c1)

were identified at Tolna-Mözs too and the linear arrangement of the houses at that settlement suggests a similar use of space as at Szederkény. Partially superimposed houseplans overlapping at the shorter, gable end were similarly uncovered at Tolna-Mözs.[36]

Settlement burials

A total of 50 Neolithic intramural inhumations were uncovered at Szederkény.[37] The burials were found among the houses in separate grave pits and in the settlement's pits, or occasionally in the longpits flanking the houses. The overwhelming majority of the graves came to light on the eastern (25) and the western settlement part (22), while no more than three burials were uncovered in the middle one. The deceased were laid to rest in a crouched position: in the graves where it could be determined (46), the bodies were generally crouched on the left side: (15 out of 21 in the eastern settlement part, all three in the middle settlement part, and 12 out of 22 in the western settlement part). Most burials were east to west or south-east to north-west oriented, with over two-thirds of the burials whose orientation could be determined falling into this category (eastern settlement part: 20 out of 24, middle settlement part: all three, western settlement part: 14 out of 22 burials). North to south orientation could also be observed (eastern settlement part: one burial, western settlement part: five burials), alongside north-east to south-west orientation (eastern settlement part: 2 burials, western settlement part: 2 burial), north-west to south-east orientation (western settlement part: 1 burials), and west to east orientation (western settlement part: 2 burials).

The settlement burials at Szederkény-Kukorica-dűlő contained few grave goods or articles that had been part of the costume worn at the time of the burial. Except for one, all the burials containing grave goods came to light in the eastern settlement part. A globular vessel with cylindrical neck and incised ornamentation in the early LBK style was placed on the body in Burial 237, which had been deposited in the north-eastern end of the western longpit (Feature 219) of House 12 *(fig. 5)*. Burial 367 was uncovered by the eastern side of House 16. A squat globular vessel was found by the head of the north-east to south-west oriented deceased laid on the right side with the legs drawn up, while the joining fragments of a black topped, biconical, pedestalled vessel decorated with channelling on the shoulder were recovered from the fill of the grave. The unquestionably richest burial of the settlement was Burial 2484 *(fig. 6)*. The east-west oriented, left crouched juvenile individual was accompanied by a black topped bowl with carinated shoulder deposited with the mouth downward, under which lay a V-shaped *Spondylus* "hook" set on its edge *(fig. 6b)*. A shoe-last adze was placed on the right side of the body and a *Spondylus* bracelet on the left upper arm *(fig. 6e)*. The bowl recalls the pottery style of the Vinča A period regarding both its firing technique and its form *(fig. 6d)*. The closest analogies to the V-shaped *Spondylus* hook *(fig. 6c)* can be found among the finds recovered from the early Vinča cemetery excavated at Botoš-Živanićeva dolja.[38] The south-east to north-west oriented body was crouched on the left side in Burial 2491, lying some 10 m from Burial 2484. A shoe-last axe lay by the spine and a *Spondylus* bracelet under the left elbow. Burial 3114, found in the western settlement part, was a strongly left crouched burial with an east to west orientation. The fragment of a *Spondylus* bracelet was found by the feet of the deceased.

[36] *Marton – Oross 2012* 226, Abb. 3.

[37] The high number of Neolithic burials enabled sampling for various analyses. Between 2011 and 2013, samples from eleven burials were submitted for aDNA analyses as part of the collaborative archaeogenetic and geochemical project between the Institute of Archaeology of the Hungarian Academy of Sciences and the Johannes Gutenberg University in Mainz. In addition to the archaeogenetic analyses, the proportion of $^{87}Sr/^{86}Sr$ and $^{16}O/^{18}O$ isotopes was also examined in order to detect migration/mobility patterns, as was the ratio of $^{12}C/^{13}C$ and $^{14}N/^{15}N$ isotopes for reconstructing the one-time diet.

[38] *Marinković 2010* 34, Kat. 37.

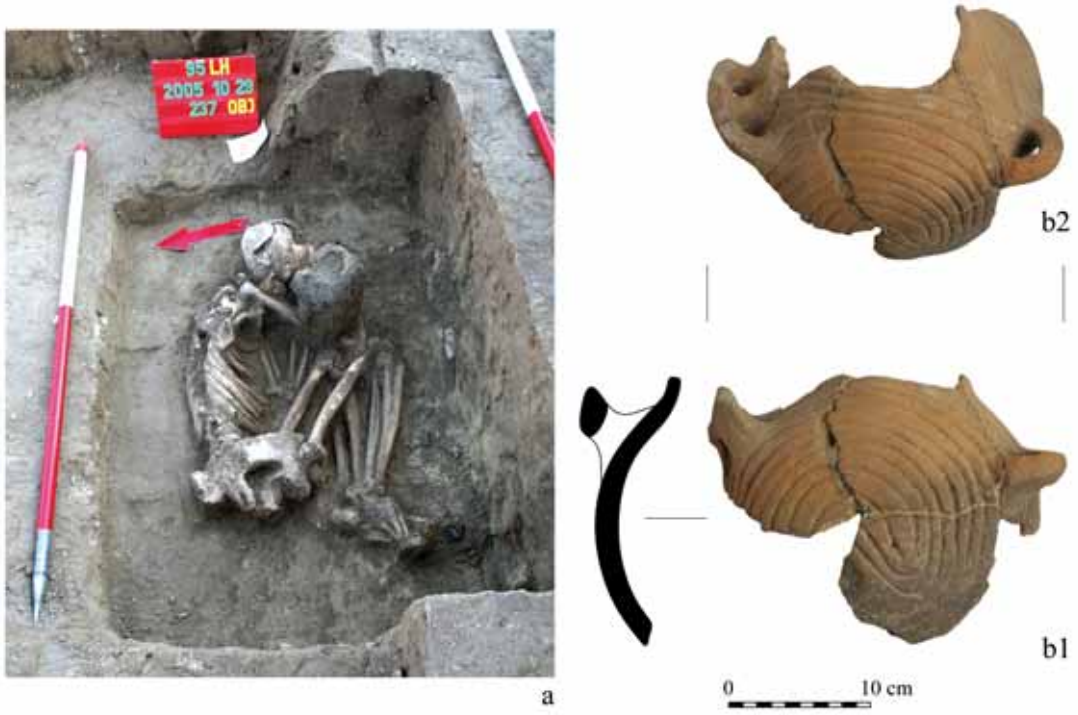

fig. 5. Burial 237 (a) and the fragments of the LBK storage jar found in the burial (b1–2)

Pit 3036 in the western settlement part yielded the remains of four burials *(fig. 4a)*. There were two crouched bodies with slightly drawn up arms and knees oriented in the same direction laying one on the other in the middle part of the roughly oval pit with dished bottom. The lower burial (No 3050) was laid on the left side, whereas the upper one (Burial no 3051) – on the right side. Numerous animal bones, some articulate, and non-joining pottery fragments, mostly from storage vessels *(fig. 4c–c1)*, were found above the double grave. Two other burials were uncovered on a ledge along the pit's north-eastern side. Both individuals were crouched on the left side: one burial (No 3036) was roughly east to west oriented, the other (Burial no 3029) was north to south oriented. The latter was wholly covered with the fragments of large storage jars *(fig. 4b–b1)*. No other shards were found in the pit. This would confirm our assumption that the bodies had not been deposited in a refuse pit. The custom of covering the deceased with large storage jars has also been reported from the Starčevo settlement investigated at Alsónyék-Bátaszék.[39] The burial practice of covering the deceased with pottery fragments during the Middle Neolithic of the Carpathian Basin has been recently discussed by Katalin Sebők.[40] From Transdanubia, she quoted a child grave that had been covered by the fragments of a large storage jar and the fragments of a vessel ornamented in the Notenkopf style, uncovered by the edge of a Neolithic ditch at Bölcske-Gyűrűsvölgy.[41] Another child burial, unearthed at Paks-Gyapa, had the head covered with sherds of an LBK vessel.[42] Sebők mentions a third similar burial from the Szakálhát settlement at Pusztataskony-Ledence, where a child burial was likewise covered with the fragments of a storage jar.[43]

[39] *Bánffy – Marton – Osztás 2010.*
[40] *Sebők 2013.*
[41] *Sebők 2009* 154; *Sebők 2013* 250, fig. 1.
[42] *Füzesi 2013* fig. 6. 4; *Sebők 2013* 254.
[43] *Sebők 2013* 253, fig. 2.

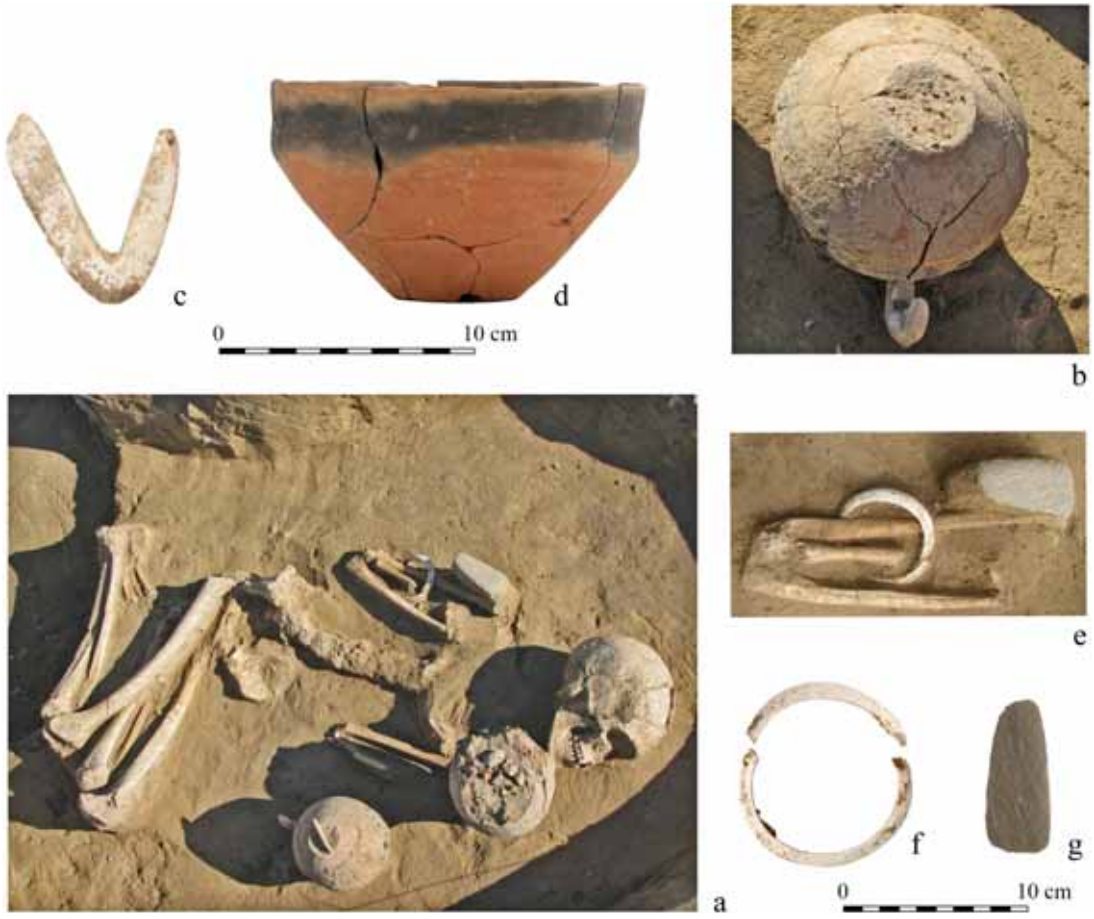

fig. 6. Burial 2484 (a) and its grave goods (b–g)

The pottery finds

Pottery is beyond doubt the most prominent category of finds representing the settlement's material culture. Given that the catalogisation and assessment of the finds is still in progress, quantitative data is currently not available and cannot be presented in this study. However, the main elements of the technological, formal and ornamental traits of the pottery, as well as their diachronical changes can be described for the different settlement parts. The differences between the eastern and the middle settlement part are mainly reflected in the quantitative divergences regarding various elements (certain artefact types are either lacking or represented in smaller proportion in the middle settlement part), while significant changes in the pottery style can only be detected in the western settlement part. Therefore, in the recent study the ceramic finds from the eastern and the middle settlement parts are discussed together.

The pottery of the eastern and middle settlement part

Coarse pottery was most often tempered with coarse-grained or highly pebbled sand, rock debris, or sometimes a mixture of sand, pebbles and organic matter, while vessels were rarely exclusively tempered with organic substances. In this respect, there is a significant technological difference compared to both the former Early Neolithic Starčevo and the early Central European LBK pottery manufacture. On the other hand, pottery fired in a reducing atmosphere, indicated by the dark coloured sandwich core, a typical trait of the coarse ware

fig. 7. Finds from Feature 257

from the eastern settlement part at Szederkény, is also a general feature of Starčevo ceramics.[44] The vessels were fired to various shades of brown, although brownish-blackish mottling is also encountered.

The storage jars include both globular forms with inverted rim *(figs 10. 13, 14; 11. 17; 16. 2)* and elongated globular, barrel-shaped types with inverted or almost straight rim *(figs 11. 12; 17. 2, 4)* as well as gently carinated biconical vessels with inverted rim *(figs 12. 12, 14)*. Amphora-like necked vessels represent a separate category, among which we find variants with cylindrical neck *(figs 10. 17; 11. 11; 16. 5)* and types with a sharp shoulder carination *(fig. 17. 1)*.

The *Schlickwurf (figs 9. 13; 14. 3; 16. 4)* and channelled barbotine *(figs 12. 13–14; 16. 1; 17. 2)* appearing on the coarse pottery is undoubtedly a continuation of the late Körös and Starčevo ceramic tradition.[45] This decorative technique is encountered in the earliest (formative) and early (Bicske–Bíňa) period of the Central European LBK as shown by the finds from Szentgyörgyvölgy-Pityerdomb,[46] Budapest-Aranyhegyi út,[47] Barcs,[48] Bicske-Galagonyás,[49] and Tolna-Mözs.[50] It occurs in early Vinča contexts at Drenovac,[51]

[44] *Szakmány – Gherdán – Starnini 2004* 29; *Bánffy – Marton – Osztás 2010* 46.
[45] *Kalicz 1993* 88; *Oross 2007* 545.
[46] *Bánffy 2004* fig. 98. 3.
[47] *Kalicz 1993* figs 33. 1–3, 6–7; 34. 1–2, 5–9, 11, 14.
[48] *Kalicz 1993* figs 22. 13, 15; 23. 4.
[49] *Makkay 1978* figs 5. 3, 6, 7; 22. 1–2; 24. 14a.
[50] *Marton – Oross 2012* Abb. 4. 2; 5. 10; 6. 11.
[51] *Vetnić 1990* Pl. 4. 8, 10–12.

Grivac[52] and Donje Grbice.[53] At Vinča-Belo Brdo, it was found in the pottery from the Vinča A layers (between 9.3 and 7.9 m).[54] *Schlickwurf* and channelled barbotine was a decorative technique employed during the entire Vinča A period in the Romanian Banat, up to the Vinča B1 period.[55] It has also been documented in Vinča A2–A3 contexts at Maroslele-Pana,[56] Tiszasziget-Agyagbánya[57] and Ószentiván VIII.[58]

A row of fingertip or nail impressions under the rim of storage vessels is a frequent decorative technique in the eastern and middle settlement part *(figs 9. 10–12; 10. 13–16 ; 11. 12–18; 12. 12–14; 13. 7, 9, 11; 14. 11; 15. 14–15; 16. 1–3; 17. 4)*. While this ornamentation is virtually lacking in the Transdanubian Starčevo assemblages,[59] its forerunner appears on pottery of the latest Körös culture north of the Maros[60] as well as among the earliest Vinča finds in the Morava Valley (Drenovac)[61] and in central Serbia (Grivac).[62] At Vinča-Belo Brdo, it was popular in the Vinča A1a–B1b periods (between 9.3 and 6.9 m)[63]; it occurs during roughly the same period in the Romanian Banat (Balta Sărată,[64] Gornea-Căuniţa, Liubcova, Satchinez)[65] and in Transylvania (Miercurea Sibiului-Petriş,[66] Romos-Făgădău[67]). The latest occurrence of this ornamentation in the Vinča milieu is probably indicated by the fragments from the Vinča B2/C1 layers (BH 77–78: IX) at Selevac.[68] In the southern Alföld, this decoration has only been reported from early Vinča sites lying south of the Maros (Ószentiván VIII,[69] Tiszasziget-Agyagbánya[70]), while it is entirely lacking north of the river, for example at Maroslele-Pana, a site dated to the Vinča A2–A3/ALBK 2 period.[71] However, a similar ornamentation is known from the earliest sites of the Szakálhát culture and the Bucovaţ group.[72] Nándor Kalicz regards this decorative element as one of the shared traits of the early Vinča culture and the Central European LBK.[73] Juraj Pavúk dated the appearance of this ornamentation in Central European LBK assemblages to the Milanovce phase,[74] but in Transdanubia this decoration can first be found already during the formative LBK period at Szentgyörgyvölgy-Pityerdomb.[75] Later it often occurs together with pottery in the Bicske-Bíňa style at Medina, Barcs, Fajsz-Garadomb, Baja, Budapest-Aranyhegyi út,[76] and Tolna-Mözs;[77] at Balatonszárszó-Kis-erdei-dűlő it is accompanied by Milanovce type ceramics,[78]

[52] *Bogdanović 2006* Pl. 1. 2, 3, 6.
[53] *Bogdanović 2006* Pls 5. 1, 2, 6–8; 7. 1, 2.
[54] *Schier 1996* fig. 5.
[55] *Lazarovici 1979* 110–111; *Lazarovici 1981* 177–178.
[56] *Paluch 2011* 53, Abb. 72. 1–4, 9; 73. 3–5; 82. 6; 87. 1–4; 95. 6, 9; 96. 1–2; etc.
[57] *Trogmayer 1983* fig. 4. g–h.
[58] *Banner – Párducz 1946–1948* figs 6. 12–13; 7. 5, 10; 8. 13; 9. 1.
[59] *Kalicz 1993* 91; *Kalicz 1994* 69–70.
[60] *Horváth 2006* 115, Pl. V. 1–8.
[61] *Vetnić 1990* Pls I. 5, 7–8; II. 3, 5; III. 4–12; IV. 1–7.
[62] *Bogdanović 2006* Pl. I. 3.
[63] *Schier 1995* 219, Abb. 120.
[64] *Lazarovici 1975* figs 3. 1–3; 4. 2–4; 9. 17.
[65] *Lazarovici 1970* fig. 7; *Lazarovici 1977* Pl. LII–LVI, 1981, 178, Abb. 5; *Luca 1991* figs 5. 2–3, 7; 6. 3–4, 10, 12–13; *Horváth – Draşovean 2013* figs 1. 4; 12. 1–2.
[66] *Suciu 2009* figs 121. 1–2; 122. 1–2, 4; 131. 6; 140. 3.
[67] *Luca 1995–1996* Tab. IV. 6, 8.
[68] *Tringham – Kristić 1990* Pl. 9. 3. a-c.
[69] *Banner – Párducz 1946–1948* Pls VI. 13; VII. 2, 5, 10; VIII. 13; IX. 1–2, 5.
[70] *Trogmayer 1983* fig. 4. d.
[71] *Paluch 2011.*
[72] *Horváth 2006* 115–116.
[73] *Kalicz 1994* 69–70.
[74] *Pavúk 1997* 171–172.
[75] *Bánffy 2004* fig. 56. 2.
[76] *Kalicz 1993* figs 19. 8; 21. 14; 22. 13–15; 23. 1, 4–5, 7–8, 10; 26. 1, 6, 9, 10; *Kalicz – Schreiber 1992* Abb. 9. 3; 10. 4.
[77] *Marton – Oross 2012* Abb. 5. 10; 7. 14.
[78] *Marton 2013* fig. 3. 6.

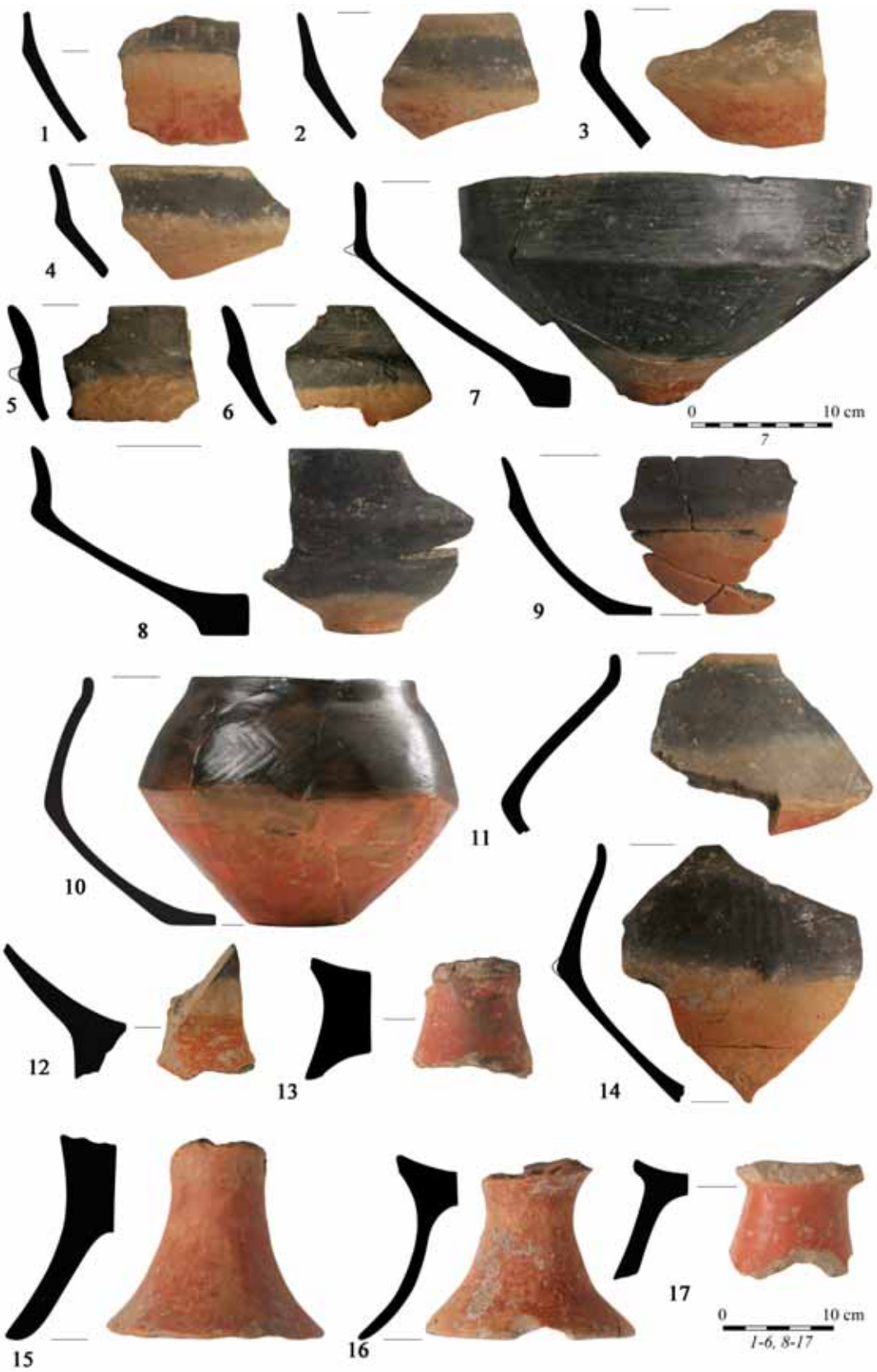

fig. 8. Black burnished, black topped and black topped/red slipped pottery from the eastern settlement part at Szederkény-Kukorica-dűlő. 1–2, 4, 8, 12: House 4 (Feature 2423); 3: House 4 (Feature 2424); 5–7: House 16 (Feature 316); 9: House 19 (Feature 374); 10, 17: House 2 (Feature 31); 11: House 4 (Feature 2469); 13: House 2 (Feature 13); 14: House 19 (Feature 386); 15: House 1 (Feature 55); 16: House 12 (Feature 219)

at Becsehely-Homokos it occurred together with vessels made in the Keszthely style,[79] and it sparsely appears among the finds of the Malo Korenovo culture too.[80]

Pots adorned with short incisions arranged into a "rain pattern" covering the entire vessel surface were mainly brought to light on the eastern settlement part *(figs 13. 8, 12; 14. 4; 17. 8)*. Comparable vessels can be found on late Körös and Starčevo-Criş settlements (Dévaványa-Barcéi kishalom,[81] Szarvas 23,[82] Endrőd 3/6,[83] Lánycsók-Bácsfapuszta,[84] Ostrovu Golu[85] and Zăuan-Dâmbul Cimitirului[86]) and on ALBK 1/Szatmár type assemblages (Kőtelek-Huszársarok, Pit 8,[87] Mezőkövesd-Mocsolyás,[88] Rétközberencs-Paromdomb,[89] Tiszacsege-Homokbánya,[90] Tiszavalk-Négyes,[91] Tiszaszőlős-Aszópart[92] and Polgár-Király-érpart).[93] The "rain pattern" is also encountered on formative Central European LBK settlements (Szentgyörgyvölgy-Pityerdomb)[94] and on early LBK sites (Medina-Margitkert,[95] Balatonszárszó-Kis-erdei-dűlő,[96] Bicske-Galagonyás,[97] Budapest-Aranyhegyi út[98]) as well as in early Vinča assemblages (Majdan-Smederevska Palanka,[99] Maroslele-Pana[100]), up to the Vinča B1 period (Balta Sărată).[101]

The incised spiral meander motif on the storage vessel from Burial 237 *(fig. 5. b1–2)* can be best likened to the ceramic style of the early Central European LBK (Bicske-Bíňa and Milanovce), although it remained a popular motif until the Notenkopf period (Balatonszárszó-Kis-erdei-dűlő,[102] Balatonszemes-Bagódomb,[103] Bicske-Galagonyás,[104] Budapest-Aranyhegyi út,[105] Bernolákovo[106]). Fragments of vessels with a similar ornamentation, although quite rare, were also brought to light from pits of the eastern *(fig. 9. 14)* and middle settlement part *(fig. 16. 6)*.

Fine pottery was almost exclusively tempered with sand. Very often, however, no tempering agent was used in the manufacture of these vessels. Pottery of the kind was fired to a black, dark grey or grey colour, while the pedestals to a yellow or brick red colour. Some vessels are mottled, and black burnished pottery makes its appearance too *(figs 8. 7; 12. 7)*. Black burnished ware is first attested at the onset of the later 6th millennium in South-East Europe and in the Balkans, in the Dimini (I)-Tsangli, Paradimi, Karanovo II–III, Dudesti (I) and Vinča A complexes.[107] Although vessels fired to a black colour are not unusual in the

[79] *P. Barna 2004* fig. 2. 6.
[80] *Težak-Gregl 1993* Tab. 7. 6.
[81] *Oravecz 1997* figs 4. 9; 7. 5–6; 6. 4–5; 8. 9–10.
[82] *Makkay – Starnini 2008* fig. 118. 3.
[83] *Makkay 2007* figs 45. 1, 7; 46. 1; 48. 6–7; *Makkay – Starnini 2008* figs 160. 6; 164. 6–7; 166. 1–2; 167. 1–5, 8.
[84] *Kalicz 1990* fig. 23. 10.
[85] *Lazarovici 1979* Pl. IX/D, 13.
[86] *Băcueţ-Crişan 2008* Pl. 38. 3.
[87] *Raczky 1988* figs 15. 6; 17. 6.
[88] *Kalicz – Koós 2000* Abb. 15. 6.
[89] *Kalicz – Makkay 1977* Tab. 11. 16–18.
[90] *Kalicz – Makkay 1977* Tab. 7. 1–3, 5–7, 9, 11; *Makkay 2007* fig. 135. 15.
[91] *Raczky 1988* figs 26. 8; 29. 1–10.
[92] *Kovács 2007* Abb. 10. 8–9, 11.
[93] *Raczky – Anders 2009* fig. 3. 11, 13.
[94] *Bánffy 2004* figs 14. 17; 26. 4; 91. 18.
[95] *Kalicz 1993* fig. 18. 7, 10.
[96] *Marton 2008* fig. 2. 2.
[97] *Makkay 1978* fig. 18. 17.
[98] *Kalicz – Schreiber 1992* Abb. 9. 2, 6, 10, 16.
[99] *Srejović 1988* 82.
[100] *Paluch 2011* Abb. 107. 7; 118. 12; 12. 6.
[101] *Lazarovici 1979* Pl. XVI. H/4, 30.
[102] *Marton 2008* fig. 2. 1; *Marton – Oross 2009* fig. 4. 1–2.
[103] *Bondár – Honti – Kiss 2000* Tab. IX. 3.
[104] *Makkay 1978* Pls XVI. 1a–c; XVIII. 1–2.
[105] *Kalicz – Schreiber 1992* Abb. 3. 3; 4. 14.
[106] *Pavúk – Farkaš 2013* Abb. 5. 1–5.
[107] *Chapman 1981* 268–269, fig. 70; *Gallis 1987* 162–163; *Raczky 1989* 234; *Nikolov 1998* 82.

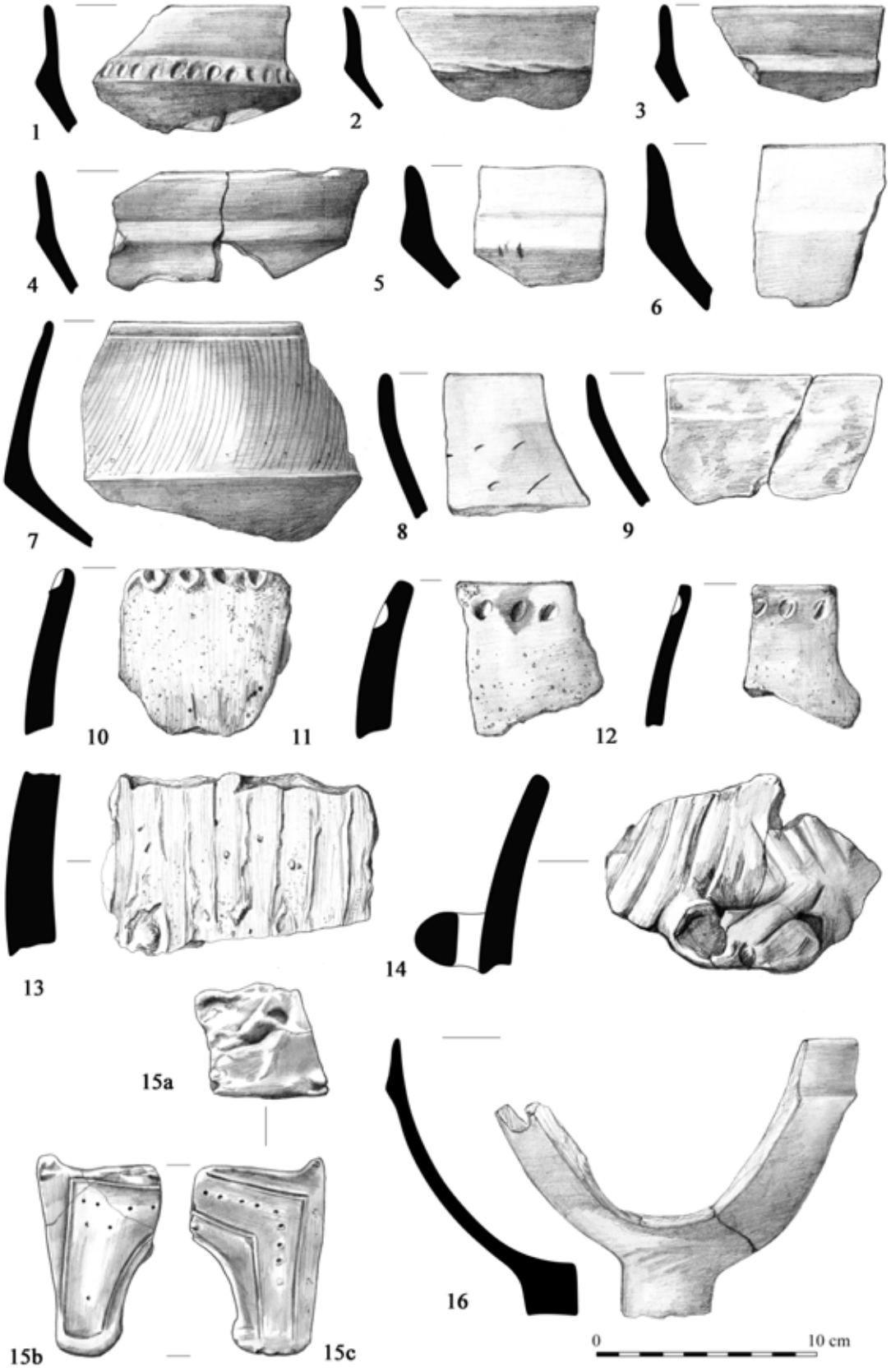

fig. 9. Finds from features associated with House 2. 1–14: Feature 31; 15a–c: Feature 50; 16: Feature 11

Central European (Transdanubian) LBK in this period, black burnished ware of the same quality as in the above cultures is quite rare.[108]

Black-topped pottery created by controlled firing is frequent among biconical vessels *(figs 6. d; 8. 1–11, 14; 11. 2; 13. 1, 10; 15. 5; 16. 13)*. In vast majority of cases, such vessels had a red-slipped lower part. The divide between the black topped and the red slipped surface usually lies under the carination *(fig. 8. 7–8)*. Black-topped firing with a sharp divide at the carination can solely be found in the pottery from the eastern settlement part *(figs 8. 1–4, 9–11, 14; 13. 1)*. The use of pottery of the sort can be traced from the earliest Vinča phase.[109] It has been reported from Vinča A1–B2 contexts in the Morava Valley (Drenovac,[110] Supska-Stublina (9-6),[111] from Selevac (BH 77–78:II)[112] and from central Serbia (Grivac,[113] Donje Grbice "Rajac" V–VII[114]). At Vinča-Belo Brdo, pottery of this type was recovered from the layers representing Phases 2–5a, corresponding to Vinča A1a–B1a in Wolfram Schier's chronological system.[115] Sites yielding comparable ceramics such as Gornea,[116] Liubcova,[117] Freidorf I,[118] and Satchinez[119] in the Romanian Banat can be dated to the Vinča A1–A3 period,[120] similarly to several sites in Transylvania (Limba-Bordane,[121] Miercurea Sibiului-Petriş[122]) and in the Tisza–Maros angle (Maroslele-Pana), which roughly date to the same period.[123] It must here be noted that controlled firing to produce black topped wares was not practiced in the Central European LBK and it seems likely that the ceramic finds assigned to this category (usually from thick-walled coarse pottery)[124] rather represent vessels that merely appear to be similar, namely the black mottled pottery attested during the transition from the Early to the Middle Neolithic.[125]

Fine pottery is typically represented by bowls and biconical vessels. Thin-walled conical bowls with gently curving sides *(figs 14. 5; 17. 11)* and semi-spherical forms with a more curved profile *(figs 10. 10–12; 11. 10; 14. 9; 16. 14–15)* are the most popular forms, although bowls with slightly inverted rim and curved sides *(fig. 17. 9)* also appear in the ceramic inventory. Even though early parallels to the bowls with peaked rim *(fig. 10. 7)* can be found among the latest Körös assemblages from sites south of the Maros (Gyálarét-Szilágyi major),[126] they are more frequent on sites of the Vinča A-B1 period (Supska-"Stublina" 8–9,[127] Freidorf I,[128] Miercurea Sibiului-Petriş,[129] Zorlenţul Mare[130]). A similar vessel fragment has also been published from the Szécsény-Ültetés site of the Central European LBK, dated to the Zseliz/Želiezovce period.[131]

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[108] *Marton 2008* 204.
[109] *Lazarovici 1979* 106; *Chapman 1981* 119, fig. 21; *Kaiser 1990* 279.
[110] *Chapman 1981* 119.
[111] *Garašanin – Garašanin 1979* 67–74, 78.
[112] *Kaiser 1990* 277; *Vukmanović – Radojčić 1990* 289.
[113] *Bogdanović 2006* 183, Tab. 2. 4; 3. 8.
[114] *Schier 1995* 279–280.
[115] *Schier 1995* 238, note 43.
[116] *Lazarovici 1977* 83.
[117] *Luca 1991* 145; 1998, 38.
[118] *Draşovean 2006* 95.
[119] *Horváth – Draşovean 2013* 117, figs 4. 4; 11. 1–2; 17. 4.
[120] *Lazarovici 1979* 113; *Lazarovici 1981*, 173. The black topped technique re-appears again in the Romanian Banat and in the Maros Valley in the Foeni/Petreşti (A) type assemblages, which can be correlated with the Vinča C1 period (*Draşovean 2004* 28; *Gligor 2007* figs 33–34, 36, 38, 43–44).
[121] *Suciu 2009* 81, fig. 100.
[122] *Suciu 2009* 100, 107, figs 140; 144; 151. d; 166.
[123] *Paluch 2011* 56–57, figs 43. 3; 85. 7; 108. 10; 121. 4.
[124] *Bánffy 2004* 246; *Paluch 2011* 57.
[125] *Raczky 1983* 177.
[126] *Horváth 2006a* 117, Pl. II. 6–10.
[127] *Garašanin – Garašanin 1979* Tab. XXXI. 3; XXXVII. 3–4.
[128] *Draşovean 2006* Pl. VI. 9.
[129] *Suciu 2009* 105, fig. 142. 1–2.
[130] *Lazarovici 1979* Pl. XVI. A/5.
[131] *Fábián 2010* 273, Abb. 17. 6.

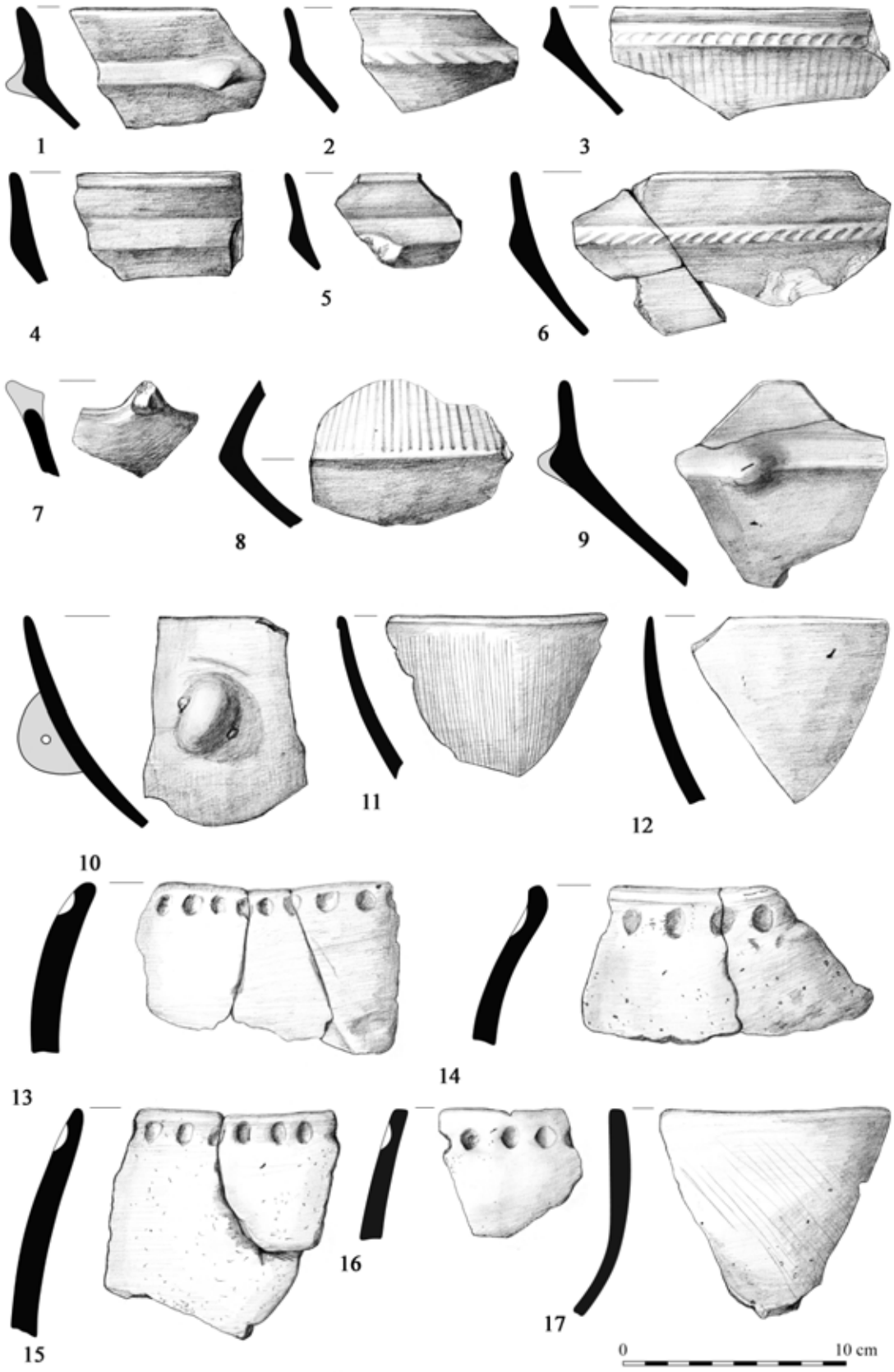

fig. 10. Finds from a feature associated with House 4. 1–17: Feature 2423

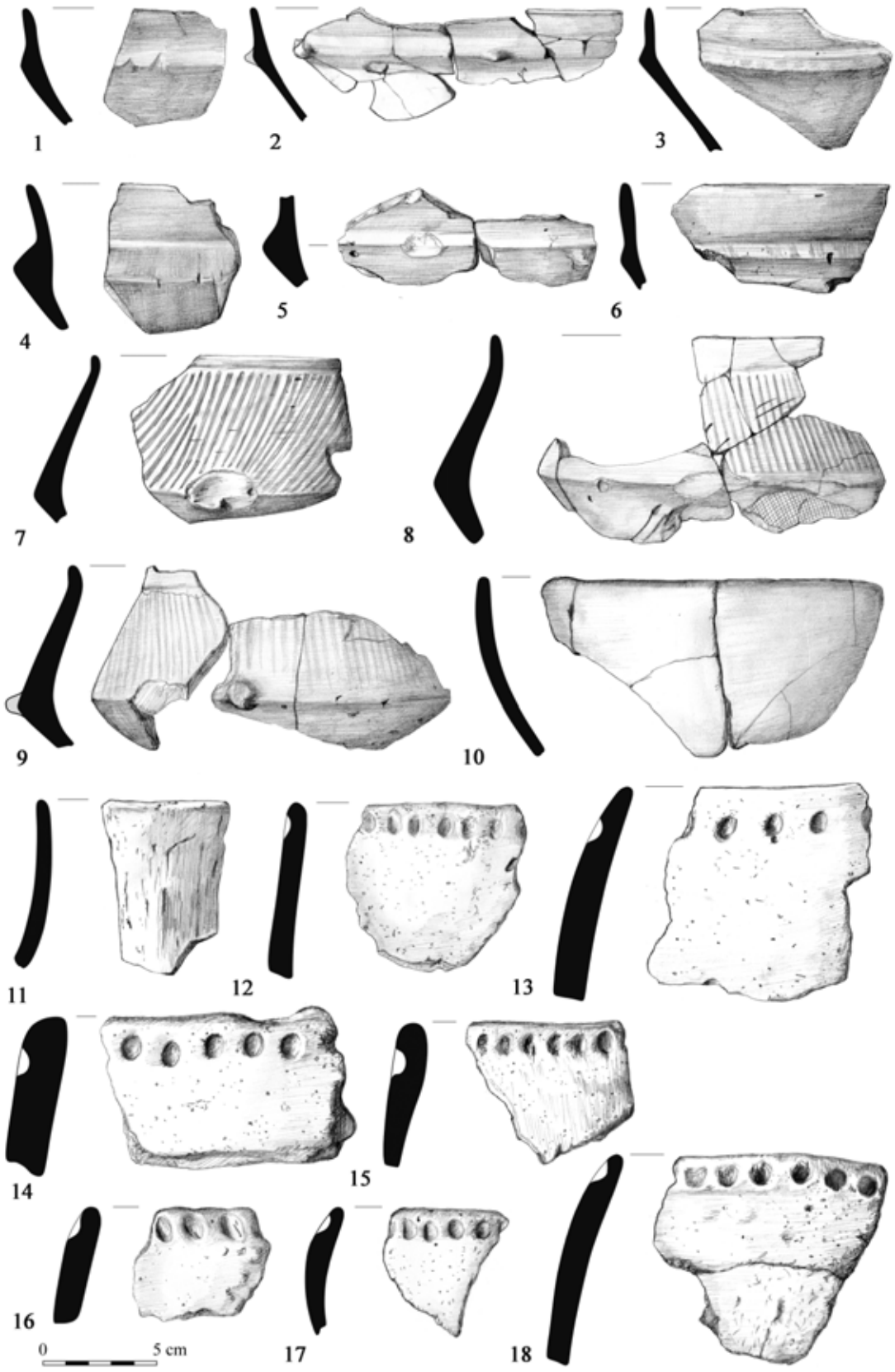

fig. 11. Finds from features associated with House 12. 1–2: Feature 221; 3–4, 6–7, 9–15, 18: Feature 219; 5, 8, 16–17: Feature 291

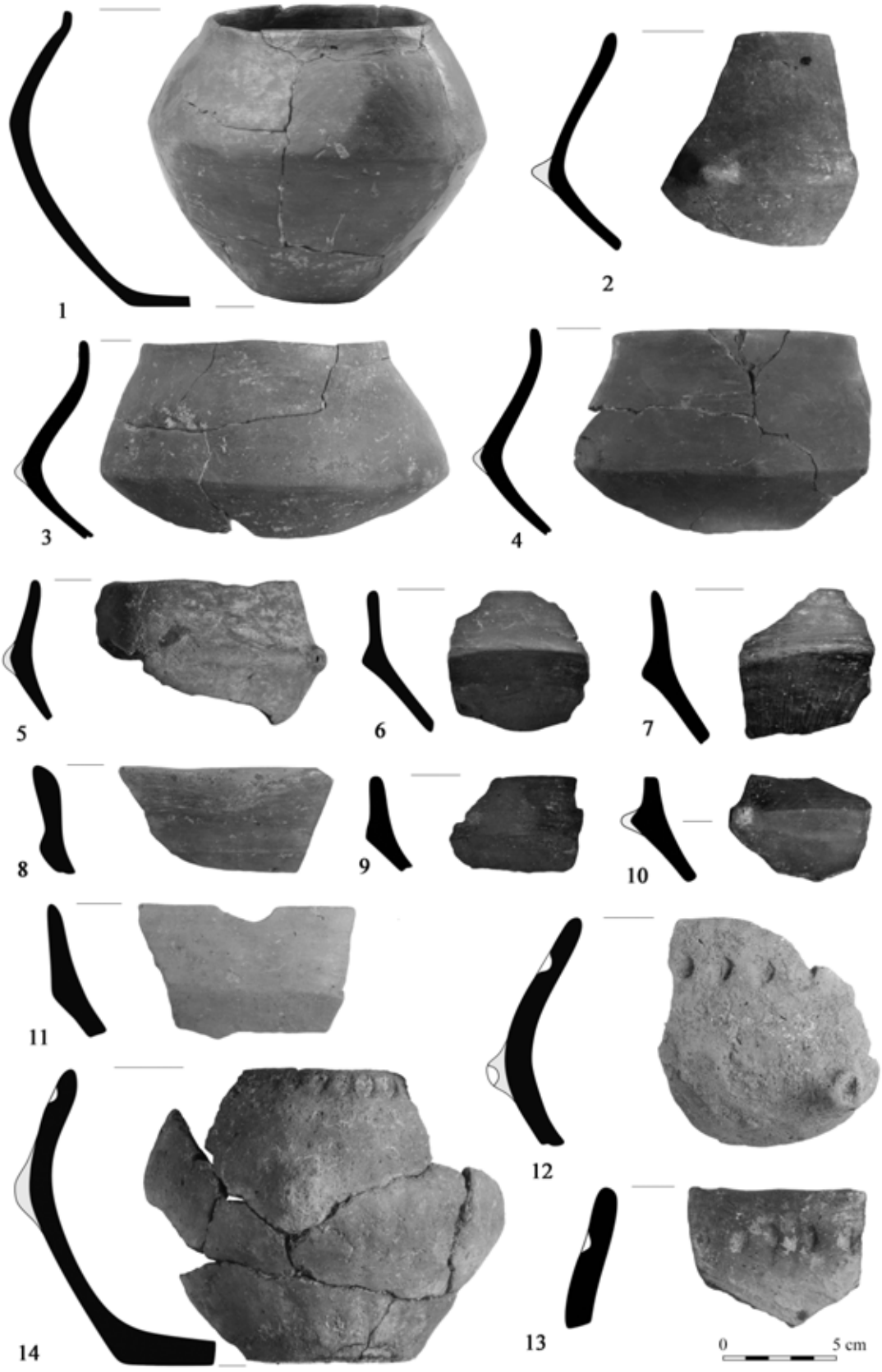

fig. 12. Finds from a feature associated with House 16. 1–13: Feature 316

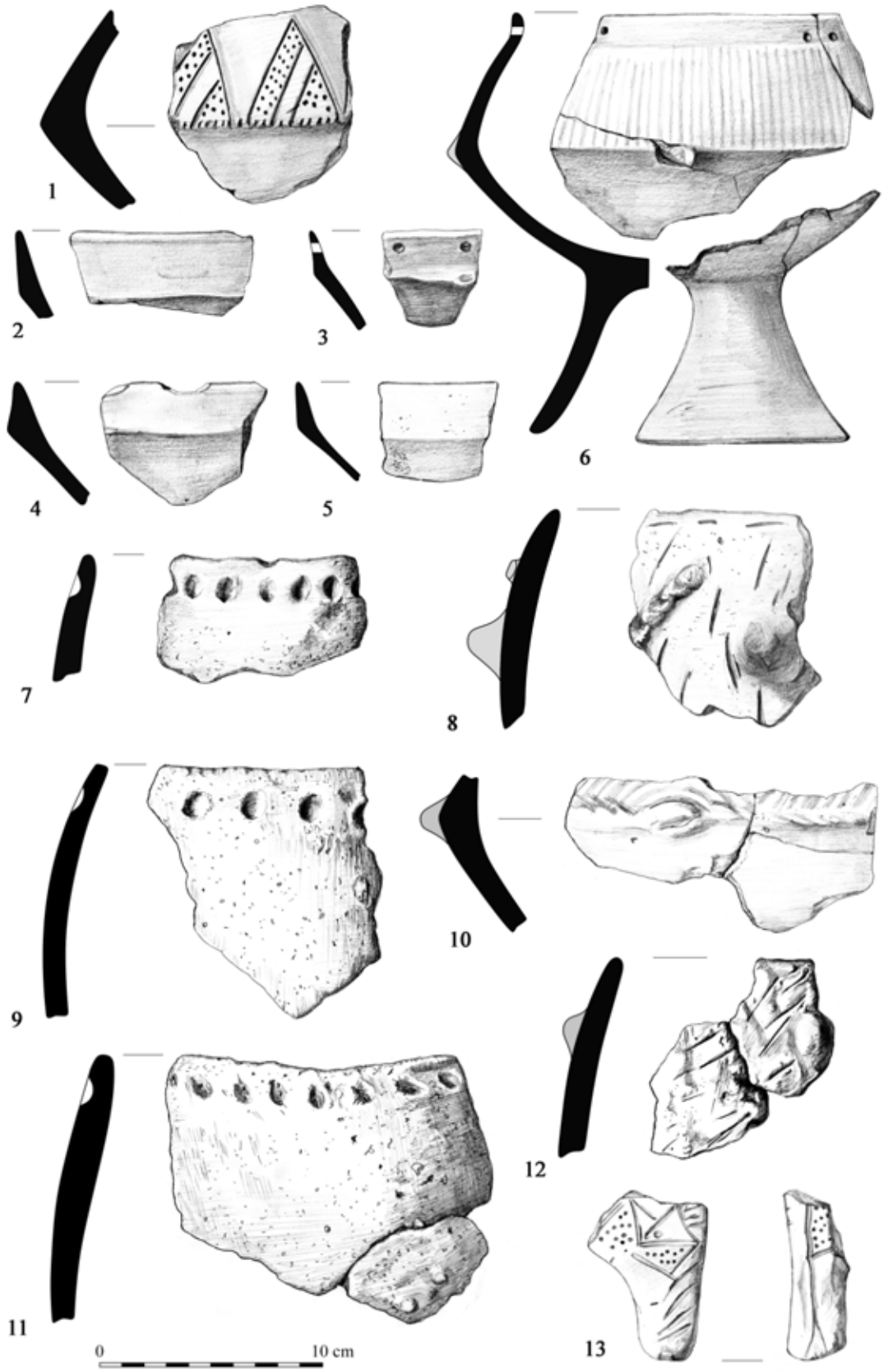

fig. 13. Finds from features associated with House 22. 1–8: Feature 523 (in the broader area of the house); 9, 11: Feature 530; 10, 12: Feature 518; 13: Feature 559

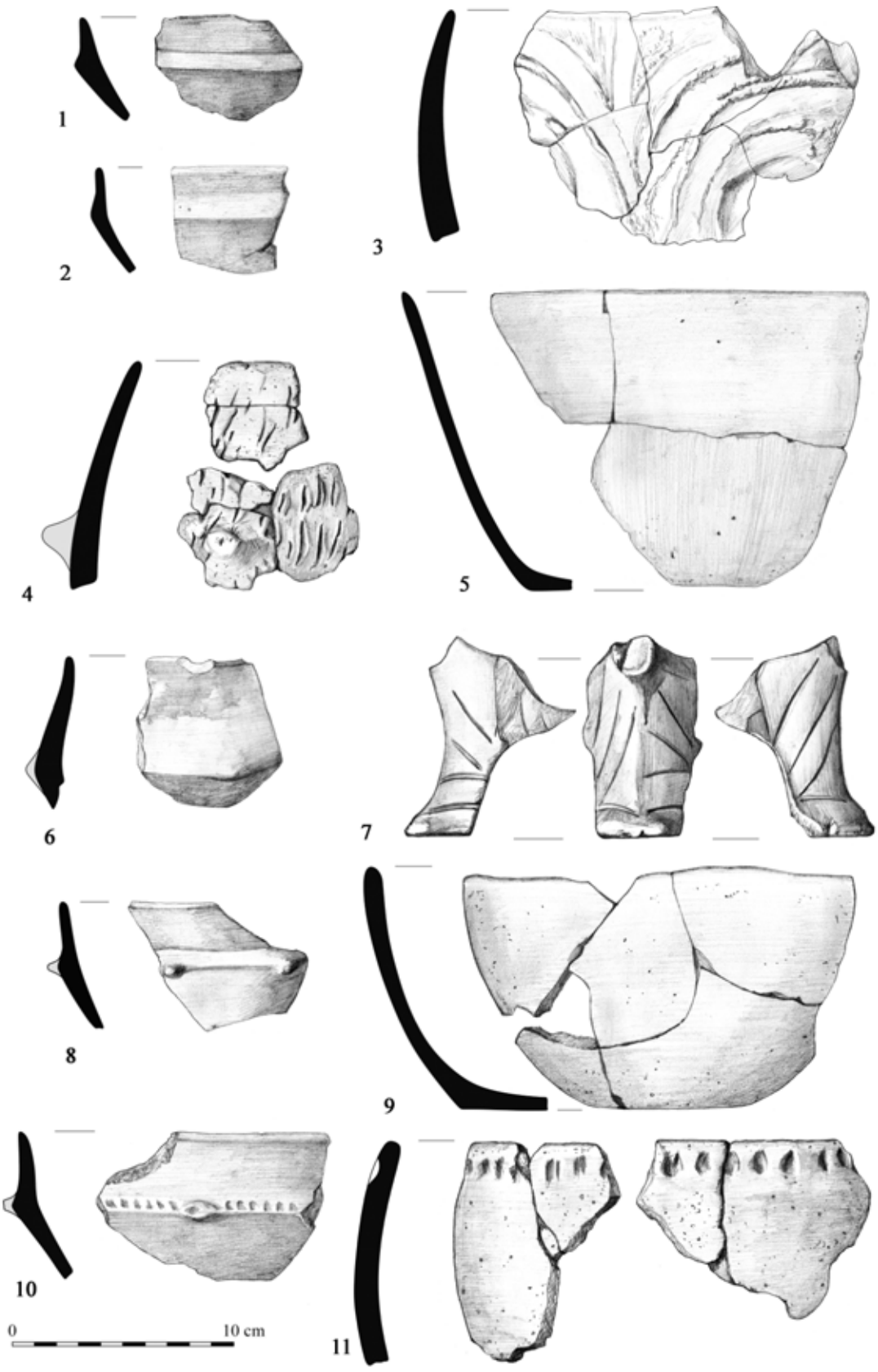

fig. 14. Finds from features associated with House 22. 1–5: Feature 537; 6–11: Feature 532

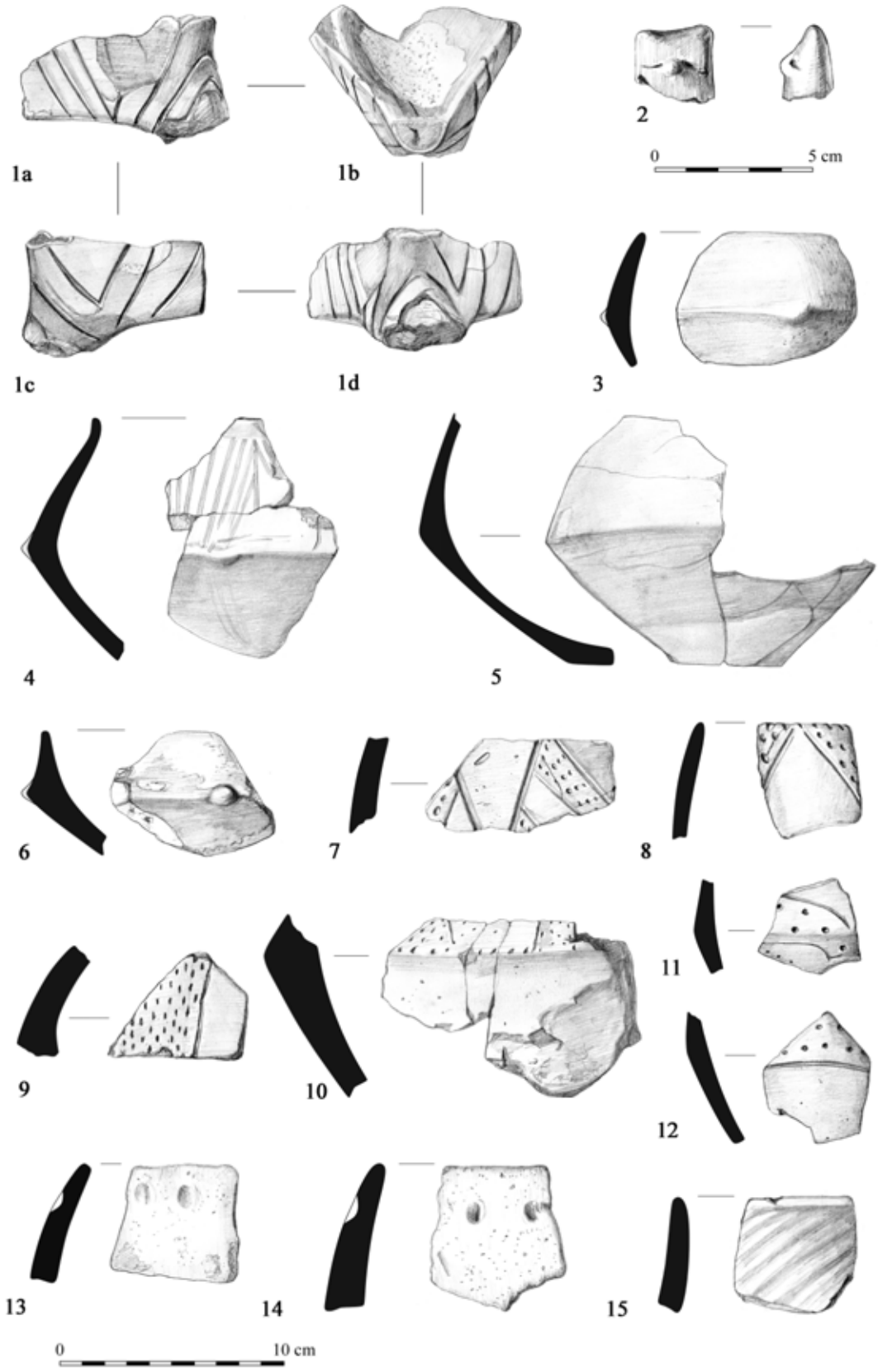

fig. 15. Finds from features associated with House 25. 1a–3: Feature 517 (in the broader area of the house); 4, 6–12, 15: Feature 529; 5, 14: Feature 521; 13: Feature 520

Biconical bowls with thickened shoulders, one of the most distinctive vessel forms of the early Vinča culture, are most frequent in the ceramic material from the eastern settlement part. Several variants can be distinguished regarding the form of the shoulder and the rim. The shared elements are represented by the vertical or oblique shallow channelling or smoothing on the shoulder and the small pointed knobs set on the carination. Virtually all the main variants have perfect matches among the pottery finds from the earliest Vinča sites. Bowls with thinned lower wall, strongly thickened shoulder and short, conical upper part *(fig. 13. 2, 4–5)* have their exact counterparts at Vinča (Types S21, S22) from the levels between 8.6 and 9.3 m (Vinča A1–A2).[132] The parallels from Freidorf,[133] Gornea[134] and Fratelia[135] too come from Vinča A1–A3 contexts. Bowls with strongly thickened, carinated shoulder and distinct, short vertical rim *(figs 9. 3, 5; 10. 3, 9; 11. 3, 5; 12. 9–10; 14. 1–2; 16. 7)* or slightly outturned rim *(figs 6. d; 8. 5–6, 9; 9. 4; 10. 1, 5–6; 11. 1–2, 4; 12. 7–8; 14. 8, 10; 17. 12)* are matched by similar vessels from the Vinča A1a–B1a levels (7.8–9.3 m) at Vinča-Belo Brdo,[136] and by pottery from the Vinča A2–A3 period in the Banat and the Voivodina (Freidorf I,[137] Baile Calacea,[138] Gornea-Căuniţa,[139] Fratelia,[140] Botoš,[141] Banatska Dubica[142]) as well as in the Tisza–Maros angle (Maroslele-Pana,[143] Hódmezővásárhely-Tére-fok[144]). The wares were most frequently made using the black topped technique. Biconial open bowls with slightly thickned and carinated shoulder *(figs 8. 1–2; 17. 10)*, similarly made with the black topped/red slipped technique, can be found among the Vinča A2–A3 ceramic finds from Satchinez.[145]

Parallels to the pedestalled bowls with thickening shoulder and gently rounded shoulder line *(fig. 8. 8)* occur in the Vinča A2 period in the southern Banat (Gornea-Căuniţa).[146]

Sharply carinated, deep biconical vessels *(figs 7. a; 8. 10–11, 14; 9. 7; 10. 8; 11. 7–9; 12. 1–4; 13. 1, 6, 10; 15. 5)*, usually with a short rim, represent one of the most frequently occuring forms on the eastern settlement part. The vessel's upper part is either almost straight or slightly convex. Pedestalled variants of this bowl type are also quite frequent. Small pointed knobs are set on the belly line and the upper part is often covered with fine vertical or oblique channelling, or channelling in alternating directions (parquetry pattern). These bowls were recovered from Vinča A1a–A3 contexts at Vinča-Belo Brdo (Types S42, S141, S158, S143),[147] being most frequent in the A1a–A2 period (as defined by W. Schier). They are often encountered at Maroslele-Pana,[148] Tolna-Mözs[149] and Hódmezővásárhely-Tére-fok.[150] The appearance of similar forms among the vessels of the Central European LBK is generally attributed to Vinča impacts.[151]

The ceramic inventory comprised a high number of pedestal fragments. Their base is usually outcurving, the inner height of the hollow pedestal varies, with higher hollow *(figs 8. 16–17; 13. 6)* and half-solid pedestals *(fig. 8. 13, 15)* generally assigned to the earliest Vinča

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[132] *Schier 1995* 42–43, Abb. 10–11; *Schier 1996* fig. 5; *Schier 1997* 159, Abb. 3.
[133] *Draşovean 2006* Pls I. 8, 11; II. 1.
[134] *Lazarovici 1979* Pl. XV. D/17.
[135] *Lazarovici 1979* Pl. XV. F/11.
[136] *Schier 1996* 145, fig. 5.
[137] *Draşovean 2006* Pl. I. 1, 3; IV. 1, 2.
[138] *Draşovean 2006* Pl. X. 1.
[139] *Lazarovici 1979* Pl. XIII. A/13, 17–20, D/ 1–2; 22–23; XIV. A/14–17; XV. A/3, 14, C/13–14, E/10.
[140] *Lazarovici 1979* Pl. XV. F/9–10, 21–25.
[141] *Chapman 1981* fig. 80. 5, 7, 9.
[142] *Chapman 1981* figs 35. 3; 36. 7, 10.
[143] *Paluch 2011* Abb. 78. 3, Abb. 79. 5; 96. 5.
[144] *Horváth 1994* 99, Abb. 6. 13, 17; 12. 1, 4.
[145] *Draşovean 2006* Pl. X. 1.
[146] *Lazarovici 1979* Pl. XIV. F/6.
[147] *Schier 1996* 145, fig. 5; *Schier 1997* Abb. 3.
[148] *Paluch 2011* 57, Abb. 76. 8–13; 77. 1–10; 78. 2, 4, etc.
[149] *Marton – Oross 2012* Abb. 6. 4–5.
[150] *Horváth 1994* 99, Abb. 3. 9–11, 16.
[151] *Makkay 1978* 30–31.

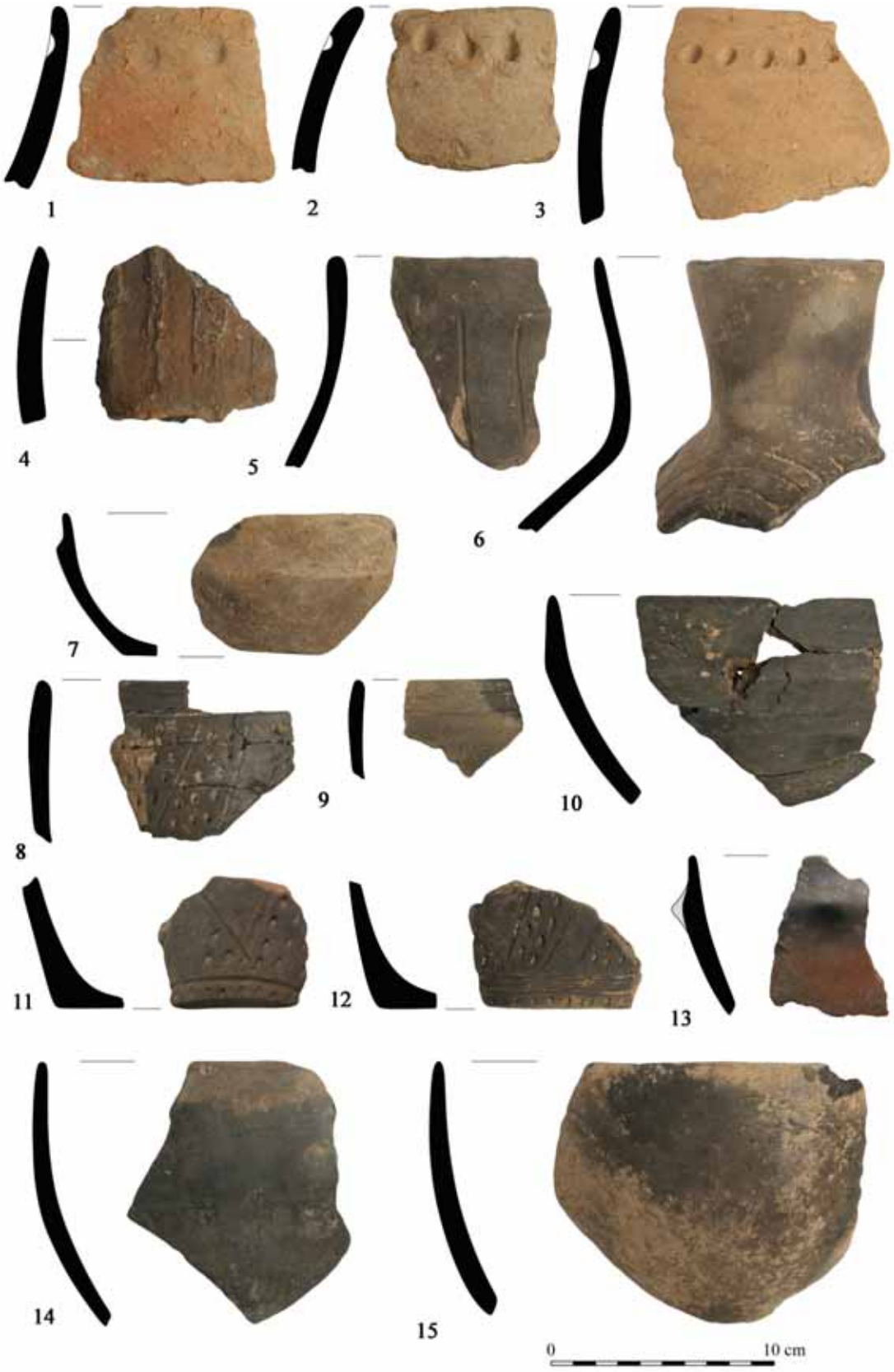

fig. 16. Finds from features associated with Houses 36 and 37. 1–2, 7: House 36 (Feature 1551); 3: House 37 (Feature 1690); 4–5, 15: Houses 36–37 (Feature 1565); 6, 8, 11, 13–14: Houses 36–37 (Feature 1495); 9, 10, 12: House 37 (Feature 1701)

period.[152] As already mentioned, pedestals are usually covered with a reddish or reddish-brown slip polished to a high lustre.

The most frequent incised patterns are rectilinear bands *(figs 15. 9, 10; 16. 8–9, 11–12)* and triangles *(figs 13. 1; 15. 7–8)* filled with stabs. The stabs filling the incised fields can be clearly linked to the pottery style of the Vinča culture. The closest analogies to the stab-filled ornamentation on the pottery from the eastern and middle settlement part can principally be found in the Vinča A2–A3 and B1 periods.[153]

Good parallels to the linear motif curving downward in a semicircle incised on the shoulder of the biconical vessel recovered from Feature 257 *(fig. 7. b1–2)* have been published mainly from Transdanubia (Bicske-Galagonyás,[154] Balatonszárszó-Kis-erdei-dűlő,[155] Litér-Papvásár-hegy[156]) and western Slovakia (Bíňa,[157] Bernolákovo[158]); as Eva Lenneis has pointed out, this motif is restricted to the eastern distribution of the early Central European LBK.[159] Ferenc Horváth has drawn attention to the appearance of incised and smoothed-in variants of the inverted semicircle motif in the Vinča A1b period at Vinča-Belo Brdo (9.1 m)[160] and in Vinča A2–A3 contexts at Tiszasziget-Agyagbánya, Ószentiván VIII and Hódmezővásárhely-Tére-fok,[161] as well as in (Sopot–) Ražište type assemblages.[162] Although the fragment published here has more in common with the ceramics of the early Central European LBK, the typical early Vinča pedestalled vessel recovered from the same feature *(fig. 7.a)* underscores the cultural connections described in the above.

The pottery from the western settlement part

The fabric of the coarse pottery from the western settlement part differs little from the above-described. At the same time, the use of organic tempering agents, a legacy from the Early Neolithic, virtually ceases; vessels are exclusively tempered with coarse sand, rock debris and pebbles. The practice of firing the vessels in a reducing atmosphere declines as shown by the low number of vessels with a black core.

Although vessels adorned with finger impressions under the rim *(fig. 18. 1)* do occur, their proportion is much lower than in the ceramic inventory from the eastern and middle settlement part. *Schlickwurf* barbotine disappears altogether and channelled decoration technique becomes less frequent. Storage jars with a funnel neck and elongated globular body are more often encountered *(fig. 18. 2)*.

The same traditions can be noted regarding firing techniques and surface treatment in the manufacture of fine pottery in all three settlement parts. Black burnished *(figs 18. 5, 7; 19. 1, 3),* black topped and black topped/red slipped *(figs 18. 3, 6, 12–13; 19. 4–6, 9)* pottery remains popular, occurring in a similarly high proportion in the ceramic inventory of the western settlement part.

However, significant differences can be noted in vessel forms. New vessel types make their appearance, while the popular vessel forms of the eastern and middle settlement part

[152] *Vasić 1936* (IV) 11, fig. 5; *Lazarovici 1979*; *Schier 1995* Abb. 46, F2.1, F2.2, F3.1, F3.2; 104.
[153] *Vasić 1936* (IV) 16, fig. 23.
[154] *Makkay 1978* Pl. 6. 3–4.
[155] *Marton 2008* fig. 2. 4–5.
[156] *Regenye 2008*, 19, fig. 5. 7.
[157] *Pavúk 1980* Abb. 5. 1–2; 6. 3; 23. 2–4.
[158] *Pavúk – Farkaś 2013* Abb. 4. 4.
[159] *Lenneis 2004* 47–50.
[160] *Vasić 1936* Pl. 5. 9, Sl. 17; *Schier 1995* Taf. 19. 3021.
[161] *Horváth 1994* 100, fig. 6. 12; *Horváth 2006* 312, fig. 2–7.
[162] *Horváth 2006* fig. 2. 7–12; *Markovic 1985* Tab. 4. 1–8; 8. 1.

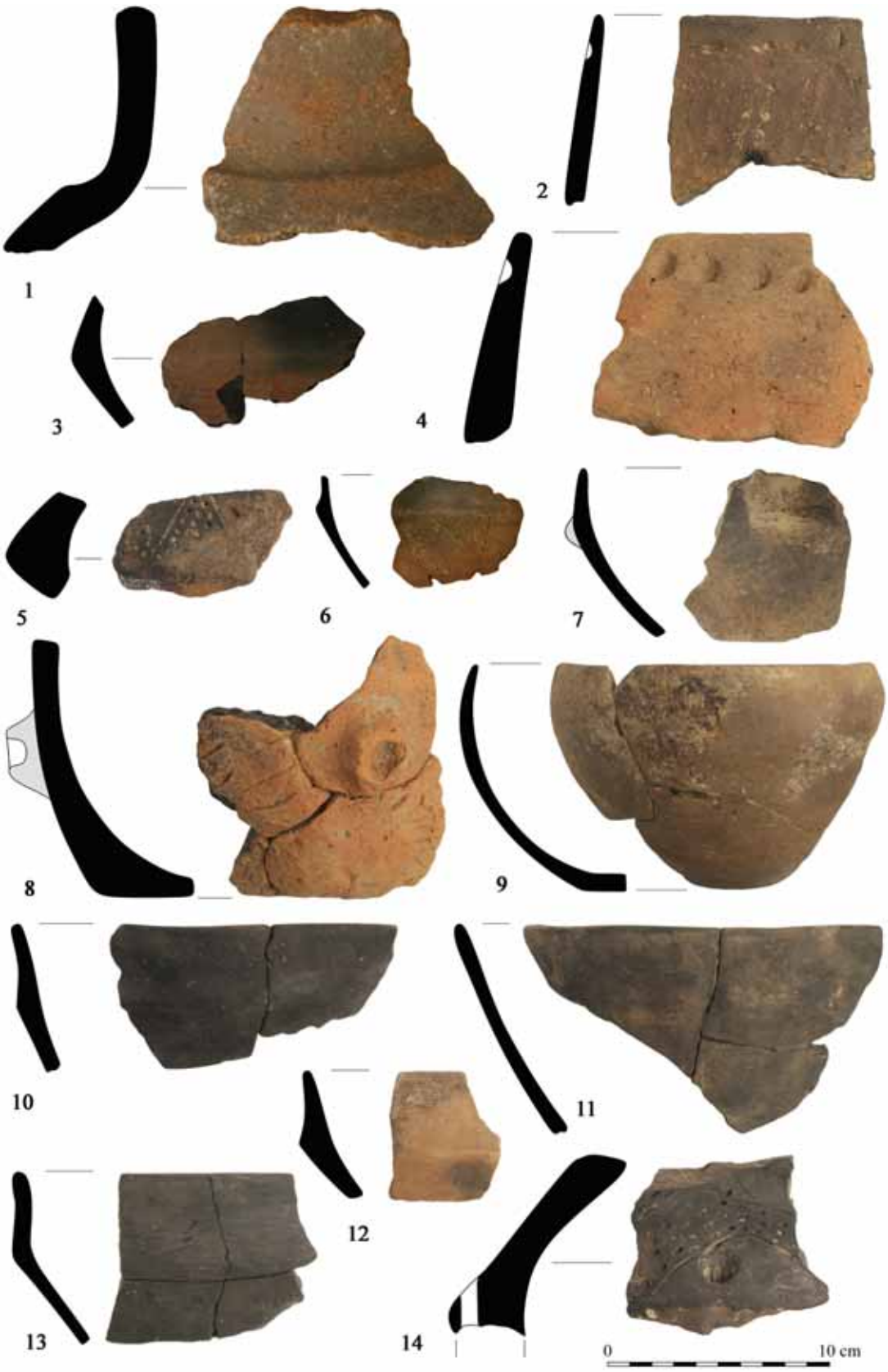

fig. 17. Finds from features associated with Houses 34 and 40. 1, 3, 5, 8–9: House 40 (Feature 2125); 2: House 40 (Feature 2000); 4, 7: House 40 (Feature 2174); 6: House 40 (Feature 2173); 10: House 34 (Feature 1448); 11: House 34 (Feature 1396); 12: House 34 (Feature 1437); 13–14: House 34 (Feature 1341)

disappear entirely or their proportion declines significantly. For example, the sharply biconical bowls with thickened shoulder and short distinct rim are almost completely lacking in the ceramic assemblage from the western settlement part. One new type is represented by the vessels with S profile, among which variants with a low upper part *(figs 18. 3–4; 19. 3)* and pieces with a high upper part, thinned rim, slightly thickened, rounded shoulder line *(figs 18. 5; 19. 2, 14)* can both be found. Round or angular knobs are set on the belly or the shoulder line. Good formal analogies can be quoted mainly from the Sopot–Ražište type assemblages (Podgorač-Ražište,[163] Villány-Villányvirágos[164]), and the Malo Korenovo culture,[165] as well as the Transdanubian sites along the Danube representing the classical Sopot IB–II period (Izmény-Iskola, Bicske-Galagonyás).[166] Comparable S-profiled forms make their appearance from the Zseliz/Želiezovce period onward in the later Central European LBK ceramic inventory.

One new form among the bowls is represented by gently biconical open bowls with thinned rim, which are often black topped/red slipped *(figs 18. 8, 13; 19. 4–5, 9)*.

Biconical vessels with a concave upper part *(fig. 19. 1)* are matched by pieces in the ceramic inventory of the Ražište type[167] and the quoted sites of the classical Sopot culture.[168]

Closed biconical pedestalled vessels also occur in the western settlement part. Analogies to the ribbed, conical upper part *(fig. 18. 12)* can be cited from the Vinča B1 and B2 period (Supska-"Stublina" 8–7,[169] Vinča-Belo Brdo, 7.0 m[170]). Virtually all the pedestals from the western settlement part, found in high number, are covered with a red slip polished to a high lustre *(fig. 18. 12)*.

A stylistic change can also be noted in ornamentation. Smoothing and light channelling on the shoulders disappear together with the vessel types on which this decoration was applied. To the contrary, curvilinear incised patterns, usually filled with stabs, become more widespread *(figs 18. 3–4, 7–10; 19. 2, 8, 14–15, 17)*. These patterns can mostly be found above the vessel shoulder in the form of downward curving motifs. As has been mentioned in the above, this motif built of double *(fig. 19. 12)* or triple *(fig. 18. 11)* lines appear in pottery assemblages made in the Bicske-Bíňa, Vinča A1b–A3 and (Sopot–) Ražište style. However, the variant filled with stabs encircling the vessel shoulder, the most frequent decorative design on the pottery from the western settlement part, is currently exclusively matched by the Ražište type.[171]

Patterns composed of parallel, upward curving bands *(fig. 19. 11, 13)* are a frequent, typical element of the incised designs of the Malo Korenovo culture.[172] The occurrence of this decoration provides important anchors for the relative chronology and cultural contacts of the western settlement part. A unique fragment, decorated in a style clearly recalling late Notenkopf/early Zseliz/Želiezovce pottery *(fig. 19. 16)* is noteworthy for the same reason.

[163] *Marković 1985* Tabs 2. 6; 4. 3–4, 6–7; 5. 4.
[164] *Horváth 2006* Tab. 2. 7–12.
[165] *Težak-Gregl 1993* Tabs 6. 3; 9. 3–4; 11. 4; 15. 3, *Tokai 2006* Abb. 2. 5.
[166] *Kalicz – Makkay 1972* Abb. 2. 13–14; 8. 6.
[167] *Marković 2008* Tabs 1. 1; 5. 1; 8. 4; 9. 6.
[168] *Kalicz – Makkay 1972* Abb. 6. 8–11; 8. 4, etc.
[169] *Garašanin – Garašanin 1979* Tabs XXVII. 2; XXIX. 6.
[170] *Schier 1995* Tab. 178. 2166.
[171] *Marković 1985* Tab. 5. 3–5; *Marković 2008* Tab. 6. 2, Tab. 9. 2; *Horváth 2006* fig. 2. 2, 6.
[172] *Težak-Gregl 1993* Tab. 4. 6; 6. 3; 11. 1–4; 12. 1; *Tokai 2006* Abb. 2. 1–2.

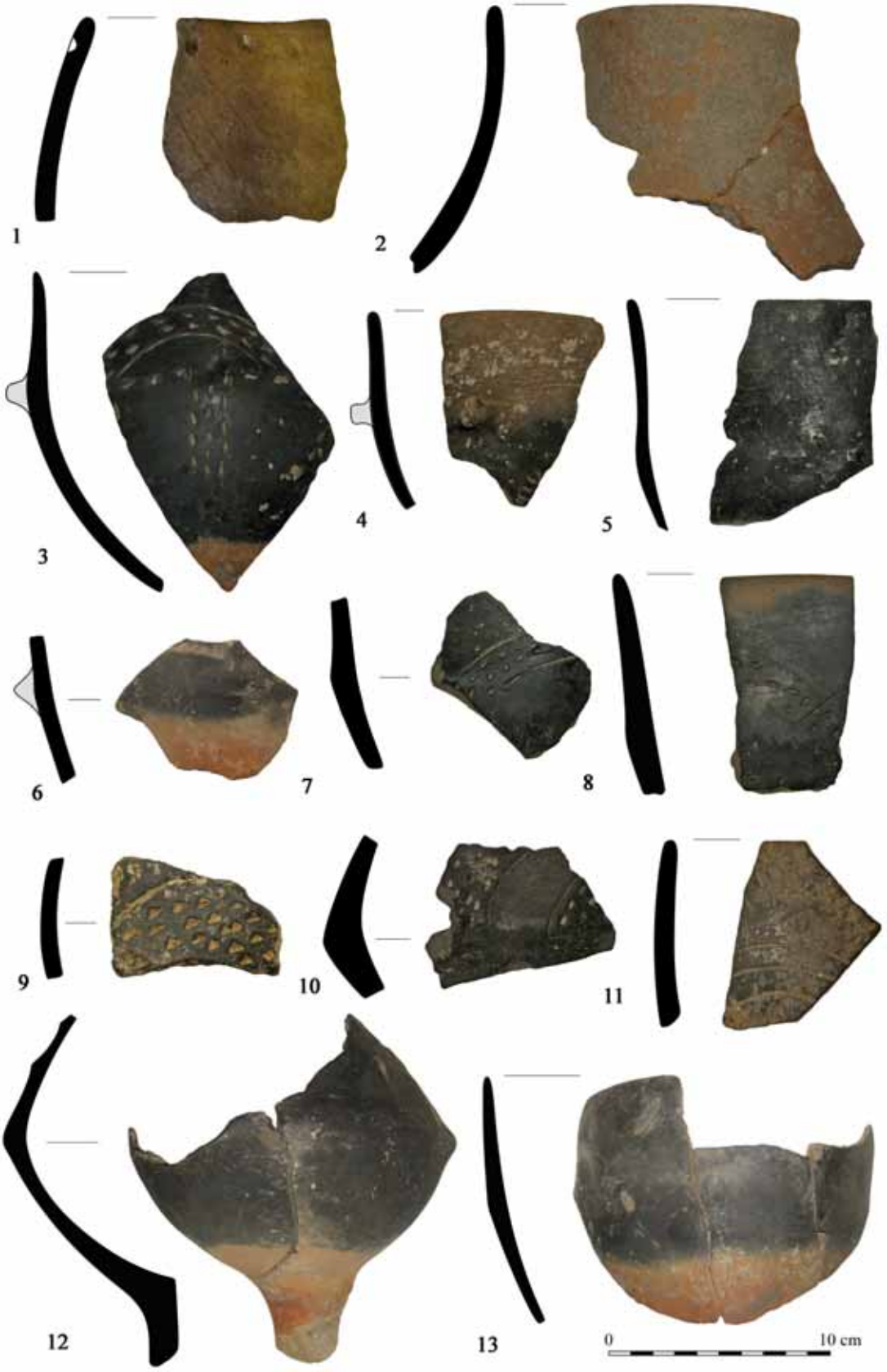

fig. 18. Finds from features associated with House 51. 1–11, 13: Feature 2768, 12: Feature 2769

Ritual finds

A remarkably high number of human figurines and altars were unearthed during the site's excavation. It would appear that these mostly came to light on the eastern settlement part and only sporadically in the middle settlement part.

One unique find is a torso of an upward looking figurine with incised eyes and modelled nose on the triangular face, arm stubs and breasts *(fig. 20. 1a-c)* recovered from a feature (Pit 50) that can be associated with House 2. This figurine type first appears in latest Starčevo-Criş contexts (Porţ-Corău[173]), although it is more common in the early Vinča culture (Vinča-Belo Brdo, between 8.5 m and 9.2 m,[174] Botoš-Živanićeva dolja,[175] Gornea-Căuniţa,[176] Donje Grbice,[177] Limba-"Bordane",[178] Satchinez, Pit 5[179] and Turdaş[180]). Some fragments with a rectangular head with emphatic incised lines for the eyes and a prominently modelled nose *(fig. 20. 2a–c)* also bear a resemblance to the human imagery of the Körös and Starčevo cultures.[181]

The highest number of figurines can be assigned to the type with rectangular head with peaked corners and cylindrical body on which the breasts and arm stumps are modelled *(figs 15. 2; 20. 2. a–c, 4 a–b, 5 a–c, 6 a–b, 9. a–c)*. In some cases, the front part of the figurine flaked off longitudinally *(fig. 20. 7 a–b, 8 a–c)*. The other part was apparently deposited separately in a different location because not one single piece of the figurines' other parts were found. Analogies to the figurines with a rectangular head with peaked corners have been published from the early Vinča levels at Banjica and Vinča-Belo Brdo[182] but also from Novi Perkovci site of the Sopot-Ražište type.[183] A modelled element on the back side of one figurine *(fig. 20. 5 a–c)* is perhaps a symbolic indication of the steatopygous buttocks. The similar kind of imagery appears in the human depictions of the earliest Vinča culture (Vinča-Belo Brdo, 10.3 m, 8.9 m).[184] The peaked heads appear also in the form of protomes on the corners of the rectangular Vinča altars (Vinča-Belo Brdo, 8.8 m,[185] Supska-Stublina 8[186]). Comparable fragments, probably also from altars, have been found at Szederkény too *(fig. 20. 3 a–b, 4. a–b)*. The ritual finds include several triangular altars with peaked corners as well as high foot fragments from large altars *(figs 15. a–c; 13. 13; 14. 7)* decorated with incised linear patterns *(figs 14. 7; 15. 1 a–d; 21. 2 a–c)*, occasionally filled with stabs *(fig. 21. 1 a–c, 3 a–c, 4 a–b)*. These altar types compare well with similar finds from the middle Neolithic layers of Gălăbnik, and from the Karanovo III and Dudeşti Cultures,[187] as well as from the Vinča A1–3–B2 period, principally from the Vinča culture's eponymous site[188] and the southern Banat.[189]

[173] *Băcueţ-Crişan 2008* Pl. 83. 1.
[174] *Vasić 1936* Tabs V. 18a–c, VIII. 29a–c; X. 43a–c; XII. 53a–c; XVI. 78a–c.
[175] *Chapman 1981* fig. 35. 1; *Marinković 2010* 30, cat. nos 15, 18.
[176] *Lazarovici 1979* Pl. XX, A/1–4.
[177] *Bogdanovic 2006* 181, Pl. 8. 7.
[178] *Florescu – Gligor – Mazăre 2007* 100, fig. 3.
[179] *Horváth – Draşovean 2013* fig. 16. 1–2.
[180] *Hansen 2007* Taf. 288. 1.
[181] *Hansen 2007* Taf. 110. 2, 5, 7–8; 112. 1–2; 126. 6.
[182] *Tasić 1973* 26–27, fig. 5, 131.
[183] *Marković 2008* Tabs 1. 3; 3. 5; 6. 5; 9. 8, 10.
[184] *Vasić 1936* 27, fig. 45a–c, Tab. XXII, 53a–c.
[185] *Stanković 1986* Tabs II. 4; V. 3.
[186] *Garašanin – Garašanin 1979* Tab. XXXIII, fig. 3.
[187] *Pavúk – Bakămsa 2014* 25–26, fig. 15.
[188] *Stanković 1986* Tabs II. 1; III. 8; VI. 4.
[189] *Lazarovici 1979* Pl. XXIII. D/1–2, 29, 32, 35.

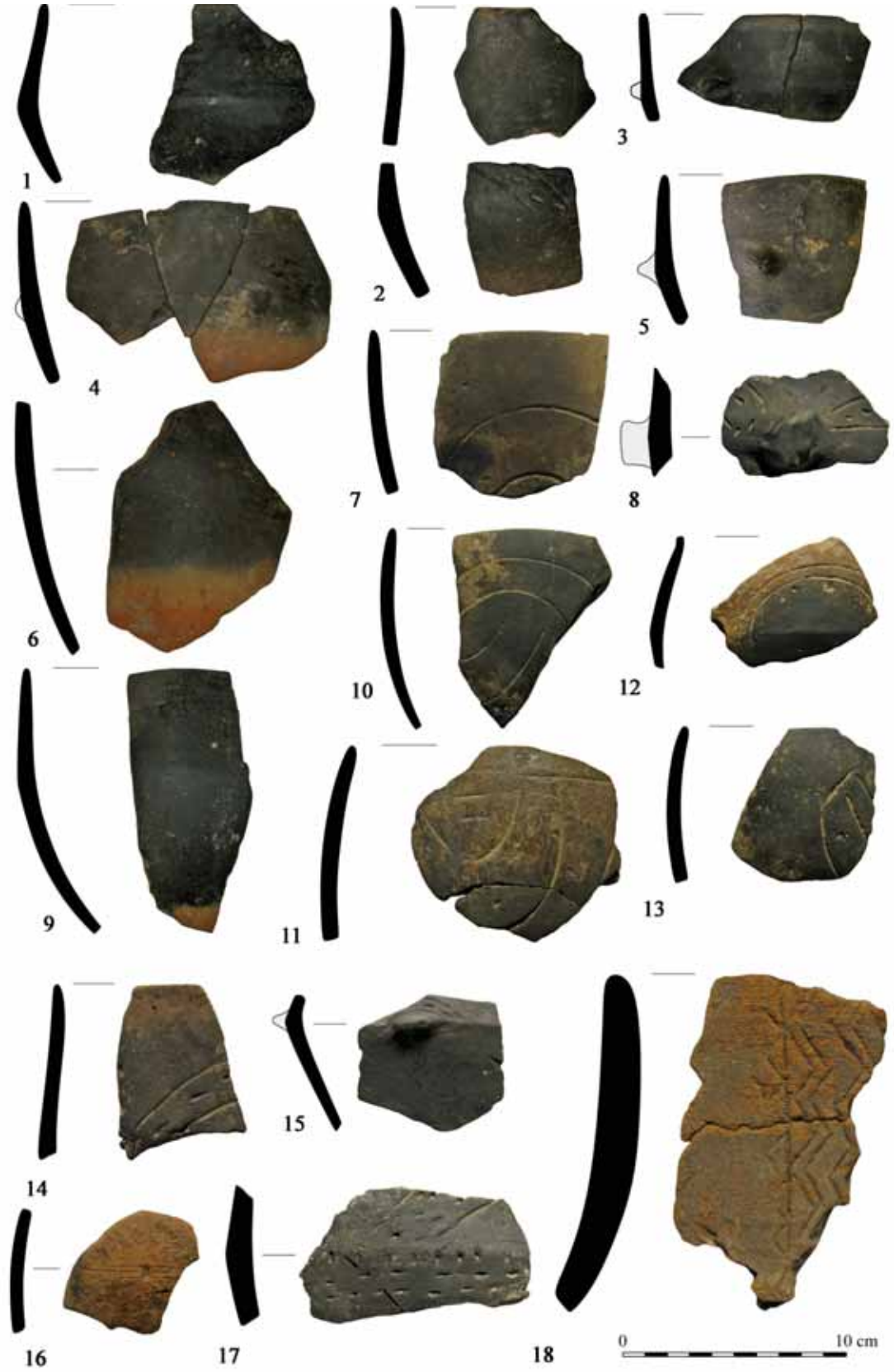

fig. 19. Finds from features associates with Houses 60 and 61. 1, 4–6: House 60 (Feature 3387); 2–3, 9: House 60 (Feature 3350); 7, 11: House 60 (Feature 3379); 8, 10: House 60 (Feature 3373); 12–13: House 60 (Feature 3370); 14, 17–18: House 61. (Features 3394–3409); 15–16: House 62 (Feature 3394)

The settlement's relative chronology

The best analogies to various ceramic types from the eastern settlement part of Szederkény come from early Vinča contexts, and in particular from sites in the Banat, the Srem and the Morava Valley. The closest parallels to the finds can be cited from Vinča-Belo Brdo, from the so-called pit horizon (9.3–9 m, Pits A, B, T, R) and from the levels below 7.9 m. Comparable pottery can be cited from Grivac, Donje Grbice and Majdan-Smederevska Palanka in central Serbia and the Morava Valley, and from Banatska Dubica, Botoš, Gornea-Căuniţa, Timişoara-Fratelia and Satchinez north of the Danube, in the Bačka and the Banat. On this basis it can be assumed that the earliest buildings in the eastern settlement part of Szederkény were erected during the Vinča A1a–A2 period, most likely marking the start of the settlement's occupation (if Wolfram Schier's typochronological scheme based on the Vinča-Belo Brdo layer sequence is accepted as a yardstick). This roughly corresponds to Vinča A2–A3 in Gheorghe Lazarovici's chronology. However, it must be borne in mind that the Szederkény-Kukorica-dűlő site lies on the northern fringes of the Vinča culture distribution, probably marking one of the northernmost sites along the Danube whose material culture can be predominantly linked to the Vinča tradition. Such being the case, we must take into consideration the possibility that the early (Vinča A1) pottery types of the typochronological system created for the stratified settlements in the culture's core areas appeared here later and remained in use longer. Nevertheless, the above presented typological arguments according to which the earliest occupation on the eastern settlement part can be dated to the Vinča A2 period at the latest, seem acceptable. This is also supported by the pottery types made in the Bicske-Bíňa ceramic style of the early Central European LBK recovered from a few features of the eastern and middle settlement part (even if their number is not particularly high). At the same time, the houseplans that were partially superimposed along their gable end and the longpits cutting each other would suggest several building periods and it is therefore possible that we will be able to distinguish an earlier occupation phase dating to Vinča A1a–2 and a later phase falling into the Vinča A3 or perhaps even the A3–B1a period. The multivariate statistical analysis of the pottery and the results of the radiocarbon measurements, currently in progress,[190] will no doubt provide an answer to these questions.

Although the pottery of the western settlement part differs little from the Vinča type finds of the eastern and middle settlement part regarding its technology, good analogies to the vessel forms and the incised decorative patterns are scarce in the Vinča culture's core area. The pottery is best matched by the ceramics of the Sopot–Ražiste type of eastern Slavonia. As mentioned in the section on research history, the Ražiste type is generally correlated with the Sopot IA–IB period, synchronous with the Vinča B1 period.[191] In terms of relative chronology, the finds that can be associated with the late Central European LBK period (classical Keszthely, late Notenkopf/early Zseliz/Želiezovce) and the Malo Korenovo type provide a good chronological indicator, especially in view of the fact that these have been exclusively found on the western settlement part. The western settlement part thus represents the site's later occupation, which can most likely be correlated with the horizon indicated by the Vinča A3–B1a/Sopot IA–B–Ražiste/Malo Korenovo/classical Keszthely/late Notenkopf and early Zseliz/Želiezovce ceramic styles. The stratigraphic observations again indicate that the buildings represent several horizons within the above broader time brackets. Still, it seems to us that the upper boundary of the occupation of the western settlement part can hardly be dated later than the Vinča B2 period, which in terms of absolute dates means the close of the 6th millennium BC.[192] Our main argument for this is that the distinctive vessel

[190] In 2013–2014, samples taken from the human burials as well as from articulated animal bones recovered from various settlement features were submitted for radiocarbon dating as part of the research project "*The Times of Their Lives*" funded by the European Research Council. We would here like to thank Professor Alasdair Whittle and Dr. Alex Bayliss, the directors of the research project, for making these analyses possible.

[191] *Marković 1985* Abb. 8; *Marković 1994* 145, chronological chart; *Marković 2012* 58–59.

[192] *Gläser 1996* 177, Abb. 1b; *Borić 2009* 234.

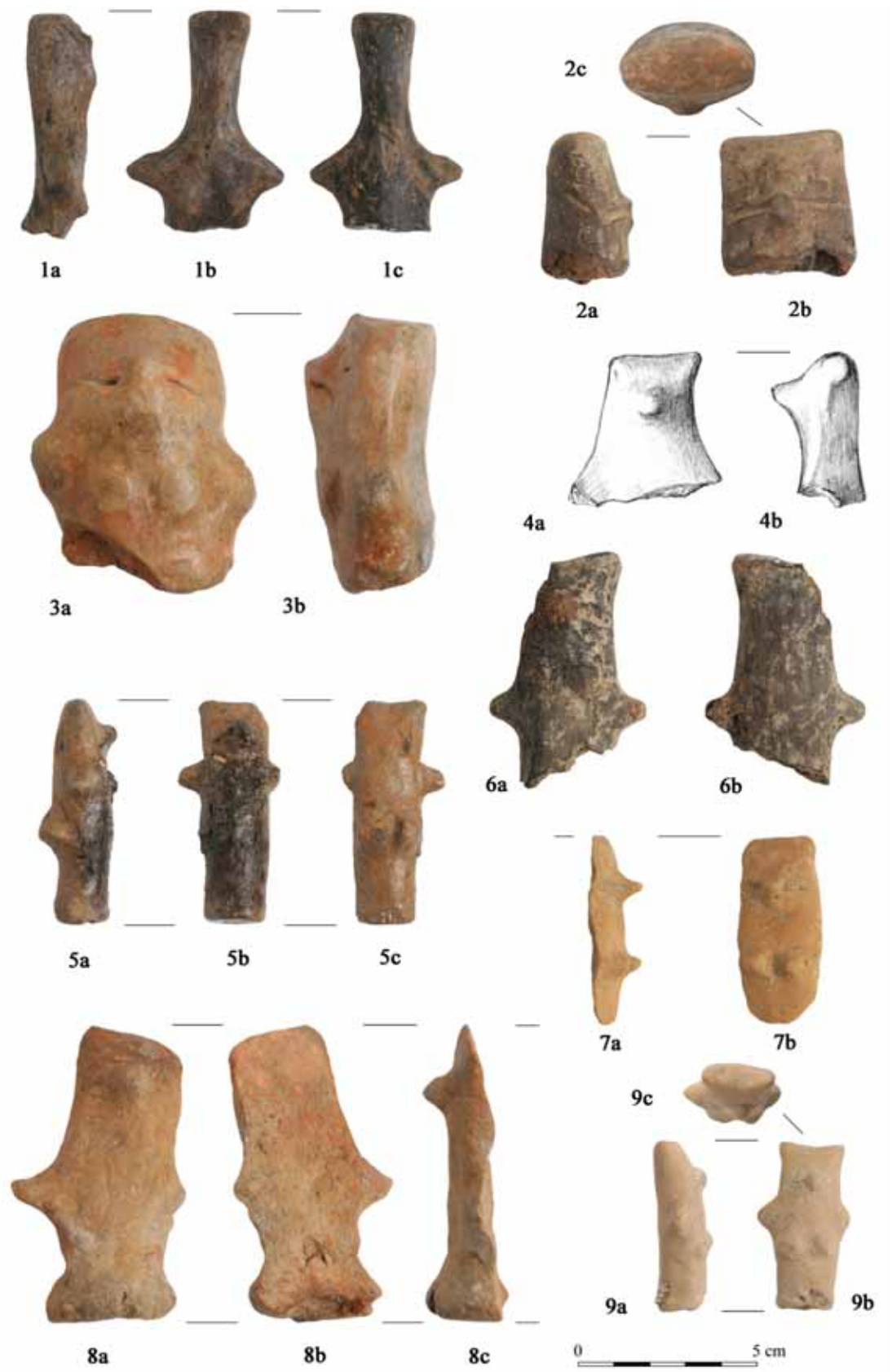

fig. 20. Human figurines from the eastern and middle settlement part at Szederkény-Kukorica-dűlő. 1a–c: House 2 (Feature 50); 2a–c: House 16 (Feature 316); 3a–b: House 22 (Feature 522); 4a–b, 6a–b: House 4 (Feature 2423); 5a–c: Houses 14 (Feature 223); 7a–b: Houses 36–37 (Feature 1495); 8a–c, 9a–b: House 12 (Feature 219)

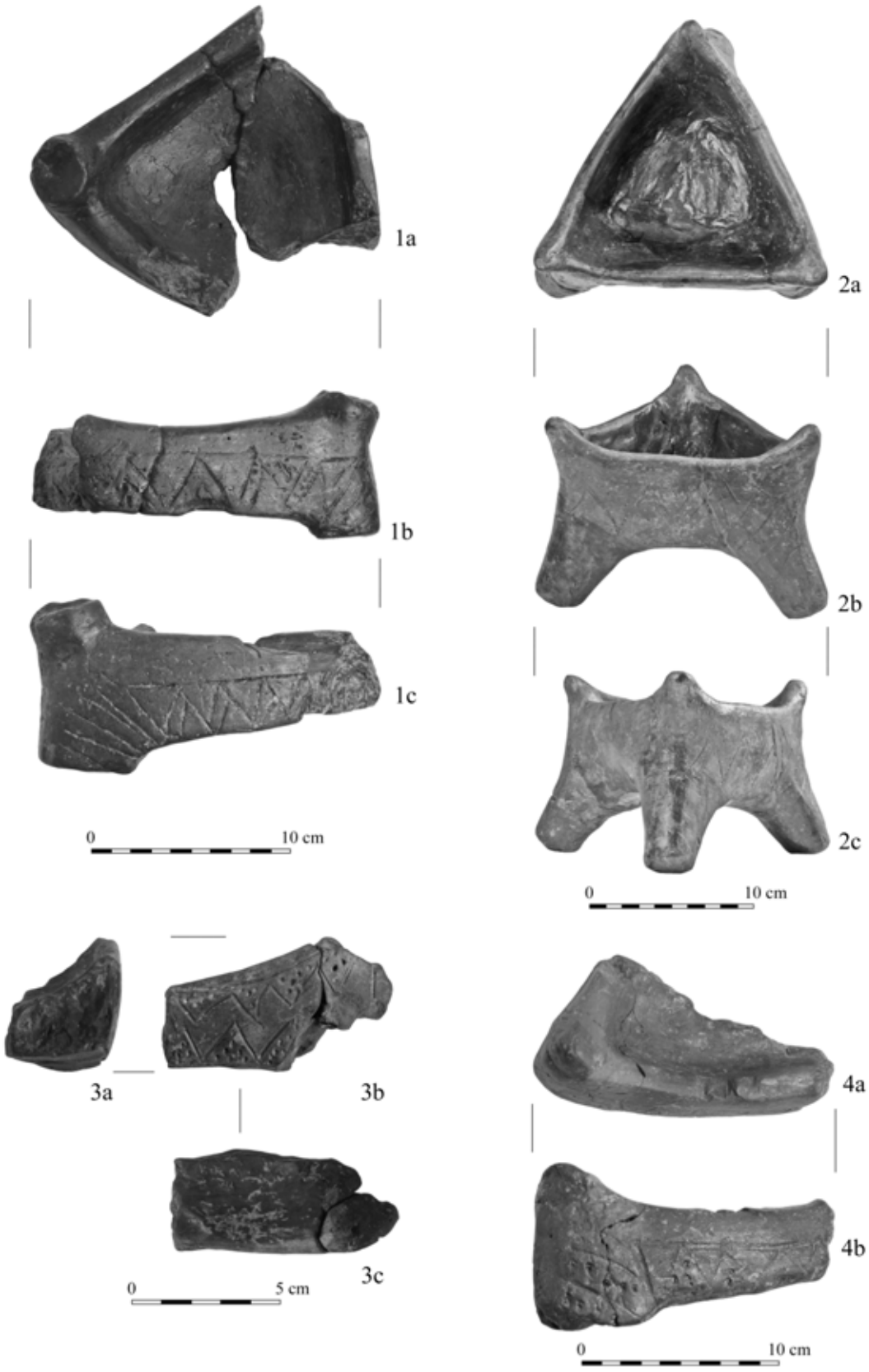

fig. 21. Altars and altar fragments from the eastern settlement part at Szederkény-Kukorica-dűlő. 1a–c: House 2 (Feature 31); 2a–c: unstratified; 3a–c: Pit 53 (between House 3 and 6); 4a–b: Pit 332 (south of House 17)

types and decorative patterns of the Sopot II/Vinča B2–C1 period are wholly lacking from the material examined to date.

Discussion

The finds from Szederkény-Kukorica-dűlő have confirmed a long-standing hypothesis in Hungarian Neolithic studies, namely that settlements characterised by early Vinča type material appear north of the Drava, on sites located on the right Danube bank. According to our current knowledge, the Vinča presence is confined to a relatively narrow territory along the Danube and the Karasica as well as the latter's tributary, even if the culture's presence was rather intensive, at least judging from the size of the excavated settlement. A broadly comparable site regarding both the find material and the settlement layout has been identified at Versend-Gilencsa, lying a few kilometres east of Szederkény. It seems likely that the discovery of similar sites can be expected south of the Baranya Hills, in the Karasica Valley, and probably also south of the Drava, along the right Danube bank in eastern Slavonia. The appearance of Vinča A1 (after Schier's system) or Vinča A2 assemblages at the latest in these regions also has implications for an important issue concerning the relative chronology of the late Starčevo and early Vinča cultures. In the light of the current evidence, it would appear that latest Starčevo is followed by the appearance of Vinča, from the Vinča A2 period at the latest, in the aforementioned regions. This certainly contradicts the earlier relative chronological scheme, according to which the latest Starčevo and the whole Vinča A period were synchronous, and, consequently, that the Starčevo culture was the forerunner of the Sopot IA and Sopot–Ražište cultures appearing in the Vinča B1 period.[193]

As it has been already demonstrated, the employed firing techniques and surface treatments reflect the survival of the basic ceramic technology traditions across the entire settlement, and neither are there any major differences between the settlement parts in terms of their architecture and burial customs. In this sense, the settlement's development can be regarded as a continuous process, while the differences in the pottery forms and decorations between the eastern (and middle) and the western settlement part as a result of a style change, being a part of this process. Thus, despite the obvious analogies, it might seem anachronistic to equate the material of the eastern and middle settlement part with the early Vinča culture and the western settlement part with the early Sopot culture or, better said, with its Ražište type. The fact that the Vinča A1a–A3a type finds (as defined by W. Schier) appear independently on the eastern settlement part and precede the appearance of Ražište type pottery supports the dating of the latter to the Vinča B1 period.[194] Nevertheless, it raises serious issues regarding the cultural assignation of the Ražište type, hitherto regarded as a variant of the early Sopot culture. The finds from Szederkény-Kukorica-dűlő would suggest that the emergence of Ražište type pottery can be explained by a style change on the settlements in the eastern Slavonian and Baranya/Baranja distribution of the early Vinča culture, and that it should rather be interpreted as a local manifestation of a Vinča type material culture from the Vinča B1a period onward. The increasingly intensive contacts between the Vinča, the Central European LBK and the Malo Korenovo cultures undoubtedly had a decisive impact on this process, as noted by earlier research.[195] At the same time, the Starčevo culture cannot be regarded as a direct predecessor exactly because of the above-mentioned chronological problems.

The other major issue to which the assessment of the Szederkény settlement will no doubt contribute to the discussion on the nature of relations between the Vinča culture and the Central European LBK. The most prominent elements pointing towards the Central European LBK of the settlement investigated at Szederkény-Kukorica-dűlő are the remains

[193] See notes 22–24 and 197.
[194] *Marković 1985* 66, Abb. 8.
[195] *Marković 1985.*

of timber-framed houses, whose structural elements correspond to the well-known buildings of LBK settlements. Comparable features have not been unearthed on the horizontal sites of the early Vinča culture, where only small, sunken structures have been found to date, whose interpretation as residential buildings must be treated with reservations. The question of whether the occurrence of timber-framed buildings is restricted to the northernmost Vinča distribution where there was contact and interaction with the Central European LBK, or whether comparable buildings also occur on the culture's settlement farther to the south thus remains open for the time being.[196]

Concluding remarks

North of the Drava, the settlements of the Vinča culture appear along the Danube and the Karasica, its right-bank tributary, in south-eastern Transdanubia. The appearance of Vinča assemblages in this region and, most likely, farther to the south along the Danube, can be dated to the period after the decline of the late Starčevo culture. The finds from the eastern and the middle settlement part at Szederkény-Kukorica-dűlő can be unambiguously assigned to the early Vinča culture (A1a–A3 as defined by Schier), while the style change on the western settlement part and the appearance of Ražište type ceramics can be explained by the emergence of regional differences within the Vinča complex and to dynamic cultural processes on the periphery.

The traditions of the Early Neolithic pottery industry can still be traced in the eastern and middle settlement part, especially in the case of coarse pottery, even if a similar proportion of Starčevo elements as could be noted at Tolna-Mözs cannot be demonstrated.[197] The proportion of pottery that can be associated with the early LBK material culture is rather low in the entire assemblage; a slightly higher ratio of elements that can be linked to the late LBK pottery styles and the Malo Korenovo type can only be demonstrated in the ceramic inventory from the western settlement part, and can doubtless be explained by the shift in cultural contacts during this period.

The appearance of a building type regarded as one of the hallmarks of the LBK world in association with a radically differing (i.e. Vinča) material culture makes us ask whether the similar settlement layout and building type should be interpreted as a cultural hybridisation resulting from the interaction between Balkanic and Central European Neolithic communities, or as the survival of the traditions of the common ancestor, the Early Neolithic Starčevo substrate population.

REFERENCES

Anders – Kulcsár 2013 A. Anders – G. Kulcsár (eds): Moments in Time. Papers Presented to Pál Raczky on His 60th Birthday. Prehistoric Studies I. Budapest 2013.

Băcueţ-Crişan 2008 S. Băcueţ-Crişan: Cultura Starčevo-Criş în Depresiunea Şimleului (The Starčevo-*Criş* culture in the Şimleului Basin). Cluj-Napoca, 2008.

Bánffy 2004 E. Bánffy: The 6th Millennium BC boundary in western Transdanubia and its role in the Central European Neolithic transition (The Szentgyörgyvölgy-Pityerdomb Settlement). VAH 15. Budapest 2004.

[196] A closer look at the plan of the Novi Perkovci settlement of the Ražište type reveals that there are several north to south oriented pit pairs (SJ 465, SJ517, SJ525, SJ555, etc.), whose size and morphology as well as the features resembling post-holes between them would allow their interpretation as house remains (*Marković 2008* Abb. 4). Regrettably, there is no additional information on the finds from these features and the finds in the quoted study come from other features.

[197] *Marton – Oross 2012* 237.

Bánffy – Marton – Osztás 2010 E. Bánffy – T. Marton – A. Osztás: Early Neolithic settlement and burials at Alsónyék-Bátaszék, in: J. K. Kozłowski – P. Raczky (eds): Neolithization of the Carpathian Basin: Northernmost Distribution of the Starčevo/Körös Culture. Kraków – Budapest 2010, 37–51.

Banner – Párducz 1946–1948 J. Banner – M. Párducz: Újabb adatok Dél-Magyarország újabb kőkorához. ArchÉrt 73–75 (1946–1948) [1948] 19–41.

P. Barna 2004 J. P. Barna: Becsehely–Homokos. Előzetes az M7 gyorsforgalmi út 71. sz. lelőhelyén feltárt neolitikus telep kutatásáról (1999–2000) (Becsehely-Homokos, Preliminary Report on the Exploration of the Neolithic Settlement at Site 71 of M7 Motorway [1999-2000]), in: E. Gy. Nagy – J. Dani – Zs. Hajdú (eds): ΜΩΜΟΣ 2. Őskoros kutatók II. Összejövetelének konferenciakötete. Debrecen 2004, 33–42.

Bogdanović 2006 M. Bogdanović: Early Vinča in Central Serbia, in: B. Brukner – B. Vorgić (eds): Current Problems of the Transition Period from the Starčevo to the Vinca Period. Zrenjanin, 21–23 October 1996. Zrenjanin 2006, 179–196.

Bondár – Honti – Kiss 2000 M. Bondár – Sz. Honti – V. Kiss: A tervezett M7 autópálya Somogy megyei szakaszának megelőző régészeti feltárása (1992–1999). Előzetes jelentés I (The preceding archaeological excavation of the planning M7 highway in County Somogy (1992–1999). Preliminary report I). SMK 14 (2000) 93–114.

Borić 2009 D. Borić: Absolute dating of metallurgical innovations in the Vinča culture of the Balkans, in: T. L. Kienlin – B.W. Roberts (eds): Metals and Societies. Studies in Honour of Barbara S. Ottaway. Bonn 2009, 191–245.

Burić – Težak-Gregl 2010 M. Burić – T. Težak-Gregl: Das Grab 3 in Vinkovci – Ein Beitrag zur relativen Chronologie der Starčevo und Vinča-Kultur, in: J. Šuteková – P. Pavúk – P. Kalábková – B. Kovár (eds): PANTA RHEI. Studies in Chronology and Cultural Development of the South-Eastern and Central Europe in Earlier Prehistory Presented to Juraj Pavúk on the Occasion of his 75. Birthday. Bratislava 2010, 59–65.

Chapman 1981 J. Chapman: The Vinča culture of south-east Europe: Studies in chronology, economy and society. BAR IS 117. Oxford 1981.

Coolen 2004 J. Coolen: Das Haus 11 von Mold, Niederösterreich und andere Kleinbauten der Linearbandkeramik. ArchA 88 (2004) 67–102.

Dimitrijević 1968 S. Dimitrijević: Sopotska-Lendjelska kultura. Zagreb 1968.

Draşovean 2004 F. Draşovean: Transylvania and the Banat in the late Neolithic. The Origins of the Petreşti Culture. Antaeus 27 (2004) 27–36.

Draşovean 2006 F. Draşovean: The Starčevo-Criş to the Vinča Transition in Northern Banat, in: B. Brukner – B. Vorgić (eds): Current Problems of the Transition Period from the Starčevo to the Vinca Period. Zrenjanin, 21-23 October 1996. Zrenjanin 2006, 93–110.

Fábián 2010 Sz. Fábián: Siedlung der Zseliz-Periode der Linearbandkeramik in Szécsény. Antaeus 31–32 (2010) 225–283.

Florescu – Gligor – Mazăre 2007 C. Florescu – M. Gligor – P. Mazăre: Plastic art, in: C. Florescu – M. Gligor – P. Mazăre – C. Şuteu – S. Varvara: A History Lesson: Pottery Manufacturing 8000 Years Ago. Exhibition Catalogue. Alba Iulia 2007, 94–106.

Füzesi 2013 A. Füzesi: Egy középső neolitikus település részlete Paks-Gyapa-Rosti-puszta lelőhelyről (Das Teil einer Siedlung aus dem mittleren Neolithikum vom Fundort Paks-Gyapa-Rosti-puszta). WMMÉ 34 (2013) 7–41.

Gallis 1987 K. Gallis: Die stratigraphische Einordnung der Larisa-Kultur: eine Richtigstellung. PZ 62 (1987) 147–163.

Garašanin – Garašanin 1979 D. Garašanin – M. Garašanin: Supska: „Stubline" – praistorijsko naselje vinčanske grupe (Supska: „Stublina" – vorgeschichtliche Ansiedlung der Vinča-Gruppe). Narodni muzej. Beograd 1979.

Gläser 1993 R. Gläser: Die Linienbandkeramik in Transdanubien. Beiträge zu ihrer Chronologie und Entstehung. Ungedr. Diss. Ruprecht-Karls-Universität. Heidelberg 1993.

Gläser 1996 R. Gläser: Zur absoluten Datierung der Vinca-Kultur anhand von ^{14}C-Daten, in: F. Draşovean (ed.): The Vinča Culture, its role and cultural connections. Timişoara 1996, 175–212.

Gligor 2007 M. Gligor: Foeni cultural group, in: C. Florescu – M. Gligor – P. Mazăre – C. Şuteu – S. Varvara: A History Lesson: Pottery Manufacturing 8000 Years Ago. Exhibition Catalogue. Alba Iulia 2007, 50–64.

Hansen 2007 S. Hansen: Bilder vom Menschen der Steinzeit. Untersuchungen zur anthropomorphen Plastik der Jungsteinzeit und Kupferzeit in Südosteuropa. Archäologie in Eurasien 20. Mainz 2007.

Horváth 1994 F. Horváth: Az Alföldi vonaldíszes kerámia első önálló települése a Tisza-Maros szögében: Hódmezővásárhely-Tére fok (The First Independent Settlement of the Alföld Linear Pottery in the Tisza-Maros Angle: Hódmezővásárhely-Tére fok), in: *Lőrinczy 1994* 95–124.

Horváth 2006 F. Horváth: A Contribution to the Question of Cultural Changes at the Turn of the Early and Middle Neolithic in the Tisza-Maros Region, in: B. Brukner – B. Vorgić (eds): Current Problems of the Transition Period from the Starčevo to the Vinča Period. Zrenjanin, 21-23 October 1996. Zrenjanin 2006, 111–140.

Horváth 2006a F. Horváth: Comments on the Connections between the Vinča Complex and the Carpathian Basin, in: N. Tasić – C. Grozdanov (eds): Homage to Milutin Garašanin. Belgrade 2006, 309–324.

Horváth – Draşovean 2013 F. Horváth – F. Draşovean: Remarks on the Connections between the Banat and the Great Hungarian Plain at the Beginning of the Middle Neolithic (Satchinez–Alfold Linear Pottery–Esztar–Vinča), in: *Anders – Kulcsár 2013* 113–133.

Kaiser 1990 T. Kaiser: Ceramic Technology, in: R. Tringham – D. Kristić (eds): Selevac. A Neolithic Village in Yugoslavia. Monumenta Archaeologica 15. Los Angeles – California 1990, 255–287.

Kalicz 1977 N. Kalicz: Früh- und spätneolithische Funde in der Gemarkung des Ortes Lánycsók (Vorbericht). JPMÉ 22 (1977 [1978]) 137–156.

Kalicz 1988 N. Kalicz: A termelőgazdálkodás kezdetei a Dunántúlon I-II. Akadémiai doktori értekezés, kézirat [Anfänge der Produktionswirtschaft in Transdanubien I-II. Dr.Sc. Dissertation, Manuskript]. Budapest 1988.

Kalicz 1990 N. Kalicz: Frühneolithische Siedlungsfunde aus Südwestungarn. Inventaria Praehistorica Hungariae 4. Budapest 1990.

Kalicz 1991 N. Kalicz: Die Keszthely-Gruppe der Transdanubischen (Mitteleuropäischen) Linienbandkeramik im Lichte der Ausgrabung in Kustánszeg (Westungarn). CommArchHung (1991) 5–32.

Kalicz 1993 N. Kalicz: The Early Phases of the Neolithic in Western Hungary (Transdanubia). Poročilo o raziskovanju paleolita, neolita in eneolita v Sloveniji 21 (1993) 85–135.

Kalicz 1994 N. Kalicz: A dunántúli (közép-európai) vonaldíszes kerámia legidősebb leletei és a korai Vinča kultúra (Die ältesten Funde der transdanubischen (mitteleuropäischen) Linienbandkeramik und die frühe Vinča-Kultur), in: *Lőrinczy 1994* 67–84.

Kalicz 2009 N. Kalicz: Csalog Józseftől a „Medina-típuson" keresztül a Starčevo-kultúráig (From the Medina type to the Starčevo culture), in: L. Bende – G. Lőrinczy (eds.): Medinától Etéig. Régészeti tanulmányok Csalog József születésének 100. évfordulójára. Szentes 2009, 135–143.

Kalicz – Koós 2000 N. Kalicz – J. S. Koós: Település a legkorábbi újkőkori sírokkal Északkelet-Magyarországról (Eine Siedlung mit ältestneolithischen Gräbern in Nordostungarn). HOMÉ 39 (2000) 45–76.

Kalicz – Koós 2014 N. Kalicz – J. S. Koós: Mezőkövesd-Mocsolyás. A neolitikus Szatmár-csoport (AVK I) települése és temetője a Kr.e. 6. évezred második feléből (Mezőkövesd-Mocsolyás. A brief overview of the Szatmár group (ALBK I) in the light of the excavations and the assesment of the site and its finds). Borsod–Abaúj–Zemplén Megye Régészeti Emlékei 9. Miskolc 2014.

Kalicz – Makkay 1972 N. Kalicz – J. Makkay: Südliche Einflüsse im frühen und mittleren Neolithikum Transdanubiens, in: J. Fitz – J. Makkay (Hrsg.): Die aktuellen Fragen der Bandkeramik. Budapest 1972, 93–105.

Kalicz – Makkay 1975 N. Kalicz – J. Makkay: A dél-dunántúli neolitikum kutatásának fontosabb kérdései [Some important questions of the research of the Neolithic of Southern Transdanubia]. SMK 2 (1975) 253–258.

Kalicz – Makkay 1977 N. Kalicz – J. Makkay: Die Linienbandkeramik in der Großen Ungarischen Tiefebene. StudArch 7. Budapest 1977.

Kalicz – Makkay 1978–1979 N. Kalicz – J. Makkay: Funde der àltesten Phase der Linienbandkeramik in Südtransdanubien. MittArchlnst 8–9 (1978–1979) 13–16, 293–307.

Kalicz – Schreiber 1992 N. Kalicz – R. Schreiber: Die erste frühneolithische Fundstelle in Budapest. Balcanica 23 (1992) 47–76.

Kovács 2007 K. Kovács: A Tiszaszőlős-aszóparti középső neolitikus település legkorábbi időszakának vizsgálata a kronológiai és kulturális kapcsolatok tükrében (The earliest occupation period of the Middle Neolithic settlement at Tiszaszőlős-Aszópart in the light of its chronological and cultural connections). Ősrégészeti Levelek 8–9 (2007) 19–38.

Kovaliczky 2009 G. Kovaliczky: Szederkény-Kukorica-dűlő. RKM 2009 276–282.

Lazarovici 1970 Gh. Lazarovici: Cultura Vinča A in Banat (Die frühe Vinča Kultur im Banat). ActaMN 7 (1970) 473–488.

Lazarovici 1975 Gh. Lazarovici: Tipologia şi cronologia materialului vinčian de la Balta Sărată – Caransebeş (campania din 1963). ActaMN 12 (1975) 13–33.

Lazarovici 1977 Gh. Lazarovici: Gornea – preistorie, Caiete Banatica V. Serie arheologie. Reşiţa 1977.

Lazarovici 1979 Gh. Lazarovici: Neoliticul Banatului. Bibliotheca Mvsei Napocensis IV. Cluj 1979.

Lazarovici 1981 Gh. Lazarovici: Die Periodisierung der Vinča Kultur in Rumanien. PZ 56 (1981) 169–196.

Lenneis 2004 E. Lenneis: Erste Anzeichen der Regionalisierung sowie Nachweise von Fernkontakten in der älteren Linearbandkeramik. Antaeus 27 (2004) 47–60.

Lőrinczy 1994 G. Lőrinczy (ed.): A kőkortól a középkorig. Tanulmányok Trogmayer Ottó 60. születésnapjára (Von der Steinzeit bis zum Mittelalter. Studien zum 60. Geburtstag von Ottó Trogmayer). Szeged 1994.

Luca 1991 S. Luca: Stratigraphie et Chronologie. Le plus ancien rapport stratigraphique d'entre les cultures Starčevo-Cris et Vinča - correlation d'entre les niveaux V et IV de Liubcova-„Ornita". Banatica 11 (1991) 141–155.

Luca 1995–1996 S. Luca: Die Vinča Siedlung aus Rumess. Die A Phase Der Vinča Kultur in Siebenbürgen. Sargeţia 26/I (1995–1996) 45–62.

Luca 1998 S. Luca: Liubcova-Orniţa. Târgovişte 1998.

Makkay 1978 J. Makkay: Excavations at Bicske. I. The Early Neolithic – The Earliest Linear Band Ceramic. Alba Regia 16 (1978) 9–60.

Makkay 1982 J. Makkay: A magyarországi neolitikum kutatásának új eredményei. Az időrend és a népi azonosítás kérdései [New results in the research of the Hungarian Neolithic. The question of the chronology and ethnic identity]. Korunk Tudománya. Budapest 1982.

Makkay 2007 J. Makkay: The Excavations of the Early Neolithic Sites of the Körös Culture in the Körös Valley, Hungary: The Final Report. Volume I. The Excavations: Stratigraphy, Structures and Graves. Società per la Preistoria e Protostoria della Regione Friuli – Venezia Giulia. Quaderno 11. Trieste 2007, 247–254.

Makkay – Starnini 2008 J. Makkay – E. Starnini: The Excavations of the Early Neolithic Sites of the Körös Culture in the Körös Valley, Hungary: The Final Report. Volume II: The pottery assemblages, and Volume. III: The small finds. Budapest 2008.

Marinković 2010 S. Marinković: Arheološki materijal sa nalazišta Živanićeva dolja iz zbirke Narodnog Muzeja u Zrenjaninu – Vinčanska Kultúra (The archaeological finds of the site of Živanićeva dolja from the collection of the National Museum of Zrenjanin – Vinča culture). Rad Muzeja Vojvodine 52 (2010) 21–36.

Marković 1985 Z. Marković: Raziste tip Sopotske kulture (Der Raziste-Typ der Sopot-Kultur). Arheološki Vestnik 36 (1985) 39–76.

Marković 1994 Z. Marković: Sjeverna Hrvatska od neolita do brončanog doba. Problem kontinuiteta stanovništva i kultura sjeverne Hrvatske od ranog neolita do početka brončanog doba (Nordkroatien vom Neolithikum bis zur Anfang der Bronzezeit). Koprivnica 1994.

Marković 2008 Z. Marković: O neolitičkoj keramici iz Novih Perkovaca kod Đakova (Über die neolithische Keramik aus Novi Perkovci bei Đakovo.). PrilInstArheolZagrebu 25 (2008) 15–32.

Marković 2012 Z. Marković: Novija razmatranja o nekim aspektima sopotske kulture u sjevernoj Hrvatskoj (Neuere Betrachtungen über bestimmte Aspekte der Sopot-Kultur in Nordkroatien). PrilInstArheolZagrebu 29 (2012) 57–70.

Marton 2008 T. Marton: Development of pottery style on the LBK settlement of Balatonszárszó-Kis-erdei-dűlő in Hungary. Acta Terrae Septemcastrensis 7 (2008) 197–216.

Marton 2013 T. Marton: LBK Households in Transdanubia: a Case Study, in: *Anders – Kulcsár 2013* 159–172.

Marton – Oross 2009 T. Marton – K. Oross: Reconstructing Space in a Familiar World: the Formation of Late LBK Settlements in Central Transdanubia, in: J. K. Kozłowski (Hrsg.): Interactions between Different Models of Neolithization North of the Central European Agro-ecological Barrier. Prace Komisji Prehistorii Karpat 5. Kraków 2009, 51–73.

Marton – Oross 2012 T. Marton – K. Oross: Siedlungsforschung in linienbandkeramischen Fundorten in Zentral- und Südtransdanubien – Wiege, Peripherie oder beides? in: F. Kreienbrink – M. Cladders – H. Stäuble – T. Tischendorf – S. Wolfram (Hrsg.): Siedlungsstruktur und Kulturwandel in der Bandkeramik. Beiträge der Internationalen Tagung „Neue Fragen zur Bandkeramik oder alles beim Alten?!" Leipzig 23. bis 24. September 2010. Arbeits- und Forschungsgerichte zur sächsischen Bodendenkmalpflege, Beiheft 25. Landesamt für Archäologie, Freistaat Sachsen. Dresden 2012, 220–239.

Modderman 1972 P. J. R. Modderman: Die Hausbauten und Siedlungen der Linienbandkeramik in ihrem westlichen Bereich, in: H. Schwabedissen (Hrsg.): Die Anfänge des Neolithikums vom Orient bis Nordeuropa. Fundamenta A/3 Va. Köln – Wien 1972, 77–84.

Nagy 2007 E. Nagy: Az M6–M60 gyorsforgalmi út Baranya megyei szakasza (2005–2006). Magyar Múzeumok 13/1 (2007) 21–24.

Nikolov 1998 V. Nikolov: The Circumpontic cultural zone during the 6th millennium BC. DocPraehist 25 (1998) 81–89.

Oravecz 1997 H. Oravecz: Dévaványa-Barcéi-kishalom a Körös-kultúra fiatalabb (Protovinča) szakaszának telepe és temetkezése – Late Körös (Protovinča) settlement and burial at Dévaványa-Barcéi kishalom. CommArchHung (1997) 5–37.

Oross 2007 K. Oross: The pottery from Ecsegfalva 23, in: A. Whittle (ed.): The Early Neolithic on the Great Hungarian Plain. Investigations of the Körös Culture Site of Ecsegfalva 23, County Békés. VAH 21. Budapest 2007, 491–620.

Oross 2013 K. Oross: Regional Traits in the LBK Architecture of Transdanubia, in: *Anders – Kulcsár 2013* 187–202.

Oross – Bánffy 2009 K. Oross – E. Bánffy: Three successive waves of Neolithisation: LBK development in Transdanubia. DocPraehist 36 (2009) 175–189.

Oross – Marton 2012 K. Oross – T. Marton: Neolithic burials of the Linearbandkeramik settlement at Balatonszárszó and their European context. ActaArchHung 63 (2012) 257–299.

Osztás – Zalai-Gaál – Bánffy 2012 A. Osztás – I. Zalai-Gaál – E. Bánffy: Alsónyék-Bátaszék: a new chapter in the research of Lengyel culture. DocPraehist 39 (2012) 377–396.

Paluch 2011 T. Paluch: Maroslele-Pana. Egy középső neolitikus lelőhely a kultúrák határvidékén (Maroslele-Pana. A Middle Neolithic Site at the Frontier of Cultures). MFMÉ Monographia Archeologia 2. Szeged 2011.

Pavúk 1980 J. Pavúk: Ältere Linearkeramik in der Slowakei. SlA 28 (1980) 1. 7–90.

Pavúk 1997 J. Pavúk: The Vinča culture and beginning of the Linear Pottery, in: M. Lazić (ed.): Antidóron: Completis LXV annis Dragoslavo Srejović ab amicis collegis discipulis oblatum. Centre for Archaeological Research, Faculty of Philosophy, University of Belgrade. Belgrade 1997, 168–178.

Pavúk – Farkaš 2013 J. Pavúk – Z. Farkaš: Beitrag zur Gliederung der alteren Linearkeramik, in: *Anders – Kulcsár 2013* 213–236.

Pavúk – Bakămska 2014 J. Pavúk – A. Bakămska: Typologie und Chronologie der neolitischen Altärchen auf dem Balkan (Typológia a chronológia neolitických oltárikov na Balkáne). SlA 62 (2014) 1–78.

Raczky 1983 P. Raczky: A korai neolitikumból a középső neolitikumba való átmenet kérdései a Közép- és Felső-Tiszavidéken (Questions of transition between the Early and Middle Neolithic in the Middle and Upper Tisza region). ArchÉrt 110 (1983) 161–194.

Raczky 1988 P. Raczky: A Tisza-vidék kulturális és kronológiai kapcsolatai a Balkánnal és az Égeikummal a neolitikum, rézkor időszakában – Újabb kutatási eredmények és problémák [Cultural and chronological interrelations of the Tisza Region with the Balkans and the Agean World in the Neolithic and Copper Ages. Recent research results and problems]. Szolnok 1988.

Raczky 1989 P. Raczky: Chronological Framework of the Early and Middle Neolithic in the Tisza region, in: Bökönyi, S. (ed.): Neolithic of Southeastern Europe and its Near Eastern Connections. VAH 2. Budapest 1989, 233–251.

Raczky – Anders 2009 P. Raczky – A. Anders: Settlement history of the Middle Neolithic in the Polgár micro-region (The development of the Alföld Linearband Pottery in the Upper Tisza Region, Hungary), in: J. K. Kozłowski (ed.): Interactions between Different Models of Neolithisation North of the Central European Agro-ecological Barrier. Kraków 2009, 31–50.

Regenye 2002 J. Regenye: Chronological situation of the Sopot culture in Hungary (A Sopot kultúra kronológiai helyzete Magyarországon). VMMK 22 (2002) 31–42.

Regenye 2008 J. Regenye: Litér-Papvásár-hegy neolitikus település a Séd-patak mellett. A lelőhely feltárása és a kerámia elemzése (Litér-Papvásár-hegy Neolithic settlement by the Séd stream. The excavation of the site and the analysis of ceramic finds). VMMK 25 (2008) 7–57.

Schier 1995 W. Schier: Vinča-Studien. Tradition und Innovation im Spätneolithikum des zentralen Balkanraumes am Beispiel der Gefäßkeramik aus Vinča-Belo Brdo. Ungedr. Diss. Ruprecht-Karls-Universität. Heidelberg 1995.

Schier 1996 W. Schier: The relative and absolute chronology of Vinča: New evidence from the type site, in: F. Drasovean (ed.): The Vinča Culture, its Role and Cultural Connections. Timişoara 1996, 141–162.

Schier 1997 W. Schier: „Proto-Vinča“: Zum Übergang von der Starčevo- zur Vinča-Kultur im Südosten des Karpatenbeckens, in: Ž. Mikić (Hrsg.): ANTIΔΩPON [Festschrift für D. Srejović]. Belgrad 1997, 155–166.

Sebők 2009 K. Sebők: Bölcske-Gyűrűsvölgy. RKM (2009) 154–155.

Sebők 2013 K. Sebők: Two Ceramic-Covered Burials from the Middle Neolithic of the Carpathian Basin, in: *Anders – Kulcsár 2013* 249–258.

Srejović 1988 D. Srejović (ed.): The Neolithic of Serbia. Archaeological Research 1948–1988. Belgrade 1988.

Stanković 1986 S. Stanković*:* Žrtvenici i prosopomorfni poklopci iz Vinče (The altars and prosopomorphic lids from Vinča). Centar za arheološka istraživanja 7. Beograd 1986.

Suciu 2009 C. Suciu: Cultura Vinča in Transilvania (Vinča Culture in Transylvania). Sibiu 2009.

Szakmány – Gherdán – Starnini 2004 Gy. Szakmány – K. Gherdán – E. Starnini: Kora neolitikus kerámiakészítés Magyarországon: a Körös és a Starčevo kultúra kerámiáinak összehasonlító archeometriai vizsgálata. [Early neolithic pottery production in Hungary: a comparative archaeometrical study of Körös and Starcevo ceramics]. Archeometriai Műhely 1 (2004) 28–31.

Tasić 1973 N. Tasić: Neolitiska Plastika. Muzej Grada Beograda. Beograd 1973.

Težak-Gregl 1993 T. Težak-Gregl: Kultúra Linernotrakaste Keramike u sredisnjoj Hrvatskoj. Korenovska kultúra (The Linear Pottery Culture in Central Croatia. The Korenovo Culture). Dissertationes et Monographie 2. Zagreb 1993.

Tokai 2006 Z. Tokai: Adatok a Malo Korenovo kerámia délnyugat-dunántúli megjelenéséhez (Data on the appearance of Malo Korenovo pottery in south-west Transdanubia, Hungary). ZalaiMúz 15 (2006) 9–23.

Tringham – Kristić 1990 R. Tringham – D. Kristić (eds): Selevac. A Neolithic Village in Yugoslavia. Monumenta Archaeologica 15. Los Angeles, California, 1990.

Trogmayer 1983 O. Trogmayer: A termelőgazdálkodás útján [Through the agriculture], in: Gy. Kristó (ed.): Szeged története I. A kezdetektől 1686-ig. Szeged 1983, 52–62.

Vasić 1936 M. Vasić: Preistorijska Vinča IV – Keramika. Beograd 1936.

Vetnić 1990 S. Vetnić: The Earliest Settlements of the Vinča Culture (Proto-Vinča) in the Morava Valley, in: D. Srejović – N. Tasić (eds): Vinča and its World. International Symposium. The Danubian Region from 6000 to 3000 B.C. Belgrade 1990, 91–98.

Vukmanović – Radojčić 1990 M. Vukmanović – N. Radojčić: Quantitative Analysis of the Pottery, in: R. Tringham – D. Kristić (eds): Selevac. A Neolithic Village in Yugoslavia. Monumenta Archaeologica 15. Los Angeles, California 1990, 289–317.

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ISTVÁN ZALAI-GAÁL

STREITFRAGEN DER FRÜHKUPFERZEITLICHEN FORSCHUNGEN IM ÖSTLICHEN KARPATENBECKEN

Stichwörter: Gräberfeldanalyse, Seriation, Chronologie, Kupferzeit, Ost-Karpatenbecken

Die Forschungsgeschichte der frühkupferzeitlichen Tiszapolgár-Kultur wurde jüngst mehrmals ausführlich und eingehend betrachtet.[1] Wir berühren hier deshalb nur die Streitfragen der gegenwärtigen Forschungslage.

Feststellbar ist, dass die Tiszapolgár-Kultur zur erstmals von Ferenc Pulszky herausgearbeiteten Kupferzeit gehört.[2] Nördlich vom Karpatenbecken spricht man meistens vom Äneolithikum und südlich davon vom Chalcolithikum. Die Tiszapolgár-Kultur spielte bei der Entstehung der frühkupferzeitlichen Zivilisation im Karpatenbecken eine entscheidende Rolle. Die Tiszapolgár- und die Bodrogkeresztúr-Kultur nehmen die Karpato-Ukraine, die Ostslowakei, Ostungarn, Westrumänien und die Woiwodina ein.[3] Ihre territorialen Gruppen in Ungarn, Serbien, Süd- und Zentral-Siebenbürgen können als gleichzeitig mit den Kulturen Tripolje B1−Cucuteni A3/A4−Vinča D3–Gumelniţa A2–Nyitra-Brodzány–Pöströssen datiert werden.[4]

Chronologie, Typologie und Totenritual der behandelten Kultur wurden erstmals ausführlich von Ida Bognár-Kutzián bei der Veröffentlichung des Fundmaterials aus dem Gräberfeld von Tiszapolgár-Basatanya betrachtet.[5] Die Wichtigkeit dieses Fundortes liegt auch darin, dass er bislang der einzige war, in dem sowohl die Tiszapolgár- als auch die Bodrogkeresztúr-Kultur vertreten ist.[6]

Die Tiszapolgár-Kultur hat Bognár-Kutzián in vier regionale Gruppen gegliedert, die sich zum Teil mit den Theiß-Gruppen decken. Die Basatanya-Gruppe liegt nördlich der Körös, und die Tiszaug-Gruppe verbreitete sich im Bereich zwischen den Flüssen Körös und Theiß. Die Deszk-Gruppe hatte den südlichen Teil des ehemaligen Theiß-Kulturgebietes besiedelt. Die Lucska-Gruppe befindet sich im nördlichen Teil der Theiß-Kultur. Die untersuchten Grabgefäße stammen aus Lučký (Lucska, Slowakei) Tibava (Tiba, Slowakei) und Vel'ké Raškovce (Nagyráska, Slowakei).[7]

Die neueste kritische Überprüfung der Bognár-Kutziánschen typochronologischen Bearbeitung des Gräberfeldes von Basatanya stammt von Marita Meisenheimer:[8] Bognár-Kutzián widmete sich „in erster Linie der – formenkundlich und chronologisch orientierten – Entwicklung der Funde und Befunde sowie deren Vergleich mit weiteren Gräberfeldern innerhalb und außerhalb Ungarns".[9] Als Beispiel dafür erwähnt Meisenheimer, dass die

[1] *Meisenheimer 1989*; *Szilágyi 2008*.
[2] *Pulszky 1884*.
[3] *Lichardus 1991* 767: „Innerhalb dieses Komplexes, der sich auf der Basis der spätneolithischen Theiß-Kultur entwickelt hat, sind drei Perioden zu unterscheiden: die Periode der Tiszapolgár-Kultur, die klassische Bodrogkeresztúr-Kultur und die späte Bodrogkeresztúr-Kultur mit Hunyadihalom und der Lažňany-Gruppe".
[4] *Lichardus – Lichardus-Itten 1997*, Abb. 24; *Lichardus – Lichardus-Itten 1998*, Tab. 1.
[5] *Bognár-Kutzián 1963*.
[6] *Meisenheimer 1989* 5.
[7] *Bognár-Kutzián 1972* 174−178.
[8] *Meisenheimer 1989*.
[9] *Meisenheimer 1989* 2: „Da sie jedoch teilweise mit Grundannahmen operiert, deren Gültigkeit in Frage gestellt werden muß, wurde eine Neubearbeitung der relativen Chronologie des Gräberfeldes und als Voraussetzung dafür der typologischen Gliederung der Keramik notwendig".

Bestimmung der relativchronologischen Abfolge der Gräber in Basatanya „ausschließlich an den Grabreihen orientiert ist“.[10]

Die Forschungsergebnisse von Pál Raczky und Zsuzsanna Siklósi bezüglich des Gräberfeldes von Basatanya sind von besonderer Wichtigkeit: Sie setzen voraus, dass dort Mitglieder von zwei Gemeinschaften bestattet geworden sind, die bei zwei verschiedenen Kulturen (Tiszapolgár-Kultur und Bodrogkeresztúr-Kultur) und in zwei verschiedene Zeitperioden (Frühkupferzeit und mittlere Kupferzeit) eingereiht wurden.[11]

Stanislav Šiška hat in seiner ersten Arbeit die Gräber und die Grabfunde der in Tibava freigelegten Bestattungen ausführlich beschrieben und die relative Chronologie des Gräberfeldes bestimmt. Er schlug auch ein typologisches System der Tiszapolgár-Keramik vor.[12] In der Siedlung von Tibava stellte er drei Horizonte fest, und zwar Tiszapolgár-Csőszhalom–Oborín, Tiszapolgár und Bodrogkeresztúr.[13] In Oborín (Abar, Slowakei) registrierte er eine ununterbrochene Besiedlung des Ortes von der Gruppe Tiszapolgár-Csőszhalom–Oborín über die Prototiszapolgár-Phase bis zur eigentlichen Tiszapolgár-Kultur.[14] Die chronologischen Untersuchungen von Attila Gyucha weisen gleichzeitig aber darauf hin, dass die sogenannten Prototiszapolgár-Befunde − im Verhältnis zur ganzen Ostkarpatenregion − nicht die gleiche Zeitperiode vertreten.[15] Wichtiges Phänomen ist weiterhin, dass die Funde von Tibava „Elemente enthalten, die der Lengyel-Keramik eigen sind, … doch die bisherigen Funde ergeben, dass bereits während der Entwicklung der älteren Stufe der Tiszapolgár-Kultur, wahrscheinlich aus der Westslowakei, ihre unmittelbare Einwirkung stattfand Einflüsse der Lengyel-Keramik findet man am Fundmaterial aus der jüngeren Phase des Gräberfeldes von Tibava und umgekehrt“.[16]

Als Ergebnisse einer Rettungsgrabung in Oborín wurden drei Skelettgräber der Tiszapolgár-Kultur entdeckt.[17] Das erste Grab datierte Stanislav Šiška anfangs, zusammen mit den Gräbern von Tibava, in die Csőszhalom-Gruppe.[18] Nach Jaroslav Vízdal erscheint Oborín I in der Ostslowakei erst am Ende des Jungneolithikums, und „die Keramik entspricht zeitlich Funden des Tiszapolgár-Csőszhalom-Typus, doch wahrscheinlich nur aus dem Ausklingen”. Andererseits ist sie mit den Funden der Etappe Lengyel II in der Südwestslowakei gleichzusetzen“.[19] Er behauptet weiterhin, dass Oborín II die direkte Fortsetzung der Funde des Typus Oborín I darstellt: In diesem Fall handelt es sich um die Funde der von Šiška angenommenen Prototiszapolgár-Keramik, „deren Stellung zur eigentlichen Tiszapolgár-Kultur auch durch stratigraphische Erkenntnisse in Lúčky belegt ist“. Diese sog. „Prototiszapolgár-Keramik“ aus der Ostslowakei wurde dann mit dem westslowakischen Topolcsány–Szob-Horizont, die eigentliche Tiszapolgár-Keramik hingegen mit der Nyitra–Brodzány-Gruppe zeitlich gleichgesetzt.[20]

Bis vor kurzem dominierten unterschiedliche Meinungen über die Entstehung der Tiszapolgár-Kultur. Als Ursachen der Veränderungen gegen Ende des Spätneolithikums wurden früher z. B. katastrophale Umweltveränderungen, Wanderungsbewegungen „oder zumindest fremde Einflüsse“ insbesondere aus dem nordpontischen Raum angesehen.[21] Man kann Nándor Kalicz zustimmen, dass der Prozess der Änderungen, die Integration innerhalb

[10] *Meisenheimer 1989* 2.
[11] *Raczky – Siklósi 2013.*
[12] *Šiška 1964* 352, Abb. 18–25.
[13] *Šiška 1968* 157.
[14] *Vízdal 1962* 605−609; *Šiška 1968* 157.
[15] *Gyucha 2009* 307: „Die kumulative Wahrscheinlichkeitsverteilung von den 47 zur Verfügung stehenden ^{14}C-Daten aus der Tiszapolgár-Kultur in der Tiefebene datiert die Kultur in die Zeit von 4455−4079 cal BC“.
[16] *Šiška 1964* 355.
[17] *Vízdal 1970* 219−234.
[18] *Bognár-Kutzián 1972* 114.
[19] *Vízdal 1970* 228.
[20] *Vízdal 1970* 228.
[21] *Kienlin 2008* 508.

eines größeren Bereiches einheitlich war und mit den Wirkungen der metallurgischen Innovationen in Südost- und Mitteleuropa zusammenhängt.[22]

Ida Bognár-Kutzián spricht von einer kontinuierlichen Entwicklung vom Spätneolithikum zur Frühkupferzeit.[23] Ähnliche Entwicklungsprozesse wie im westpontischen Raum haben sich auch im Karpatenbecken vollzogen. Man kann Jan Lichardus zustimmen, dass es ebenso begründet ist, „die Geschichte der Entstehung der Kupferzeit nicht als geradlinige Entwicklung sehen zu wollen, sondern Faktoren wie Umweltbedingungen, Kontinuität und Wachstum der Bevölkerung, Kontakte mit anders gearteten wirtschaftlichen, gesellschaftlichen und religiösen Systemen ebenso wie Technologietransfer in die Betrachtung miteinzubeziehen".[24]

Als Übergang vom Spätneolithikum zur Kupferzeit wurde der schon erwähnte Begriff „Prototiszapolgár-Phase" von Stanislav Šiška aufgrund der Funde von Lučký und Vel'ké Raškovce eingeführt.[25] Nándor Kalicz und Pál Raczky bestimmten diese heute nur noch als theoretisch behandelte Phase anhand der Funde von Herpály.[26] Ähnliche Funde sind auch in Gorzsa nachgewiesen.[27] Aufgrund der Forschungen an der Fundstelle von Polgár-Bosnyákdomb stellten Pál Raczky und Alexandra Anders fest, dass der Beginn der Tiszapolgár-Kultur in die Zeit von 4500/4400 cal BC und die Prototiszapolgár Phase in die Zeit von 4600−4500 cal BC datiert werden kann.[28]

Zwei Theorien müssen hier ebenfalls noch hervorgehoben werden: István Ecsedy schreibt den Übergang zwischen Spätneolithikum und Frühkupferzeit Ergebnissen von äußeren Wirkungen zu, die genetische Kontinuität nicht bezweifelnd. Auffallend ist nämlich die Tatsache, dass die Tiszapolgár-Kultur in erster Linie nicht die örtliche Theiß-Traditionen spiegelt, sondern jene der transdanubischen Lengyel-Kultur.[29] Ferenc Horváth nahm zur gleichen Zeit an, dass die Elemente der Lengyel-Kultur in die Tiefebene eingedrungen sind und die Gruppen der Lengyel-Kultur während der Prototiszapolgár-Zeitperiode schon die ganze Tiefebene beherrscht hatten.[30] Die Fragen des Übergangs vom Spätneolithikum zur Frühkupferzeit in den östlichen sowie westlichen Bereichen des Karpatenbeckens bzw. die Fragen der Beziehungen zwischen der Lengyel- und der Tiszapolgár-Kultur müssen noch geklärt werden. Die sog. Prototiszapolgár-Phase sollte also den Übergang zwischen der jungäneolithischen und altäneolithischen Besiedlung in der Ostslowakei darstellen, und im Bereich der Lengyel-Kultur ist diese „theoretische" Phase durch den Horizont Topolcsány–Szob gekennzeichnet.[31] Auch die gemeinsamen Keramikformen der Nyitra–Brodzány-Gruppe (= Spätlengyel) und der Tiszapolgár-Kultur deuten auf die engen Beziehungen zwischen diesen zwei Kulturen hin. [32] Jozef Vladár und Jan Lichardus haben die Nyitra–Brodzány-Gruppe und die Tiszapolgár-Kultur „mit der jüngsten Phase der Zengővárkony-Gruppe", mit dem Typ Wolfsbach, mit der Otice-Gruppe und der jüngsten Phase der Stichbandkeramik sowie mit Gatersleben und mit Aichbühl zeitlich parallelisiert.[33]

Während der eigentlichen frühen Kupferzeit war Transdanubien zwar als kupferzeitlich eingestuft, doch war die Entwicklung immer noch von der vollkommen neolithisch geprägten Lengyel III-Kultur gekennzeichnet.[34]

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[22] *Kalicz 1987−1988* 10−11; „Es geht darum zu untersuchen, ob die sichtbar werdenden strukturellen Veränderungen erklärbar sind durch örtliche Kontinuität, ob Umweltveränderungen oder Vermittlung von neuen Technologien als mögliche Auslöser in Frage kommen oder ob Kontakte zwischen Ackerbauern und Viehzüchternomaden die neue Entwicklung auslösten" (*Lichardus – Lichardus-Itten 1998* 99).

[23] *Bognár-Kutzián 1972* 170−171, 183−186.

[24] *Lichardus – Lichardus-Itten 1998* 99.

[25] *Šiška 1968.*

[26] *Kalicz – Raczky 1984* 133.

[27] *Horváth 2005* 62.

[28] *Raczky – Anders 2009* 43.

[29] *Ecsedy 1981* 80−81.

[30] *Horváth 1989.*

[31] *Vladár – Lichardus 1968* 342.

[32] *Vladár – Lichardus 1968* 342.

[33] *Vladár – Lichardus 1968* 342.

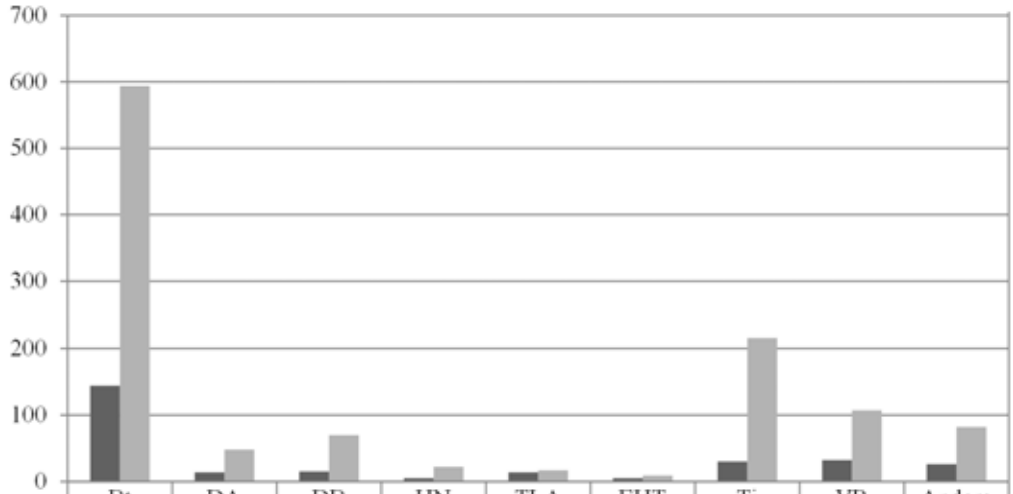
[34] *Vladár – Lichardus 1968* 65.

Bearbeitungsgebiet und Fundgeschichte

Das Bearbeitungsgebiet der vorliegenden Arbeit über die Ergebnisse der Merkmalanalyse der Tiszapolgár-Grabkeramik bildet das Verbreitungsgebiet der frühkupferzeitlichen Tiszapolgár-Kultur des Ostkarpatenraums im 5. vorchristlichen Jahrtausend. Im Fall der Tiszapolgár-Kultur handelt es sich zwar um Frühkupferzeit, in weiten südosteuropäischen Bereichen herrschten aber schon die späteren Kulturen der Kupferzeit (Chalkolithikum). Wir können Blagoje Govedaricas Feststellung zustimmen, wonach „Zeitperiode und Kulturperiode – diese beiden fundamentalen archäologischen Determinierungskomponenten – also auf keinen Fall a priori gleichgesetzt werden dürfen. Insbesondere gilt das für die europäische Kupferzeit, die … diachron und mit unterschiedlicher Intensität in einigen Teilen des Kontinents ihren Anfang und ihre Entwicklung nahm … Diese Kulturentwicklung war keine harmonische Erscheinung, die sich überall synchron vollzog, und dass die zeitliche Übereinstimmung nicht unbedingt mit einer kulturhistorischen Äquivalenz einhergehen muß – zeigen die neuen naturwissenschaftlichen Daten“.[35]

In unserem Katalog der Grabkeramik konnten wir die Daten von insgesamt 1179 Grabgefäßen aus 293 Bestattungen aufnehmen, die an 24 Fundorten zum Vorschein gekommen sind.

Das Verhältnis zwischen Gräberzahl und Gefäßzahl in den größeren Nekropolen der Tiszapolgár-Kultur zeigt *Diagramm 1.*



	Bt	DA	DB	HN	TLA	EHT	Ti	VR	Andere
Gräberzahl	144	14	15	5	14	5	30	32	26
Gefäßzahl	594	48	70	22	17	9	216	107	82

Diagramm 1. Verteilung und Vorkommen der Tiszapolgár-Gräberfelder nach Gräber- und Gefäßzahl *(Bt = Polgár-Basatanya, DA = Deszk A, DB = Deszk B, HN = Hódmezővásárhely-Népkert, TLA = Tápé-Lebő A, EHT = Endrőd-Hegedűs-tanya, Ti = Tibava, VR = Vel’ké Raškovce)*

Zielsetzung

Die Klassifizierung der behandelten Funde nahmen wir mit Hilfe eines hierarchisch aufgebauten merkmalanalytischen Systems vor, das wir auch schon früher, bei der Bearbeitung der lengyelzeitlichen Grabkeramik, angewendet haben.[36] Die Erfassung des Fundbestandes

[35] *Govedarica 2009* 60.
[36] *Zalai-Gaál 2007.*

geschah nach bestimmten morphologischen und metrischen Grundeinheiten, die zuerst definiert wurden. Diesem Gedanken entspricht die Typologie, „ein Komplex verschiedenartiger aufeinanderfolgender Arbeitsgänge, in denen das Fundmaterial ausgewertet wird".[37]

Die Grundlage der typologischen Methode beruht auf der Feststellung, „dass ein menschliches Produkt bewußt oder unbewußt einmal nach den vorhandenen Vorbildern und zum zweiten in dem Streben, dass neuzuschaffende Produkt besser bzw. schöner zu gestalten geformt wird".[38] Oder wie es Raiko Krauß umschreibt: „Archäologische Funde sind quantitativ und qualitativ messbare Einheiten und damit metrisch erfassbar. Sie können wie Briefmarken oder Schmetterlinge nach klassifikatorischen und typologischen Merkmalen geordnet werden. Weiterhin besitzen sie als Artefakte auch einen kulturellen Aspekt, welcher mit dem Methodenspektrum der Geschichts- und Sozialwissenschaften erforscht werden kann."[39]

Der Ausgangspunkt unserer Analyse stellte die Auswahl der dazu notwendigen und/oder brauchbaren Merkmale dar. „Bei der Materialaufnahme wurde jeweils zunächst eine allgemeine Typensprache, die Längen-, Breiten-, Höhen-Maße registriert".[40] Somit erhalten wir eine Reihenfolge von Funden und Befunden, die sich entweder nach einem statistischen oder typologischen Bild ordnen. Letztlich soll entschieden bzw. nachgewiesen werden, ob dieses Bild auch die relativchronologische Reihenfolge der untersuchten Objekte spiegelt oder nicht spiegelt.[41]

Im Fall der untersuchten Befunde handelt es sich um prähistorische Bestattungen, die als geschlossener Fund behandelt werden können: „Ein [sicherer] geschlossener Fund kann als Summe von denjenigen Gegenständen bezeichnet werden, welche unter solchen Verhältnissen gefunden worden sind, dass sie als ganz gleichzeitig niedergelegt betrachtet werden müssen".[42] Oder „Geschlossene Funde sind brauchbar, wenn detaillierte Beobachtungen, Zeitanalysen, Detailanalysen ihre Geschlossenheit bestätigen. Gräber als geschlossene Funde sind für die relative Chronologie mittels Typensequenzen sehr dienlich."

Das Ziel der vorliegenden Arbeit kann wie folgt zusammengefasst werden: 1. Die Klassifikation des keramischen Bestandes, um die typologischen Einheiten innerhalb unseres typologischen Systems festzustellen; 2. Zur Klassifikation der Grabkeramiken wurden die archäologische vergleichende Methode, die hierarchisch aufgebaute Merkmalanalyse und die EDV-Methode verwendet. Die typochronologische Gruppierung der Funde und Befunde erfolgte dann durch Korrelation und Seriation; 3. Bestimmung der Tendenzen der Belegungsgeschichte der untersuchten Tiszapolgár-Gräberfelder nach künstlichen Perioden, Belegungsperioden und Belegungshorizonten; 4. All diese Untersuchungen wurden mit der Absicht durchgeführt, um ein klares Bild – im Vergleich mit Radiokarbondaten − zu den nachfolgenden sozialarchäologischen Forschungen zu erhalten.

Das größte Problem bei der Anwendung der hier aufgezählten Untersuchungsmethoden lag darin, dass keine „fachgerechten" Profilzeichnungen von den einzelnen Funden zu Verfügung stehen. Die Mehrzahl der diskutierten Funde wurde als Photo oder einfache Zeichnung veröffentlicht. Es war daher notwendig, aufgrund verschiedener Messmethoden die ursprünglichen Indexdaten der Funde zu bestimmen.

In diesem Fall handelt es sich um für die Analyse ausgewählte Gräberfelder, in erster Linie um das von Polgár-Basatanya. Um ein realistischeres Bild über das erforschte Thema gewinnen zu können, sollen aber die Funde aller bekannten Nekropolen der Tiszapolgár- und der Bodrogkeresztúr-Kultur bearbeitet werden. Die Durchführung dieser Arbeit haben wir bereits angefangen.[43]

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[37] *Goldman 1972* 3.
[38] *Schlette 1975* 26.
[39] *Krauß 2006* 55.
[40] *Fiedler 1979* 58.
[41] *Stehli 1973* 57.
[42] *Montelius 1903*; *Della Casa 2007.*
[43] Neu aufgenommene Funde und Befunde aus Bodrogkeresztúr, Emőd, Nagykörü-Hidashát, Hajdúszoboszló, Kiskörös, Mezőkeresztes-Csincsetanya, Mónosbél, Sárazsadány *(Patay 1961)*, Tiszakeszi *(Patay 1957)*,

Klassifikation der keramischen Typen

Mit Hilfe der keramischen Merkmalanalyse haben wir insgesamt 949 Keramikgefäße klassifiziert und gruppiert. Unser typologisches System besteht aus drei Klassen, sieben Gattungen, 31 Serien, 127 Formengruppen und 351 Formvarianten. Ein umfassendes Bild über die Zahl der untersuchten typologischen Gruppen und über das angewandte merkmalanalytische System – ohne die Klasse von keramischen Sonderformen − bietet *Diagramm 2*.

In die Klasse von Hochgefäßen (Klasse 1) konnten 61,70 % (633) und in die von Breitgefäßen 38,30 % (393) der analysierten kupferzeitlichen Keramiken eingeordnet werden.

Gattung 1a − Fußgefäße

Die Gattung von Fußgefäßen wird durch Keramiken repräsentiert, die in zwei formale Teile, also in eine Schüssel oder Schale und einen Hohlfuß gegliedert werden können. Die typologischen Eigenschaften dieser Gefäße haben wir mit Hilfe der Kombinationen verschiedener Gruppen der Schüsselformen und Hohlfüße und der Untersuchung der Profilformen bestimmt *(Abb. 1)*.[44]

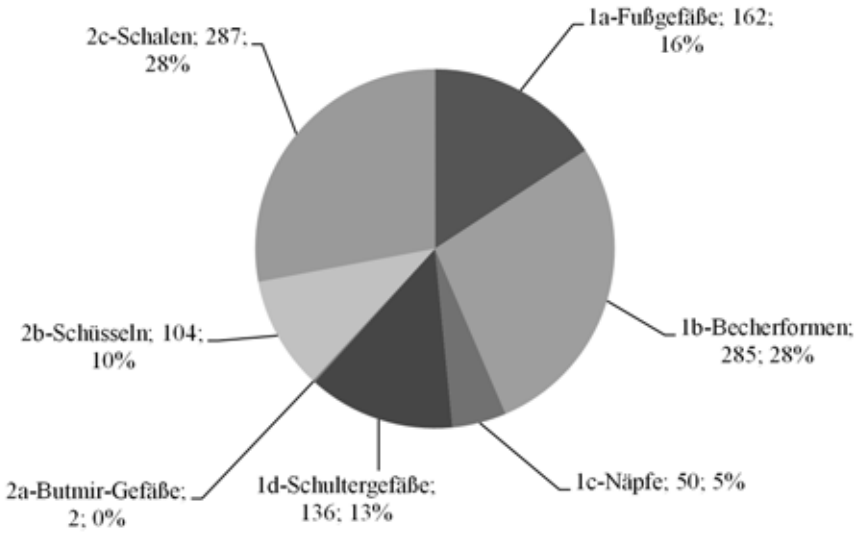


Diagramm 2. Verteilung und Vorkommen der Gefäße nach Gattungen

Wir konnten 162 ganze oder größtenteils ganz erhaltene Exemplare messen und klassifizieren. Es handelt sich um 15,79 % aller Gattungen und um 25,59 % der Klasse von Hochgefäßen. Bei 163 Stücken kann man sowohl den Hohlfuß als auch der Oberteil der Gefäße untersuchen, in 14 Fällen sind nur die Rohrfüße und in 5 Fällen nur die Oberteile (Schüssel) erhalten.

Bei der typologischen Analyse müssen beide Gefäßteile einzeln untersucht und gruppiert werden. Der obere Teil der Fußgefäße wird allgemein als „Schüssel" bezeichnet, sie haben oft aber nicht eine Schüsselform, sondern Schalen- oder Becherform bzw. die Gestalt eines Butmir-Gefäßes (pedestalled bowl, jar, goblet, vessel usw. nach der typologischen Bestimmung von Ida Bognár-Kutzián).[45] Der Begriff „Schüsselteil" von Fußgefäßen wird während der keramischen Analyse also nur als *terminus technicus* verwendet.

Jászladány *(Patay 1945)*, Fényeslitke *(Patay 1969)*, Magyarhomorog *(Patay 1976)*, Tiszabábolna *(Patay 1977)*, Tiszavalk-Kenderföldek *(Patay 1978)*, Pusztaistvánháza *(Hillebrandt 1926)* und Gelej *(Hellebrandt – Patay 1977)*.

[44] *Zalai-Gaál 2007* 38.

[45] *Bognár-Kutzián 1963*.

Abb. 1. Maßbezeichnungen eines Fußgefäßes auf den verschiedenen Ebenen

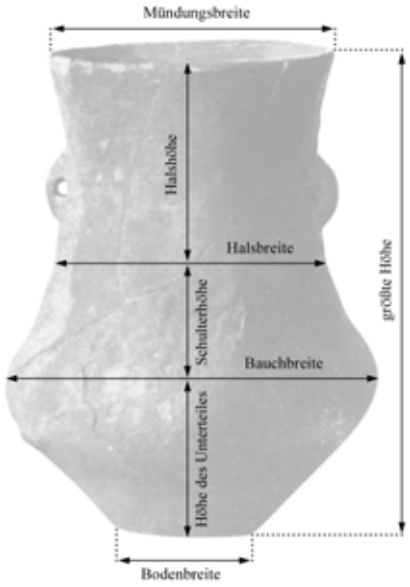


Abb. 2. Maßbezeichnungen eines Bechers auf den verschiedenen Ebenen

Die Grundtypen der untersuchten Fußgefäße versuchten wir grundlegend durch den Vergleich der Schüsselformen und der Hohlfußformen bestimmen zu können. Diese Zusammenhänge sind in *Tabelle 1* dargestellt:

Schüssel-formen (Sch)	FUßFORMEN (F)							
	Index A = 0,4−0,8				Index A = 0,9−1,2		Index A = 1,3−2,0	
	F-A1a	F-A1b	F-A2a	F-A2b	F-B1	F-B2	F-C1	F-C2
Index Sa1 (0,2−0,4)	2 *(1,29 %)*	–	1 *(0,65 %)*	–	26 *(16,77 %)*	3 *(1,94 %)*	11 *(7,10 %)*	12 *(7,74 %)*
Index Sa2 (0,5−0,7)	1	1	10 *(6,45%)*	3 *(1,94%)*	27 *(17,42 %)*	1	9 *(5,81 %)*	3 *(1,94 %)*
Index Sa3 (0,8−0,9)	3	1	2	–	13 *(8,39 %)*	–	2	1
Index Sa4 (1,0−1,2)	6 *(3,87 %)*	–	5 *(3,23 %)*	2	4 *(2,50 %)*	1	2	
Index Sa5 + (1,3−1,9)	1	–	2	–	–	–	–	–

Tabelle 1. Zusammenhänge zwischen Schüssel- und Hohlfußformen von Fußgefäßen

Gattung 1b − Becher

Die keramische Gattung der Becher kann verschiedenartig definiert werden. R. Gleser rechnet zu dieser Gattung Keramikgefäße, die einen Randdurchmesser in der Größe von 70% bis 130 % der Höhe aufweisen.[46] Ein weiteres Kriterium kann auch die mehr oder weniger betonte Halspartie und ein Höhen-Breiten-Index von ca. 100 % darstellen.[47] Die Gattung der Becher ist durch ein-, zwei- und dreigliedrige Keramikgefäße vertreten *(Abb. 2)*.

Mit Hilfe der Merkmalanalyse konnten insgesamt 285 Exemplare dieser keramischen Gattung eingeordnet werden. Es handelt sich in diesem Fall um 27,78 % aller Gattungen und um 45,02 % der Klasse von Hochgefäßen. Die Becher treten in acht Serien, 31 Formengruppen und 95 Formvarianten auf.

Gattung 1c − Näpfe

Zu den Näpfen werden jene Keramiken gerechnet, deren Höhen-Breiten-Verhältnis (Index A) bei etwa 1:1 liegt. Die größte Breite dieser zumeist konischen Gefäßformen entspricht im allgemeinen der Größe des Randdurchmessers – stellt M. Strobel fest.[48] Im Fall der untersuchten kupferzeitlichen Gefäße liegt das Höhen-Breiten-Verhältnis bei 0,8−0,9. Mit Hilfe der Merkmalanalyse konnten wir 50 Näpfe klassifizieren. Sie stellen nur eine Serie, vier Formengruppen und 13 Varianten dar. Sie machen 4,87 % aller Gattungen und 7,90 % der Klasse von Hochgefäßen aus.

Gattung 1d − Schultergefäße

Die Gattung der Schultergefäße stellen 13 % (n = 136) Keramiken mit A4−5- Indexwerten dar, die aus drei abgesetzten Körperteilen bestehen und betonten Schulterteil besitzen. Die untersuchten keramischen Schultergefäße können nach den Indexwerten und der Formgebung drei Serien, 21 Formengruppen und 52 Formvarianten zugeordnet werden. Der Anteil der Gefäße dieser Gattung beträgt 13,26 % aller Gattungen und 21,48 % der Klasse von Hochgefäßen.

Gattung 2a – Butmir-Gefäße

Das wichtigste Merkmal dieser Gattung ist der aus einem konischen Unterteil und einem gewölbten Oberteil (Schulter) mit im Randbereich eingezogener Wandung bestehende Gefäßkörper. Der Index A dieser Gefäße, die ansonsten die spätneolithische Lengyel-Kultur charakterisieren, liegt zwischen 0,57 und 1,02.[49] Anhand der Relation von Höhe zu Breite können die zwei bekannten Exemplare eine Serie (Serie 2a1) bzw. eine Formengruppe mit

[46] *Gläser 1995* 38.
[47] *Strobel 1996* 25; *Zalai-Gaál 2007* 46.
[48] *Strobel 1996* 22.
[49] *Zalai-Gaál 2007* 57.

zwei Varianten bilden. Sie treten mit einem Prozentsatz von 0,19 % aller Gattungen und von 0,51 % in der Klasse der Hochgefäße auf. Die Maßbezeichnungen eines Butmir-Gefäßes auf den verschiedenen Ebenen zeigt *Abbildung 3*:

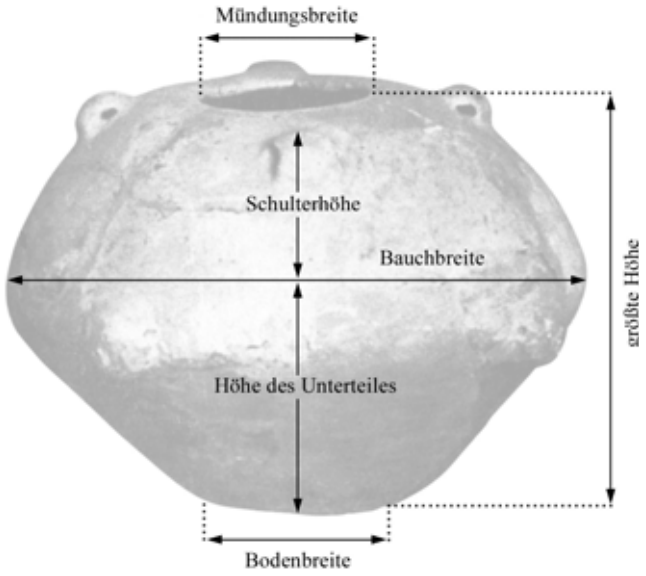


Abb. 3. Maßbezeichnungen eines Butmir-Gefäßes auf den verschiedenen Ebenen

Gattung 2b − Schüsseln

Die Schüsseln können dadurch gekennzeichnet werden, dass ihre größte Breite etwa der doppelten Höhe entspricht.[50] Die Schwierigkeiten bei der Klassifikation der Keramiken, die auf den Umstand zurückzuführen sind, dass innerhalb der neolithischen und kupferzeitlichen Gefäße keine Uniformität gegeben ist, zeigten sich besonders bei der Klassifizierung von Schüsseln und Schalen am markantesten.[51] Die Maßbezeichnungen einer Schüssel auf den verschiedenen Ebenen stellt *Abbildung 4* dar:

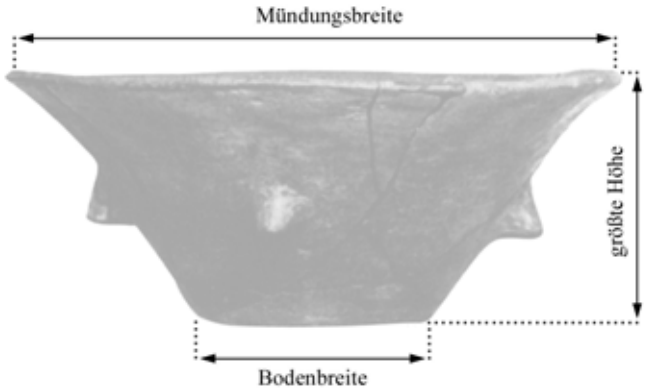


Abb. 4. Maßbezeichnungen einer Schüssel auf den verschiedenen Ebenen

[50] *Gläser 1995* 196; *Strobel 1996* 21.
[51] *Zalai-Gaál 2007* 59.

Die Gattung von Schüsseln ist mit 10,14 % (n = 104) im Kreis aller Gattungen und mit 26,46 % in der Klasse der Hochgefäße repräsentiert. Im vorliegenden typologischen System werden jene Keramikgefäße der Gattung von Schüsseln zugeordnet, die A1- Indexwerte aufweisen. Also ist ihre größte Breite 0,2−0,4mal größer als die größte Höhe.

Gattung 2c −Schalen
Bei der Klassifizierung von Serien der Schalen *(Abb. 5)* mit 27,97 % (n = 287) unter den Gattungen und mit 73,03 % in der Klasse der Hochgefäße, spielten in erster Linie die E1-Indexwerte eine bedeutende Rolle. Die Maßbezeichnungen einer Schale auf den verschiedenen Ebenen stellt *Abbildung 5* dar:

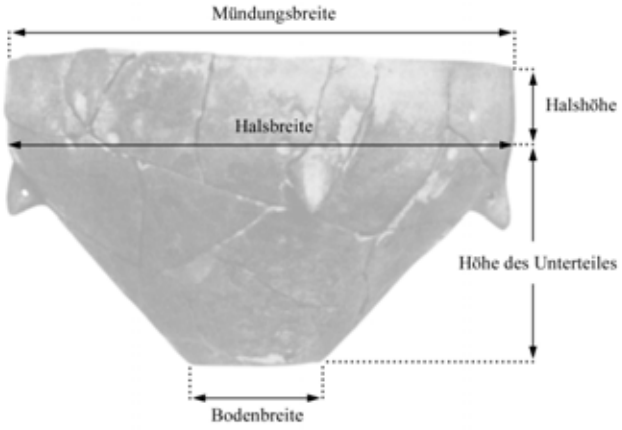


Abb. 5. Maßbezeichnungen einer Schale auf den verschiedenen Ebenen

Die Exemplare der *Gattung 3b* (Gefäßdeckel) und der *Gattung 3c* (Tonlöffel) haben wir in die Merkmalanalyse nicht aufgenommen.

Kombinatorische Analyse der Grabkeramik der Tiszapolgár-Kultur

Die Grundlage unserer analytischen Methode bilden die Kombinationen, Vergesellschaftungen von Funden nach Befunden (Gräbern).[52] Die Vergesellschaftungen von verschiedenen typologischen Einheiten in geschlossenen Befunden sind als Beweise der zeitgleichen relativchronologischen Stellung der betreffenden Formengruppen und Varianten zu betrachten.

Die Vergesellschaftungen zwischen den Typen von Fußgefäßen, Becherformen, Näpfen, Schultergefäßen, Butmir-Gefäßen, Schüsseln und Schalen *nach Grab* bilden allein oder mit anderen Formengruppen nicht weniger als 213 Kombinationen, die in 463 Bestattungen feststellbar sind.

[52] „Die Fundkombination gehört zu den Grundlagen der Erstellung einer relativen Chronologie in der Archäologie … Gegenstände, die regelhaft in geschlossenen Funden miteinander kombiniert vorkommen, sind weitgehend zeitgleich. Die Fundspektren der typischerweise miteinander vergesellschafteten Objekte verändern sich im Laufe der Zeiten und erlauben so, das zeitliche Nacheinander von Funden (’Typen’) und geschlossenen Fundkomplexen zu beobachten. Ein übliches Mittel zur Darstellung dieser Beziehungen sind ’Kombinationstabellen’, die eine Übersicht über die geschlossenen Funde, die Typen und das Vorkommen der Typen in den geschlossenen Funden geben. In sinnvoll vorbereiteten Tabellen sollte jeder ’geschlossene Fund’ … mindestens zwei Typen beinhalten, und jeder der Typen in mindestens zwei geschlossenen Funden vertreten sein − nur so ergeben sich auch tatsächlich verwertbare Kombinationen.“ (http://de.inforapid.org/index.php?search=Korrespondenzanalyse [05. 17. 2015])

Korrelationsgruppen der Fußgefäßtypen

Fußgefäße sind von zwölf Fundorten nachgewiesen, die überwiegende Mehrheit von ihnen stammt selbstverständlich aus den im größten Umfang untersuchten Nekropolen. In Basatanya muss man auch die Tatsache berücksichtigen, dass die früheren Forschungen dort Befunde von zwei kupferzeitlichen Kulturen und einer Übergangsperiode zwischen ihnen bestimmt hatten *(Diagramm 3).*

Das gegenseitige Vorkommen, die Korrelation zwischen den Formengruppen von Fußgefäßen im Verhältnis von 96 Bestattungen illustriert *Tabelle 2*.

Ausgehend von diesen Daten kann über die typochronologischen Zusammenhänge zwischen den Formengruppen von Fußgefäßen behauptet werden:

Elf Formengruppen korrelieren nicht mit Fußgefäßen anderer Formengruppen. Die Formengruppe *1a1b* (Deszk A) ist mit den Formengruppen 1a8b (Deszk A) und 1a9a (Deszk A, Deszk B) vergesellschaftet. Die in den Gräbern *bt5* und *bt69* von Basatanya nachgewiesene Formengruppe *1a1c* erscheint auch in 21 anderen Gräbern von Basatanya, Deszk B, Kisvárda und Polgár-Nagy Kasziba, und die Formengruppe 1a5a ist auch in 14 weiteren Bestattungen von Basatanya und Hódmezővásárhely-Népkert vorhanden.

Die Formengruppe *1a2a* (Basatanya, Hódmezővásárhely-Kotacpart) ist mit den Formengruppen 1a4a aus fünf Bestattungen (Basatanya, Hódmezővásárhely-Bodzáspart und Tibava), 1a5b (Basatanya, Hódmezővásárhely-Kotacpart, Polgár-Nagy Kasziba und Tibava) 1a6b (Basatanya, Polgár-Nagy Kasziba und Hódmezővásárhely-Népkert) vergesellschaftet.

Die Formengruppe *1a2b* (Basatanya, Deszk B, Kisvárda) zeigt enge relativchronologische Beziehungen zu den Formengruppen 1a3a, 1a4b, 1a5b, 1a6b, 1a7a, 1a8a und 1a9a, die aus Basatanya, Deszk A und B, Polgár-Nagy Kasziba, Hódmezővásárhely-Népkert, Tibava und Vel'ké Raškovce stammen.

Die Bestattungen mit Formengruppe *1a3b* (Basatanya, Tibava) können mit 40 anderen Bestattungen mit Formengruppen 1a4b, 1a5a, 1a5d und 1a7b von Basatanya, Deszk B, Hódmezővásárhely-Népkert und Tibava zeitlich parallel sein, während sechs weitere Bestattungen mit sechs Gräbern mit Formengruppe 1a5b aus Basatanya, Hódmezővásárhely-Népkert und Polgár-Nagy Kasziba in relativchronologische Beziehung gebracht werden können.

Die in Tibava und Vel'ké Raškovce ausgegrabenen sechs Gräber mit der Formengruppe 1a3d scheinen mit der Formengruppe 1a5b (Basatanya, Hódmezővásárhely und Polgár-Nagy Kasziba) zeitlich verbunden gewesen zu sein.

Die Gräber mit Formengruppe *1a4a* (Basatanya, Hódmezővásárhely-Bodzáspart, Tibava) haben chronologische Beziehungen durch die Vergesellschaftungen mit denen der Formengruppen 1a5a (Basatanya und Hódmezővásárhely-Népkert), 1a7a (Basatanya und Tibava) bzw. 1a7b (Basatanya, Deszk B und Hódmezővásárhely-Népkert).

Die Formengruppe *1a4b* (Basatanya, Deszk B, Tibava) ist mit den Formengruppen 1a5a (Basatanya, Deszk B, Hódmezővásárhely-Népkert), 1a5b (Basatanya, Hódmezővásárhely-Kotacpart, Polgár-Nagy Kasziba und Tibava) und 1a8c (Basatanya) zeitlich verbunden.

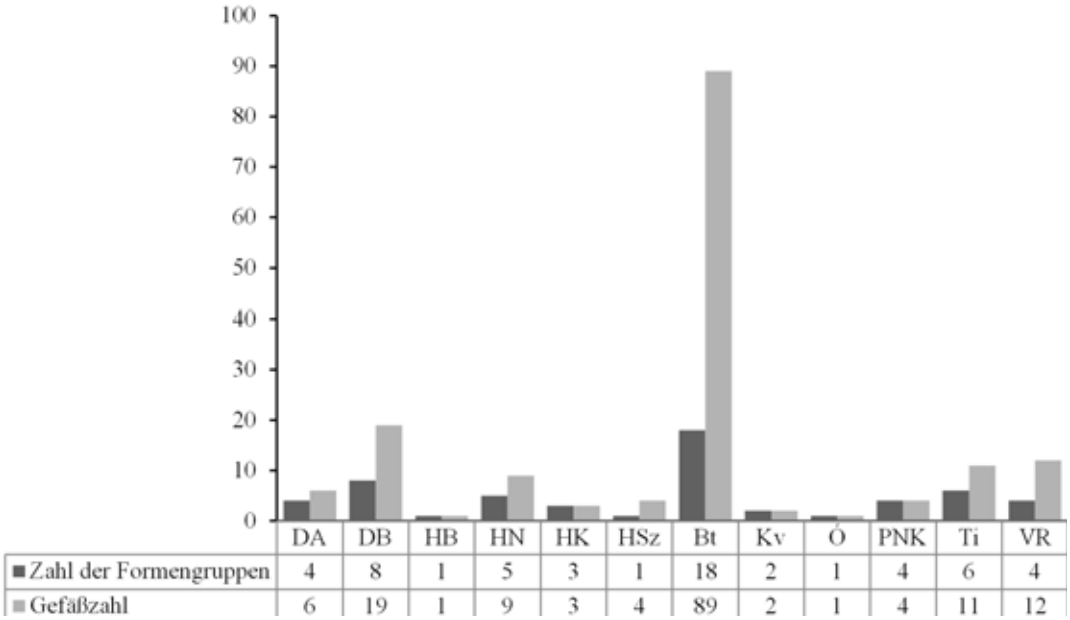
Die Bestattungen mit der Formengruppe *1a5a* (Basatanya, Deszk B, Hódmezővásárhely-Népkert) stehen in relativchronologischer Beziehung zu den Formengruppen 1a7a (Basatanya, Tibava) und 1a7b (Basatanya, Deszk B, Hódmezővásárhely-Népkert).

Die Formengruppe *1a5d* (Basatanya, Deszk B) ist einzig mit der Formengruppe 1a7b (Basatanya, Deszk B, Hódmezővásárhely-Népkert) vergesellschaftet.

Die Gräber mit Formengruppe *1a7b* (Basatanya, Deszk B, Hódmezővárahely-Népkert) ist allein mit der Formengruppe 1a8a (Basatanya, Deszk A, Kisvárda, Hódmezővásárhely-Népkert) kombiniert.

Zuletzt sei erwähnt, dass die Formengruppe *1a8a* (Basatanya, Deszk A, Hódmezővásárhely-Népkert, Kisvárda) nur zusammen mit der Formengruppe 1a9a (Deszk A, Deszk B) vorhanden ist.

Es gibt fünf gleichzeitige Formengruppen, die in keiner Korrelation zu anderen Fußgefäßtypen stehen.



	DA	DB	HB	HN	HK	HSz	Bt	Kv	Ó	PNK	Ti	VR
Zahl der Formengruppen	4	8	1	5	3	1	18	2	1	4	6	4
Gefäßzahl	6	19	1	9	3	4	89	2	1	4	11	12

Diagramm 3. Vorkommen der Formengruppen von Fußgefäßen (Gattung 1a) nach Gräberfeldern *(DA = Deszk A, DB = Deszk B, HB = Hódmezővásárhely-Bodzáspart, HN = Hódmezővásárhely-Népkert, HK = Hódmezővásárhely-Kotacpart, HSz = Hódmezővásárhely-Szakálhát, Bt = Polgár-Basatanya, Kv = Kisvárda,* Ó = Ószentiván *VIII, PNK = Polgár-Nagy Kasziba, Ti = Tibava, VR = Vel'ké Raškovce)*

Korrelationen zwischen den Becherformen

Im Falle von 102 Gräbern und 54 Vergesellschaftungen von Becherformen kann folgendes gesagt werden *(Diagramm 4)*:

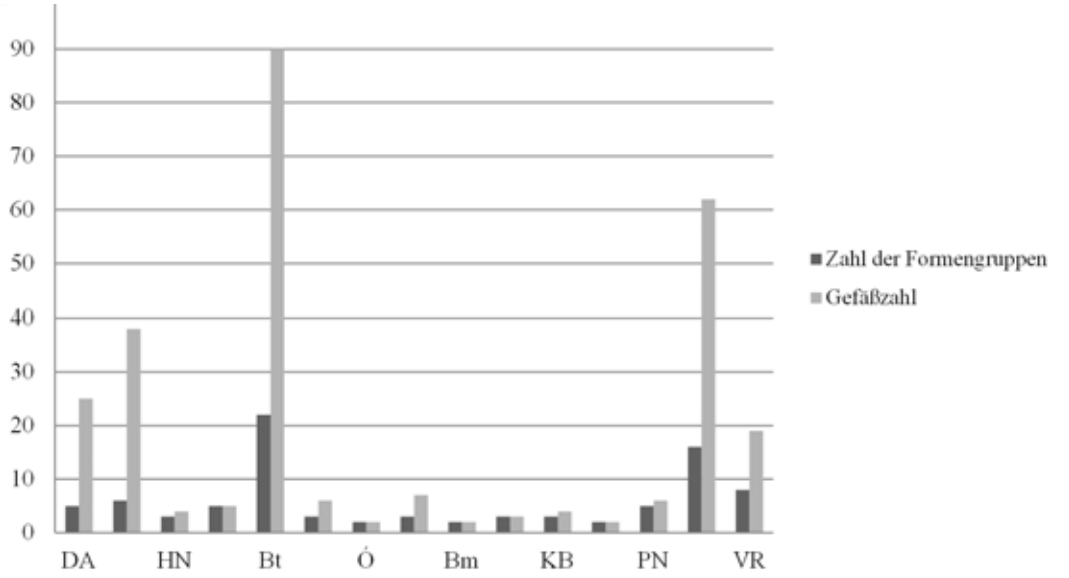


Diagramm 4. Vorkommen der Formengruppen von Becherformen (Gattung 1b) nach Gräberfeldern *(DA = Deszk A, DB = Deszk B, HN = Hódmezővásárhely-Népkert, HK = Hódmezővásárhely-Kotacpart, Bt = Polgár-Basatanya, Kv = Kisvárda, Ó =* Ószentiván *VIII, TLA = Tápé-Lebő A, Bm = Bélmegyer, EHt = Endrőd-Hegedűs-tanya, KB = Körösladány-Bikeri, VB = Vésztő-Bikeri, PN = Polgár-Nagy Kasziba, Ti = Tibava, VR = Vel'ké Raškovce)*

	1a1b	1a1c	1a2a	1a2b	1a3a	1a3b	1a3c	1a4a	1a4b	1a5a	1a5b	1a5c	1a5d	1a6b	1a6c	1a7a	1a7b	1a8a	1a8b	1a8c	1a8d	1a9a
1a8b	◙																					◙
1a9a	◙			◙															◙			
1a2b		◙			◙				◙	◙	◙	◙		◙		◙	◙	◙				◙
1a4a			◙							◙						◙	◙					
1a5b			◙	◙	◙				◙					◙		◙						
1a5c			◙	◙													◙					
1a6b			◙	◙	◙						◙					◙	◙	◙				
1a3a				◙							◙			◙			◙					
1a4b				◙		◙				◙	◙		◙			◙	◙	◙		◙		
1a5a				◙				◙	◙							◙	◙					
1a7a				◙				◙	◙	◙	◙			◙			◙					
1a7b				◙	◙	◙		◙	◙	◙		◙	◙	◙		◙		◙				
1a8a				◙			◙		◙	◙				◙			◙					
1a5d						◙			◙	◙							◙					
1a2a								◙			◙	◙		◙								
1a3b									◙				◙				◙					
1a8c									◙													
1a1c										◙		◙										
1a3c																		◙				
1a1b																			◙			◙

Tabelle 2. Vergesellschaftungen zwischen den Fußgefäßtypen aufgrund der Seriation

Im Falle von 102 Gräbern und 49 Kombinationen von Becherformen kann folgendes behauptet werden:

Einzig der Befund *Grab ti17.55* von Tibava (0,98 %) enthält die Vergesellschaftung von sieben Bechertypen (1b1a, 2 1b1b, 1b1c, 3 1b1d, 1b1f, 1b2a, 1b8a): es handelt sich dabei um zehn Exemplare von Bechern.

Auch die einzige Bestattung mit sechs Formengruppen von Bechern stammt aus Tibava: im *Grab ti11.55* finden sich nicht weniger als acht solche Exemplare *(*1b1b, 3 1b1d, 1b1f, 1b2b, 1b7d, 1b7e).

Der Anteil der Bestattungen mit Kombinationen von je vier Bechertypen nimmt 1,96 % (n = 2) ein. Es handelt sich dabei um *Grab db5* von Deszk B (1b1a-2 1b5a-1b5b-1b5d) und das *Grab vr1* von Vel'ké Raškovce (1b1a-2 1b1c-1b7a-1b7d).

6,86% (n = 7) der untersuchten Gräber weisen die Kombinationen von je drei Bechertypen auf. In den Befunden *Grab da12* von Deszk A (1b1a-1b1b-1b3a), *Grab db7* von Deszk B (1b1a-5 1b5a-1b5d), *Grab bt12* (2 1b7c-1b7d-1b8a) und *Grab bt23* (1b3a-2 1b7c-1b8a) von Basatanya, *Grab kv1* von Kisvárda (1b6b-1b7c-4 1b7d), *Grab ti1.55* (1b1c-1b1f-1b7a) und *Grab ti 14.55* (1b1c-1b1d-1b3b) von Tibava findet man verschiedene Zusammensetzungen von Bechertypen.

Gräber mit Kombinationen von je zwei Bechertypen sind schon mit 25,49 % (n=2) bestätigt. Die Befunde *Grab da13* von Deszk A (3 1b1a, 1b3b) und *Grab ti3.55* von Tibava (1b1a, 1b3b) enthielten die gleichen Kombinationen, ebenso wie das *Grab da3* und das *Grab da8* von Deszk A (1b1a, 1b5a). Im *Grab db3* von Deszk B befinden sich zwei Exemplare der Formengruppe 1b1a. Die Fundobjekte *Grab db6*, *Grab db8* und *Grab db11*

von Deszk B sowie *Grab ó3* von Ószentiván zeichnen sich mit der Vergesellschaftung der Formengruppen 1b5a und 1b5d vor den anderen aus, die Bestattung *db11* war mit zwei Exemplaren des Typs 1b5d ausgestattet. In allen anderen Bestattungen sind unterschiedliche Kombinationen von Bechern zu finden. Es handelt sich um *Grab da10* (2 1b1a, 1b5b) von Deszk A, *Grab db14* (1b4e-2 1b5d) und *Grab db2* (1b5c-1b5d) von Deszk B, *Grab bt21* (1b7d-1b8a), *Grab bt24* (1b7c-1b8a), *Grab bt28* (1b3a-1b7d) und *Grab bt50* (1b4b-1b8a) von Basatanya, *Grab hk7* (1b3a-1b5b) von Hódmezővásárhely-Kökénydomb, *Grab kb4* (2 1b6a-1b7c) von Körösladány-Bikeri, *Grab vr4* (1b1c, 1b6a), *Grab vr5* (1b1c-1b3a) und *Grab vr28* (1b1b-2 1b1c) von Vel'ké Raškovce, *Grab ti1.56* (2 1b1e-1b3b), *Grab ti10.56* (2 1b1d-1b1e), *Grab ti15.56* (2 1b1d-1b1f), *Grab ti16.56* (1b1d-1b1e) und *Grab ti21.56* (3 1b1d-1b2a) von Tibava.

Mehr als die Hälfte der Befunde, 60,78 % (n = 62), war nur mit einem einzigen Bechertyp ausgestattet.

Anhand der Ergebnisse der Korrelation ist feststellbar, dass 25 Bechertypen zueinander in Korrelation stehen, d. h., dass sie mehr oder weniger gleichzeitig sind *(Tabelle 3)*.

Korrelationen von Näpfen

Die Zusammenhänge zwischen der Zahl der Formengruppen und den Gefäßzahlen nach Gräberfeldern zeigt *Diagramm 5*.

Zu den Näpfen ist so viel feststellbar, dass Formengruppe 1c1c in vier, 1c1b und 1c1d in je drei und 1c1a in zwei Nekropolen belegt ist. Alle diese typologischen Einheiten der Tiszapolgár-Grabkeramik sind auch in Basatanya vertreten.

Grab ti17.55 von Tibava enthielt die Exemplare der Formengruppen 1c1a und 1c1b. In den anderen Bestattungen mit Napf (96,0 %, n = 24) findet sich nur je ein Napftyp. Die Formengruppe 1c1c ist für zehn Befunde typisch (*Grab bt4*, *Grab bt26*, *Grab bt27*, *Grab bt46*, *Grab bt54*, *Grab bt55* und *Grab bt77* von Basatanya, *Grab tph4* von Polgár-Hajdúnánási út, *Grab tla11* von Tápé-Lebő A und *Grab ó1* von Ószentiván. Der Napftyp 1c1d erscheint in sieben Befunden (*Grab bt11* und *Grab bt25* von Basatanya, *Grab ti21.56* von Tibava, *Grab vr8*, *Grab vr17*, *Grab vr23* und *Grab vr32* von Vel'ké Raškovce). Das alleinige Vorkommen der Formengruppe 1c1b charakterisiert vier (*Grab bt76* von Basatanya, *Grab ob2* von Oborín, *Grab ti10.55* und *Grab 14.56* von Tibava) Befunde, und schließlich kann das alleinige Vorhandensein der Formengruppe 1c1a in zwei anderen Bestattungen bestätigt werden (*Grab bt51* von Basatanya und *Grab ti6.55* von Tibava).

Korrelationen von Schultergefäßen

Das gemeinsame Vorkommen von drei Schultergefäßtypen ist in nur 6,58 % (n = 5) der untersuchten Fälle erkennbar, es handelt sich um fünf Gefäßkombinationen: *Grab bt5* (1d1b-1d2b-1d2d), *Grab bt21* (1d1e-1d2i-1d3b) und *Grab bt60* (1d2b-1d2f-1d2i) von Basatanya bzw. *Grab ti4.55* (1d1d-1d1f-1d1h) und *Grab ti18.55* (2 1d1h-1d2d-1d2f) von Tibava. Völlig identische Kombinationen sind in diesen Fällen nicht vorhanden.

Der Anteil der je zwei verschiedene Formengruppen aufweisenden Kombinationen von Schultergefäßen nimmt schon 19,74 % (n = 15) ein. Es handelt sich dabei um 13 Gefäßkombinationen. Die Vergesellschaftung zwischen den Typen 1d1d und 1d2b erscheint in *Grab bt12* und *Grab bt13* von Basatanya. Die Befunde *Grab bt53* und *Grab bt67* waren mit den Schultergefäßen der Formengruppen 1d2f und 1d3a ausgestattet. Alle anderen Formen sind unterschiedlich [*Grab bt8* (2 1d1d-1d3b), *Grab bt23* (1d1e-21d2i), *Grab bt36* (1d2c-1d2i), *Grab bt38* (2 1d1e-1d2f), *Grab bt40* (1d2f-1d3b), *Grab bt52* (1d2a-1d2f), *Grab bt54* (1d2c-1d2d), *Grab bt68* (1d2f-1d2i), *Grab bt76* (1d2i-1d3b) von Basatanya, *Grab kv1* von Kisvárda und *Grab ti21.56* von Tibava].

In 73,68 % (n = 56) der untersuchten Befunde treten die verschiedenen Typen von Schultergefäßen allein, ohne Kombinationen mit anderen Schultergefäßtypen auf. Am häufigsten, in 14 Bestattungen, tritt Typ 1d2d auf (*Grab bt46*, *Grab bt51*, *Grab bt56*, *Grab bt64* und *Grab bt65* von Basatanya, *Grab hn2* von Hódmezővásárhely-Népkert, *Grab hk9*

	1b1b	1b1c	1b1d	1b1e	1b1f	1b2a	1b2b	1b3a	1b3b	1b4d	1b4e	1b4f	1b4g	1b4h	1b5a	1b5b	1b5d	1b6a	1b6b	1b7a	1b7b	1B7C	1B7D	1B7E	1B8A	1B8B
1b1a	■	■	■		■	■		■	■		■		■		■	■	■			■			■		■	
1b1b		■	■	■	■	■	■	■	■										■	■	■	■	■	■	■	
1b1c			■		■	■		■	■									■	■	■	■		■		■	
1b1d				■	■	■	■		■														■		■	
1b1e							■		■					■									■			
1b1f							■												■	■	■		■	■	■	
1b2a										■								■							■	
1b4c											■															
1b4g												■					■									■
1b4d													■													
1b4f													■													
1b3a																■				■	■	■	■		■	
1b5a																■	■									
1b5b																	■									
1b5c																	■						■			
1b3b																			■		■					
1b7a																				■	■	■				
1b6b																					■	■	■			
1b6a																						■				
1b7b																						■				
1b2b																							■	■		
1b7c																							■		■	
1b7e																							■			
1b4b																									■	
1b7d																									■	

Tabelle 3. Vergesellschaftungen zwischen den Bechertypen anhand der Seriation

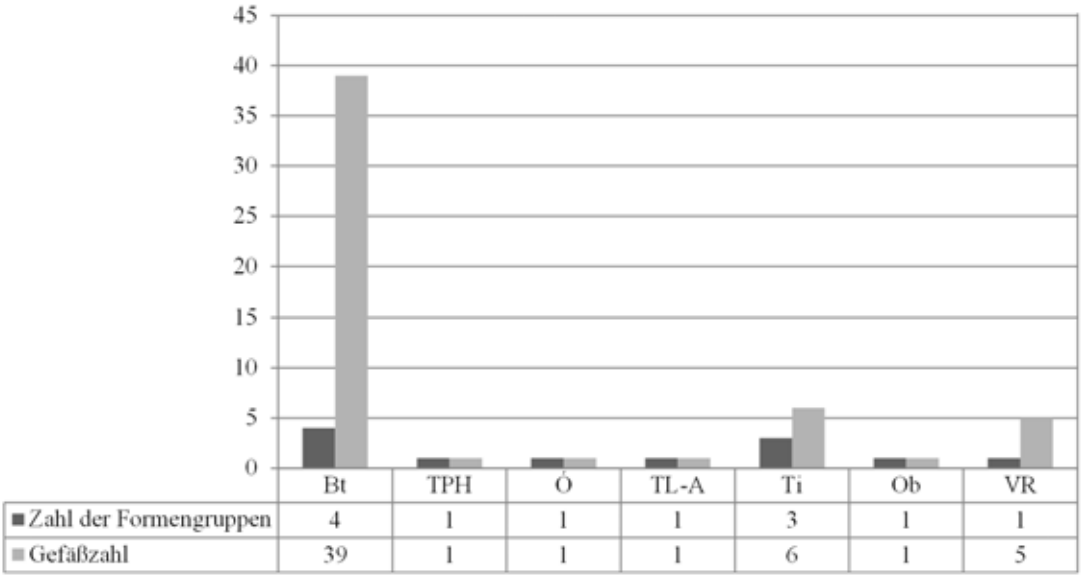


Diagramm 5. Vorkommen der Formengruppen von Näpfen (Gattung 1c) nach Gräberfeldern *(Bt = Polgár-Basatanya, TPH = Polgár-Hajdúnánási út, Ó =* Ószentiván *VIII, TLA = Tápé-Lebő A, Ti = Tibava, Ob = Oborín), VR = Vel'ké Raškovce*

von Hódmezővásárhely-Kotacpart, *Grab ktk1* von Köröstarcsa, *Grab ti17.55* von Tibava und *Grab vr4*, *Grab vr9*, *Grab vr17* und *Grab vr19* von Vel'ké Raškovce).

In je vier Befunden erscheinen die Formengruppen 1d1e (*Grab bt25*, *Grab bt35* von Basatanya, *Grab vn2* von Vásárosnamény und *Grab ti3.56* von Tibava) und 1d2b (*Grab bt14* und *Grab bt28* von Basatanya, *Grab hn1* von Hódmezővásárhely-Népkert, *Grab eht2* von Endrőd-Hegedűs-tanya).

14 Napftypen korrelieren miteinander. Fünf andere Typen (1d1c, 1d1g, 1d2e, 1d2g, 1d3c) zeigen dagegen keine Korrelation. Diese Zusammenhänge zwischen den Napftypen können bei 13 Formengruppen untersucht werden (*Tabelle 4*):

	1d1d	1d1e	1d1f	1d1h	1d2b	1d2d	1d2f	1d2i	1d2j	1d3a	1d3b
1d1a		◙	◙								
1d1d			◙	◙	◙	◙	◙				◙
1d1f				◙							
1d1b					◙	◙					
1d2a					◙		◙				
1d1h						◙	◙				
1d2b						◙	◙	◙			
1d2c						◙		◙			
1d2d							◙			◙	
1d1e								◙			◙
1d2f								◙		◙	◙
1d2e									◙		
1d2i											◙

Tabelle 4. Vergesellschaftungen der Schultergefäßtypen in den untersuchten Gräbern

Korrelationen von Schüsseln

Aus 42 Bestattungen sind nicht mehr als 13 Schüsselkombinationen bekannt. Feststellbar ist weiterhin, dass die Vergesellschaftung zwischen zwei verschiedenen Schüsseltypen nur in 11,90 % (n = 5) Fällen und mit vier Kombinationen registriert werden kann. Die Formengruppe 2b2b ist bei zwei Befunden ersichtlich: *Grab bt54* von Basatanya und *Grab ti10.56* enthalten je ein Exemplar der Formengruppen 2b2b und 2b2d. Die sonstigen Kombinationen sind unterschiedliche Zusammensetzungen von Schüsseltypen [*Grab kv1* von Kisvárda (2b2b-2b2c), *Grab ti1.55* (2b1c-2b2d) von Tibava, *Grab vr1* von Vel'ké Raškovce (2b2a-2b2d)] (*Tabelle 5*).

Die Formengruppe 2b2b erscheint in acht und 2b1c in fünf Nekropolen (je 10,0 %) der Tiszapolgár-Kultur. Zwei andere keramische Einheiten (2b2c und 2b2d, 20,0 %) sind für je sechs Grabansammlungen typisch. Für je drei Gräberfelder sind zwei Formengruppen von Schüsseln (2b1d, 2b2a, je 20,0 %) charakteristisch. Ähnliches ist bei den Typen 2b1e und 2b2e festzustellen, die in je zwei Fundorten belegt sind.

	2b1d	2b2b	2b2c	2b2d	2b2E
2b1c	◙	◙		◙	◙
2b2b			◙		
2b1b				◙	
2b1d				◙	
2b2a				◙	

Tabelle 5. Vergesellschaftungen der Schüsseltypen

Die Formengruppe 2b1a ist nur in Hódmezővásárhely-Népkert nachgewiesen, und der Schüsseltyp 2b1b erscheint allein in Basatanya.

Alle anderen Formengruppen von Schüsseln treten allein auf, ohne mit anderen Schüsseltypen vergesellschaftet zu sein. Der Typ 2b2d ist als alleiniger Vertreter von Schüsseln in zehn Bestattungen belegt (*Grab bt33*, *bt61*, *Grab db5* und *Grab db10*, *Grab vn2*, *Grab kb3*, *Grab ti4.55*, *Grab 21.56*, *Grab vr2*, *Grab vr15*). Die Formengruppe 1b2b alleine kennzeichnet neun Bestattungen (*Grab bt5*, *Grab bt8*, *Grab bt23*, *Grab bt78*, *Grab da10*, *Grab db13*, *Grab ó3*, *Grab obt5*, *Grab ti22.56*, *Grab vr22*). Der Typ 2b2c kommt in vier Fällen vor (*Grab hsz1*, *Grab obt5*, *Grab ti22.56*, *Grab vr22*), während 2b1a (*Grab hn1*, *Grab hk7*) bzw. 2b2a (*Grab bt68*, *Grab tph2*) als alleiniger Schüsseltyp in je zwei Bestattungen vorhanden sind. Die Formengruppen 2b1d *(Grab da3)*, 2b2c *(Grab bt18)* und 2b2e *(Grab vr19)* erscheinen allein in je einem Grab (*Tabelle 6).*

	2c1b	2c1c	2c1d	2c1e	2c1f	2c2a	2c2b	2c2c	2c2d	2c2e	2c2f	2c3a	2c3c	2c4a	2c4b	2c4c	2c4d	2c5a	2c6a	2c6b	2c6c	2c7a	2c7b
2c1a	◙	◙	◙	◙			◙	◙			◙	◙			◙		◙	◙			◙		
2c1b				◙							◙							◙					
2c1d				◙		◙	◙	◙			◙	◙			◙	◙	◙	◙					
2c1e					◙	◙	◙	◙	◙		◙	◙			◙		◙				◙		
2c1f							◙				◙			◙		◙				◙			
2c2a							◙	◙	◙		◙	◙		◙	◙		◙	◙	◙				
2c2b									◙		◙	◙			◙	◙		◙				◙	
2c2c									◙	◙	◙	◙											
2c2d											◙								◙				
2c3b													◙			◙	◙	◙		◙		◙	◙
2c3c														◙			◙						
2c3a																	◙						
2c4b																		◙					
2c4c																		◙		◙		◙	◙
2c4d																		◙		◙			◙
2c5a																				◙			◙
2c4a																					◙		
2c6b																							◙

Tabelle 6. Vergesellschaftungen zwischen Formengruppen von Schalen

Gattung 2c − Schalen

Bei der Klassifizierung der Schalen, 27,97 % (n = 287) unter den Gattungen und 73,03 % in der Klasse der Hochgefäße, spielten in erster Linie die E1-Indexwerte eine bedeutende Rolle.

Von diesen Daten ausgehend kann über die Korrelationen und Vergesellschaftungen der einzelnen Schalentypen zueinander bzw. über Vorkommen und Verteilung der Gräber mit den jeweiligen Formengruppen folgendes resümiert werden.

Relativchronologische Stellung der untersuchten Bestattungen und Gräberfelder

Ergebnisse der Untersuchungen durch Korrelation

Aufgrund der Seriation der Gräber nach Korrelationsgruppen können die folgenden künstlichen Perioden („Korrelationsperioden“) festgelegt werden *(Diagramm 6)*:

Periode 1 gemäß der Korrelation von Gefäßtypen

Diese künstliche Periode ist durch mehr als die Hälfte, 51,64 % (n = 126), der Bestattungen vertreten (Grab *bm1* von Bélmegyer, *bt4*, *bt5*, *bt6*, *bt8*, *bt9*, *bt10*, *bt12, bt13, bt14, bt17, bt18, bt21,*

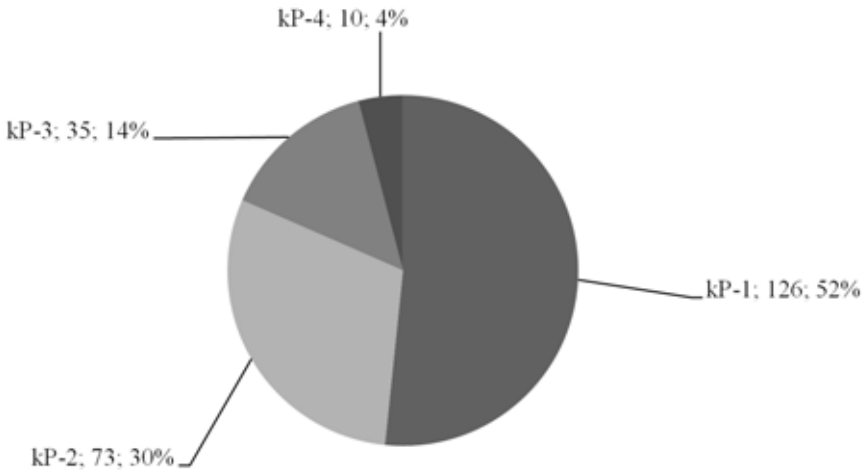


Diagramm 6. Verteilung der Gräber nach Korrelationsperioden

bt23, bt24, bt26, bt27, bt28, bt29, bt30, bt33, bt34, bt35, bt36, bt37, bt38, bt39, bt40, bt42, bt45, bt46, bt50, bt51, bt52, bt53, bt55, bt56, bt58, bt59, bt60, bt61, bt64, bt65, bt66, bt67, bt68, bt69, bt76, bt80, bt84, bt88, bt118, bt123, bt146 und bt-C von Basatanya, *da2, da3, da4, da6, da7, da8, da9, da10, da11, da12, da13* und *da33* von Deszk A, *db1, db3, db4, db5, db7, db8, db9, db10, db11, db12, db13, db14* und *db15* von Deszk B, *eht2* und *eht6* von Endrőd-Hegedűs-tanya, *hk4, hk6* und *hk7* von Hódmezővásárhely-Kotacpart, *hn2, hn3* und *hn4* von Hódmezővásárhely-Népkert, *kb4* von Körösladány-Bikeri, *ktk1* von Köröstarcsa, *kv1* von Kisvárda, ó3 von Ószentiván VIII, *ob2* und *obt5* von Oborín, *pnk39* von Polgár-Nagy Kasziba, *tcs1* von Tiszaigar-Csikóstanya, *ti1.55, ti1.56, ti3.55, ti4.55, ti6.56, ti7.55, ti11.55, ti11.56, ti14.55, ti15.55, ti15.56, ti16.56, ti17.55* und *ti23.56* von Tibava, *tla1* und *tla5* von Tápé-Lebő A, *tph4* von Polgár-Hajdúnánási út, vr1, *vr2, vr4, vr5, vr6, vr8, vr10, vr18, vr28, vr35, vr38, vr41* und *vr42* von Vel'ké Raškovce). Beachtenswert ist, dass auch die von Marita Meisenheimer in die Übergangsperiode eingereihte Bestattung *bt6* sowie fünf weitere mittelkupferzeitliche Gräber von Basatanya *(bt37, bt84, bt118, bt123, bt146)* gemäß der Korrelation in diese Periode eingeteilt werden konnten.

Periode 2 gemäß der Korrelation von Gefäßtypen

Hierzu konnten nur noch 29,92 % (n = 73) der untersuchten Bestattungen gezählt werden (*Grab bt7, bt25, bt44, bt48, bt49, bt54, bt62, bt71, bt74, bt75, bt77, bt79, bt93, bt95, bt96, bt97, bt105, bt107, bt108, bt109, bt116, bt117, bt120, bt121, bt126, bt136, bt137, bt138, bt141, bt144, bt148, bt150, bt155, bt-A, bt-I, bt-J* und *bt-K* von Basatanya, *da1, db2* und *db6* von Deszk B, *eht1* und *eht5* von Endrőd-Hegedűs-tanya, *hb1* von Hódmezővásárhely-Bodzáspart, *hk1* und *hk17* von Hódmezővásárhely-Kotacpart, ó2 von Ószentiván 8, *ob1* von Oborín, *ti3.56, ti4.56, ti5.56, ti6.55, ti8.56, ti9.56, ti10.56, ti14.56, ti18.55, ti18.56, ti19.56, ti20a.56, ti21.56* und *ti24.56* von Tibava, *tla13* und *tla15* von Tápé-Lebő A, *vb2* von Vésztő-Bikeri, *vn1* und *vn2* von Vásárosnamény, *vr3, vr7, vr11, vr13, vr15, vr16, vr22, vr27, vr30* und *vr32* von Vel'ké Raškovce). *Grab bt75* vertritt in dem typochronologischen System von Meisenheimer die Übergangsperiode, und auch die Zahl der von ihr als mittelkupferzeitlich datierten Gräber in Basatanya *(Grab bt7, bt44, bt49, bt71, bt74, bt93, bt95, bt96, bt97, bt105, bt107, bt108, bt109, bt116, bt117, bt120, bt121, bt126, bt136, bt137, bt138, bt141, bt144, bt148, bt150, bt155)* nimmt deutlich zu: es handelt sich um 26 Bestattungsobjekte.

Periode 3 gemäß der Korrelation von Gefäßtypen

Dieser Periode konnten nur noch 14,34 % (n = 35) der jeweiligen Gräber zugeordnet werden (*Grab bt3, bt15, bt16, bt32, bt63, bt74, bt83, bt85, bt86, bt87, bt90, bt94, bt98, bt100, bt103, bt106, bt111, bt112, bt114, bt115, bt119, bt130, bt131, bt132, bt140, bt142, bt145, bt147, bt152, bt153* und bt-E von Basatanya, *hb3* von Hódmezővásárhely-Kotacpart, *kb3* von Körösladány-Bikeri, *ti22.56* von Tibava und *tla14* von Tápé-Lebő A). In Basatanya befinden sich 29 Bestattungen, die von Meisenheimer als mittelkupferzeitlich bestimmt wurden; allein Grab bt32 stellte sie in ihre Periode I des Gräberfeldes.

Periode 4 gemäß der Korrelation von Gefäßtypen

Hierbei handelt es sich lediglich um 4,10 % (n=10) der untersuchten Bestattungen (*Grab bt1, bt2, bt92, bt99, bt102, bt113, bt125, bt129, bt151, bt154)*, alle stammen aus dem Gräberfeld von Basatanya. Diese Gräber wurden von Marita Meisenheimer alle als mittelkupferzeitlich bestimmt.

Vorkommen und Verteilung dieser Gräber in den untersuchten Nekropolen zeigt *Diagramm 7.*

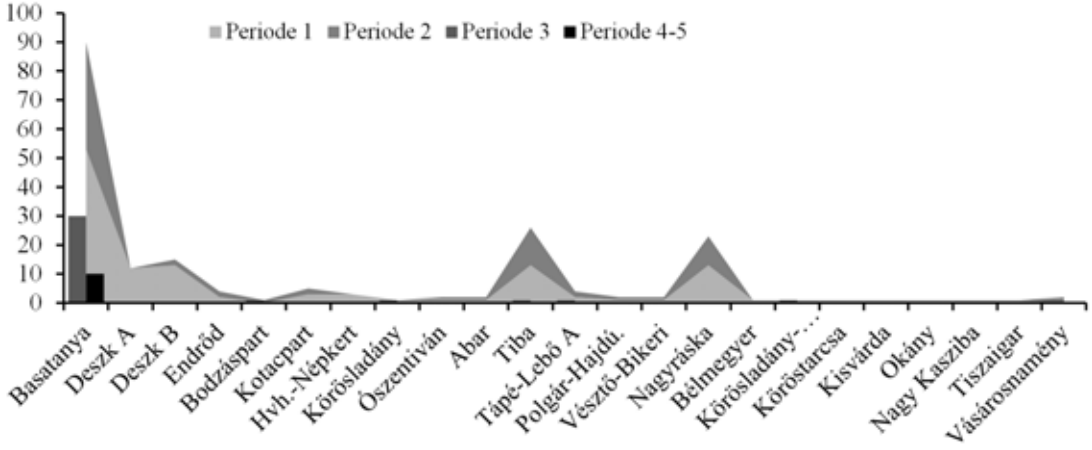


Diagramm 7. Verteilung der Gräber gemäß den Korrelationsgruppen in den untersuchten Gräberfeldern

Relativchronologische Stellung der Gräber von Polgár-Basatanya gemäß der Korrelation

In Basatanya sind zwei Tendenzen festzustellen: Die Zahl der von Marita Meisenheimer in die Mittelkupferzeit datierten Gräber steigt während der Belegungszeit des Gräberfeldes von Basatanya deutlich an. In unserer Korrelationsperiode 1 treten sie nur mit 9,43 % (n=5) auf, in der Periode 2 beträgt ihr Anteil aber schon 70,27 % (n=26) und in Periode 3 96,67 % (n=29). Alle Bestattungen (n=10) der Periode 4 vertreten die Mittelkupferzeit nach Meisenheimer. Während der Belegungszeit des Gräberfeldes nimmt die Gräberzahl in den einzelnen „Korrelationsperioden" deutlich ab.

In Basatanya treten Bestattungen der Korrelationsperiode 1 mit 40,77 % (n=53) auf. Die überwiegende Mehrheit dieser Gräber befindet sich im nördlichen Teil und vier weitere *(Grab bt17, bt76, bt84, bt88)* im nordwestlichen Teil des Gräberfeldes. Auch die von Meisenheimer in die mittlere Kupferzeit datierten Bestattungen *bt118, bt123* und *bt146* im mittleren Bereich des Gräberfeldes dürften eventuell diese Korrelationsperiode nach repräsentieren.

Gräber der Korrelationsperiode 2 erscheinen in Basatanya mit 29,92 % (n=37), sie verteilen sich am südlichen Rand des nördlichen Teiles sowie im ganzen Bereich des Gräberfeldes. Die Bestattungen *bt77* und *bt79* in der nordwestlichen Gräbergruppe liegen

unmittelbar bei Bestattungen der Korrelationsperiode 1, und eine ähnliche Erscheinung ist auch im nördlichen Teil zu belegen.

Die Korrelationsperiode 3 ist in Basatanya nur mit einem Anteil von 14,34 % (n = 35) vertreten. Diese Bestattungen sind im mittleren und südlichen Gräberfeldabschnitt verstreut und mit denen der vorangehenden Periode vermischt.

Nicht mehr als 4,10 % (n = 10) der Gräber von Basatanya konnten der Korrelationsperiode 4 zugeordnet werden. Eine markante Erscheinung ist, dass fünf von diesen Bestattungsobjekten *(Grab bt2, bt92, bt99, bt102* und *bt125)* am Westrand des mittleren Bereiches des Gräberfeldes nahe bei- oder nebeneinander und auch die Gräber *bt151* und *bt154* am Ostrand nahe beieinander liegen.

Diese Ergebnisse, die sich durch die Untersuchungen der relativchronologischen Stellung der Gräber von Basatanya nach Korrelationsgruppen ergaben, können mit den von Pál Raczky und Zsuzsanna Siklósi vorgestellten ^{14}C-Daten von Basatanya als weitgehend konsistent behandelt werden *(Tabelle 7).*

PERIODEN GEMÄß KORRELATION	GRAB-NR.	CAL BC (68,2 %)	CAL BC (95,5 %)
Periode 1	bt84 (Theiß)	5210−4940	5210−4850
	bt56 (TPK)	4370−4260	4450−4250
	bt71/75 (TPK)	4350−4260	4360−4240
	bt36 (TPK)	4360−4260	4450−4230
	bt33/bt34 (TPK)	4330−4070	4340−4050
	bt123 (MCA)	4260−4060	4330−4040
Periode 2	bt105 (MCA	4230−3990	4240−3970
	bt48 (TPK/MCA)	4040−3960	4230−3820
Periode 3	bt130 (MCA)	4230−3990	4240−3970

Tabelle 7. Verteilung der Gräber von Basatanya gemäß Korrelation und cal BC-Daten von *Raczky – Siklósi 2013*

Relativchronologische Stellung der Gräber von Tibava gemäß der Korrelation

Stanislav Šiška stellte zwei Belegungsphasen innerhalb des Gräberfeldes von Tibava fest, die „zugleich auch die Aufgliederung der Tiszapolgár-Kultur ermöglichen“.[53] Er ging davon aus, dass sich die ältesten Gräber an der Ost- und teilweise auch an der Südseite befinden *(Grab ti16/56, ti17/56, ti19/56, ti20a/56, ti20b/56, ti21/56, ti23/56, ti24/56 und ti25/56)*, „sie respektieren vollauf die an der Westseite festgestellten Siedlungsobjekte“.[54] Andere Gräber wies er in eine spätere Zeitperiode *(Grab ti1/55, ti4/55* des südlichen Teiles*, ti6/55, ti7/55, ti10/55, ti11/55, ti14/55, ti15/55, ti17/55, ti18/55, ti1/56, ti2/56, ti4, ti5/56, ti8, ti9/56, ti10/56, ti12/56, ti22/56* in den mittleren und nördlichen Teilen des Friedhofs).[55] Von den übrigen Bestattungen nahm er an, dass sie „entweder wenig aussagekräftige Funde haben, oder die Keramik enthält Elemente, die beiden Phasen eigen sind“ Deshalb bestätigt er, dass diese Gräber *(Grab ti3/55, ti8/55, ti3/56, ti6/56, ti7/56, ti11/56, ti13/56, ti14/56 und ti15/56)* den Übergang zwischen der älteren und jüngeren Belegungsphase des Gräberfeldes darstellen.[56] Feststellbar ist also, dass diese Aufgliederung der Gräber nach Belegungsperioden in Tibava nicht auf einer systematisch vorgenommenen Analyse der Grabkeramik, sondern in erster Linie auf dem Reichtum der Bestattungen beruht. Die Ergebnisse unserer Merkmalanalyse

[53] *Šiška 1964* 352.
[54] *Andel 1958*; *Andel 1961*; *Šiška 1964* 352.
[55] *Šiška 1964* 352.
[56] *Šiška 1964* 352.

der Grabkeramik von Tibava ergab dagegen ein anderes Bild über die Verteilung der Gräber innerhalb dieses Gräberfeldes:

Als Ergebnis der keramischen Merkmalanalyse bzw. der Untersuchungen durch Korrelation kann festgestellt werden, dass 13 Gräber von Tibava *(Grab ti1/55, ti3/55, ti4/55, ti6/56, ti1/56, ti11/55, ti12/55, ti11/56, ti14/55, ti15/55, ti15/56, ti15/56, ti23/56)* in eine ältere Zeitperiode (Korrelationsperiode 1) eingereiht werden dürften und 10 Gräber *(ti18/55, ti8/56, ti10/56, ti5/56, ti3/56, ti9/56, ti4/56, ti14/56, ti18/56, ti6/55)* eine spätere Zeitperiode (Korrelationsperiode 2) vertreten könnten. *Grab ti22/56* am Nordwestrand des Gräberfeldes, von den anderen Bestattungen weit entfernt, dürfte die jüngste Periode (Korrelationsperiode 3) repräsentieren.

Relativchronologische Stellung der Gräber von Vel'ké Raškovce gemäß der Korrelation

In Bezug auf die chronologische Stellung des Gräberfeldes von Vel'ké Raškovce bestätigt Jaroslav Vízdal wie folgt: „Dadurch, dass auch die unmittelbaren Kontakte mit der vorhergehenden Entwicklung erfasst wurden (z. B. die Bemalung der Gefäße), und auch auf der Grundlage bestimmter anderer Tatsachen (nur in einigen Gräbern wurde eine verhältnismäßig große Menge von Keramik gefunden) konnte man zu der schwerwiegenden Erkenntnis kommen, dass das Gräberfeld in Vel'ké Raškovce in die frühe Phase des Tiszapolgár-Kreises gehört und als solches einen selbstständigen Entwicklungsabschnitt in der Ostslowakei repräsentiert".[57] Damit wurden aber die Fragen der relativen Chronologie der Gräber von Vel'ké Raškovce nicht gelöst.

Mehr als die Hälfte, 56,52 % (n = 13), dieser Bestattungen wurde in die Korrelationsperiode 1 eingereiht, und die Korrelationsperiode 2 wird von 43,48 % (n = 10) vertreten. Die Toten dieser prähistorischen Gemeinschaft wurden in kleineren Gräbergruppen bestattet, und die in die verschiedenen Perioden datierten Gräber liegen innerhalb dieser Gruppen miteinander vermischt.

Künstliche Perioden gemäß der Seriation

Polgár-Basatanya

Anhand der Ergebnisse der Seriation bei 112 Bestattungen und 68 Gefäßtypen von Basatanya kann man grundlegend drei Seriationsperioden voraussetzen. Die Seriationsperiode 1 erscheint mit 45,54 % (n = 51) der Gräber, die Seriationsperiode 2 ist mit 22,32 % (n = 25) vertreten, und der Anteil der Seriationsperiode 3 beträgt 32,14 % (n = 36). Diese Gräber befinden sich im Nordareal und in der nordwestlichen kleinen Gräberansammlung des Gräberfeldes, sie liegen nahe beieinander und bilden kleinere Gruppierungen. Die Befunde der Seriationsperiode 2 sind im mittleren Bereich und in der südlichen Gruppierung verteilt, ebenso wie diejenigen der künstlichen Periode 3. Ein beachtenswertes Phänomen ist weiterhin, dass die Befunde der Periode 2 und der Periode 3 größtenteil nahe beieinander liegen.

Die Gräber haben zugleich aber oft Inventare, deren Stücke auch für verschiedene Belegungsperioden eines Gräberfeldes kennzeichnend sein können. Bezüglich dieser Situation wurden Verteilung und Vorkommen der einzelnen keramischen Typen (Formengruppen) gemäß den vorgestellten künstlichen Perioden untersucht:

Im Fall der Fußgefäßtypen kann festgestellt werden, dass sie überwiegend die Seriationsperiode 1 repräsentieren. Die Gefäßtypen 1a3a und 1a4b sind für die Seriationsperioden 1 und 2 charakteristisch. Der Typ 1a3c erscheint ausschließlich während der Seriationsperiode 2. Ein Exemplar des Typs 1a2b stammt aus der Seriationsperiode 3, 18 andere sind dagegen Funde der Seriationsperiode 1. Die Formengruppe 1a8c dürfte für

[57] *Vízdal 1977* 140.

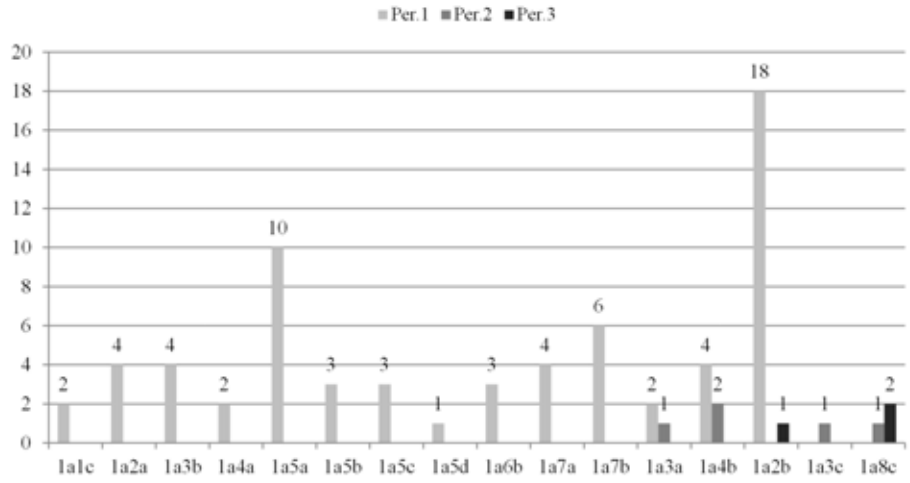


Diagramm 8. Verteilung der Fußgefäßtypen gemäß künstlichen Perioden in Basatanya

den jüngsten Fußgefäßtyp angesehen werden, da sie nur die Perioden 2 und 3 charakterisiert *(Diagramm 8)*.

Bei der Gattung der Becherformen ist die Situation schon viel wechselvollerer. Man findet nur neun Typen, die allein die Periode 1 kennzeichnen. Die Formengruppe 1b8a ist der einzige Bechertyp, der – wenn auch in kleiner Zahl – auch in der Periode 2 auftritt. Die Typen 1b2a, 1b4c und 1b8b sind Funde der Periode 2, während die Typen 1b4d und 1b4h charakteristisch für die Perioden 2 und 3 sind. Man kann besondere Aufmerksamkeit dem Bechertyp 1b4g zuschreiben, weil er zwar für die Perioden 2 und 3 kennzeichnend ist, aber auch später (künstliche Periode 4) auftritt. Als jüngste Erscheinung der untersuchten Bechertypen dürfte die Formengruppe 1b4f gelten *(Diagramm 9)*.

Die Zahl der Näpfe und der Napftypen ist klein. Festgestellt wurde, dass in der Periode 1 allein der Typ 1c1d erscheint und alle andere Napftypen bis zum Ende der Belegung des Gräberfeldes von Basatanya in Gebrauch waren. Typ 1c1a kennzeichnet die Perioden 1 und 2, 1c1b die Perioden 1 und 3. Die Mehrheit der Gefäße des Typs 1c1c stammen aus der Periode 1, sie wurden aber auch während der darauffolgenden Belegungszeit – wenigstens im Totenritual – benutzt *(Diagramm 10)*.

Bei den Schultergefäßen ist eine den Fußgefäßen ähnliche Situation wahrnehmbar. Die Mehrheit, 14 Formengruppen, treten ausschließlich während der Periode 1 auf, und auch der Typ 1d2f ist zehnmal für die Periode 1 und nur einmal für die Periode 2 charakteristisch. Die Keramiken der Typen 1d1g, 1d2a, 1d2e und 1d2j stammen ausschließlich aus Befunden der Periode 3 *(Diagramm 11)*.

Unter den Schüsseltypen befinden sich nicht mehr als zwei, die allein in den Gräbern der Periode 1 vorhanden sind. Die Formengruppen 2b1b und 2b2a prägen die Perioden 1 und 2, aber Typ 2b2e wurde einmal und zwar einem Grab der Periode 2 beigegeben. Der Schüsseltyp 2b2d dürfte als Übergangstypus behandelt werden, weil er in der Periode 1 vorkommt und auch in der Periode 2 weiterlebt. Die Schüsseln des Typs 2b1c stammen aus Bestattungen der Perioden 2 und 3. Die Formengruppe 2b1d dürfte für den jüngsten Schüsseltyp angesehen werden *(Diagramm 12)*.

Auch die typochronologische Entwicklung der Schalen zeigt ein beachtenswertes Bild. Sechs Schalentypen treten nur in Gräbern der Periode 1 auf. Viermal findet man Typen, die allein die Bestattungen der zwei ersten Perioden charakterisieren. Vier weitere Formengruppen erscheinen in den Perioden 1, 2 und 3 und die Typen 2c1a und 2c4a nur in der Periode 2. Bei dieser Gattung können die Schalentypen 2c3c, 2c2e und 2c1e als jüngste Typen behandelt werden *(Diagramm 13)*.

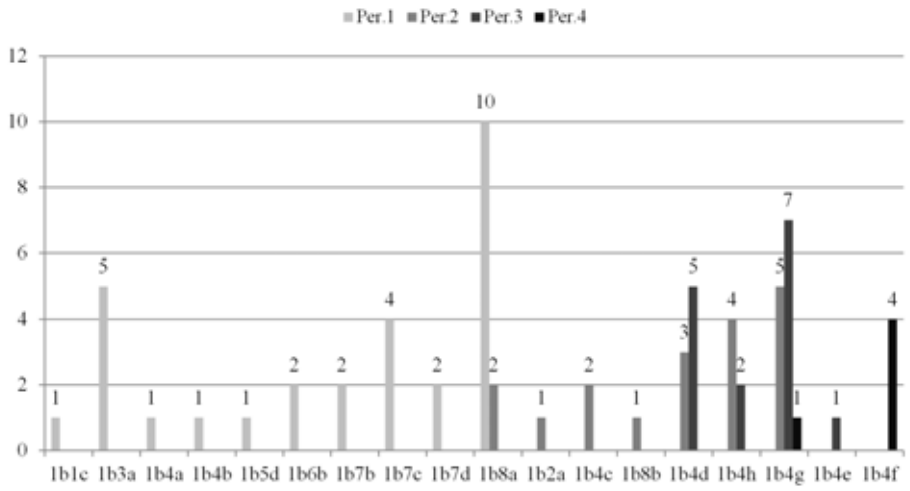


Diagramm 9. Vorkommen und Verteilung von Bechertypen gemäß den Seriationsperioden in Basatanya

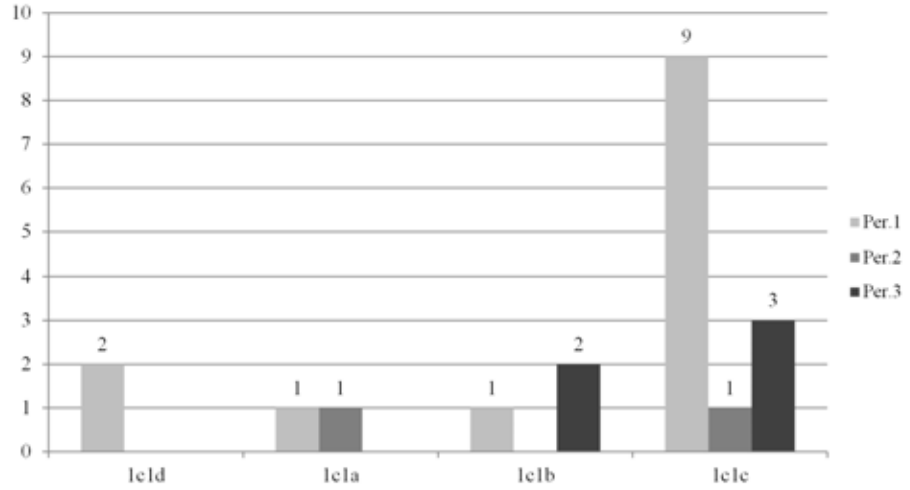


Diagramm 10. Vorkommen und Verteilung von Napftypen gemäß den Seriationsperioden in Basatanya

Wie wir gesehen haben, können die einzelnen Bestattungen Grabgefäße enthalten, die aus verschiedenen Perioden gestammt haben dürften. Um die Belegungsgeschichte des kupferzeitlichen Gräberfeldes von Basatanya besser erfassen zu können, haben wir die Sequenz der Befunde nach ihren in die verschiedenen Perioden datierten Funden aufgebaut.

Die *Belegungsperiode 1* des Gräberfeldes von Basatanya ist demnach mit 44,68 % (n = 42) der Gräber vertreten. Hierzu sind die Bestattungen *bt23*, *bt4*, *bt21*, *bt12*, *bt5*, *bt76*, *bt8*, *bt24*, *bt35*, *bt39*, *bt40*, *bt51*, *bt53*, *bt54*, *bt60*, *bt25*, *bt26*, *bt27*, *bt29*, *bt38*, *bt50*, *bt66*, *bt67*, *bt77*, *bt69*, *bt10*, *bt13*, *bt18*, *bt30*, *bt36*, *bt46*, *bt56*, *bt61*, *bt62*, *bt6*, *bt32*, *bt42*, *bt55*, *bt80*, *bt11*, *bt64* und *bt65* zu zählen.

4,26 % (n = 4) der Gräber enthielten Keramiken, die sowohl in der *Belegungsperiode 1* als auch in der *Belegungsperiode 2* vorhanden sind. Die Bestattungen *bt28* und *bt37* befinden sich am Rand der nördlichen Gruppierung der Nordgruppe und *bt68* bzw. *bt57* in der Mitte der südlichen Gruppierung derselben Gruppe von Gräbern.

Grab *bt33* zeichnet sich von den anderen dadurch aus, dass es sieben Gefäße der *Belegungsperiode 1* und nur eine Keramik der *Belegungsperiode 3* enthält. Es liegt am

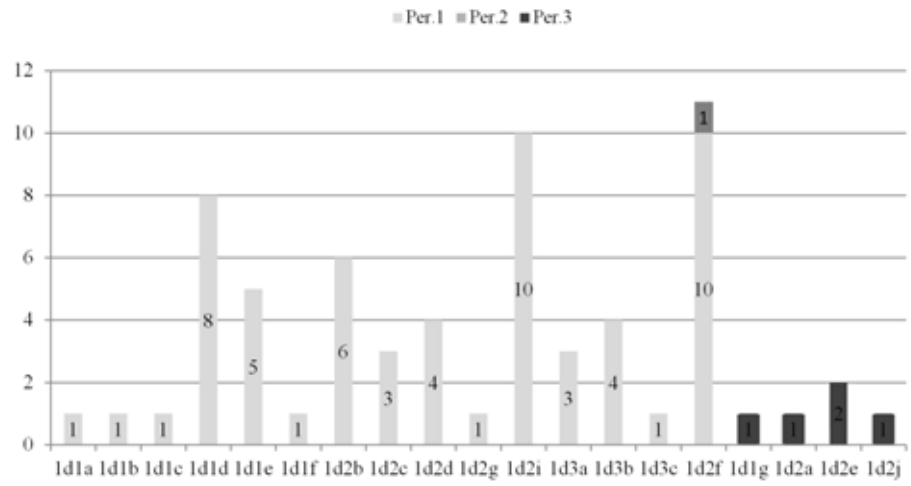


Diagramm 11. Vorkommen und Verteilung von Schultergefäßtypen gemäß den Seriationsperioden in Basatanya

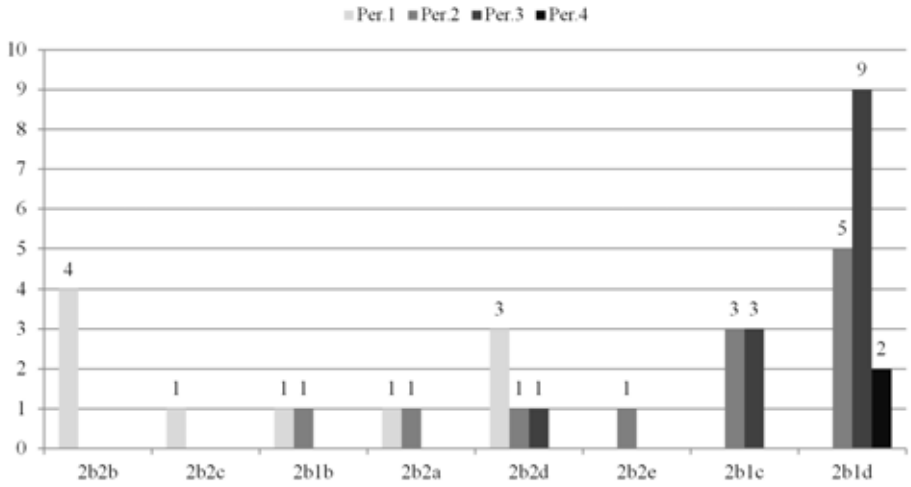


Diagramm 12. Vorkommen und Verteilung von Schüsseltypen gemäß den Seriationsperioden in Basatanya

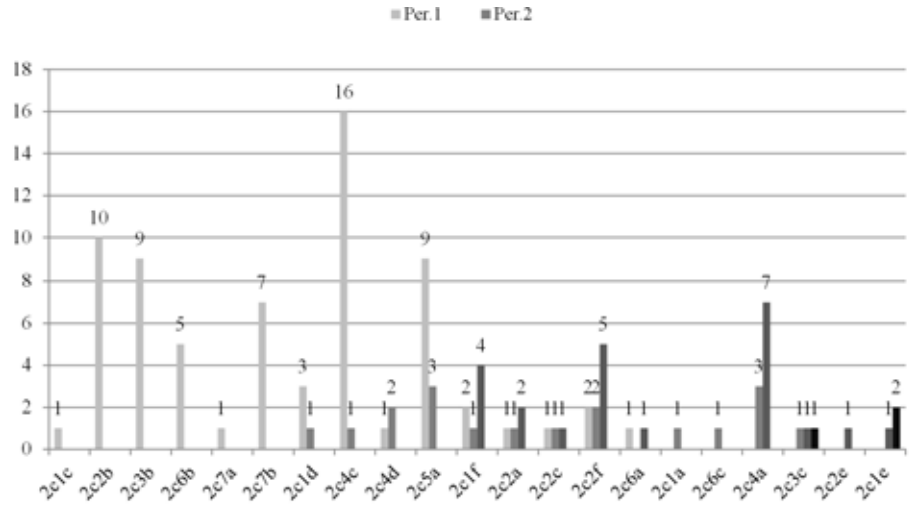


Diagramm 13. Vorkommen und Verteilung von Schalentypen gemäß den Seriationsperioden in Basatanya

Nordrand der südlichen Gruppierung der Nordgruppe. Grab *bt88* weist dagegen neben vier Gefäßen der *Belegungsperiode 1* auch eine Keramik der *Belegungsperiode 4* auf. Diese Bestattung lag am Rand der nordwestlichen Gräberansammlung.

Der Anteil der Gräber der *Belegungsperiode 2*, zu der die Bestattungen *bt121*, *bt41*, *bt120*, *bt155*, *bt111*, *bt71*, *bt75*, *bt107*, *bt95*, *bt117*, *bt126*, *bt110*, *bt136*, *bt137*, *bt140* und *bt141* klassifiziert wurden, nimmt 17,02 % (n = 16) ein (gelb markiert). Ein beachtenswertes Phänomen ist, dass solche Befunde in der nördlichen Gruppierung der Nordgruppe nicht vorhanden sind. In der südlichen Gruppierung derselben Gruppe finden sich drei Bestattungen der diskutierten Belegungsperiode: Sie liegen zwar immer unmittelbar neben Bestattungen der Belegungsperiode 1, Grab *bt75* wurde von M. Meisenheimer in ihre Übergangsperiode gelegt und *bt41* und *bt71* als Bestattungen der MCA bestimmt. Alle weiteren Gräber der diskutierten Belegungsperiode sind im südlichen Teil der mittleren großen Gräberansammlung bzw. in der südlichen Gruppierung der Südgruppe belegt.

Die Befunde *bt3* und *bt87* enthalten je ein Gefäß der *Belegungsperiode 2* und *Belegungsperiode 3*, sie liegen am Rand der mittleren Gräbergruppe, ebenso wie Grab *bt93* mit Keramiken der *Belegungsperioden 1* und *4*.

Die *Belegungsperiode 3* mit den Gräbern *bt109*, *bt97*, *bt15*, *bt116*, *bt16*, *bt49*, *bt1*, *bt105*, *bt7*, *bt79*, *bt83*, *bt85*, *bt90*, *bt96*, *bt98*, *bt114*, *bt115*, *bt129*, *bt130*, *bt132* und *bt142* ist mit 22,34 % (n = 21) repräsentiert. Die Bestattung *bt49* dieser Belegungsperiode befindet sich in der südlichen Gruppierung der Nordgruppe bei Gräbern der Belegungsperioden 1 und 2, und auch *Grab bt7* in der nordwestlichen Gräberansammlung liegt unmittelbar bei Befunden der Belegungsperiode 1. Die überwiegende Mehrheit der Bestattungsobjekte der diskutierten Belegungsperiode stammen aus der mittleren Gräbergruppe und der südlichen Gruppierung der Südgruppe.

Grab bt89 kann dadurch charakterisiert werden, dass es drei Keramiken der *Belegungsperiode 3* und auch ein Gefäß der *Belegungsperiode 4* enthielt.

Auffallend ist, dass die Befunde der *Belegungsperiode 4* mit 5,32 % (n = 4) der Gräber eine kleine Gräberansammlung inmitten der mittleren Gruppe gebildet haben: Die Bestattungen *bt92*, *bt94*, *bt99* und *bt102* liegen in der Mitte einer Ansammlung von Gräbern der Belegungsperiode 3. Es sollte jedoch erwähnt werden, dass in diese Gräber der Belegungsperiode 4 nur je eine Keramik gelegt wurde.

Die Ergebnisse der Untersuchungen der Belegungsperioden im Spiegel der von Pál Raczky und Zsuzsanna Siklósi veröffentlichten ^{14}C-Daten zeigt *Tabelle 8*.

Tibava

Belegungperiode 1: Der ältesten Belegungsphase können die Gräber *ti1.56*, *ti16.56*, *ti3.55*, *ti3.56*, *ti21.56*, *ti8.55*, *ti18.55*, *ti10.56*, *ti14.55*, *ti8.56* und *ti11.55* zugeordnet werden.

Belegungperiode 2: In diese Phase können die Gräber *ti11.56*, *ti6.55*, *ti24.56*, *ti14.56*, *ti10.55*, *ti7.55*, *ti17.55*, *ti22.56* und *ti15.55* datiert werden.

Als „Übergangsbestattungen" gemäß der Seriation kann man die Gräber *ti15.56*, *ti1.55*, *ti20a.56* und *ti4.55* betrachten.

Die ältesten Bestattungen liegen am Ostrand des Gräberfeldes und bilden einen Halbkreis. *Grab ti16.56* befindet sich in der Mitte des Bestattungsplatzes und ein weiteres in der Mitte der kleinen westlichen Gräberansammlung.

Drei von den „Übergangsgräbern" befinden sich im südlichsten Bereich des Bestattungsplatzes nahe beieinander und bei den Bestattungen der Belegungsperioden 1 und 2. Die vierte „Übergangsbestattung" *(Grab ti20a.56)* liegt in der westlichen Gruppierung von Bestattungsobjekten.

Drei von den Gräbern der Belegungsperiode 2 sind am Nordrand des Gräberfeldes zu finden *(ti22.56, ti6.55, ti7.55)*, und die Bestattung *ti14.56* kam am Ostrand des südlichen Bereiches zum Vorschein. Die anderen Gräber der Belegungsperiode 2 verteilen sich jeweils bei den Bestattungen der Belegungsperiode 1 oder nahe bei ihnen.

Ausgehend von diesen Daten können wir darauf schließen, dass die Belegung des frühkupferzeitlichen Gräberfeldes von Tibava ununterbrochen gewesen sein dürfte.

BELEGUNGSPERIODEN	GRAB-NR.	CAL BC (68,2 %)	CAL BC (95,5 %)
Periode 1	bt56 (TPK)	4370–4260	4450–4250
	bt71/75 (TPK)	4351–4260	4360–4240
	bt36 (TPK)	4360–4260	4450–4230
	bt33/34 (TPK)	4330–4070	4340–4050
	bt48 (TPK/MCA)	4040–3960	4230–3820
Periode 2	bt57	4240–4050	4320–4040
Periode 3	Bt123 (MCA)	4260–4060	4330–4040
	Bt105 (MCA)	4230–3990	4240–3970
	Bt130 (MCA)	4230–3990	4240–3970

Tabelle 8. Verteilung der Gräber von Basatanya nach Seriation und cal BC-Daten von *Raczky – Siklósi 2013*

Einen Beweis dafür stellt auch die Tatsache dar, dass die Bestattungen der verschiedenen Belegungsperioden unmittelbar oder nahe beieinander liegen.

Vergleicht man die Ergebnisse der Seriation der Gräber von Tibava mit den chronologischen Bestimmungen von Stanislav Šiška, ist bei 24 Bestattungen folgendes festzustellen: In neun Fällen (Grab *ti10.55, ti15.55, ti15.56, ti16.56, ti17.55, ti21.56, ti22.56, ti6.55, ti7.55)* wurde die relativchronologische Lage identisch bestimmt. Hierzu können auch noch acht weitere Gräber gerechnet werden, die von Šiška mit bei völliger Unsicherheit??? in die Übergangsperiode datiert wurden *(Grab ti1.55, ti11.56, ti14.56, ti20a.56, ti3.55, ti3.56, ti4.55, ti8.55).* In sieben Fällen sind die von Šiška veröffentlichten und durch die Merkmalanalyse und Seriation gewonnenen Bestimmungen unterschiedlich *(Grab ti1.56, ti10.56, ti11.55, ti14.55, ti18.55, ti24.56, ti8.56).* In Tibava sind also 15 Gräber belegt, die mit der Belegungsperiode 1 des Gräberfeldes von Basatanya den keramischen Typen gemäß zeitlich verbunden sind. Grab *ti1.56* und *ti16.56* weisen Typen auf, die auch für die Belegungsperiode 1 von Basatanya typisch sind, die Zahl der in Basatanya nicht vorhandenen Typen ist in diesem Fall aber viel größer. Die Bestattungen *ti21.56*, *ti8.55*, *ti10.56*, *ti11.55*, *ti4.55*, *ti17.55*, *ti7.55* und *ti15.55* weisen in ihrem keramischen Bestand auch Zusammenhänge mit den Belegungsperioden 1 und 2 von Basatanya auf. Die Zahl der in Basatanya unbekannten Gefäßtypen ist aber auch immer noch beträchtlich. In den Bestattungen *ti3.56*, *ti24.56*, *ti14.55*, *ti10.55*, *ti15.56*, *ti22.56*, *ti14.56*, *ti20a.56*, *ti11.55* und *ti11.56* treten dagegen schon typologische Merkmale der Keramik auf, die auf Beziehungen zu den späteren Belegungsperioden von Basatanya deuten dürften. Die Zahl der in Basatanya nicht nachgewiesenen keramischen Typen ist aber in Tibava in dieser Zeitperiode noch immer groß oder sogar noch größer als zuvor während der Entwicklung (Belegung) des Gräberfeldes.

Dies überrascht nicht. Siedlung und Gräberfeld von Tibava und Vel'ké Raškovce vertreten nämlich das nördlichste Verbreitungsgebiet der Tiszapolgár-Kultur, die Lucska-Gruppe. Dieser Gruppe kann man große Bedeutung zuweisen: „Die geographische Lage erlaubte es den Trägern der Lučky-Gruppe, im Osten den Siret zu erreichen oder auch entlang der Theiß und ihrer Zuflüsse zu den karpatischen Pässen vorzustoßen und über diese in das Dnjestr-Gebiet vorzudringen. In westlicher Richtung erreichen die Träger der Tiszapolgár-Kultur die Kupfer- und Goldlagerstätten im slowakischen Erzgebiet und im Osten die siebenbürgischen Lagerstätten" – stellt Jan Lichardus fest.[58] Hier ist also eine andere Art der Entwicklung der frühkupferzeitlichen Kultur zu erwarten.

[58] *Lichardus 1991* 769.

Vel'ké Raškovce

Die Ergebnisse dieser Untersuchungen weisen auch in Vel'ké Raškovce auf zwei Belegungsperioden und eine Übergangsperiode zwischen ihnen hin. Durch Seriation wurden dabei die Zusammenhänge zwischen 15 Bestattungen und zwölf Gefäßtypen festgestellt.

Belegungperiode 1: In die älteste Belegungspperiode können die Gräber *vr17*, *vr19*, *vr9*, *vr4*, *vr13*, *vr31*, *vr28* eingeordnet werden.

Belegungperiode 2: Als jüngste Bestattungen des behandelten Gräberfeldes sind die Gräber *vr15*, *vr32*, *vr5* und *vr8* zu /betrachten.

Als „Übergangsbestattungen" gemäß der Seriation gelten die Gräber *vr6*, *vr10*, *vr1* und *vr2*.

Die ältesten Bestattungen erscheinen in allen von Jaroslav Vízdal skizzierten Gräbergruppen. Sowohl Grab *vr19* und *vr13* in der östlichen als auch *vr17* und *vr31* bzw. *vr9* und *vr4* in der mittleren großen Gräbergruppe liegen nahe beieinander. Grab *vr28* befindet sich in der westlichen Gräberansammlung.

Drei von den „Übergangsbestattungen" (Grab *vr2*, *vr1* und *vr10*) liegen im südlichen Bereich der mittleren Gräbergruppe wiederum nahe beieinander, und die Bestattung *vr6* liegt in der östlichen Gruppe neben Grab *vr19* der ältesten Belegungsperiode.

Ein beachtenswertes Phänomen ist, dass die Bestattung 5 von der jüngsten Belegungsperiode des Gräberfeldes unmittelbar bei Grab *vr13* der Belegungsperiode 1 und ganz nahe bei der „Übergangsbestattung" *vr6* liegt. Die späten Gräber *vr8* und *vr15* sind in der mittleren Gräberansammlung mit „Übergangsbestattungen" vergesellschaftet, und das späte Grab *vr32* befindet sich etwa in der Mitte des Gräberfeldes.

Im Gräberfeld von Vel'ké Raškovce gibt es also 15 Gräber, deren relativchronologische Zusammenhänge denen von Basatanya entsprechen. Acht Bestattungen *(Grab vr13, vr10, vr8, vr4, vr5, vr28, vr32, vr19)* besitzen je einen Gefäßtyp, der mit der Belegungsperiode 1 des Gräberfeldes von Basatanya den keramischen Typen gemäß zeitlich verbunden ist. In den Bestattungen *vr17*, *vr1* und *vr9* befinden sich je zwei solche Typen. Die Zahl der in Basatanya nicht vorhandenen Typen ist in diesen Fällen aber sehr viel größer als in Tibava.

Die aus Grab *vr1* bekannten keramischen Typen erscheinen auch in der Belegungsperiode 2, und die Bestattungsobjekte *vr4*, *vr5, vr28* und *vr32* weisen auch Keramiken auf, die für die Belegungsperioden 1, 2 und 3 von Basatanya typisch sind. Die Zahl der in Basatanya unbekannten Gefäßtypen ist aber auch immer noch größer. In den Bestattungen *vr19*, *vr9*, *vr6*, *vr2*, *vr31* und *vr15* erscheinen schon keramische Merkmale, die auf Beziehungen zu den späteren Belegungsperioden von Basatanya hindeuten dürften. Die Zahl der in Basatanya nicht nachgewiesenen keramischen Typen ist aber auch in Vel'ké Raškovce in dieser Zeitperiode noch größer als während der zeitlich vorangegangenen Entwicklung (Belegung) des Gräberfeldes.

Horizonte und Tendenzen in der Entwicklung der Tiszapolgár-Kultur im östlichen Karpatenbecken

Belegungsperioden – Ergebnisse der Seriation gemäß den keramischen Typen

Bei der Seriation der gesamten untersuchten kupferzeitlichen Grabkeramik wurden die Zusammenhänge zwischen 286 Gräbern und 116 keramischen Typen (Formengruppen) untersucht, um die Belegungshorizonte in der Entwicklung der Tiszapolgár-Kultur feststellen zu können. Als Ergebnis konnten die relativchronologischen Verhältnisse bei 210 Bestattungen bestimmt werden. Die Verteilung der Gräber gemäß dem Belegungshorizont zeigt *Tabelle 9* und illustriert *Abbildung 6* (Hauptkoordinatenanalyse):

Belegungsperiode 1 gemäß der Seriation von Gefäßtypen

11,43 % (n = 24) konnten hier eingereiht werden (*Grab bm1* von Bélmegyer, *bt96* und *bt-k* von Basatanya, *hsz1* von Hódmezővásárhely-Szakálhát, *kb4* von Körösladány-Bikeri,

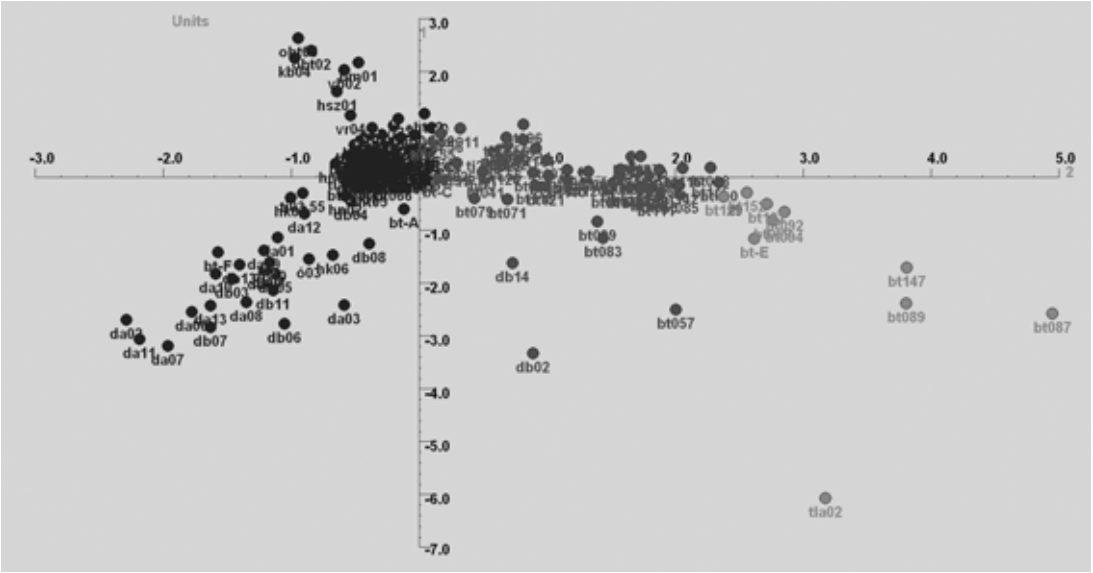


Abb. 6. Hauptkoordinatenanalyse der untersuchten Gräber der Tiszapolgár-Kultur gemäß der Seriation

obt2 und *ob5* von Okány, *vb2* von Vésztő-Bikeri, *eht3* von Endrőd-Hegedűs-tanya, *ti4.55, ti5.56, ti8.56, til0.55, til4.56, til6.56, til8.55, ti21.56* und *ti22.56* von Tibava bzw. *vr8, vr10, vr18, vr22* und *vr32* von Vel'ké Raškovce). Allein Grab *bt96* von Basatanya vertritt die mittlere Kupferzeit nach Meisenheimer.

Belegungsperiode 2 gemäß der Seriation von Gefäßtypen

Gräber aus dieser Periode sind mit 33,81 % (n = 71) vertreten (*Grab bt6, bt7, bt10, bt11, bt12, bt13, bt18, bt21, bt23, bt24, bt25, bt29, bt30, bt32, bt33, bt35, bt38, bt39, bt42, bt46, bt50, bt56, bt60, bt61, bt62, bt64, bt65, bt69, bt88, bt155* und *bt-g*, *da11* von Deszk A, *eht1* und *eht2* von Endrőd-Hegedűs-tanya, *hn1* und *hn3* von Hódmezővásárhely-Népkert, *ktk1* von Köröstarcsa, *kv1* von Kisvárda, *ó2* von Ószentiván VIII, *ob1* und *ob2* von Oborín, *pnk39* von Polgár-Nagy Kasziba, *ti1.55, ti1.56, ti3.55, ti3.56, ti6.56, ti7.55, ti8.55, til0.56, til1.55, til1.56, til4.55, til5.55, til5.56, til7.55, ti20a.55* und *ti24.56*, *vb1* von Vésztő-Bikeri, *vn2* von Vásárosnamény, *vr1, vr2, vr5, vr6, vr11, vr13, vr15, vr17, vr28, vr31* und *vr4* von Vel'ké Raškovce). Grab *6* wurde von Meisenheimer in die Übergangsperiode datiert, und die Bestattungen *bt7* und *b155* von Basatanya dürften zu dieser Periode gehören. Grab *bt56* von Basatanya dürfte aus einer Zeit von 4370−4260 bzw. 4450−4250 cal BC (86%) stammen.[59]

Belegungsperiode 3 gemäß der Seriation von Gefäßtypen

54,76 % (n = 115) (*Grab bt4, bt5, bt8, bt26, bt27, bt28, bt36, bt40, bt41, bt48, bt49, bt51, bt52, bt53, bt54, bt55, bt66, bt67, bt68, bt75, bt76, bt77, bt78, bt80, bt95, bt97, btl05, btl07, btl09, btl10, btl18, btl26, btl36, btl37, btl40, btl41, btl54, bt-c, bt-j, btl, bt3, btl5, btl6, bt37, bt7l, bt79, bt90, bt93, bt98, btlll, btll4, btll5, btll6, btll7, btl20, btl21, btl23, btl30, btl32, btl46, btl48, btl51, btl52, bt-a, bt-f, bt-i, bt59, bt57, bt87, bt89, btl47bt92, bt94, btl29, bt99, btl02, bt83*, und *bt-e*, *dal, da9, dal2, da8, dal0, dal3, da2, da3, da6* und *da7* von Deszk A, *db4, dbl, db3, db5, db8, dbl0, dbl3, db9, dbll, dbl4, db6, db7* und *db2* von Deszk B, *eht5* von Endrőd-Hegedűs-tanya, *hk7* und *hk6* von Hódmezővásárhely-Kotacpart, *hn2* und *hn4* von Hódmezővásárhely-Népkert- bzw. *hb2* von Bodzáspart, *ó3* von Ószentiván VIII, *tla1*, *tla2* und *tla15* von Tápé-Lebő A, *tph2* und *tph4* von Polgár-Hajdúnánási út, *vr9* und *vr19* von

[59] *Raczky – Siklósi 2013* 558−559.

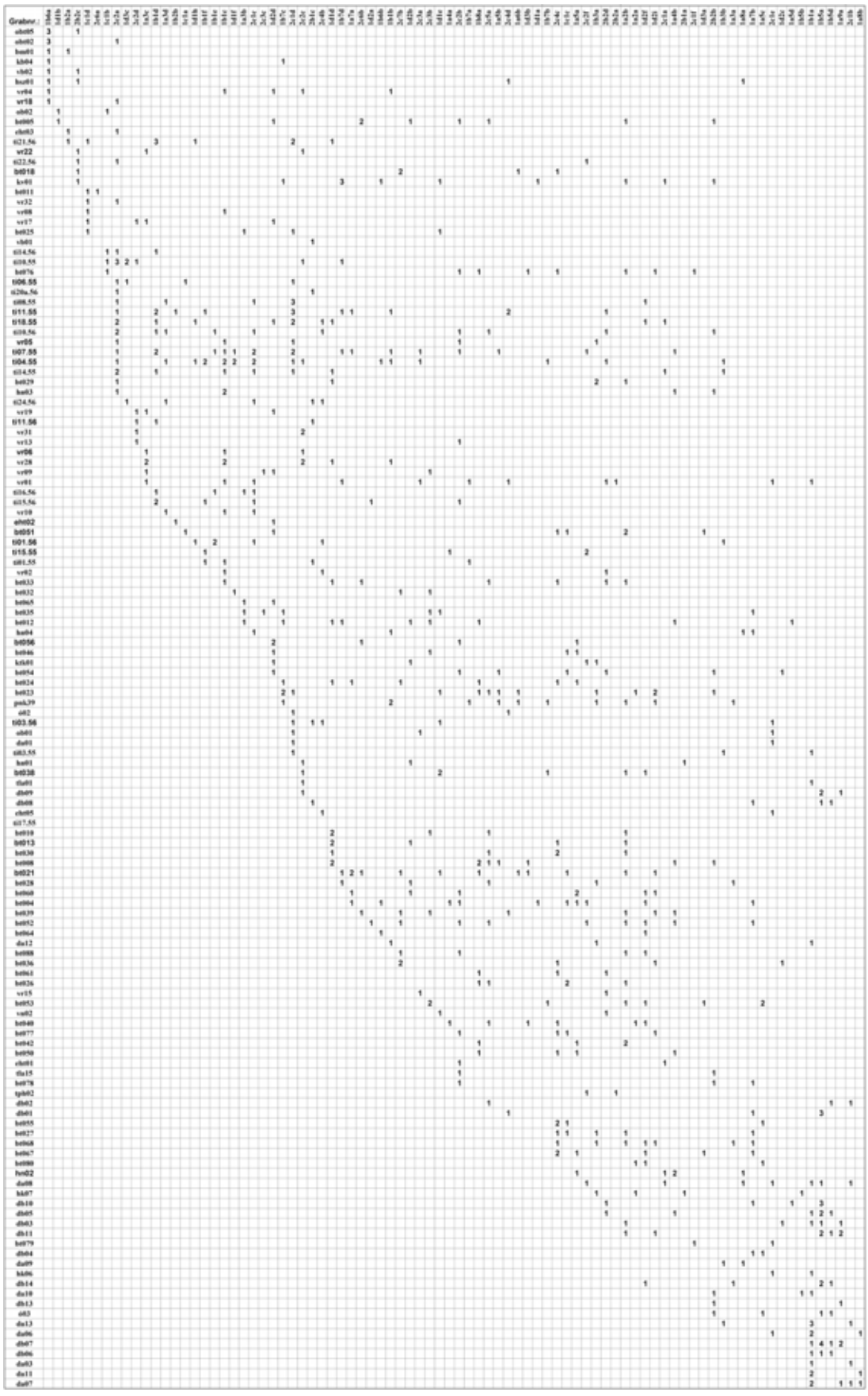


Tabelle 9. Sequenz der Gräber der Tiszapolgár-Kultur im östlichen Karpatenbecken gemäß der Seriation

Vel'ké Raškovce). In diesem Fall gibt es schon 46 Bestattungen, die nach Meisenheimer die mittlere Kupferzeit repräsentieren.

Belegungshorizonte der untersuchten kupferzeitlichen Gräberfelder

Wir haben versucht, die Belegungshorizonte der untersuchten kupferzeitlichen Gräberfelder im Vergleich der Belegungsperioden gemäß der Korrelation und der Seriation bestimmen zu können. Dementsprechend werden die folgenden Schlussfolgerungen resümiert:

Belegungshorizont 1a

Die Auswertung der bisherigen Beobachtungen zeigt, dass 24 % (n = 47) der Gräber den Anfang der untersuchten Gräberfelder repräsentieren dürften *(Diagramme 14–15).* Hierzu können in erster Linie die Bestattungen *bm1* von Bélmegyer, *kb4* von Körösladány-Bikeri, *obt2* und *obt5* von Okány, *ti4.55*, *ti16.56, ti1.55, ti1.56, ti3.55, ti6.56, ti7.55, ti11.55, ti11.56, ti14.55, ti15.55, ti15.56, ti17.55* von Tibava bzw. *vr8*, *vr10*, *vr18, vr1, vr2, vr4, vr5, vr6* bzw. *vr28* von Vel'ké Raškovce, zweitens die Gräber *bt6, bt10, bt12, bt13, bt18, bt21, bt23, bt24, bt29, bt30, bt33, bt35, bt38, bt39, bt42, bt46, bt50, bt56, bt60, bt61, bt64, bt65, bt69* und *bt88* von Basatanya, *eht2* von Endrőd-Hegedűs-tanya, *hn3* von Hódmezővásárhely-Népkert, *ktk1* von Köröstarcsa, *kv1* von Kisvárda, *pnk39* von Polgár-Nagy Kasziba und *ob2* von Oborín gehören. Dieser Belegungshorizont kann auch dadurch charakterisiert werden, dass Merkmale der mittelkupferzeitlichen Entwicklung zu dieser Zeit noch nicht nachgewiesen werden können.

In acht Nekropolen, also in *Polgár-Nagy Kasziba*, *Polgár-Hajdúnánási út*, *Körösladány-Bikeri*, *Vésztő-Bikeri*, *Bélmegyer-Monoki-domb*, *Köröstarcsa-Kossuth tér* und *Kisvárda*, gibt es je eine und in *Okány-Baromfitelep* zwei Bestattungen, die in diese Zeitperiode datieren. Daten für spätere Belegung sind in diesen Fällen nicht nachgewiesen.

Belegungshorizont 1b

Dieser Zeithorizont wird in den untersuchten prähistorischen Nekropolen mit 37 % (n = 72) repräsentiert *(Diagramme 14–15).* Hierher gehören die Bestattungen *bt4, bt5, bt7, bt8, bt25, bt26, bt27, bt28, bt36, bt37, bt40, bt51, bt52, bt53, bt55, bt59, bt62, bt66, bt67, bt68, bt76, bt80, bt96, bt123, bt146, bt155, bt-C* und *bt-K* von Basatanya, *vb2* von Vésztő-Bikeri, *vn2* von Vásárosnamény, *eht1* von Endrőd-Hegedűs-tanya, *ó2* und *ó3* von Ószentiván VIII, *da2, da3, da6, da7, da8, da9, da10, da12*, und *da13* von Deszk A, *db1, db3, db4, db5, db7, db8, db9, db10, db11, db13* und *db14* von Deszk B, *hk6* und *hk7* von Hódmezővásárhely-Kotacpart, *hn2* und *hn4* von Hódmezővásárhely-Népkert, *tla1* von Tápé-Lebő A und *tph4* von Polgár-Hajdúnánási út, *ob1* von Oborín, *ti5.56*, *ti8.56*, *ti14.56*, *ti18.55, ti21.56, ti3.56, ti10.56, ti20a.56 und ti24.56* von Tibava bzw. *vr11*, *vr13*, *vr15*, *vr22* und *vr32* von Vel'ké Raškovce. Typisch ist für den diskutierten Belegungshorizont, dass sieben Gräber von Basatanya *(bt7, bt37, bt96, bt123, bt146, bt155, bt-C)* von M. Meisenheimer in die Mittelkupferzeit datiert werden.

Es sind vier Fundorte bekannt, die während der Belegungshorizonte 1a und 2 genutzt wurden. Ein Grab von *Hódmezővásárhely-Népkert* stammt aus der früheren und zwei weitere aus der zeitlich darauffolgenden Zeitperiode. In *Oborín* vertreten zwei Bestattungen den diskutierten Belegungshorizont. In *Vel'ké Raškovce* gibt es neun Gräber, die den Belegungshorizont 1, und fünf andere, die den Belegungshorizont 2 vertreten.

Zu den Gräbern von *Tápé-Lebő A* ist folgendes zu bemerken: Ida Bognár-Kutzián behauptet, dass *"... only one or two of the graves opened by Móra can be assigned to the ECA (grave 5 and possibly grave 15) and grave 13 to the Neolithic Age"*.[60] Im Gegensatz zu dieser Feststellung bestätigt Nándor Kalicz, dass „alle Gräber aus Lebő A, die in Hockerlage gefunden worden waren, ausnahmslos zur Gorzsa-Gruppe gehören, auch mit den beiden kupferzeitlich datierten Gräbern",[61] oder „Zum Schluss muss noch einmal betont werden, dass alle Bestattungen der Grabungsstellen A, B und C aus Tápé-Lebő einheitlich die

[60] *Bognár-Kutzián 1972* 86–89.
[61] *Kalicz 2013* 374.

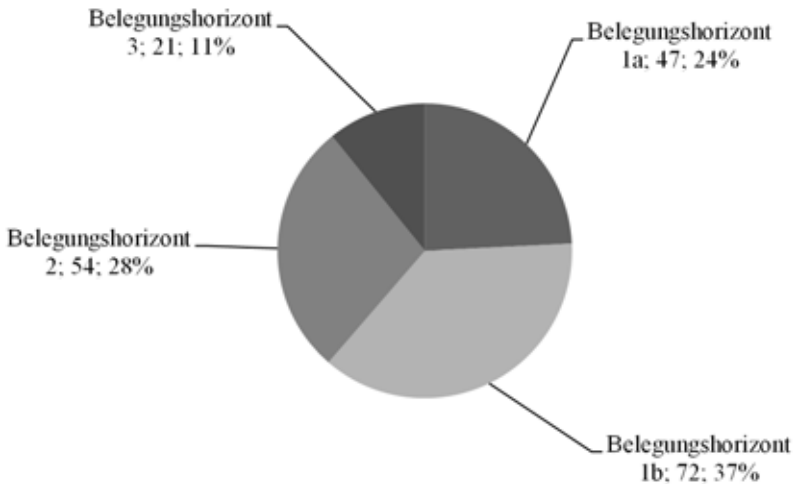


Diagramm 14. Verteilung der Belegungshorizonte in den untersuchten kupferzeitlichen Gräberfeldern

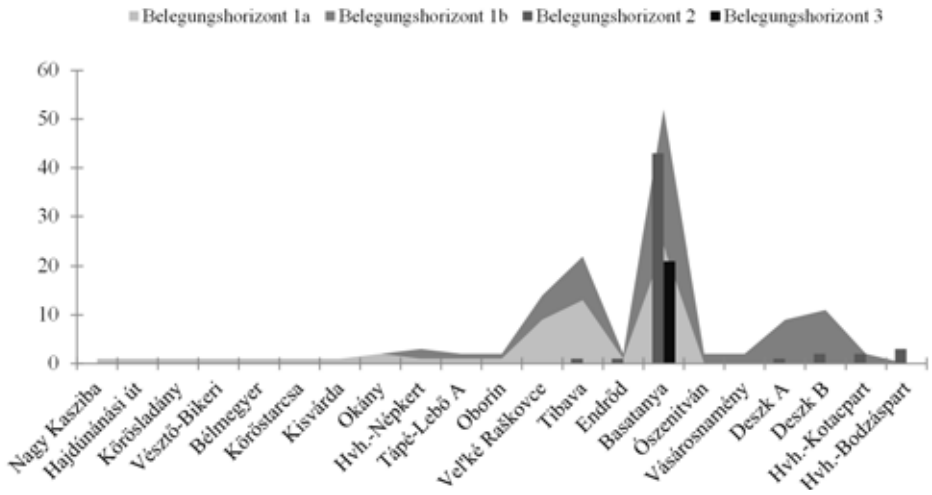


Diagramm 15. Verteilung der Gräber in den untersuchten kupferzeitlichen Nekropolen gemäß dem Belegungshorizont

späte, sogar späteste Phase der Theiß-Kultur (Gorzsa-Gruppe und Prototiszapolgár-Phase) repräsentieren“.[62]

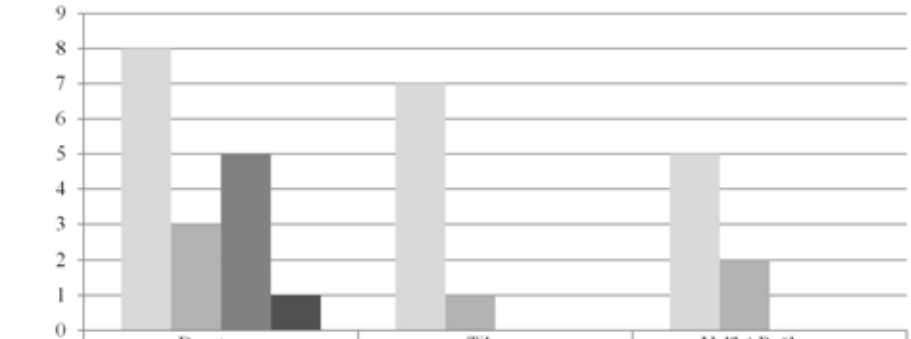
Wie gesehen, sind fünf Bestattungen in Tápé-Lebő A vorhanden, deren relativchronologische Stellung durch Korrelation bestimmt werden konnte: Entsprechend diesen Ergebnissen vertreten die Gräber *tla1* und *tla5* die Korrelationsperiode 1, die Gräber *tla13* und *tla15* die Korrelationsperiode 2, und Grab *tla14* repräsentiert die Korrelationsperiode 3. Gemäß der Seriation wurden die Bestattungen *tla1*, *tla2* und *tla15* in die Seriationsperiode 3 eingeordnet. Gemäß dem Belegungshorizont konnte allein Grab *tla1* datiert werden, und zwar in den Belegungshorizont Bh-1.

Belegungshorizont 2

Diese Etappe der untersuchten kupferzeitlichen Gräberfelder ist mit 28 % (n = 54) der Bestattungen vertreten *(Diagramme 14–15)*. Man kann hier die Gräber *bt3, bt15, bt16, bt32, bt48, bt49, bt54, bt71, bt75, bt77, bt79, bt83, bt87, bt90, bt93, bt94, bt95, bt97, bt98, bt105,*

[62] *Kalicz 2013* 374.

bt107, bt109, bt111, bt114, bt115, bt116, bt117, bt120, bt121, bt126, bt130, bt132, bt136, bt137, bt140, bt141, bt147, bt148, bt152,bt-A, bt-E, bt-I und *bt-J* von Basatanya, *hb1*, *hb2* und *hb3* von Hódmezővásárhely-Bodzáspart, *hk1* und *hk17* von Hódmezővásárhely-Kotacpart, *da1* von Deszk A, *db2* und *db6* von Deszk B, *eht5* von Endrőd-Hegedűs-tanya und schließlich das Grab *ti22.56* von Tibava einordnen *(Diagramme 15–16)*. Es sollte angemerkt werden, dass Marita Meisenheimer 34 von 43 Bestattungen des behandelten Belegungshorizontes von Basatanya als mittelkupferzeitlich datiert hatte.



	Basatanya	Tibava	Veľké Raškovce
Bh-1a	8	7	5
Bh-1b	3	1	2
Bh-2	5		
Bh-3	1		

Diagramm 16. Vorkommen der Metallartefakte in den Gräbern von Basatanya, Tibava und Vel'ké Raškovce gemäß dem Belegungshorizont

Belegungshorizont 3

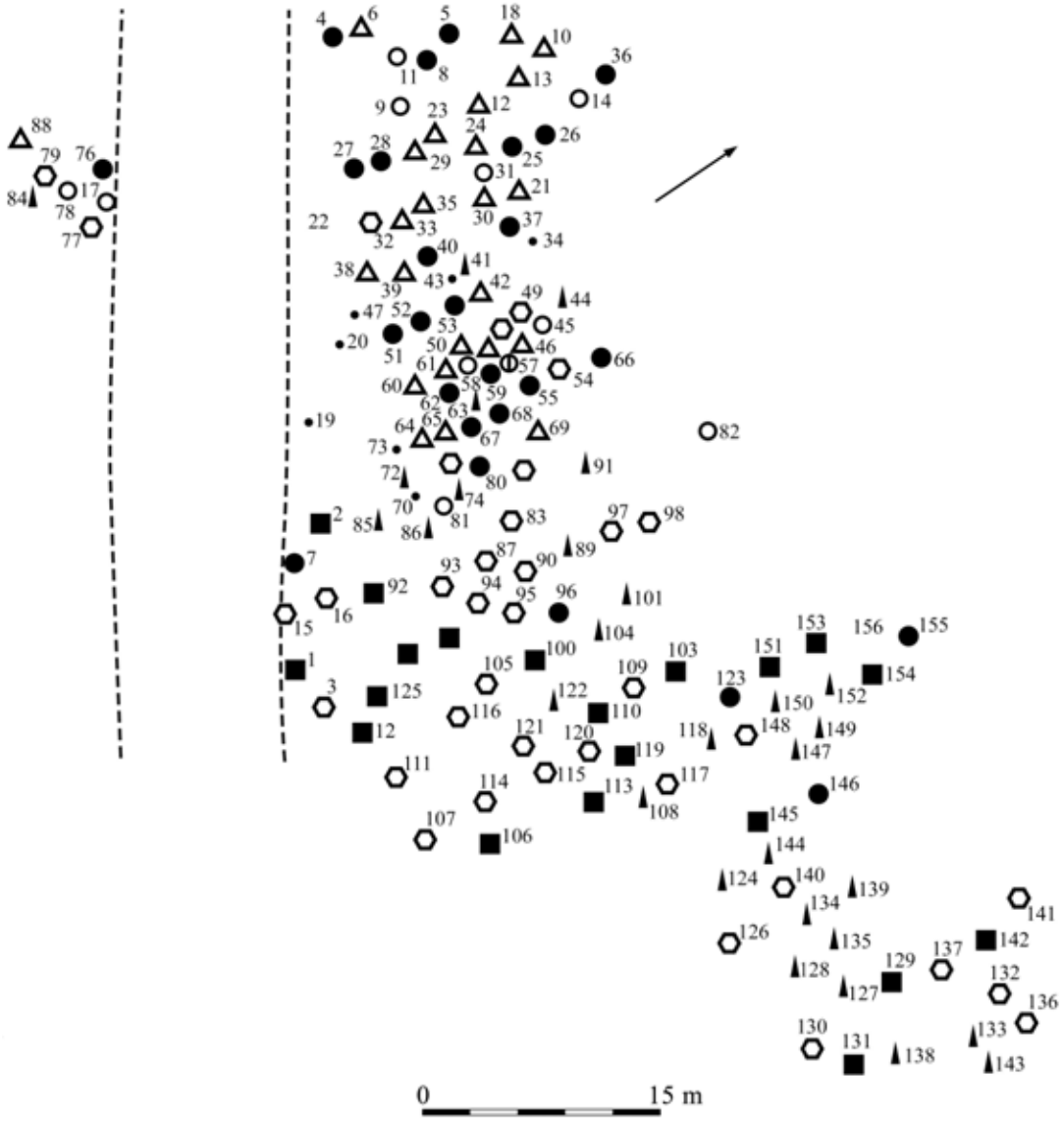
11 % (n=21) der untersuchten Gräber gehören der späten Entwicklungszeit der diskutierten Nekropolen an *(Diagramm 15)*. Alle diese Bestattungsobjekte *(bt1, bt2, bt92, bt99, bt100, bt102, bt103, bt106, bt110, bt112, bt113, bt119, bt125, bt129, bt131, bt142, bt145, bt151, bt153, bt154, bt-F)* sind allein im Gräberfeld von Basatanya bestätigt und alle vertreten die Mittelkupferzeit *(Diagramme 14−15)*.

In drei weiteren Gräberfeldern wurde *von Anfang an bis zum Ende* der Belegungszeit der Tiszapolgár-Kultur bestattet. 13 Bestattungen von *Tibava* kann man in den ältesten Belegungshorizont, neun andere in den Belegungshorizont 2 datieren, und nur ein Grab dürfte zum jüngsten frühkupferzeitlichen Belegungshorizont gehört haben. Alle Belegungshorizonte – wenn auch nur durch je eine Bestattung − sind auch in *Endrőd-Hegedűs-tanya* repräsentiert.

In 21 % (n=24) der Gräber von *Basatanya* wurde während des Belegungshorizontes 1a, in 24 % (n=28) während des Belegungshorizontes 1b und in 37 % (n=43) zur Zeit des Belegungshorizontes 2 bestattet. Der Anteil der Bestattungen des Belegungshorizontes 3 nimmt hier 18 % (n=21) ein.

Als Ergebnis der keramischen Merkmalanalyse, Korrelation und Seriation kann die Belegungsgeschichte der untersuchten prähistorischen Gräberfelder wie folgt beschrieben werden. Es sollte jedoch betont werden, dass diese Ergebnisse auch von dem Ausmaß (Gräberzahl) der untersuchten Gräberfelder abhängig sind.

Die Verteilung der Gräber in Basatanya gemäß dem Belegungshorizont stellt *Gräberfeldkarte 1* dar.



Gräberfeldkarte 1. Verteilung der Gräber von Basatanya gemäß dem Belegungshorizont *(Dreieck = Belegungshorizont 1a, Scheibengefüllter Krei = Belegungshorizont 1b, Sechseck = Belegungshorizont 2,Viereck = Belegungshorizont 3, Kreis – Periode I nach Meisenheimer, schmales Dreieck – Periode II nach Meisenheimer)*

In Ószentiván VIII und *Vásárosnamény* finden sich je zwei Gräber aus dem Belegungshorizont 2, ältere oder jüngere Bestattungsobjekte können hier nicht nachgewiesen werden *(Diagramm 15).*

Die Belegung von drei Nekropolen begann während des Belegungshorizontes 1b und setzte sich während des Belegungshorizontes 2 fort. In *Deszk A* überwiegen neun Bestattungen aus dem Belegungshorizont 1b, und nur ein Grab gehört in den Belegungshorizont 2. Ähnliches ist auch in *Deszk B* feststellbar, wo elf Gräber den früheren und nur zwei den jüngeren Belegungshorizont vertreten. In *Hódmezővásárhely-Kotacpart* können je zwei Bestattungen den Belegungshorizonten 1b und 2 zugeordnet werden *(Diagramm 15).*
In Hódmezővásárhely-Bodzáspart stammen alle drei Gräber aus dem Belegungshorizont 2 *(Diagramm 15).*

Diese Aufteilung der kupferzeitlichen Befunde in Belegungshorizonte ermöglichten also die mit Hilfe der archäologischen vergleichenden Methode, der Merkmalanalyse, der Korrelation und der Seriation vorgenommenen Untersuchungen. Diese Ergebnisse können aber auch durch die Untersuchung des Vorkommens anderer Fundarten in den Nekropolen von Basatanya, Tibava und Vel'ké Raškovce unterstützt werden. Die Verteilung der Metallartefakte gemäß den Nekropolen zeigt folgendes Ergebnis (*Diagramm 16*).

Der größte Unterschied aus der Sicht des Vorkommens der Metallfunde in den Nekropolen der Tiszapolgár-Kultur besteht darin, dass Artefakte aus Gold (durchbohrte Plattenanhänger) in Tibava und Vel'ké Raškovce in vielen Gräbern vorkommen. Typisch sind hier weiterhin die schweren Schmuckgegenstände, sowie Schwergeräte (Äxte und Meißel) aus Kupfer. Goldschmuck ist in Basatanya nicht nachgewiesen, typisch ist hier gleichzeitig der Kupferschmuck (Armreifen, Fingerringe, Perlen): 47 % (n=8) solcher Beigaben stammen aus dem Belegungshorizont 1a und 18 % (n=3) aus dem Belegungshorizont 1b. Kupferschmuck ist im Belegungshorizont 2 mit 29 % (n=5) vertreten, am Ende der Belegungszeit des Gräberfeldes befindet sich diese Schmuckart nur in einem Grab. Geräte aus Kupfer (Nadel) gibt es in Basatanya in zwei Bestattungen *(Grab bt98 und bt105)* des Belegungshorizontes 2. Die Bestattungen *db2*, *db4*, *db5* und *db8* von Deszk B sind mit Kupferschmuck (Armreifen) besonders reich ausgestattet,[63] ebenso die Gräber *hn1*, *hn2*, *hn3* und *hn4* von Hódmezővásárhely-Népkert[64] und Grab *da4* von Deszk A.[65]

Ein weiteres Merkmal des Gräberfeldes von Basatanya ist das häufige Vorkommen des Spondylus-Schmuckes in den Gräbern. Diese Schmuckart ist in Tibava und Vel'ké Raškovce nicht typisch. Solche sind im Belegungshorizont 1a mit 36 % (n=8) und Belegungshorizont 1b bzw. Belegungshorizont 2 mit je 30 % (n=7−7) repräsentiert. Spondylus-Schmuck erscheint während des Belegungshorizontes 3 nur noch einmal. Man kann annehmen, dass der in Tibava und Vel'ké Raškovce häufig vorhandene Goldschmuck in den Gräberfeldern der Ungarischen Tiefebene durch Spondylus-Schmuck ersetzt wurde.

Es gibt auch einen signifikanten Unterschied in der Häufigkeit der großen Steinklingen in den diskutierten Nekropolen. Diese Gerätschaften aus Stein sind in Tibava und Vel'ké Raškovce nicht kennzeichnend. In Basatanya bilden sie dagegen einen wichtigen Bestandteil des Beigabenmaterials in allen Belegungshorizonten: Während des Belegungshorizontes 1a sind sie mit einem Anteil von 30 % (n=8), während des Belegungshorizontes 1b mit 22 % (n=6), im Belegungshorizont 2 mit 26 % (n=7) und zur Zeit des Belegungshorizontes 3 mit 22 % (n=6) vertreten.

Ergebnisse – Streitfragen der frühkupferzeitlichen Forschungen im östlichen Karpatenbecken

„Proto-Tiszapolgár"

Der zuvor schon erwähnte Begriff „Prototiszapolgár-Phase" wurde von Stanislav Šiška als Übergang vom Spätneolithikum zur Kupferzeit eingeführt.[66] Diese sog. „Prototiszapolgár-Keramik" aus der Ostslowakei wurde mit dem westlowakischen Topolcsány–Szob-Horizont und die eigentliche Tiszapolgár-Keramik mit dem Nyitra–Brodzány-Horizont zeitlich parallelisiert. Betont werden muß aber, dass diese Ergebnisse vor allem auf der Basis von Siedlungsfunden zustande kamen.

Gemäß zweier ^{14}C-Daten kann man die absolutchronologische Stellung des Fundortes von Polgár-Bosnyákdomb in eine Zeit von 4612–4503 cal BC bzw. 4581–4461 cal BC

[63] *Bognár-Kutzián 1972* Pls 33−34.
[64] *Bognár-Kutzián 1972* Pl. 35.
[65] *Bognár-Kutzián 1972* Pls 32−33.
[66] *Šiška 1968*.

datieren. Pál Raczky und Alexandra Anders stellen fest, dass diese Messdaten weitgehend mit denen der früheren chronologischen Vorstellungen übereinstimmen, nach denen der Anfang der Tiszapolgár-Kultur um rund 4500/4400 cal BC angenommen werden kann. „Die Prototiszapolgár-Phase am Ende des Spätneolithikums kann damit begründet in die Zeit von 4600−4500 v. Chr. datiert werden.“[67]

Auf dem spätneolithischen Tell von Újvár (Uivar, Serbien) wurden jüngst auch Funde der Tiszapolgár-Kultur entdeckt.[68] Bei zwei Bestattungen setzte man voraus, dass sie die Prototiszapolgár-Phase vertreten dürften.[69] Grab *uv1* von Újvár wurde in eine Zeit von 4340−4255 cal BC bzw. 4360−4230 cal BC und Grab *uv2* von 4355−4260 cal BC bzw. 4450−4230 cal BC datiert.[70] Aufgrund der aus Grab *uv2* von Újvár veröffentlichten Keramiken, die in unsere Merkmalanalyse nicht aufgenommen wurden, ist folgendes festzustellen:

Der Becher *uv2.2*[71] vertritt mit seinen Indexwerten die Variante 1b7c1 und bildet eine selbstständige Untervariante. Die Variante ist in sechs Bestattungen der untersuchten frühkupferzeitlichen Gräberfelder belegt *(Grab bt12, bt23, bt24, bt35, kb4, pnk39)*. Der Analyse gemäß datieren diese Bestattungen in die Korrelationsperiode 1 und die Seriationsperiode 1; der fragmentarisch erhaltene Becher *uv2.1*[72] dürfte die Formengruppe 1b1e vertreten. Solche Keramiken stammen aus den Gräbern *ti10.56* und *ti16.56* von Tibava. Das erste gehört in die Korrelationsperiode 2 und das zweite in die Korrelationsperiode 1; auch Gefäß *uv2.4* ist in Bruchstücken erhalten.[73] Nach seinem Charakteristikum dürfte es eine neue Variante der Formengruppe 1b7b darstellen. Die Vertreter dieser Formengruppe finden sich in den Gräbern *ti4.55* von Tibava, *bt38* und *bt53* von Basatanya und *pnk39* von Polgár-Nagy Kasziba und können in die Korrelationsperiode 1 und/oder die Seriationsperiode 1 eingereiht werden.

In dem diskutierten Grab von Újvár sind auch zwei Schalen vorhanden: Das Gefäß *uv2.5*[74] kann der Variante 2c1a1 zugeordnet werden, dort bildet es eine neue Untervariante, die in den Gräbern *bt11* von Basatanya und *ti17.55* von Tibava erscheint. Sie repräsentieren die Seriationsperiode 1 bzw. Korrelationsperiode 1; die Schale *uv2.3*[75] zeigt typologische Zusammenhänge zur Variante 2c2a6 bzw. Untervariante 2c2a6/c. Die Keramiken dieser Untervariante erscheinen in den Gräbern *ti8.56* und *ti10.55* von Tibava. Die Variante selbst ist noch in den Bestattungen *ti20a.56* und *vr5* von Vel’ké Raškovce zu finden. Das Stück aus Vel’ké Raškovce datiert in die Korrelationsperiode 1, dagegen die Exemplare *ti8.56* und *ti20a.56* in die Korrelationsperiode 2.

Elf der Gräber mit Analogfunden der Gefäße des diskutierten Grabes von Újvár gehören also in die Korrelationsperiode 1 und zwei weitere Bestattungen in die Korrelationsperiode 2 der Tiszapolgár-Gräberfelder. Sechs Bestattungen datieren in die Seriationsperiode 1. Gemäß dem Belegungshorizont konnten 15 dieser Bestattungen eingeordnet werden: Elf davon sind mit dem Belegungshorizont 1a und nur vier mit dem Belegungshorizont 1b verbunden.

Zum Verhältnis der Lengyel- und der Tiszapolgár-Kultur

Für die ostslowakischen Gräberfelder der Tiszapolgár-Kultur wurde vorausgesetzt, dass ihre „Keramik als Komplex an das vorhergehende Töpferschaffen anknüpft. Bei der überwiegenden Mehrzahl der Erzeugnisse konnte der einheimische Ursprung in der

[67] *Raczky – Anders 2009* 16−17.
[68] *Schier 2008* 61−62, fig. 10.
[69] „Considering the small spectrum of published ’Proto-Tiszapolgár’ material and the overlap of radiocarbon dates, some doubts remain as to whether ’Proto-Tiszapolgár’ really represents a separable formative phase or rather a southern variant of the early classical Tiszapolgár culture” *(Schier 2013 574)*.
[70] *Schier 2013* 574, Tabl. 1.
[71] *Schier 2013* fig. 6. 2.
[72] *Schier 2013* fig. 6. 1.
[73] *Schier 2013* fig. 6. 4.
[74] *Schier 2013* fig. 6. 5.
[75] *Schier 2013* fig. 6. 3.

Gruppe Oborín festgestellt werden“.[76] In der Oborín-Gruppe sind auch die glockenförmigen Fußgefäße und Becher in ihren Ausgangsformen vorhanden.[77] Aus dieser Sicht wurden die Formenänderungen auch der Fußgefäße der Großen Ungarischen Tiefebene studiert: Die Fußgefäßtypen 1a3c1, 1a3c2 und 1a6a1 mit glockenförmig gestaltetem Hohlfuß sind allein in Vel’ké Raškovce vorhanden. Typ 1a3d1 erscheint auch in Vel’ké Raškovce nur in einem Grab, in Tibava dagegen in fünf Bestattungen. Der Fußgefäßtyp 1a1c1 ist der einzige mit dieser Form, der in Basatanya und nur einmal auftritt *(Grab bt69)*. Beachtenswert ist noch das Grab *hsz1* von Hódmezővásárhely-Szakálhát, in das vier Fußgefäße des Typs 1a6a4 mit glockenförmigem Hohlfuß gelegt wurden.

Am südtransdanubischen Fundort Alsónyék-Bátaszék wurden jüngst nahezu 2500 Bestattungen der spätneolithischen Lengyel-Kultur ausgegraben und dokumentiert. Die überwiegende Mehrheit dieser Gräber repräsentiert die „traditionelle“ Stufe Lengyel II, die bisher nur durch Siedlungsfunde (Gruben) belegt war. Viele Erscheinungen, Phänomene in Alsónyék-Bátaszék dürften trotzdem darauf hindeuten, dass dieses Gräberfeld auch während der „traditionellen“ Stufe Lengyel III (Nyitra–Brodzany-Horizont) belegt war.[78]

In Alsónyék-Bátaszék gibt es auch Funde und Befunde, die bisher unbekannt waren.[79] Die hochgradige typologische Ähnlichkeit zwischen spätlengyelzelichen Steinäxten von Mórágy, Zengővárkony und besonders von Alsónyék, weiterhin der Tiszapolgár-Kultur von Tibava und Vel’ké Raškovce, die die Kupferaxtformen imitieren, ist nicht zu übersehen. Eine Kupferaxt aus Tibava[80] zeigt sogar noch die typische Form von spätneolithischen Steinäxten. Auch die Entsprechungen der Kupferaxt aus Grab *vr8* von Vel’ké Raškovce[81] sind aus den Gräbern der südtransdanubischen Lengyel-Kultur und besonders in Alsónyék nachgewiesen. „Es entsteht die Frage, ob diese spätneolithischen Steinäxte Prototypen der ältesten Kupferäxte gewesen sein dürften, oder ob die frühen Kupferaxtformen auf die typologische Entwicklung der späten Steinäxte eingewirkt haben.“[82] Ein beachtenswertes Phänomen ist gleichzeitig, dass Schwergeräte aus Kupfer, darunter auch Kupferäxte, in den frühkupferzeitlichen Bestattungen der Großen Ungarischen Tiefebene völlig fehlen. Auch die steinerne Schaftlochaxt und die Steinkeule sind nur in geringer Zahl vorhanden, selbst in Basatanya wurden nicht mehr als fünf Bestattungen mit diesen Geräten ausgestattet.

Im Fall der steinernen Schaftlochäxte von Basatanya handelt es sich mit einer Ausnahme um gewöhnliche spätneolithische Axtformen.[83] Die Steinaxt aus Grab *bt12* besitzt zwar die spätneolithische Hammeraxtform, allerdings überrascht es nicht, dass sie mit Längskanten an den Schmalseiten gestaltet wurde[84] – ebenso wie bei den vorgestellten steinernen „Streitäxten“ der Lengyel-Kultur. Auch die doppelkonisch geformte Steinaxt aus Grab *bt37*[85] hat ihre typologischen Analogien im Axtbestand der Spätlengyel-Kultur Südtransdanubiens, ebenso wie das Exemplar aus Grab *bt45*.[86] Die Stücke aus Grab *bt12* wurden in den Belegungshorizont 1a, die Exemplare aus den Bestattungen *bt37* und *bt67* in den Belegungshorizont 1b datiert. Die Gestalt der Steinaxt aus Grab *bt129*[87] ist sowohl im Spätneolithikum und in der Frühkupferzeit fremd, dieses Bestattungsobjekt vertritt aber schon den Belegungshorizont 3 der kupferzeitlichen Entwicklung des untersuchten Bereiches.

[76] *Vízdal 1977* 140.
[77] *Vízdal 1977* 139.
[78] *Zalai-Gaál et al. 2012* 59.
[79] *Zalai-Gaál 2012*; *Zalai-Gaál 2014*.
[80] *Šiška 1964* obr. 17. 11.
[81] *Vízdal 1977* obr. 18. 1.
[82] *Zalai-Gaál 2012* 496.
[83] *Zalai-Gaál et al. 2014*.
[84] *Bognár-Kutzián 1963* 53, Pls 19. 1; 20. 5.
[85] *Bognár-Kutzián 1963* 89, Pl. 72. 7.
[86] *Bognár-Kutzián 1963* 101, Pl. 51. 5.
[87] *Bognár-Kutzián 1963* 208, Pl. 110. 7.

Es wird angenommen, dass anstelle der Stein- und Kupferäxte die Hirschgeweihäxte benützt wurden. Hirschgeweihäxte sind als eine der typischen Gerätschaften und Beigaben der Lengyel-Kultur zu behandeln,[88] ebenso wie die Geweihstangen und anderen Geweihgeräte.[89] Aus Hirschgeweih hergestellte Geräte treten während des Belegungshorizontes 1a viermal *(Grab bt35, bt42, bt60, bt69)* und während des Belegungshorizontes 1b zweimal *(Grab bt52, bt67)* auf. Bemerkenswert ist weiterhin, dass von diesen Bestattungsobjekten die Gräber *bt60* und *bt67* auch mit einer Geweihaxt ausgestattet worden waren.[90] Diese auch für die Lengyel-Kultur charakteristischen Beigaben sind in den nachfolgenden Belegungshorizonten nicht nachweisbar.

Den Beigabensitten gemäß ist die Deponierung von Schweinemandibeln und Eberhauerschmuck bei Toten ein weiteres gemeinsames Charakteristikum der Lengyel- und der Tiszapolgár-Kultur. Sie erscheinen in fast allen Nekropolen der Lengyel-Kultur.[91] Im Grab *pnk39* von Polgár-Nagy Kasziba befanden sich zwei solche Funde.[92] Acht Befunde mit Schweinemandibel von Basatanya *(Grab bt23, bt29, bt30, bt35, bt42, bt50, bt56, bt60)* sind für den Belegungshorizont 1a und sechs weitere *(Grab bt40, bt52, bt53, bt67, bt68, bt80)* für den

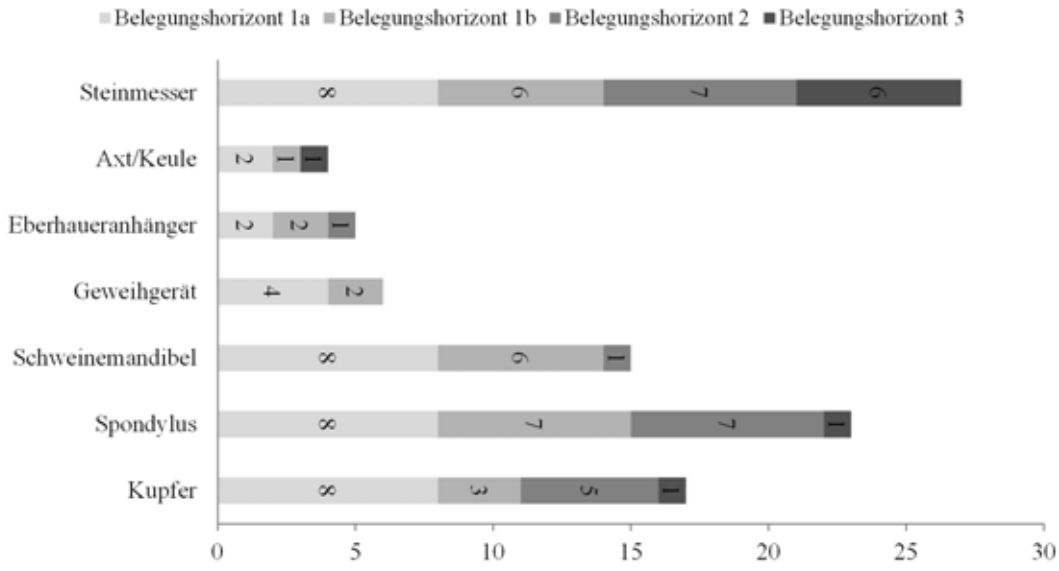


Diagramm 17. Verteilung der auch in der Spätlengyel-Kultur typischen Funde im Gräberfeld von Basatanya

Belegungshorizont 1b der Tiszapolgár-Gräberfelder kennzeichnend. Grab *bt77* wurde in den Belegungshorizont 2 datiert. Je zwei Gräber von Basatanya *(Grab bt35, bt60 bzw. bt52, bt68)* mit Eberhauerschmuck stammen aus den Belegungshorizonten 1a und 1b. Die Bestattung *bt98* vertritt schon den Belegungshorizont 2.

Die Verteilung der auch für die Lengyel-Bestattungen typischen Beigabentypen gemäß den Belegungshorizonten in Basatanya stellt *Diagramm 17* dar:

[88] *Zalai-Gaál – Gál 2005.*
[89] *Zalai-Gaál 2008*; *Zalai-Gaál et al. 2011*; *Zalai-Gaál 2012.*
[90] *Bognár-Kutzián 1963* Pls 70.1; 73.1.
[91] *Zalai-Gaál – Köhler – Osztás 2009.*
[92] *Raczky et al. 1997 47.*

In den Bestattungen der Lengyel-Kultur findet man gewöhnlich einfachen Kupferschmuck, wie Perlen (häufig auch aus Malachit), Fingerringe, Armringe oder Armreifen.[93] Im Gräberfeld von Alsónyék gibt es auch schon große und schwere Schmuckgegenstände aus Kupfer. In Basatanya sind Typen von Kupferschmuck vorhanden, die denen aus Alsónyék ähnlich sind. Typisch sind die einfachen Arm- oder Halsringe aus Draht,[94] Spiralfingerringe,[95] einfache offene oder mehrfach spiralförmige Armreifen.[96] Die Gräber *db4*, *db8* und *db11* von Deszk B[97] und *hn2*, *hn4* und *hn3* von Hódmezővásárhely-Népkert[98] sind mit Kupferschmuck noch reicher ausgestattet. In Basatanya können acht Kupfergräber *(Grab bt13, bt18, bt21, bt23, bt24, bt29, bt30, bt50)* in den Belegungshorizont 1a und nur drei *(Grab bt4, bt27, bt-C)* in den Belegungshorizont 1b datiert werden. Fünf weitere Bestattungen *(Grab bt3, bt77, bt87, bt98, bt105)* vertreten den Belegungshorizont 2 und nur eine *(Grab bt129)* den Belegungshorizont 3 *(Diagramm 17)*.

In viele Bestattungen der Spätlengyel-Kultur von Alsónyék legte man lange und breite Silexmesser, die oft aus ortsfremdem Material bestehen. Lange Silexklingen, die als „Messer" identifizierbar sind, kommen auch in allen Belegungshorizonten der Tiszapolgár-Kultur vor. Acht Gräber von Basatanya mit solchen Geräten *(Grab bt12, bt23, bt35, bt38, bt39, bt42, bt56, bt60)* stammen aus dem Belegungshorizont 1a, sechs Bestattungen *(Grab bt37, bt40, bt52, bt53, bt67, bt146)* aus dem Belegungshorizont 1b, sieben weitere *(Grab bt71, bt77, bt83, bt98, bt105, bt107, bt152)* aus dem Belegungshorizont 2 und sechs andere *(Grab bt1, bt102, bt129, bt145, bt151, bt153)* aus dem Belegungshorizont 3. Gemäß der Verteilung und der Vorkommen von Silexmessern in Basatanya gibt es also keine wesentlichen Unterschiede zwischen den einzelnen Belegungshorizonten *(Diagramm 17)*.

Zum Verhältnis zwischen der Tiszapolgár- und der Bodrogkeresztúr-Kultur

Aufgrund der Lage der Bestattungen innerhalb des Gräberfeldes von Basatanya setzte schon Ida Bognár-Kutzián voraus, dass dieser Bestattungsplatz durch die Mitglieder der Tiszapolgár- und der Bodrogkeresztúr-Kulturen gleichzeitig benutzt worden sein dürfte.[99] Die Gleichzeitigket der Gräber der Perioden Basatanya I und Basatanya II hielt Pál Patay jedoch nicht für wahrscheinlich.[100]

Das Gräberfeld der Bodrogkeresztúr-Kultur von Rákóczifalva-Bagi-föld besitzt aus dieser Sicht besondere Bedeutung. Die ^{14}C-Daten von hier (4334–4075 cal BC) deuten nämlich darauf hin, dass das Alter dieser Bestattungen teilweise zeitgleich mit dem Bestehen der Tiszapolgár-Kultur gewesen sein dürfte.[101] In Kenntnis dieser Daten und der Ergebnisse der jüngsten amerikanisch-ungarischen Untersuchungen[102] halten Marietta Csányi, Pál Raczky und Judit Tárnoki den Kontakt in Raum und Zeit und die parallele Entwicklung dieser zwei archäologischen Kulturen für eine realistische Option.[103] Die eigenartigen Fundkontexte der frühen Bestattungen und der sog. Übergangsgräber in den Nekropolen von Tiszavalk-Tetes, Magyarhomorog-Konyadomb, Magyartés usw.[104] dürften also – ebenso wie unsere Ergebnisse –nicht auf die zeitliche Abfolge der Kultureinheiten der Tiszapolgár- und der Bodrogkeresztúr-Kultur, sondern auf den räumlichen Kontakt und die parallele Zeit hindeuten.[105] Auch die Ergebnisse der von Pál Raczky und Zsuzsanna Siklósi vorgenommenen Bayesischen Analyse

[93] *Zalai-Gaál 1996.*
[94] *Bognár-Kutzián 1963* 161, Pl. 88.1–2.
[95] *Bognár-Kutzián 1963* 36, 52, Pls 7. 6, 13. 16.
[96] *Bognár-Kutzián 1963* 36, 104, 56, 151–152, Pls 7. 5, 54. 4, 23. 3, 80. 8.
[97] *Bognár-Kutzián 1972* 29–32, Pl. 34. 3–5.
[98] *Bognár-Kutzián 1963* 45–46, Pl. 35. 1–2, 5.
[99] *Bognár-Kutzián 1963.*
[100] *Patay 2008* 39–44.
[101] *Csányi – Raczky – Tárnoki 2009.*
[102] *Yerkes – Gyucha – Parkinson 2009.*
[103] *Csányi – Raczky – Tárnoki 2009.*
[104] *Patay 2008* 38–39.
[105] *Csányi – Raczky – Tárnoki 2009.*

zeigen, dass die Keramikstile der Tiszapolgár- und der Bodrogkeresztúr-Befunde gleichzeitig in Gebrauch gewesen sein konnten.[106]

Die Funde aus *Panyola* in der Basatanya-Gegend versuchten wir mit Hilfe der prähistorischen vergleichenden Methode zu datieren. Dabei handelte es sich um 21 ganze oder fragmentarisch erhaltene Grabgefäße aus sechs Gräbern.[107] Róbert Patay setzte voraus, dass diese Gräber die Entwicklung der Tiszapolgár- und Bodrogkeresztúr-Kultur repräsentieren, „die aufeinander folgten und miteinander in organischer Beziehung standen".[108]

Die runde Schale *p72.1* aus Grab 72 vertritt unsere Variante 2c2a6. Typologische Entsprechungen stammen aus den Gräbern *ti8.56* und *ti20a.56* von Tibava bzw. *vr5* von Vel'ké Raškovce.[109] Die Keramik *p72.2* vertritt dagegen die Bodrogkeresztúr-Kultur.[110] Der Becher aus Grab 201 bildet in der Variante 1b3a4 eine neue Untervariante. Die Exemplare der Variante treten noch in den Gräbern *bt23* und *bt29* von Basatanya und *vr5* von Vel'ké Raškovce auf.[111] Der Becher *p201.2* erscheint als eine neue Variante innerhalb der Formengruppe 1b5d. Seine typologischen Entsprechungen befinden sich in den Gräbern *bt74* von Basatanya und *db2*, *db5*, *db6*, *db11* und *db14* von Deszk B.[112] Der hohe und konische Becher *p201.3* dürfte in die Variante 1b7b1 eingereiht werden. Ähnliche Exemplare sind aus *bt38* von Basatanya, *pnk39* von Polgár-Nagy Kasziba und *ti4.55* von Tibava bekannt geworden.[113] Die runde Schale *p201.5* repräsentiert die Variante 2c1c5. Ähnliche Keramiken sind noch in den Bestattungen *ti4.55*, *ti7.55*, *ti18.55*, *ti18.56*, *ti1.56* und *ti24.56* von Tibava vorhanden.[114] Die konische Schale *p201.6* gehört zur Untervariante 2c2c1/c der untersuchten Grabkeramik. Ihre Entsprechungen sind in den Bestattungen *bt38*, *bt48* und *bt95* von Basatanya belegt.[115]

Die Keramik *p202.1* aus Grab 202 gehört zur Formengruppe 1b4d von Bechern und bildet eine neue Variante. Die formenkundlichen Analogien sind aus den Bestattungen *bt16* und *bt98* sowie *bt107*, *bt126*, *bt109*, *bt115* und *bt119* von Basatanya nachgewiesen.[116] Die runde Schüssel *p202.2* bildet eine neue Untervariante innerhalb der Variante 2b1c3. Dieser Gefäßtyp erscheint noch in den Bestattungen *db8* von Deszk B und in den Gräbern *ti1.55*, *ti14.55* und *ti24.56* von Tibava.[117]

Das Gefäß *p203.1* aus Grab 203 wurde anhand der Indexwerte und der Formgebung in die Formengruppe 1c1d von Näpfen eingereiht, wo es eine neue Variante darstellt. Typologische Parallelfunde kennen wir aus den Gräbern *bt25* von Basatanya und *vr8*, *vr23* und *vr32* von Vel'ké Raškovce.[118] Die Keramik *p203.2* ist in Bruchstücken erhalten. Ähnliche Stücke sind uns aus den Bestattungen *bt68* von Basatanya und *pnk39* von Polgár-Nagy Kasziba bekannt.[119] Die runde Schale *pa203.3* vertritt die Variante 2c4d3. Formenkundliche Entsprechungen treten in den Befunden *bt39* und *bt41* von Basatanya, *ó2* von Ószentiván VIII, *db1* von Deszk B und *hsz1* von Hódmezővásárhely-Szakálhát auf.[120] Das oben unvollständig erhaltene Fußgefäß *pa203.4* zeigt eine mit denen der Variante 1a5c2 übereinstimmende Gestalt mit leicht glockenförmig modelliertem Hohlfuß und doppelkonischem Oberteil.

[106] „The archaeological examples cited her clearly show that the ceramic styles of the Tiszapolgár and Bodrogkeresztúr assemblages, which until now have been regarded as chronological markers of the Early and Middle Copper Age, could be in use at the same time" (*Raczky – Siklósi 2013* 571).
[107] *Patay 2006* Taf. 1–11.
[108] *Patay 2006* 14.
[109] *Patay 2006* Taf. 13. 1.
[110] *Patay 2006* Taf. 13. 3.
[111] *Patay 2006* Taf. 3. 1.
[112] *Patay 2006* Taf. 3. 2.
[113] *Patay 2006* Taf. 3. 3.
[114] *Patay 2006* Taf. 3. 5.
[115] *Patay 2006* Taf. 4. 2.
[116] *Patay 2006* Taf. 6. 1.
[117] *Patay 2006* Taf. 6. 3.
[118] *Patay 2006* Taf. 7. 1.
[119] *Patay 2006* Taf. 7. 2.
[120] *Patay 2006* Taf. 8. 1.

Andere Exemplare dieser Variante erscheinen in den Bestattungen *bt55* von Basatanya, *db4* von Deszk B und *ó3* von Ószentiván VIII.[121]

Auch der am Hals unvollständig gebliebene Becher *p204.1* aus Grab 204 repräsentiert die Variante 1b3a5. Formale Parallelfunde sind in erster Linie aus den Gräbern *bt28* und *bt29* von Basatanya, weiterhin aus den Bestattungen *vr5* von Vel'ké Raškovce, *pnk39* von Polgár-Nagy Kasziba, *da12* von Deszk A, *hk7* von Hódmezővásárhely-Kotacpart, *ktk1* von Köröstarcsa bzw. *bt23*, *bt27* und *bt68* von Basatanya bekannt.[122] Das Fußgefäß *p204.2* bildet eine neue Untervariante innerhalb der Variante 1a2a2 mit seinem kurzen Hohlfuß und konischem Schüsselteil. Exemplare dieser Variante sind noch in den Gräbern *bt40* und *bt81* von Basatanya vorhanden.[123] Das Fußgefäß *p204.3* kann mit glockenförmig gestaltetem Hohlfuß gekennzeichnet werden und stellt eine neue Untervariante innerhalb der Variante 1a5a1 dar. Die Variante erscheint noch in den Gräbern *bt9* von Basatanya und *hn2* von Hódmezővásárhely-Népkert.[124] Die Keramik *p204.4* dürfte mit ihrem doppelkonischen Körper bei der Schalenvariante 2c2c5 eingeordnet werden, wo sie eine neue Untervariante darstellt. Gefäße dieser Variante wurden in den Gräbern *hn1* von Hódmezővásárhely-Népkert und *vr28* von Vel'ké Raškovce entdeckt.[125] Nur der konische Unterteil der Schüssel *p204.5* ist erhaltengeblieben, sie wurde nur mit Vorbehalt zur Variante 2b2b1 gerechnet.[126]

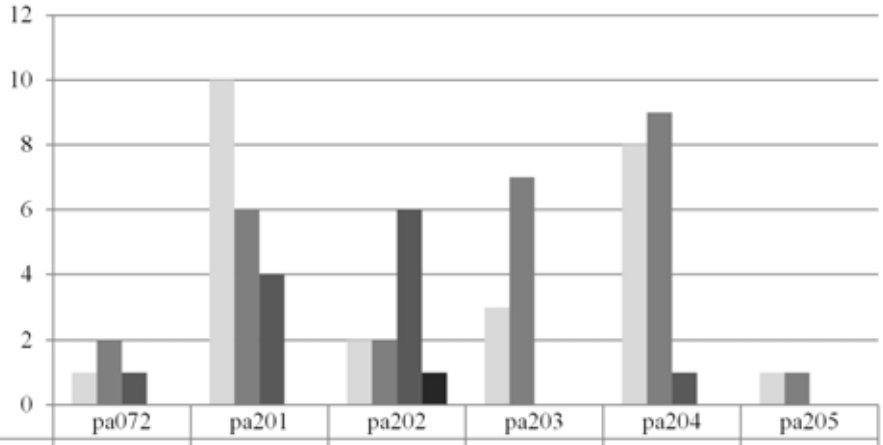
Der Becher *p205.2* aus Grab 205 repräsentiert eindeutig die Variante 1b3a5, deren Exemplare noch in den Gräbern *bt28* und *bt29* geborgen wurden.[127]

Beim Vergleich der Verteilung der aufgezählten Grabgefäße gemäß den Belegungshorizonten anderer Tiszapolgár-Gräberfelder steht fest, dass 38 % der Keramiken von Panyola mit denen des Belegungshorizontes 1a und sogar 42 % (n=27) mit denen des Belegungshorizontes 1b relativchronologisch verbunden sein dürften. 18 % (n=12) der Grabgefäße zeigen Beziehungen zum Belegungshorizont 2 und nur 2 % (n=1) zum Belegungshorizont 3.

Allein schon aus diesen Angaben geht hervor, dass nur zwei der untersuchten Gräber von Panyola die „reine" Tiszapolgár-Kultur vertreten. Die Grabgefäße der Bestattungen *p203* und *p205* besitzen nämlich Entsprechungen in Gräbern anderer Gräberfelder, die in den Belegungshorizont 1a und den Belegungshorizont 1b datiert werden. Im Falle der Gräber *p204*, p201 und *p72* überwiegen noch die Beziehungen zu den „Tiszapolgár-Belegungshorizonten", es treten aber auch schon Merkmale des Belegungshorizontes 2 auf. Ein beachtenswertes Phänomen ist bei Grab *p202*, dass sein Keramikinventar aus typologischer Sicht zwar noch mit den „Tiszapolgár-Horizonten" verbunden ist, aber die Gepräge des Belegungshorizontes 2 schon deutlich überwiegen und zum Schluss auch die typologischen Merkmale des Belegungshorizontes 3 erscheinen *(Diagramm 18).*

Die angeführten Daten und Ergebnisse der mit Hilfe der Merkmalanalyse, Seriation und der vergleichenden archäologischen Methode durchgeführten Untersuchungen dürften darauf hinweisen, dass die kupferzeitlichen Vertreter (Gemeinschaften) sowohl in Polgár-Basatanya als auch in Panyola wenigstens seit der Zeit des Belegungshorizontes 1b nebeneinander gelebt haben dürften. Bei der frühkupferzeitlichen Tiszapolgár-Kultur und der in die Mittelkupferzeit datierten Bodrogkeresztúr-Kultur dürfte es sich also um eine ununterbrochene Entwicklung gehandelt haben. Die keramischen Formen und Verzierungen haben eine beträchtliche Änderung im Laufe dieser Entwicklung (Geschichte) erfahren. Die Fragen der möglichen äußeren Wirkungen und der inneren Entwicklung dieser Gemeinschaften hoffen wir mit der Bearbeitung und Analyse des gesamten, bislang veröffentlichten früh- und

[121] *Patay 2006* Taf. 8. 2.
[122] *Patay 2006* Taf. 9. 1.
[123] *Patay 2006* Taf. 9. 2.
[124] *Patay 2006* Taf. 9. 3.
[125] *Patay 2006* Taf. 10. 1.
[126] *Patay 2006* Taf. 10. 2.
[127] *Patay 2006* Taf. 12. 1.



	pa072	pa201	pa202	pa203	pa204	pa205
Belegungshorizont 1a	1	10	2	3	8	1
Belegungshorizont 1b	2	6	2	7	9	1
Belegungshorizont 2	1	4	6		1	
Belegungshorizont 3			1			

Diagramm 18. Verteilung der Gräber von Panyola gemäß dem Belegungshorizont

mittelkupferzeitlichen keramischen Bestandes des östlichen Karpatenbeckens beantworten zu können.

LITERATURVERZEICHNIS

Andel 1958 K. Andel: Pohrebisko z doby medenej v Tibave na východnom Slovensku. SlA 6 (1958) 39–49.

Bognár-Kutzián 1963 I. Bognár-Kutzián: The copper age cemetery of Tiszapolgár-Basatanya. ArchHung 42. Budapest 1963.

Bognár-Kutzián 1972 I. Bognár-Kutzián: The Early Copper Age Tiszapolgár Culture in the Carpathian Basin. ArchHung 48. Budapest 1972.

Csányi – Raczky – Tárnoki 2009 M. Csányi – P. Raczky – J. Tárnoki: Előzetes jelentés a rézkori bodrogkeresztúri kultúra Rákóczifalva-Bagi-földön feltárt temetőjéről (Preliminary report on the cemetery of the Bodrogkeresztúr culture excavated at Rákóczifalva-Bagi-föld). Tisicum XVIII (2010) 13–34.

Della Casa 2007 Ph. Della Casa: Der geschlossene Fund als archäologisches Konzept. MA–Seminar SS 07. Universität Zürich 2007.

Ecsedy 1981 I. Ecsedy: A kelet-magyarországi rézkor fejlődésének fontosabb tényezői (On the factors of the Copper Age development in Eastern Hungary). JPMÉ 26 (1981) 73–95.

Fiedler 1979 L. Fiedler: Formen und Techniker neolithischer Steingeräte aus dem Rheinland, in: Beiträge zur Urgeschichte des Rheinlandes 3. Köln – Bonn 1979, 53–190.

Gläser 1995 R. Gläser: Die Epi-Rössener Gruppen in Südwestdeutschland. Untersuchungen zur Chronologie, stlistischen Entwicklung und kulturellen Einordnung. Saarbrücker Beiträge zur Altertumskunde 61. Bonn 1995.

Goldman 1972 K. Goldman: Zwei Methoden chronologischer Gruppierung. APA 3 (1972) 1–34.

Govedarica 2009 B. Govedarica: Zentrum und Peripherie im 5. Jahrtausend v. Chr.: Zur Entstehung und Ausbreitung der europäischen Kupferzeit, in: J. Apakidze – B. Govedarica – B. Hänsel (Hrsg.): Der Schwarzmeerraum vom Äneolithikum bis in die Früheisenzeit (5000–500 v. Chr.). Kommunikationsebenen zwischen Kaukasus und Karpaten. Internationale Fachtagung von Humboldtianern für Humboldtianer im Humboldt-Kolleg in Tiflis / Georgien (17.–20. Mai 2007). Rahden/Westfalen 2009, 60–73.

Gyucha 2009 A. Gyucha: A Körös-vidék kora rézkora [The Early Copper Age in the Körös Region] Phd Thesis (ELTE, Budapest). Budapest 2009.

Hellebrandt – Patay 1977 M Hellebrandt – P. Patay: Újabb rézkori temetők Dél-Borsodban (Neuere Friedhöfe aus der Kupferzeit in Süd-Borsod). HOMÉ 16 (1977) 43–76.

Hillebrandt 1926 J. Hillebrandt: A pusztaistvánházi korarézkori temető (Das frühkupferzeitliche Gräberfeld von Pusztaistvánháza). ArchHung 4. Budapest 1926.

Horváth 1989 F. Horváth: A Survey of the Development of Neolithic Settlement Pattern and House Types in the Tisza Region, in: S. Bökönyi (ed.): Neolithic of Southeastern Europe and its Near Eastern Connections. VAH 2. Budapest 1989, 85–101.

Horváth 2005 F. Horváth: Gorzsa. Előzetes eredmények az újkőkori tell 1978 és 1996 közötti feltárásából (Gorzsa. Preliminary results of the excavation of the Neolithic tell between 1978–1996), in: L. Bende – G. Lőrinczy (eds): Hétköznapok Vénuszai. Hódmezővásárhely 2005, 51–84.

Kalicz 1987–1988 N. Kalicz: Kultúraváltozások a korai és középső rézkorban a Kárpát-medencében (Culture changes in the Carpathian basin during the late Neolithic and Copper Age). ArchÉrt 114 (1987–1988) 3–15.

Kalicz 2013 N. Kalicz: Siedlungsstruktur und Bestattungen mit Prestigeobjekten des Fundplatzes Tápé-Lebő (südliches Theißgebiet, Ungarn), in: A. Anders – G. Kulcsár (eds): Moments in Time. Papers Presented to Pál Raczky on His 60th Birthday. Budapest 2013, 365–384.

Kalicz – Raczky 1984 N. Kalicz – P. Raczky: Preliminary report on the 1977–1982 excavations at the neolithic and bronze age tell settlement of Berettyóújfalu-Herpály. ActaArchHung 36 (1984) 85–136.

Kienlin 2008 T. L. Kienlin: Von Schmieden und Stämmen: Anmerkungen zur kupferzeitlichen Metallurgie Südosteuropas. Germania 86 (2008) 503–540.

Krauß 2006 R. Krauß: Mitteilungen aus der Vergangenheit: Zum Zeichengehalt archäologischer Funde. Zeitschrift für Semiotik 28 (2006) 1. 53–68.

Lichardus 1991 J. Lichardus: Die Kupferzeit als historische Epoche. Versuch einer Deutung, in: J. Lichardus (Hrsg.): Die Kupferzeit als Historische Epoche. I–II. Symposium Saarbrücken und Otzenhausen 6–13.11.1988. Bonn 1991, 763–800.

Lichardus – Lichardus-Itten 1997 J. Lichardus – M. Lichardus-Itten*:* Spätneolithische Funde von Čičarovce (Ostslowakei) und das obere Theißgebiet an der Schwelle zur frühen Kupferzeit. SASTUMA 4–5 (1995–1996) 143–249.

Lichardus – Lichardus-Itten 1998 J. Lichardus – M. Lichardus-Itten: Nordpontische Gruppen und ihre westlichen Nachbarn. Ein Beitrag zur Entstehung der frühen Kupferzeit Alteuropas, in: B. Hänsel – J. Machnik (Hrsg.): Das Karpatenbecken und die osteuropäische Steppe. Rahden/Westfalen 1998, 99–122.

Meisenheimer 1989 M. Meisenheimer: Das Totenritual, geprägt durch Jenseitsvorstellungen und Gesellschaftsrealität. BAR IS 475. Oxford 1989.

Montelius 1903 O. Montelius: Die typologische Methode. Stockholm 1903.

Patay 1945 P. Patay: Rézkori temető leletei Jászladányból (Les trouvailles archéologiques du cimetière de l'âge du cuivre à Jászladány). ArchÉrt 5–6 (1944–45) 1–22.

Patay 1957 P. Patay: Rézkori temető Tiszakeszin (Gräberfeld aus der Kupferzeit bei Tiszakeszi). HOMÉ 1 (1957) 31–40.

Patay 1961 P. Patay: A bodrogkeresztúri kultúra temetői [Die Gräberfelder der Bodrogkeresztúr-Kultur]. RégFüz II.10. Budapest 1961.

Patay 1969 P. Patay: A fényeslitkei rézkori temető (Das Kupferzeitliche Gräberfeld von Fényeslitke). JAMÉ 11 (1968 [1969]) 15–62.

Patay 1976 P. Patay: A magyarhomorogi rézkori temető (Das kupferzeitliche Gräberfeld von Magyarhomorog). DMÉ 1975 [1976] 173–254.

Patay 1977 P. Patay: A Tiszavalk-tetesi rézkori temető és telep I. (Kupferzeitliches Gräberfeld und Siedlung von Tiszavalk-Tetes I. Das Gräberfeld). FolArch 29 (1978) 21–58.

Patay 1978 P. Patay: Das kupferzeitliche Gräberfeld von Tiszavalk-Kenderföld. FontArchHung Budapest 1978.

Patay 2008 P. Patay: A bodrogkeresztúri kultúra belső időrendjéről (Über die innere Chronologie der Bodrogkeresztúr-Kultur). ArchÉrt 133 (2008) 21–48.

Patay 2006 R. Patay: Kora és középső rézkori sírok Panyolán (Früh- und mittelkupferzeitliche Gräber aus Panyola). JAMÉ 48 (2006) 61–74.

Pulszky 1884 F. Pulszky: Die Kupferzeit in Ungarn. Budapest 1884.

Raczky et al. 1997 P. Raczky – A. Anders – E. Nagy – B. Kriveczky – Zs. Hajdú – T. Szalai: Polgár-Nagy Kasziba, in: Utak a múltba. Az M3-as autópálya régészeti leletmentései. Budapest 1997, 47–50.

Raczky – Anders 2009 P. Raczky – A. Anders: Régészeti kutatások egy késő neolitikus településen – Polgár-Bosnyákdomb. Előzetes jelentés (Archaeological research at a Late Neolithic settlement – Polgár-Bosnyákdomb. Preliminary report). ArchÉrt 134 (2009) 5–21.

Raczky – Siklósi 2013 P. Raczky – Zs. Siklósi: Reconsideration of the Copper Age chronology of the eastern Carpathian Basin: a Bayesian approach. Antiquity 87 (2013) 555–573.

Schier 2008 W. Schier: Uivar: a late Neolithic-early Eneolithic fortified tell site in western Romania, in: D. Bailey – A. Whittle – D. Hoffmann (eds): Living Well Together? Settlement and Materiality in the Neolithic of South-East and Central Europe. Oxford 2008, 54–66.

Schier 2013 W. Schier: An Antiquarian's Grave? Early Tiszapolgár Burials int he Late Vinča Tell Site of Uivar (Romania), in: A. Anders – G. Kulcsár (eds): Moments in Time. Papers Presented to Pál Raczky on His 60th Birthday. Budapest 2013, 569–577.

Schlette 1975 F. Schlette (Hrsg.): Wege zur Datierung und Chronologie der Urgeschichte. Wissenschaftliche Beiträge der Martin-Luther-Universität Halle-Wittenberg 1974/4. Berlin 1975.

Šiška 1964 S. Šiška: Pohrebisko tiszapolgárskej kultúry v Tibave (Gräberfeld der Tiszapolgár-Kultur in Tibava). SlA 12 (1964) 294–356.

Šiška 1968 S. Šiška: Tiszapolgárska kultúra na Slovensku (Die Tiszapolgár Kultur in der Slowakei). SlA 16 (1968) 63–164.

Stehli 1973 P. Stehli: Keramik, in: J.-P. Farrugia – R. Kuper – J. Lüning – P. Stehli: Der bandkeramische Siedlungsplatz Langweiler 2 Gemeinde Aldenhoven, Kreis Düren. Bonn 1973, 57–100.

Strobel 1996 M. Strobel: Ein Beitrag zur Gliederung der östlichen Linearbandkeramik. Versuch einer Merkmalsanalyse. SASTUMA 4–5 (1995–1996 [1997]) 9–98.

Szilágyi 2008 M. Szilágyi: Változások az Alföldön az i. e. 5. évezred derekán. Átmenet a neolitikumból a rézkorba [Veränderungen in der Tiefebene in der Mitte des 5. Jahrtausend v. Chr. Übergang vom Neolithikum zur Kupferzeit]. Első Század 2 (2008) 361–427.

Vízdal 1962 J. Vízdal: Neolitické hroby z Oborína (Neolithische Gräber aus Oborín in der Slowakei). AR 14 (1962) 605–609.

Vízdal 1970 J. Vízdal: Neskoroneolitické nálezy z Oborína (Jungneolithische Funde aus Oborín). SlA 18 (1970) 219–234.

Vízdal 1977 J. Vízdal: Tiszapolgárske pohrebisko vo Vel'kych Raškovciach. Košice 1977.

Vladár – Lichardus 1968 J. Vladár – J. Lichardus: Erforschung der frühäneolithischen Siedlung in Branč. SlA 16 (1968) 263–352.

Zalai-Gaál 1996 I. Zalai-Gaál: Die Kupferfunde der Lengyel-Kultur im südlichen Transdanubien. ActaArchHung 48 (1996) 1–39.

Zalai-Gaál 2007 I. Zalai-Gaál: Von Lengyel bis Mórágy. Die spätneolithischeGrabkeramik in Südtransdanubien aus den alten Ausgrabungen. I. Analyse. WMMÉ 30 (2007) 7–177.

Zalai-Gaál 2008 I. Zalai-Gaál: An der Wende vom Neolithikum zur Kupferzeit in Transdanubien (Ungarn): Die „Häuptlingsgräber" der Lengyel-Kultur in Alsónyék-Kanizsa-dűlő. Das Altertum 53 (2008) 1–40.

Zalai-Gaál 2012 I. Zalai-Gaál: Frühkupferzeitliche Elemente in den Bestattungssitten der Lengyel-Kultur in Transdanubien, in: R. Gleser – V. Becker (Hrsg.): Mitteleuropa im 5. Jahrtausend vor Christi. Beiträge zur Internationalen Konferenz in Münster 2010. Berlin 2012, 495–508.

Zalai-Gaál – Gál 2005 I. Zalai-Gaál – E. Gál: Gerät oder Machtabzeichen? Die Hirschgeweihäxte des transdanubischen Spätneolithikums. ActaArchHung 56 (2005) 29–66.

Zalai-Gaál – Köhler – Osztás 2009 I. Zalai-Gaál – K. Köhler – A. Osztás: Eberhauerschmuck und Schweinekiefer-Beigaben in den neolithischen und kupferzeitlichen Bestattungssitten des Karpatenbeckens. ActaArchHung 60 (2009) 303–355.

Zalai-Gaál et al. 2011 I. Zalai-Gaál – E. Gál – K. Köhler – A. Osztás: Das Steingerätedepot aus dem Häuptlingsgrab 3060 der Lengyel-Kultur von Alsónyék, Südtransdanubien. Beiträge zur Ur- und Frühgeschichte Mitteleuropas 63. Varia Neolithica 7 (2011) 65–83.

Zalai-Gaál et al. 2012 I. Zalai-Gaál – E. Gál – K. Köhler – A. Osztás – K. Szilágyi: Präliminarien zur Sozialarchäologie des lengyelzeitlichen Gräberfeldes von Alsónyék-Bátaszék, Südtransdanubien. PZ 87 (2012) 58–82.

Zalai-Gaál – Grisse – Osztás – Köhler 2014 I. Zalai-Gaál – A. Grisse – A. Osztás – K. Köhler: Die durchlochten Steingeräte des südtransdanubischen Neolithikums (5. Jahrtausend v. Chr.) VAH 30. Budapest 2014.

Yerkes – Gyucha – Parkinson 2009 R. W. Yerkes – A. Gyucha – W. Parkinson: A multiscalar approach to modeling the end of the Neolithic on the Great Hungarian Plain using calibrated radiocarbon dates. Radiocarbon 51/3 (2009) 1071–1109.

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MÁRIA BONDÁR

THE VÖRS DIADEM: A UNIQUE RELIC OF LATE COPPER AGE METALLURGY SUPPOSITION, FACT, NEW RESULTS

Keywords: diadem, archeological and non-invasive metal analysis, Late Copper Age, Baden culture

The Vörs diadem came to light in one of the most remarkable Copper Age burials of the Carpathian Basin. I became aware of the many differing contentions regarding the grave while gathering data for my planned book on the burials of the Baden culture in Hungary.[1] The head ornament from Vörs has been variously described as having been made from copper, brass and bronze, and as a hammered and cast metal adornment. Its wearer has been interpreted as a chieftain, a shaman, a man and, more recently, a woman. I also noticed that despite the growing interest in early metallurgy and the proliferation of archaeometallurgical studies, the Vörs diadem is slowly fading from the archaeological literature – it is rarely mentioned in the catalogues of the relevant thematic exhibitions and even studies on early metallurgy seem to be unaware of its very existence.

Thus, it seems important to me to breathe new life into the diadem by re-publishing this remarkable find together with the findings of various archaeometric and other analyses. The overview of previous research on the Vörs diadem is followed by the results of the modern archaeometallurgical analyses and of the physical anthropological examination of the human remains in the hope that the new evidence presented here will contribute to the re-integration of this unique headband into Late Copper Age studies. It has also proved possible to identify, with reasonable accuracy, the exact findspot of the burial with the diadem.

The discovery of the Late Copper Age graves

The first report on the finds from Vörs appeared in the 1954 issue of *Archaeologiai Értesítő*: "Vörs (County Somogy, Fonyód District). Three silo pits were dug some 100 m north-east of the so-called farm buildings at the north-eastern end of the village. Three inhumation burials were found in the pits. Owing to the swift reporting of the burials, one of the graves was excavated professionally. Two graves were roughly east to west oriented, and their age could be determined from one of the precisely observed and documented burials. The professionally excavated grave contained a crouched burial laid on the left side with the head aligned to the south-south-east. A 2 cm wide bronze band decorated with *repoussé* knobs encircles the head. The two ends of the band tapered to a point and were twisted together on the forehead. Perforated shell beads lay on the neck and two vessels of the Pécel culture were deposited by the feet. One of the graves found earlier likewise dates from this period because a similar vessel accompanied the burial. The third grave was also an inhumation burial; the grey, wheel-turned vessels found in the grave can be assigned to the La Tène C period. Tamás Pekáry."[2]

[1] I am deeply grateful to Bálint Havasi, director of the Balaton Museum in Keszthely, for his kind permission to loan the diadem and the skull from Vörs for the analyses, and to Judit P. Barna for her assistance.

[2] *Pekáry 1954* 72.

The field documentation

Tamás Pekáry's excavation report, dated November 19, 1952, is housed in the Archives of the Balaton Museum in Keszthely.[3] Accompanying the typewritten report are Pekáry's drawings of the vessels and a rough sketch of the findspot *(fig. 1)*. We know from his report that Imre Szentmihályi, the then director of the museum of Zalaegerszeg, happened to be in Vörs on October 20, 1952, when the burials were found. Tamás Pekáry was notified, who inspected the site the next day. In the lack of a measuring tape, the young museum assistant could do no more than roughly estimate the distance of the graves from the outermost buildings of the farmstead *(fig. 2. 2)*. He believed that he would be able to accurately measure and specify the position of the pits at some later date. Aside from the brief report published in *Archaeologiai Értesítő*, we also know from another description that "the two ends of the band tapered and that they had probably been fastened with some material that has since perished." It is also clear from the documentation that the two vessels in the grave with the diadem were not intact, but broken vessels. Pekáry had drawn them and specified their dimensions *(fig. 1)*. He found beads made from "bone tubes"[4] with a diameter of *ca*. 1 cm on the neck; however, no drawings were made of these beads. He made a photo of the grave and took the finds to the Balaton Museum in Keszthely.[5] There was a slight confusion in the numbering of the graves: he first marked the finds of the burial he had excavated as Grave 3, which he later corrected to Grave 2, and the burial containing the broken Baden jug found earlier became Grave 3.[6] A copy of the report sent by Pekáry[7] to the National Centre of Museums and Monuments can also be found in the Archives of the Balaton Museum in Keszthely.[8]

The publication of the grave with the diadem

The Vörs site appears as Site 42 in János Banner's monograph on the Pécel culture because a larger jug[9] and the fragments of "two goblets" had earlier reached the museum of Kaposvár (in fact, of the latter two, only one came from the upper part of a goblet, while the other fragment represented the lower part of another vessel[10]). Banner knew nothing about their find circumstances.[11] The vessels were inventoried and drawn by Ferenc Gönczi.[12] The finds were discovered on the outskirts of Vörs, in an area known as Homokos gödör ["Sandy pit"] together with two lime-encrusted vessels. They were purchased in 1930 for eight *pengő*s from János Visinszki, a local peasant. They were inventoried under no. 5234.[13]

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[3] Filed under no. 344/1952.

[4] As far I know, their material was not examined at the time.

[5] Vörs currently lies in the activity area of the museum of Kaposvár; in the 1950s, however, the finds from the Balaton region were taken to Keszthely.

[6] The finds were inventoried in 1963 in the Balaton Museum in Keszthely: the diadem and the skull can be found under inv. no. 63.53.1.

[7] Tamás Pekáry (1929–2010) was a twenty-four-year-old assistant museologist when he excavated this unique burial. He left Hungary in 1956 and settled in Switzerland, where he studied under András Alföldi and became a renowned expert on Roman economic history. In 2003, he became Professor Emeritus at Münster University. He passed away in 2010. I would here like to thank Professor László Török for confirming the accuracy of the data.

[8] Filed under the same number, but without any drawings.

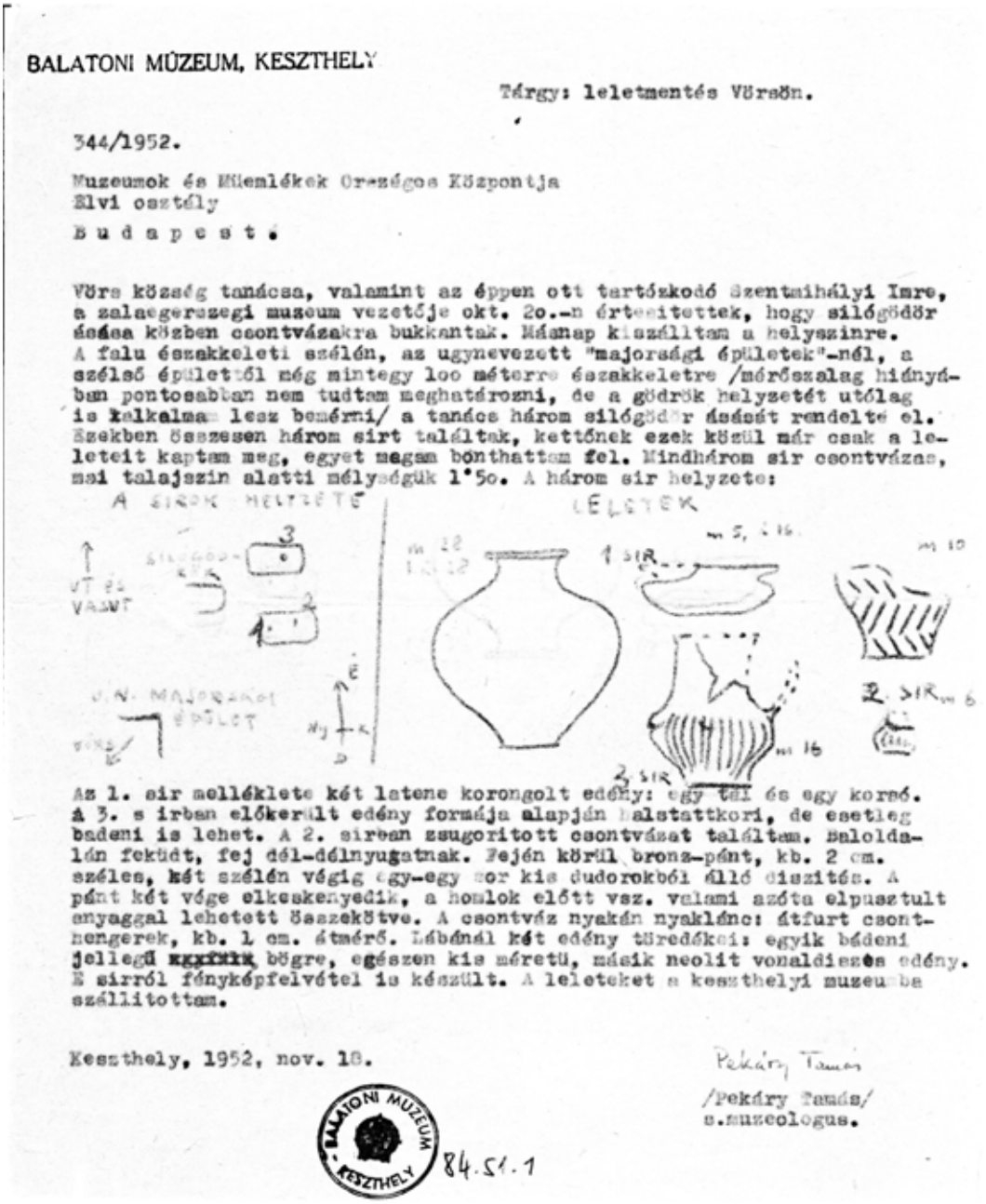
[9] *Banner 1956* Taf. IX. 4.

[10] *Banner 1956* fig. 7 (two vessels, non-joining fragments of the same vessels).

[11] *Banner 1956* 33–34.

[12] Unnumbered illustration on page 15 in *Németh et al. 2010*. I am indebted to Szilvia Honti for sending me a legible version of the entry in the museum's accessions register, which can be barely made out in the quoted volume.

[13] The topographic relation between the sites at Vörs and the pottery finds from Vörs will be discussed in my forthcoming study on the Late Copper Age burials in the Little Balaton region, to be published in Vol. 7 of *Castellum Pannonicum Pelsonense* (edited by Judit P. Barna and Eszter Bánffy).



BALATONI MÚZEUM, KESZTHELY

Tárgy: leletmentés Vörsön.

344/1952.

Muzeumok és Műemlékek Országos Központja
Elvi osztály
B u d a p e s t.

Vörs község tanácsa, valamint az éppen ott tartózkodó Szentmihályi Imre, a zalaegerszegi muzeum vezetője okt. 20.-n értesítettek, hogy silógödör ásása közben csontvázakra bukkantak. Másnap kiszálltam a helyszinre. A falu északkeleti szélén, az ugynevezett "majorsági épületek"-nél, a széső épülettől még mintegy 100 méterre északkeletre /mérőszalag hiányában pontosabban nem tudtam meghatározni, de a gödrök helyzetét utólag is kalkalmas lesz bemérni/ a tanács három silógödör ásását rendelte el. Ezekben összesen három sirt találtak, kettőnek ezek közül már csak a leleteit kaptam meg, egyet magam bonthattam fel. Mindhárom sir csontvázas, mai talajszin alatti mélységük 1'5o. A három sir helyzete:

A SÍROK HELYZETE

LELETEK

Az 1. sir mellékelte két latene korongolt edény: egy tál és egy korsó. A 3. s irban előkerült edény formája alapján halstattkori, de esetleg badeni is lehet. A 2. sirban zsugoritott csontvázat találtam. Balolda-lán feküdt, fej dél-délnyugatnak. Fején körül bronz-pánt, kb. 2 cm. széles, két szélén végig egy-egy sor kis dudorokból álló diszités. A pánt két vége elkeskenyedik, a homlok előtt vsz. valami azóta elpusztult anyaggal lehetett összekötve. A csontváz nyakán nyaklánc: átfurt csont-hengerek, kb. 1 cm. átmérő. Lábánál két edény töredékei: egyik badeni jellegű kézzitt bögre, egészen kis méretü, másik neolit vonaldiszes edény. E sirról fényképfelvétel is készült. A leleteket a keszthelyi muzeumba szállitottam.

Keszthely, 1952, nov. 18.

Pekáry Tamás
/Pekáry Tamás/
s.muzeologus.

BALATONI MÚZEUM KESZTHELY 84.51.1

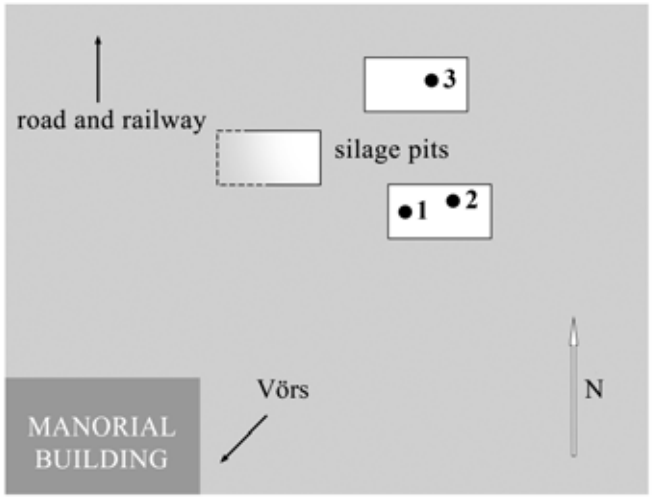
fig. 1. Tamás Pekáry's report

Banner published Tamás Pekáry's brief excavation report right before closing the manuscript of his monograph, in which it appears under site no. 324 *(fig. 3)*.[14] He supplemented the first report on the site with additional information. The first grave dated from the La Tène period, while Grave 3 could be assigned to the Pécel culture. Grave 2 was excavated by Tamás Pekáry on October 21, 1952, after he was notified.[15] The professionally excavated grave contained the following finds: the body fragment of a smaller vessel with grooved decoration

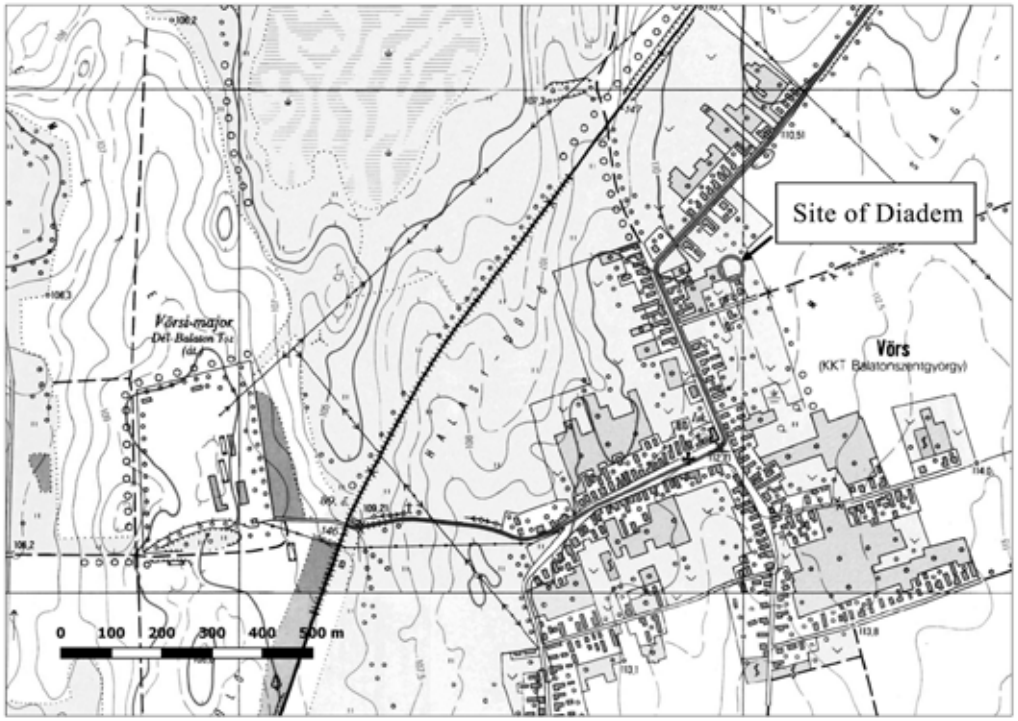
[14] *Banner 1956* 111.

[15] In the excavation report published in *Archaeologiai Értesítő*, Tamás Pekáry described the Celtic burial as Grave 3. However, János Banner quoted the original field documentation for the grave numbers. I have been unable to find any clues as to how János Banner learnt of this grave. What seems quite certain is that he received permission to publish the finds and that he also obtained a copy of the original excavation report.

1



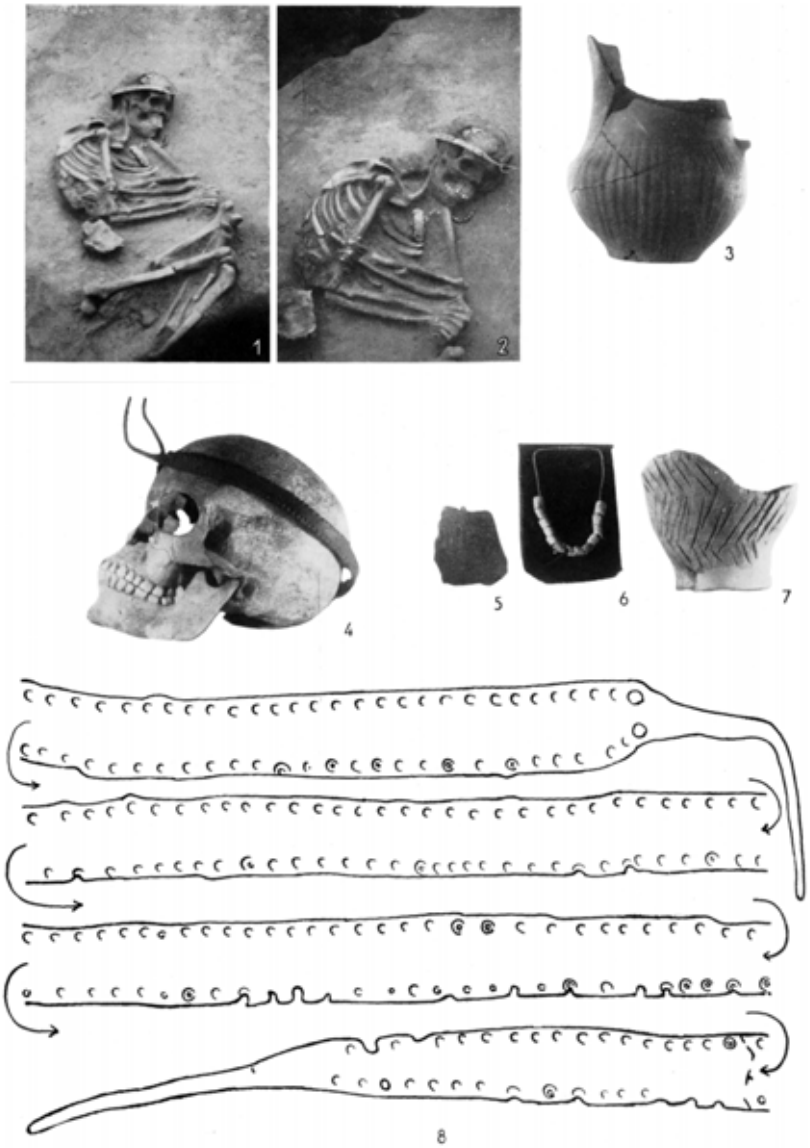
2



3

fig. 2. The findspot, based on Tamás Pekáry's sketch (drawing by Sándor Ősi)

(fig. 3. 5)[16] and the lower half of a vessel covered with incised zig-zag lines *(fig. 3. 7)*;[17] however, Banner published an additional vessel fragment from Grave 3 *(fig. 3. 3)*.[18] There were thirteen "bone beads" on the neck of the deceased *(fig. 3. 6)*, each with a diameter of 1 cm.[19] A diadem of sheet copper with a length of 67 cm and a width of 1.6–1.8 cm was found around the head. The two ends of the diadem almost taper to a point. One end is straight, the other is bent for about two-thirds of its length and has two perforations at the beginning of the tapering section. A decoration of small *repoussé* knobs extends along both edges *(fig. 3. 4)*.[20] Banner did not discuss the sex of the deceased or the dating of the vessel fragments. He believed that the diadem harked back to the Neolithic headbands made from shells.[21]



1—8. Vörs, Majorsági épületek (Gebäude): 1—2, 4—8: Grab 2. — 3. Streufund (Grab 3). (1—2: Originalaufnahmen von T. Pekáry; 8: 1/1 die übrigen: 1/3)

fig. 3. The Vörs burial (after *Banner 1956* Taf. LXXXVII)

[16] *Banner 1956* Taf. LXXXVII. 5.
[17] *Banner 1956* Taf. LXXXVII. 7.
[18] *Banner 1956* Taf. LXXXVII. 3.
[19] *Banner 1956* Taf. LXXXVII. 6.
[20] *Banner 1956* Taf. LXXXVII. 4.
[21] *Banner 1956* 199.

The physical anthropological analysis of the burial

The human remains from the larger cemeteries in Banner's monograph were examined and, occasionally, analysed in detail by János Nemeskéri. He mentions one grave from Vörs,[22] which can at most be assumed to be identical with the grave yielding the diadem; no other mention is made of skeletal remains from Vörs elsewhere in the monograph. Neither does Zsuzsanna Zoffmann's CSc thesis on the Copper Age population of the Carpathian Basin contain any information on the Vörs graves.[23] Answering my inquiries about the whereabouts of the burial's post-cranial bones, Ildikó Pap of the Anthropological Department of the Hungarian Natural History Museum told me that they were not kept in the department.[24] Róbert Müller, László Horváth, Zsuzsanna M. Virág and Judit P. Barna, the archaeologists earlier and currently working in the Balaton Museum in Keszthely, had no idea where the bones might be, and Szilvia Honti, archaeologist of the Rippl-Rónai Museum in Kaposvár, was equally clueless.[25] Anthropologists Kitti Köhler and Balázs Gusztáv Mende did not know of any studies mentioning skeletal remains from the grave. On Tünde Horváth's request,[26] Balázs Gusztáv Mende examined the skull, which is exhibited together with the diadem at the exhibition of the Balaton Museum in Keszthely, and found that the skull had female traits.[27]

The diadem in Hungarian archaeological literature

In his study on the Bronze Age belt clasps and diadems, István Bóna argued that the Vörs diadem was the precursor of the Bronze Age headbands made from sheet bronze: "Diadems hammered from sheet bronze first appear in the Late Copper Age Pécel culture, a cultural complex imbued with south-eastern elements. The 1.9 cm wide diadem adorned with *repoussé* dots brought to light from the inhumation burial at Vörs was verifiably found on the skull of the deceased woman."[28] Bóna regarded this ornament type as being ultimately of Anatolian origin and an accessory of the costume worn by the high-ranking women of the aristocracy or by priestesses.[29] Bóna rejected Banner's ideas on the origins of the headband.[30] He quoted the then known Early Bronze Age pieces, among them a headband found on the head of the deceased buried in a pithos in Byblos. In his comprehensive overview of the Early Bronze Age cultures, Bóna mentions the Vörs diadem together with the piece from Vukovar in a single passage, describing them as forerunners of similar Bronze Age adornments, and suggests that both can be derived from the same cultural context as the diadem from Byblos.[31]

According to József Csalog, who had a keen interest in the Baden culture, the diadem was a shaman's crown. He was the first to point out that "in order to fasten [the diadem] on the forehead, the perforations for the fastening cord were not made at the two ends, but at the

[22] *Nemeskéri 1956* 298: "Die Zahl der zur Péceler Kultur gehörigen und archäologisch datierten anthropologischen Funde beträgt 162, sie gelangten von folgenden Fundorten in die Anthropologische Sammlung des Naturwissenschaftlichen Museums des Ungarischen Nationalmuseums: Alsónémedi (Kom. Pest – 43 Funde), Budakalász (Kom. Pest – 110 Funde), Palotabozsok (Kom. Baranya – 3 Funde), Szentes-Nagyhegy (Kom. Csongrád – 4 Funde), Budapest-Andor-Strasse (Kom. Pest – 1 Fund), Vörs (Kom. Somogy – 1 Fund)."

[23] *K. Zoffmann 1992.*

[24] I would here like to thank Ildikó Pap for her help.

[25] I am grateful to all these colleagues for their help, their letters and their personal communications.

[26] *Horváth 2006* 109; *Horváth 2008* 183.

[27] Balázs Gusztáv Mende's kind personal communication.

[28] *Bóna 1959* 54–55. Unfortunately, István Bóna makes no mention of where this piece of information, i.e. that the diadem was worn by a woman, came from.

[29] *Bóna 1959* 57.

[30] *Bóna 1959* note 35.

[31] *Bóna 1963–1964* 31.

base of the horn-like extensions. This indicates that the copper headband was not a simple adornment, but that its purpose was to set two horns on the wearer's forehead."[32]

Nándor Kalicz mentioned the Vörs diadem in his monograph on the Anatolian connections of the Pécel culture, although he was apparently less concerned with its material and its one-time owner than with its analogies. In addition to the similar piece from the already-quoted Grave 630 at Byblos, he cites a Cretan gold headband and the well-known gold diadem from Alaca Hüyük.[33] In a later work, written for the broader public, Kalicz published a drawing based on Banner's photo and, probably influenced by Csalog's study, he noted that "the [diadem's] wearer was probably a chieftain or a priest."[34]

A small booklet designed to encourage museum friends to report archaeological finds they discovered was published in December 1963. The booklet was principally based on the documents in the Archives of the County Somogy Museum, which contained information on sites in County Somogy, in part based on the data from the archives in the museum of Keszthely assembled by Károly Sági.[35] The booklet briefly mentions the Vörs burial: "A grave of the Pécel culture came to light by the farm buildings (*ArchÉrt* 1954, 72). … In 1952, burials were found while digging a silo pit. The most significant among them was Grave 3, in which a copper diadem was found on the skull. (Information provided by Károly Sági, based on the records in the Archives of the County Somogy Museums, inv. no. 792)."[36] In her MA thesis published in 1964, Éva Kocztur quotes Banner's data[37] in her description of the Vörs site: "A settlement and a cemetery of the Pécel culture were discovered in 1952 at the village's north-eastern end, some 100 m north-east of the farm buildings, when a silo pit was dug", followed by an account of the grave and its contents and a description of the diadem.[38] The Vörs diadem does not appear in the illustrated book of the archaeological discoveries made in County Somogy, published in 1970, and there is but a single line about Vörs itself, mentioned among the sites of the Pécel culture: "Vörs (settlement and cemetery[39])".

The guide to the permanent exhibition of the Rippl-Rónai Museum in Kaposvár, opened in 1975, appeared in 1978. János Makkay devoted two sentences to the grave and the diadem, which according to him was made of either copper or bronze, an uncertainty resulting from the lack of a metallurgical analysis, and he also mentioned its distant parallels from the Greek islands and Asia Minor. In fact, only a photo was displayed of the diadem on the skull in Case 11 of the exhibition.[40] Curiously enough, Makkay makes no mention of the diadem in his other studies discussing prehistoric metallurgy and religion. Neither does the diadem crop up in the debate on the date and origins of the gold discs of the Copper Age between Bóna and Makkay, even though both addressed several aspects of prehistoric metallurgy and metalwork.[41]

The rehabilitation of the Little Balaton was carried out in several phases. The first was performed between 1981 and 1987, the second was begun in 1984 and is still in progress,

[32] *Csalog 1961* 14, fig. 6, is a drawn version of the photo in *Banner 1956* Taf. LXXXVII. 4, from which the *repoussé* dots along the edges were omitted and only the perforations for fastening are shown.
[33] *Kalicz 1963* 62.
[34] *Kalicz 1970* 64, fig. 44.
[35] *Kocztur 1964* 1.
[36] *Draveczky – Sági – Takáts 1964* 52. The specified grave number is erroneous: the diadem was found in Grave 2.
[37] *Banner 1941* Pls X–XI. Unfortunately, Éva Kocztur's citation of the data is erroneous. János Banner wrote four articles for *Dunántúli Szemle* (one in 1940 and three in 1941), and there are no Plates X–XI in either of the four articles. The finds from Vörs appear in *Banner 1941* Pl. I. 1–3. *Banner 1941* 345 mentions that the archaeological collection of the museum of Kaposvár includes a closed assemblage, which, however, does not originate from a professional excavation; all that can be known is that the finds came to light in the same spot and that they reached the museum at the same time. The finds are inventoried under no. 5234 in the museum of Kaposvár.
[38] *Kocztur 1964* 157.
[39] *Draveczky 1970* 26.
[40] *Jankovich – Makkay 1978* 17.
[41] *Makkay 1976; Makkay 1985; Bóna 1986; Bóna 1990* (the Makkay – Bóna debate on the gold discs of the Copper Age).

despite the occasional break in the work.[42] A series of exhibitions and conferences presented the findings of the fieldwork and excavations conducted as part of the rehabilitation project. The Vörs skull with the diadem *(fig. 4. 2)* appeared in several exhibition guides.[43] I wrote the chapter on the Late Copper Age sites for the volume covering the archaeological research in the Little Balaton region, in which I mentioned the Vörs diadem several times.[44] I described it as a bronze headband found on a male skull, based on the information in Banner's monograph.[45]

In his academic doctoral thesis, József Korek devoted a brief chapter to metallurgy, in which he noted that "jewellery made from copper is more frequent. The most remarkable and most significant among these is the Vörs diadem (Banner 1956, Pl. LXXXVII. 1, 4, 8), which, although preserving Boleráz traditions, can be assigned to the Fonyód I horizon. It was found in an inhumation burial."[46] József Korek's dating was based on the two vessel fragments recovered from the grave; however, these are unsuitable for a finer chronological assignment.

Inspired by the growing interest in prehistoric metallurgy in international research, Nándor Kalicz reviewed the most important metal finds of the Carpathian Basin in his study on the metalwork of the Balaton-Lasinja culture which he had identified. He discussed the cultural and historical context of the metal artefacts known at the time as well as the possible provenance of the metals used for their manufacture. He devoted a separate section to the much-debated dating of the period's gold discs and the copper and gold diadems. He distinguished three major copper horizons. He republished the Vukovar assemblage from Croatia, which included the fragment of a diadem, and reviewed various other contemporaneous metal finds, noting that the diadems of the Carpathian Basin could be assigned to the earlier Baden period. Only from the references in the note to this assertion does it become clear that Kalicz was thinking of the diadems from Vörs and Veľká Lomnica (Slovakia, Hung. Kakaslomnic).[47] In a later study, published in 1992, Kalicz outlined a fourth copper horizon, represented by the metalwork of the Baden culture. Interestingly enough, he does not mention the Vörs diadem, even though he refers to various Late Copper Age jewellery items,[48] and neither does the diadem appear in the notes to the study.

In a study devoted to the copper finds of the Baden culture, Zsuzsanna M. Virág assembled a catalogue of sites which includes Vörs and Veľká Lomnica, the findspots of the two diadems.[49] M. Virág called attention to the use of a copper type (specifically mentioning Vörs and Budakalász) whose composition differs from arsenic copper, whose presence was indicated by metal analyses.[50] In her view, the copper artefacts of the Baden culture that were not produced *en masse* – such as diadems, pectorals, torcs, spiral armbands and daggers – were the attributes of individuals with a special social power or a ritual role.[51]

István Bóna authored the chapter on metallurgy in the representative catalogue, published in several languages, to the travelling exhibition presenting the relics of the Early and Middle Bronze Age tell cultures of Hungary. He briefly writes about the Late Copper Age, so poor in metal finds, but makes no mention of the Vörs diadem, even as a possible precursor to the Bronze Age pieces.[52] Parallel to this exhibition, another temporary exhibition was organised; the chapter on Copper Age metallurgy in the accompanying catalogue was written by István Ecsedy. Neither in the section on Copper Age metalworking traditions,

[42] *Harkay 1996* 11.
[43] *Virág 1987* fig. 9; *Müller 1988* fig. 2; *Bondár 1989* 30, site 20, Taf. 4; *Vándor – Müller – Szőke 1992* 3, unnumbered colour photo.
[44] *Bondár 1996* 35, 40, colour photo, published on the front page to the chapter.
[45] *Bondár 1996* site 145.
[46] *Korek 1983* 57.
[47] *Kalicz 1982* 14, note 89.
[48] *Kalicz 1992* 10.
[49] *M. Virág 1999* 40, note 5.
[50] *M. Virág 1999 39.* The results of the metal analyses are not included. From *Kuna 1981* 43 and *Lozuk 1995* 56, the former does discuss the Vörs diadem (see below), while the latter does not.
[51] *M. Virág 1999* 39.
[52] *Bóna 1994.*

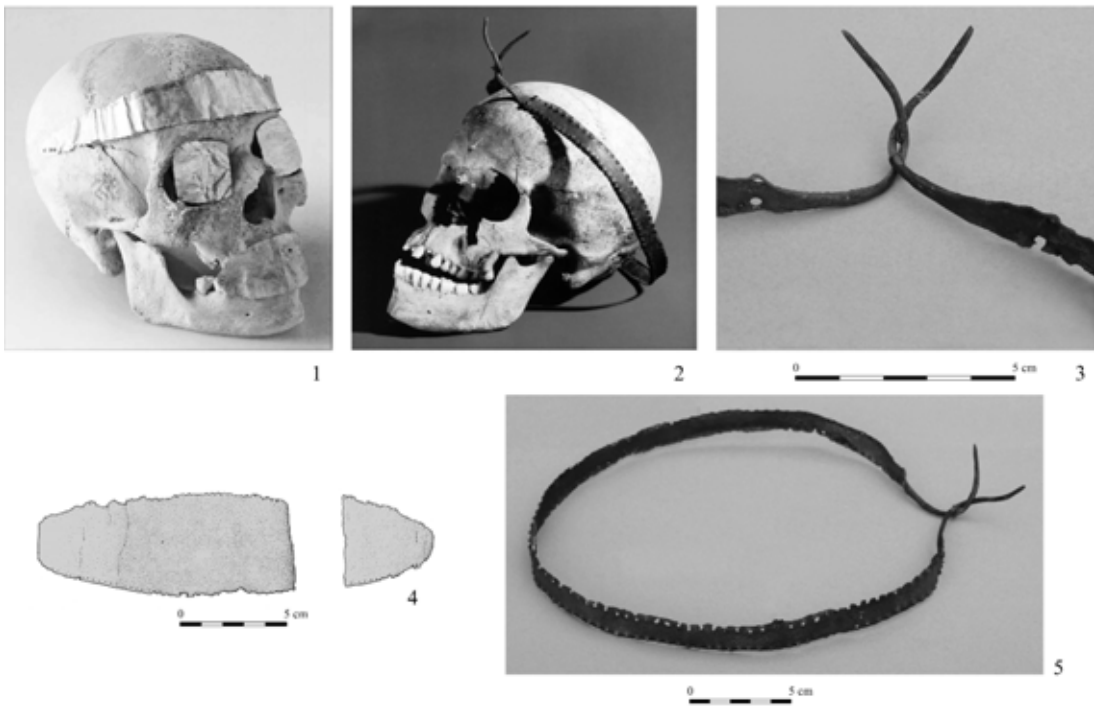


fig. 4. 1. Kültepe (after *Kulakoğlu – Kangal 2010* cat. nos 319–321) 2. the skull with the diadem, 3, 5. the diadem (photos by Tibor Kádas and Péter Hámori), 4. Vel'ká Lomnica (after *Novotná 1984* Taf. 61.362)

nor in the section on the onset of the Bronze Age is the Vörs diadem mentioned, despite the fact that Ecsedy briefly discussed the jewellery of the Copper Age and the metallurgy of the Late Copper Age.[53] Neither does Vörs appear in the section on the techniques of early metalworking and the period's moulds.[54] The same holds true for the permanent exhibition of the Hungarian National Museum, opened in 2002. Visitors are not even shown a photo of this unique find and neither is it mentioned in the Hungarian and foreign language catalogues to the exhibition.[55] While a photo of the skull and the diadem from Vörs appears on the title page to Chapter V in the book *Hungarian Archaeology at the Turn of the Millennium*, now used as a textbook, the site and the find itself are not mentioned in the text, which only contains a general reference to the diadem as a unique find in the period's copper metalwork.[56] I too merely mentioned "the diadem with twisted terminals imitating animal horns found at Vörs" in the chapter on the Copper Age sites and finds uncovered during the salvage excavations preceding the construction of the M7 Motorway.[57]

Addressing the various ritual aspects of the Late Copper Age clay mask found at Balatonőszöd-Temetői-dűlő, Tünde Horváth mentioned the Vörs diadem in several studies.[58] She first described the grave with the diadem found at Vörs-Majorság as probably representing the burial of a shaman.[59] Later, in 2006, she discarded this interpretation, noting that the diadem had been worn by a woman: "A crouched inhumation burial in which the deceased wore a diadem of sheet copper on the head was uncovered at the Vörs-Majorsági épületek site (Banner 1956 111). The burial, generally regarded as the grave of a witchdoctor, a male

[53] *Ecsedy 1994a; Ecsedy 1994b; Ecsedy 1995a; Ecsedy 1995b.*
[54] *Ecsedy 1990.*
[55] *Kalicz – Raczky 2005.*
[56] *M. Virág 2003* 132.
[57] *Bondár 2007* 26.
[58] *Horváth 2002a* (mistakenly quoting *Banner 1956* Taf. LXXXVIII instead of Taf. LXXXVII); *Horváth 2002b* 34; *Horváth 2004* 205; *Horváth 2006*, 92, 109, fig. 2; *Horváth 2008* 162, 183, Abb. 2; *Horváth 2010* 70, note 18.
[59] *Horváth 2002b* 34; *Horváth 2004* 205.

shaman, or a chieftain (despite the lack of any physical anthropological evidence to confirm this), was examined in 2005 on my request by Balázs Gusztáv Mende, the anthropologist of the Archaeological Institute of the Hungarian Academy of Sciences. Unfortunately, the postcranial bones could no longer be found; however, the skull itself had female traits! The unique, unparalleled copper diadem, signalling the special, outstanding social – and, perhaps, ritual – role and status of its wearer through its schematic portrayal of a horned creature, was owned by a woman both in life and death."[60] In a later study, Horváth discusses metal prestige items in relation to social differences.[61] The homepage of the Balaton Museum in Keszthely, where the diadem is currently housed, similarly notes that the diadem had been worn by a woman.[62]

Reviewing the over one hundred years of research on early metal artefacts, Viktória Kiss principally focuses on the metalwork of the Middle Bronze Age. In her discussion of prehistoric mining techniques and metalworking procedures, she briefly quotes the published findings of archaeometallurgical analyses and reviews the metal finds of earlier periods, noting that the metal artefacts found in western Hungary were manufactured from arsenic copper during the Middle and Late Copper Age. This metal was procured from the eastern Alpine mines worked by the population of the Mondsee culture. However, the well-known Vörs diadem and the provenance study of the metal finds from the Baden cemetery at Budakalász indicate that native copper too continued to be used. At the close of the Copper Age, during the classical Vučedol period, we find metalwork manufactured from copper oxide ores, while later, during the Hungarian Early Bronze Age, metal artefacts were made from arsenic copper, probably obtained from arsenic chalcopyrite.[63]

The diadem in foreign archaeological literature

One might have reasonably assumed that the publication of the Vörs diadem in Banner's German-language monograph would ensure a smooth sailing in the international archaeological mainstream and that it would be often quoted in the studies discussing metallurgy, social differences and prestige artefacts. This was not case: the initial familiarity with the diadem faded and after some time, it was only mentioned in footnotes or in the references, without even the briefest allusion to the site. Later still, it disappeared entirely from works addressing various issues of prehistoric metallurgy. One reason for this might be that artefacts that do not appear in illustrations or photos become virtually non-existent in our heavily image-focused discipline and few people make the effort to trace a piece of information to the field documentation, the first publication or the first summarizing work.

Viera Němejcová-Pavúková, who devoted several studies to the Baden culture, mentions the chronological aspect of the Vörs burial, which in her view can be assigned to the early horizon of the early classical Baden culture.[64] The Vörs diadem was not mentioned in the papers presented at the conference on the research of the Baden culture in Malé Vozokány (Slovakia, Hung. Kisvezekény) in 1969.[65]

Mária Novotná published several studies on prehistoric metallurgy. In a paper on the emergence of Central European metallurgy, she only mentions a few smaller copper artefacts of the Baden culture, with no reference to the Vörs diadem.[66] Neither does the Vörs diadem receive a mention in her book published in 1984, in which she reviewed the Copper Age and

[60] *Horváth 2006* 109; for the German version, see *Horváth 2008* 183.
[61] *Horváth 2010* mentions the diadem in note 18 on page 70.
[62] http://balatonimuzeum.hu/index.php?option=com_content&view=article&id=613:2012-november-a-honap-mtargya-az-okmanyirodaban&catid=61:a-honap-mtargya&Itemid=133&lang=hu [06.03.2013]
[63] *Kiss 2009* 198*; Kiss 2012* 62.
[64] *Němejcová-Pavúková 1974* 344, 354.
[65] *Symposium Baden 1973*.
[66] *Novotná 1976* 127–128.

Bronze Age neck rings and diadems, and republished the other oft-mentioned Late Copper Age sheet metal diadem, the piece from Veľká Lomnica,[67] which, however, bears very little resemblance to the piece from Vörs.

In his study on the assemblage of copper jewellery from Hlinsko (Czech Republic), Jiří Pavelčík addressed various issues regarding the metalwork from the Carpathian Basin and the successive metal horizons. He discussed the various metal discs and other jewellery articles, the Vörs diadem among them, a drawing of which appears among the finds of the Middle Copper Age copper horizon.[68] The grave and its finds, including the diadem, are described in the catalogue to Gabriel Nevizánsky's study.[69]

The Vörs diadem is occasionally quoted in the comprehensive overviews written for the broader public.[70]

Martin Kuna wrote an overview of the then known metal artefacts from the Neolithic and Copper Age of the Carpathian Basin in 1981. He reviewed the finds from various sites according to artefact types. He lists the diadems from the Baden burial at Vörs,[71] the Horodnica hoard[72] and a burial uncovered at Vukovar[73] in the section on diadems and breast ornaments. Earlier pieces were only known from the Caucasus and he too mentions the analogous pieces from Crete, Troy, Alaca Hüyük and Byblos, noting also that the Horodnica hoard, dating to the Tripolye B II-K period, is earlier than the other headbands from the quoted sites.[74] Kuna distinguished seven chronological horizons in the South-East European copper industry.[75] Linking the find horizons to metalworking techniques, he found that Horizon V (to which he assigned the Baden-Kostolac, Coţofeni, Cernavodă II, Folţesti II and other contemporaneous cultures) was first characterised by the use of arsenic copper, while the later period of this horizon saw the appearance of silver-copper and copper-antimony alloys made from copper sulphide.[76] South-East and Central Europe was dominated by a copper industry based on arsenic copper, even though the use of other copper ores has also been documented (Budakalász, Vörs).[77]

In the two-volume monograph on the burials of the Baden culture, Claudia Sachße lists Vörs (based on Banner's book) and quotes the most important references to the site in the archaeological literature.[78] She published the zig-zag decorated vessel fragment and the beads from the burial containing the diadem, but not the other vessel fragment from the grave. Although Sachße treats the uncertain burials separately, she lists the other site at Vörs[79] as "Belterület" [inner area] in the same table, i.e. among the burial sites, even though nothing is known about the find circumstances of these artefacts.

There has been a renewed interest in various aspects of prehistoric metallurgy (the identification of mines, analysis of metal compositions, production techniques, provenance based on chemical markers, etc.) and its social significance (prestige items, social ranking, trade, etc.). Following the astounding richness of metalwork during the Middle Copper Age in the Carpathian Basin, the Late Copper Age is visibly poorer in metal, at least judging from

[67] *Novotná 1984* Kat. Nr. 362, Taf. 61. 362.
[68] *Pavelčík 1979* Abb. 9. 31.
[69] *Nevizánsky 1985* 268.
[70] Mentioned by *Jażdżewski 1984* 172, Abb. 68. 12, adopted from *Kalicz 1970* fig. 44. The German version is based on the Polish original, published in 1981; *Gimbutas 1991* figs 10–21 describing it as a copper crown worn by a man. The diadem does not appear in *Lichardus et al. 1985* or *Piggott 1987* (the book was originally published in 1965; it was translated into Hungarian by János Makkay, who also wrote the afterword to the volume).
[71] *Kuna 1981* Taf. 21. E 12.
[72] *Kuna 1981* Taf. 20. C 13.
[73] *Kuna 1981* Taf. 20. B 6.
[74] *Kuna 1981* 33.
[75] *Kuna 1981* 39.
[76] *Kuna 1981* 41.
[77] *Kuna 1981* 43, quoting two SAM samples, of which Vörs is SAM 13738.
[78] *Sachße 2010* Teil II, 112–113, site 189 and Teil I, 117.
[79] *Banner 1956* site no. 42.

the surviving finds. The heavy copper artefacts (such as the various copper axe types) of the Middle Copper Age are now much better known owing to the wide range of metallurgical examinations. Interestingly enough, there seems to be much less interest in the few copper artefacts of the Late Copper Age. The copper axe and copper disc from Zalavár,[80] the copper dagger from Sármellék[81] and the Vörs diadem are not cited in the more recent archaeological literature on metal analyses, and neither are they mentioned in studies on metalworking techniques or in papers on the social dimensions of metallurgy.[82]

The headbands resembling the Vörs diadem

In a study published in 1998, discussing the possible interpretation of a curious depiction on a Middle Copper Age jug from Bátaszék (County Tolna) – whether it should be seen as an anthropomorphic vessel, a diadem or a helmet – I also briefly touched upon headbands and other similar adornments, among them the Copper Age and Bronze Age diadems, reviewing briefly earlier research on this subject.[83] As mentioned in the above, István Bóna had earlier compiled a catalogue of the Bronze Age diadems and their Copper Age forerunners. In his view, this jewellery type originated from Asia Minor and was an accessory of the costume worn by prominent women who were members of the aristocracy or priestesses.[84] He noted that there was a Copper Age diadem that predated the one from Vörs, namely the piece in the jewellery assemblage from Vukovar.[85]

In addition to the head ornaments cited by Bóna, several other copper and gold diadems of sheet metal are known from the Copper Age, whose form, manufacturing technique and size share numerous similarities with the Vörs diadem. The narrow, undecorated gold strips from Csepin/Čepin (Croatia), measuring 45.3 cm and 49.8 cm in length, respectively,[86] and the fragmentary hammered gold band with a length of 13.5 cm found in Ercsi (County Fejér)[87] were first identified as diadems by János Makkay.[88] The diadem brought to light at Horodnica in eastern Galicia was made from a *ca*. 2 cm wide copper band (its length is roughly 41 cm, an estimate based on the diameter specified in its publication). The diadem has a *repoussé* ornamentation along the two edges; its tapering ends are rounded and there is a perforation through the ends. The diadem was found in a fragmentary condition.[89] It is dated to the Middle Copper Age by the Jászladány type copper axe found with it.[90] In Makkay's view, the narrow, plain gold bands of the Moigrad hoard (County Szilágy/Sălaj, Romania), which were published in their original size by Nándor Fettich,[91] could have been diadems,[92] although the

[80] *M. Virág 1986.*
[81] *M. Virág 1999.*
[82] There is no mention of the Vörs diadem in the papers published in the following conference volumes, whose main subject was the history of prehistoric metallurgy, metalworking techniques, prestige items, etc., where one might reasonably expect a mention of this unique find: *Novotná 1976; Petrović – Đurđekanović 1995; Durman 1997; Ottaway 2001; Höppner et al. 2005; Kohl 2007; Hansen 2009; Roberts – Thornton – Pigott 2009; Kienlin – Roberts 2009; Kienlin 2010; Radivojević et al. 2010; Kienlin 2013; Merkl – Steiniger – Strahm 2013; Hansen 2013; Pernicka 2014.*
[83] *Bondár 1998* 26–27. The vessel is part of a private collection.
[84] *Bóna 1959* 57.
[85] *Bóna 1959* 55.
[86] *Makkay 1976* 287, note 238. István Bóna challenged János Makkay's localisation of the findspot of the "Csepin" assemblage and wrote a detailed study on the find circumstances, the date and the findspot of the assemblage, see *Bóna 1986* and *Bóna 1990*. However, the debate between the two scholars is hardly the subject of this study.
[87] *Fettich 1953* Taf. LV. 2.
[88] *Makkay 1976* 283.
[89] *Sulimirski 1961* 92, 96, Pl. 1. 5.
[90] Kuna dated the assemblage to the Tripolye II B-K period: *Kuna 1981* 33.
[91] *Fettich 1953* Taf. XLVIII. 1–3, 4–7, 8–9.
[92] *Makkay 1985* 72.

small, 18 to 29 cm long fragments can at best be regarded as diadem fragments, which could be assembled to fit around a human head if complemented with additional fragments.[93]

The copper diadem from Vukovar (Croatia) republished by Nándor Kalicz[94] is a narrow band with two perforations through one end. Its dimensions are known from the original publication: its length is 46.5 cm, its width is 1.8 cm.[95] Kalicz noted that metal diadems appear in the third copper horizon of South-East Europe,[96] to which he assigned the Balaton-Lasinja I and Balaton-Lasinja II–III cultures (as they were then called), arguing that they represented the earlier and later phase of this copper horizon and that they were contemporaneous with Bodrogkeresztúr A and B. Kalicz believed that the true flourishing of Central European metallurgy should be dated to this period.[97]

It is obvious from the above-quoted finds that diadems and headbands of sheet metal were known prior to the Baden period, appearing from the Csáford–Stollhof find horizon of the Middle Copper Age in the Carpathian Basin.

To date, two Late Copper Age diadems are known from the Carpathian Basin. The first is the piece from Vörs *(fig. 4. 2–3, 5)*, the other was found at Veľká Lomnica in the foreland of the High Tatra Mountains in Slovakia in the 1960s *(fig. 4. 4)*:[98] two fragments of an oval band with the occasional perforation along the edges, but without horn-like terminals,[99] i.e. differing from the Vörs piece. Not long ago, I found a possible explanation for this dichotomy, based on a recently published assemblage from Kültepe in Turkey. Several scholars presented the findings of their research at Kültepe that was resumed in 2009 in the Turkish language catalogue prepared for a major exhibition.[100] Described in the book was a skull onto which various articles of sheet gold had been placed: a diadem on the forehead, a small square sheet on each eye and a thin oval sheet on the mouth *(fig. 4. 1)*. The latter is virtually identical to the Veľká Lomnica piece. It can be seen from the Kültepe assemblage that three different metal objects were associated with the cult of the dead: a diadem on the head, sheets covering the eyes and a shorter sheet for the mouth that was mistakenly believed to be a headband or diadem, but was in fact a plate that closed and covered the mouth of the deceased. Thus, the "fragmentary" or "short" metal bands had an entirely different function and were not diadems.

Several suggestions have been made on how the Vörs diadem was worn. Tamás Pekáry, who excavated the grave, wrote about a band fastened with some perished material in the field documentation. In the published report, however, he claimed that the diadem was worn with the horns twisted together in front.[101] In Banner's description[102] and his drawing, there are two pronounced perforations on one side only, near the horns *(fig. 3. 8)*. József Csalog believed that the sheet metal band had been perforated in two spots near the horns and that it had been fastened with a cord.[103] However, it is unclear from his text and from the published drawing whether he was thinking of the two perforations visible on Banner's drawing, or whether he meant that both ends were perforated to ease the fastening. In fact, both ends of the Vörs diadem have a pair of perforations near the horn-like extensions *(fig. 4. 3, 5)*.

We know virtually nothing about how exactly diadems were worn or whether they were accessories worn on festive occasions or part of the funerary costume. Neither do we know whether they were indicators of social rank, if at all. Similarly, it is uncertain whether these

[93] *Fettich 1953* Taf. XLVII. 15–20.
[94] *Kalicz 1982* fig. 5. 1.
[95] *Brunšmid 1902* 61.
[96] *Kalicz 1982* 11; *Kalicz 1993* 11.
[97] *Kalicz 1982* 11, 16.
[98] *Novotný 1972*.
[99] *Novotná 1967* Abb. 1; *Novotný – Novotná – Kovalčík 1985* fig. 14.
[100] *Kulakoğlu – Kangal 2010* cat. nos 319–321.
[101] *Pekáry 1954* 72.
[102] *Banner 1956* 111: "Das eine Ende ist im grossen und ganzen gerade, das andere im Zweidrittelteil gekrümmt. Am sich verschmälernden Ende sind vorne zwei Löcher angebracht."
[103] *Csalog 1961* 14, fig. 6.

bands were placed directly on the head or whether they were the metal adornments of a textile or leather cap or headdress. In the case of the fragmentary sheet metal bands, it seems more likely that they had been attached to some sort of cap. The Vörs diadem has a circumference that is larger than that of the skull and the pair of perforations near the horns too suggests that it had been attached to a headgear made from organic material. However, these are merely conjectures without any substantiating evidence.

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The above review of the Hungarian and international archaeological literature and of the major studies on the Baden culture and on various aspects of early metallurgy indicate that we can hardly speak of a scholarly consensus regarding the Vörs diadem or even the burial itself.

Opinions are divided as regards the sex of the deceased buried at Vörs. Tamás Pekáry, János Banner, Nándor Kalicz, the authors of the museum booklet (Balázs Draveczky, Gyula Takács and Károly Sági), János Makkay, József Korek, Viera Němejcová-Pavúková and Martin Kuna did not address this issue. József Csalog, Zsuzsanna M. Virág and Marija Gimbutas believed the deceased was a male (as did the author of the present study), while István Bóna and Tünde Horváth argued that the deceased had been a woman. As we have seen, a published physical anthropological assessment was not available and that Balázs Gusztáv Mende could only examine the skull, which he found to have female traits.

The determination of the metal the diadem was made from was similarly controversial. Tamás Pekáry and István Bóna believed the diadem was made from bronze. János Banner, József Korek, Zsuzsanna M. Virág, Tünde Horváth, Viera Němejcová-Pavúková, Gabriel Nevizánsky and Claudia Sachße identified it as copper, while Balázs Draveczky, Károly Sági and Gyula Takács described it as being made of brass. János Makkay and the present author were undecided whether the diadem was made from bronze or copper. József Csalog and Nándor Kalicz did not take a stand regarding the diadem's material. The metal analysis performed in the 1970s as part of the SAM (Studien zu den Anfängen der Metallurgie) project and the republication of the results[104] apparently remained unacknowledged in archaeological research.

As regards dating, Viera Němejcová-Pavúková and József Korek proposed a closer date, as did Martin Kuna (copper horizon V) and Nándor Kalicz (copper horizon 4), essentially based on the two pottery sherds recovered from the burial; all other scholars mention the Vörs diadem as an artefact broadly dating to the Late Copper Age Baden culture.

Preliminary findings of the new analyses and tasks for future research

Previous metal analyses of the diadem

The metallurgical analysis of this remarkable copper artefact was performed in the 1970s. The SAM volume on the Copper Age, containing the data on the Vörs diadem, appeared in 1974. We do not know which part of the diadem was sampled for the analysis.[105] The analytical results indicated that the trace elements included arsenic, antimony and silver.[106] The result of the analysis of the Vörs diadem was republished by Rüdiger Krause in his monograph appearing in 2003: he quoted the information in the Stuttgart database together with the SAM identification number (13738).[107] The trace elements include nickel (0.001%)

[104] *Krause 2003.*

[105] The results of the metal analysis of the diadem did not become part of common archaeological knowledge; only Zsuzsanna M. Virág knew about it. I am grateful to Viktória Kiss for bringing the fact of the analysis to my attention.

[106] *SAM 1974* Bd. 2. Teil 4, 124–125, no. 13738.

[107] *Krause 2003* Nr. 13738.

and silver (0.01%). The reason for the apparent divergences in the trace element composition in the SAM volume and in Krause's monograph remains unclear.[108]

(1) Non-invasive analysis of the diadem's raw material and its manufacturing technique

Metal analysis

The controversial analytical results published in the SAM volume and by Rüdiger Krause necessitated a new analysis and the diadem was therefore submitted to energy dispersive X-ray fluorescence (ED XRF) analysis[109] in the Nuclear Spectroscopy Laboratory of the Department of Chemical and Environmental Process Engineering at the Faculty of Chemical and Biochemical Engineering of the Budapest University of Technology and Economics in 2014, which conclusively proved that the diadem was made of almost pure copper. The presence of impurities such as zirconium can be attributed to post-depositional processes. Arsenic does not appear among the trace elements. In the case of the Vörs diadem, the quick analysis lasted for a few minutes, the precise analysis for two days. For a short report on the element composition and a description of the analytical procedure, see Iván Gresits's study in this volume.

As part of a collaborative archaeometric research project,[110] the diadem was also submitted to non-invasive neutron radiography (NR), prompt gamma activation (PGAA) and time of flight neutron diffraction (TOF ND) analyses in the laboratories of the Budapest Neutron Centre of the Budapest Research Reactor (the Nuclear Analytical and Radiography Laboratory in the Centre of Energy Research of the Hungarian Academy of Sciences and the Neutron Spectroscopy Department of the Institute for Solid State Physics and Optics in the Wigner Research Centre for Physics of the Hungarian Academy of Sciences). These analyses confirmed that the diadem was made of almost pure copper. The findings of the studies on manufacturing techniques will be published in a separate study.

Stereo microscope images

Stereo microscope images were made of the diadem *(fig. 5)* in the Archaeometric Laboratory of the Institute of Archaeology of the Eötvös Loránd University,[111] which would provide important information on how the diadem was made. This study is still in progress and will be complemented by other instrumental examinations, and thus only a few images of the diadem are published here. The row of tiny dots along the diadem's edges was created by hammering from the reverse *(fig. 5. 3–4)*; in some spots, the band thinned to the extent that it became perforated. The stereo microscope images and the metal analyses also demonstrated that the wire holding together the horns is modern and was presumably added during the conservation of the diadem.

[108] The analytical results of the laboratories performing the metal analyses and a comparison with other archaeometallurgical examinations of the period's copper finds will be presented in a separate, forthcoming study, and they are therefore not discussed here.

[109] For a description of this analytical method, see *Lutz – Pernicka 1996* and https://www.bruker.com/products/x-ray-diffraction-and-elemental-analysis/handheld-xrf/how-xrf-works.html [10.12.2014].

[110] The analyses were performed as part of the EU FP7-NMI3 project, "Studies on the local metal production of the Carpathian Basin from the Late Copper Age until the Middle Bronze Age (3500–1500 BC)". I would here like to thank Viktória Kiss for her kind co-operation as well as Zsolt Kasztovszky, Zoltán Kiss, Boglárka Maróti, György Káli and Eszter Horváth, who performed the analyses.

[111] Performed as part of the project "KMOP-4.2.1/B-10-2011-0002: Interdisciplinary, innovative research directions and the development of the infrastructural background of industrial cooperation as well as the introduction of new educational technologies at ELTE". A ZEISS SteREO Discovery.V8: zoom (6,3× – 80×) stereo microscope was used. The images were made by Zsuzsanna Tóth. I am grateful to Pál Raczky, director of the Institute of Archaeology of the Eötvös Loránd University, for his kind permission to perform the examination and to Zsuzsanna Tóth for her conscientious work.

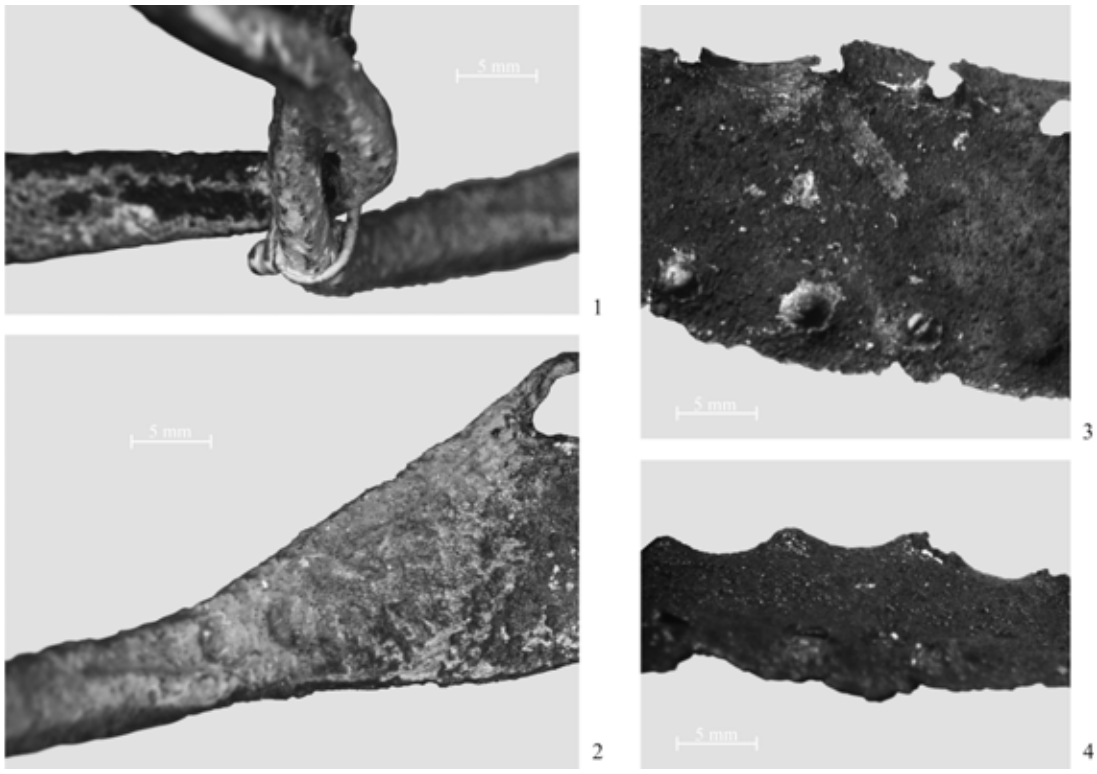

fig. 5. Stereo microscope image of the diadem (by Zsuzsanna Tóth)

Experimental re-creation of the diadem

On my request, goldsmith Borbála Barna made a smaller copy of the diadem from modern copper wire;[112] the stereo microscope images made during the re-creation of the diadem will be used in the later technical analyses. We found that the metal wire could be easily worked with a wooden hammer and that there was no need for heating. Another interesting observation was that the wire could be thinned into a sheet starting from one end and that the length ultimately depended on the wire's durability.

(2) Physical anthropological analysis of the burial

Anthropologists Kitti Köhler and Balázs Gusztáv Mende of the Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences took samples from the teeth of the skull in Keszthely for aDNA analyses. The physical anthropological analysis was performed by Kitti Köhler (see her study in this volume), who found that that the skull belonged to a 20-30-year-old adult and that the skull had predominantly female traits, as earlier established by Balázs Gusztáv Mende.

(3) Identification of the findspot of the burial with the diadem

In his report, Tamás Pekáry wrote the following about the findspot of the burials: "Vörs (County Somogy, Fonyód District). Three silo pits were dug some 100 m north-east of the so-called farm buildings at the north-eastern end of the village. Three inhumation burials

[112] I would here like to thank Borbála Barna for her creative collaboration on this project.

were found in the pits." Appended to his report was a rough sketch showing the location of the findspot *(figs 1; 2. 2)*.

I read through the reports of later excavations at Vörs in the hope that I would find some clues as to the exact location of the findspot because the location of the farm buildings on modern maps and Pekáry's rough sketch are strongly at variance. After also doing an Internet search, I found references to a book written by Dénes Tóth, a retired local teacher, on the history of Vörs, published by him in 2002. Enlisting the help of my colleague László Költő, who was personally acquainted with Dénes Tóth, I received a copy of the book's passage on the Vörs diadem. Dénes Tóth kindly provided the additional information on the findspot, enabling my colleague to determine the findspot's most likely location on a modern map. I am immensely grateful to them both for their help in identifying the findspot after so many decades of uncertainty.

As it turned out, the "farm buildings" can indeed be identified with the farm buildings of the Festetich Manor: the manor house itself stood on the road's southern side. The confusion in the location of the findspot was caused by the fact that new farm buildings had been constructed in addition to the earlier ones and that in the lack of more precise data, it was assumed that the graves had come to light near the new buildings. However, the findspot lay not west of the village, but near the manor's earlier farm buildings, as recounted by Lajos Futó, Dénes Tóth's neighbour, who had been present when the silo pits were dug. In fact, the findspot itself lay at the end of Dénes Tóth's garden: using the information on street names and plots provided by Lajos Futó, it was now possible to accurately identify and map the findspot through the collation of Tamás Pekáry's sketch, old cadastral maps and modern maps[113] *(fig. 2. 3)*.

Conclusion

The main purpose of this study was to re-introduce the almost forgotten Vörs diadem to archaeological scholarship, and to briefly present the findings of the new archaeometallurgical and physical anthropological analyses.

The analyses described in the above are no more than preliminary, interim findings. A detailed assessment of the metallurgical analyses, the reconstruction of the technical details of how the diadem was made, a discussion of Copper Age metalworking and mining and similar issues would exceed the scope of this study. These questions will be addressed in separate studies.

The aDNA analysis of the tooth samples that will either confirm or refute the results of the traditional physical anthropological examination is still in progress. The strontium isotope analyses of the tooth samples will shed light on diet and on whether the deceased was an immigrant or a member of the local population. The radiocarbon dating of the burial is similarly still in progress. The results of these analyses will be published as soon as they are available and they will also provide scientifically sound evidence on the sex of the deceased and the date of this remarkable find, alongside new insights into the techniques of Late Copper Age metalworking.

[113] I would here like to thank Bence Vágvölgyi (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences) for the georeferenced version of the map.

REFERENCES

Banner 1941 J. Banner: Újabb adatok a dunántúli badeni-kultúra ismeretéhez [New Data on the Transdanubian Baden culture]. Dunántúli Szemle 8 (1941) 345–352.

Banner 1956 J. Banner: Die Péceler Kultur. ArchHung 35. Budapest 1956.

Bóna 1959 I. Bóna: Bronzkori övkapcsok és diadémák. Adatok a Közép-Duna-medencei bronzkori viselethez (Bronze Age girdle-clasps and diadems. Data to the costumes of the Bronze Age in the Middle Danube Basin). ArchÉrt 86 (1959) 49–59.

Bóna 1963–1964 I. Bóna: The Peoples of Southern Origin of the Early Bronze Age in Hungary I–II. Alba Regia 4–5 (1963–1964 [1965]) 17–63.

Bóna 1986 I. Bóna: Javarézkori aranyleleteinkről (Über Goldfunde aus Hochkupferzeit). VMMK 18 (1986 [1987]) 21–72.

Bóna 1990 I. Bóna: Pannonia, Dacia és ami közte van. Megjegyzések Makkay János vitacikkére (Pannonien, Dazien und was dazwischen liegt. Bemerkungen zum Artikel von János Makkay). A Tapolcai Városi Múzeum Közleményei 1 (1990) 243–252.

Bóna 1994 I. Bóna: La métallurgie du bronze et le travail des métaux jusqu'à la fin du Bronze Moyen, in: I. Bóna – P. Raczky (eds): Le bel Age du Bronze en Hongrie. Mont-Beuvray 1994, 48–65.

Bondár 1989 M. Bondár: Spätkupferzeit, in: R. Müller (Hrsg.): Sieben Jahrtausende am Balaton. Sonderausstellung vom 24. September 1989 bis 26. November 1989 in Mannheim. Sonderausstellung vom 10. Dezember 1989 bis 26. Februar 1990 in Oldenburg. Mannheim 1989, 26–30.

Bondár 1996 M. Bondár: Késő rézkor [Late Copper Age], in: L. Költő – L. Vándor (eds): Évezredek üzenete a láp világából. Régészeti kutatások a Kis-Balaton területén 1979–1992. Kaposvár – Zalaegerszeg 1996, 34–41.

Bondár 1998 M. Bondár: Ein kupferzeitlicher Krug aus Bátaszék. CommArchHung 1998, 21–31.

Bondár 2007 M. Bondár: A Balaton déli partvidéke és a Dél-Dunántúl a rézkorban. Kr. e. 5. évezred közepe (4500/4400) – 3. évezred első harmada (2700/2500) [The Southern Shoreline of Lake Balaton and Southern Transdanubia in the Copper Age. Mid-5th Millennium (4500/4400) – First Third of the 3rd Millennium (2700/2500)], in: K. Belényesy – Sz. Honti – V. Kiss (eds): Gördülő idő. Régészeti feltárások az M7-es autópálya Somogy megyei szakaszán Zamárdi és Ordacsehi között. Budapest 2007, 21–28.

Brunšmid 1902 J. Brunšmid: Nahođaji bakrenoga doba iz Hrvatske i Slavonije i susjednih zemalja. Vjesnik Hrvatskoga arheološkoga društva 6 (1902) 32–67.

Csalog 1961 J. Csalog: Adatok a bádeni (péceli) nép kocsitemetkezéseihez és életformájának kérdéséhez (Data to the Wagon Burials and the Ways of Life of the Baden (Pécel) Folk). ArchÉrt 88 (1961) 7–22.

Draveczky 1970 B. Draveczky: Somogy megye régészeti képeskönyve [An Archaeological Album of Somogy County]. Somogyi Múzeum Füzetei 17. Kaposvár 1970.

Draveczky – Sági – Takáts 1964 B. Draveczky – K. Sági – Gy. Takáts: A Somogy Megyei Múzeumok Régészeti Adattára [The Archaeological Database of the Museums of Somogy County]. Somogyi Múzeum Füzetei 2. Kaposvár 1964.

Durman 1997 A. Durman: Tin in Southeastern Europe? Opuscula Archeologia 21 (1997) 7–14.

Ecsedy 1990 I. Ecsedy: On the Early Development of Prehistoric Metallurgy in Southern Transdanubia. GCBI 28 (1990) 209–230.

Ecsedy 1994a I. Ecsedy: Copper Age Traditions and Bronze Age Innovations, in: T. Kovács (ed.): Treasures of the Hungarian Bronze Age. Catalogue to the Temporary Exhibition of the Hungarian National Museum, September 20 – December 31, 1994. Budapest 1994, 37–45.

Ecsedy 1994b I. Ecsedy: The Emergence of the Bronze Age in Hungary, in: T. Kovács (ed.): Treasures of the Hungarian Bronze Age. Catalogue to the Temporary Exhibition of the Hungarian National Museum, September 20 – December 31, 1994. Budapest 1994, 17–21.

Ecsedy 1995a I. Ecsedy: Rézkori hagyományok és a bronzkori technika kezdetei [Copper Age traditions and the beginnings of Bronze Age technology], in: B. Maráz (ed.): A bronzkor kincsei Magyarországon. Időszakos kiállítás katalógusa. Janus Pannonius Múzeum 1995. május 12. – október 15. Pécs 1995, 31–37.

Ecsedy 1995b I. Ecsedy: A bronzkor kezdete [The beginning of the Bronze Age], in: B. Maráz (ed.): A bronzkor kincsei Magyarországon. Időszakos kiállítás katalógusa. Janus Pannonius Múzeum 1995. május 12. – október 15. Pécs 1995, 14–18.

Fettich 1953 N. Fettich: A Szeged-nagyszéksósi hun fejedelmi sírlelet (La trouvaille de tombe princière hunnique à Szeged-Nagyszéksós). ArchHung 32. Budapest 1953.

Gimbutas 1991 M. Gimbutas: The Civilisation of the Goddess: The World of Old Europe. New York 1991.

Hansen 2009 S. Hansen: Kupferzeitliche Äxte zwischen dem 5. und 3. Jahrtausend in Südosteuropa. Analele Banatului SN. Archaeologie – Istorie 17 (2009) 139–158.

Hansen 2013 S. Hansen: Innovative Metals: Copper, Gold and Silver in the Black Sea Region and the Carpathian Basin during the 5th and 4th Millennium BC, in: S. Burmeister – S. Hansen – M. Kunst – N. Müller-Scheeßel (eds): Metal Matters. Innovative Technologies and Social Change in Prehistory and Antiquity. Menschen – Kulturen – Traditionen. Studien aus den Forschungsclustern des Deutschen Archäologischen Instituts 12. Rahden – Westfalen 2013, 137–167.

Harkay 1996 M. Harkay: A Kis-Balaton–rekonstrukció és környezeti hatásai [The rehabilitation of the Little Balaton and its environmental effects], in: L. Költő – L. Vándor (eds): Évezredek üzenete a láp világából. Régészeti kutatások a Kis-Balaton területén 1979–1992. Kaposvár – Zalaegerszeg 1996, 7–13.

Horváth 2002a T. Horváth: A unique anthropomorphic representation of the Baden Culture. Antaeus 25 (2002) 423–426.

Horváth 2002b T. Horváth: Késő rézkori agyagmaszk Balatonőszödről (A Late Copper Age clay mask from Balatonőszöd, Transdanubia). Ősrégészeti Levelek 4 (2002) 31–39.

Horváth 2004 T. Horváth: A new human representation from the Baden culture. A mask from Balatonőszöd. ActaArchHung 55 (2004) 179–235.

Horváth 2006 T. Horváth: A badeni kultúráról rendhagyó módon (About the Baden culture – an irregular approach). JAMÉ 48 (2006) 89–134.

Horváth 2008 T. Horváth: Sozialmorphologische Studie der spätkupferzeitlichen Baden-(Pécel)-Kultur. MAGW 138 (2008) 159–203.

Horváth 2010 T. Horváth: Transcendent phenomena in the Late Copper Age Boleráz/Baden settlement uncovered at Balatonőszöd–Temetői dűlő: human and animal „deposition". Journal of Neolithic Archaeology 12 (2010) 1–79. www.jungsteinSITE.de [01.09. 2010]

Höppner et al. 2005 B. Höppner – M. Bartelheim – M. Huijsmans – R. Krauss – K.-P. Martinek – E. Pernicka – R. Schwab: Prehistoric Copper Production in the Inn Valley (Austria), and the earliest Copper in Central Europe. Archaeometry 47 (2005) 293–315.

Jankovich – Makkay 1978 D. Jankovich – J. Makkay: A somogyi föld története a legrégibb időktől a középkorig [The history of the Somogy county from the Prehistory to the Middle Ages], in: I. Honfi (ed.): A Rippl-Rónai Múzeum állandó kiállításai. Kaposvár 1978, 4–51.

Jażdżewski 1984 K. Jażdżewski: Urgeschichte Mitteleuropas. Wroclaw 1984.

Kalicz 1963 N. Kalicz: Die Péceler Kultur und Anatolien. StudArch 2. Budapest 1963.

Kalicz 1970 N. Kalicz: Clay Gods: The Neolithic Period and Copper Age in Hungary. Budapest 1970.

Kalicz 1982 N. Kalicz: A Balaton-Lasinja kultúra történeti kérdései és fémleletei (The historical problems of the Balaton-Lasinja Culture and its metal finds). ArchÉrt 109 (1982) 3–17.

Kalicz 1992 N. Kalicz: A legkorábbi fémleletek Délkelet-Európában és a Kárpát-medencében az i. e. 6–5. évezredben (The oldest Metal Finds in Southeastern Europe and the Carpathian Basin from the 6th to 5th Millennia BC). ArchÉrt 119 (1992) 3–14.

Kalicz 1993 N. Kalicz: Le bassin du Danube moyen, la plaine pannonienne, in: J. Kozlowski – P-L. van Berg: Atlas du Néolithique européen. Vol. 1: L'Europe orientale. Études et Recherches Archéologiques de l'Université de Liège, ERAUL 45. Liège 1993, 285–342.

Kalicz – Raczky 2005 N. Kalicz – P. Raczky: The Neolithic and the Copper Age (6000–2800 BC), in: É. Garam (ed.): Between East and West. History of the Peoples Living in the Hungarian Lands. 400,000 B.C. – 804 A.D. Guide to the Archaeological Exhibition of the Hungarian National Museum. Budapest 2005, 31–45.

Kienlin 2010 T. L. Kienlin: Traditions and Transformations: Approaches to Eneolithic (Copper Age) and Bronze Age Metalworking and Society in Eastern Central Europe and the Carpathian Basin. BAR IS 2184. Oxford 2010.

Kienlin 2013 T. L. Kienlin: Copper and Bronze: Bronze Age metalworking in context, in: H. Fokkens – A. Harding (eds): The European Bronze Age. Oxford 2013, 414–432.

Kienlin – Roberts 2009 T. L. Kienlin – B. W. Roberts (eds): Metals and Societies. Studies in Honour of Barbara S. Ottaway. Universitätforschungen zur Prähistorischen Archäologie 169. Bonn 2009.

Kiss 2009 V. Kiss: A fémnyersanyag-felhasználás kérdései a Dunántúl kora és középső bronzkorában (Questions of the use of metal as raw material in the Early and Middle Bronze Age of Transdanubia), in: G. Ilon (ed.): Nyersanyagok és kereskedelem. Őskoros Kutatók VI. Összejövetelének konferenciakötete. Kőszeg 2009. március 19–21. ΜΩΜΟΣ VI. Szombathely 2009, 197–212.

Kiss 2012 V. Kiss: Arany, réz és bronztárgyak kutatása a középső bronzkorig – Az archeometallurgia aktuális kérdései. (The Study of Gold, Copper and Bronze Artefacts until the Middle Bronze Age. Current Questions of Archeometallurgy). Archeometriai Műhely 9/2 (2012) 61–73.

Kocztur 1964 É. Kocztur: Somogymegye régészeti leletkatasztere [The register of archaeological finds of Somogy County]. RégFüz Ser. II. 13. Budapest 1964.

Kohl 2007 P. L. Kohl: The Making of Bronze Age Eurasia. Cambridge World Archaeology. Cambridge 2007.

Korek 1983 J. Korek: Közép-Kelet Európa a rézkor végén [East Central Europe in the End of the Copper Age]. DSc Thesis. Manuscript. Budapest 1983.

Krause 2003 R. Krause: Studien zur kupfer- und frühbronzezeitlichen Metallurgie zwischen Karpatenbecken und Ostsee. Vorgeschichtliche Forschungen 24. Rahden – Westfalen 2003.

Kulakoğlu – Kangal 2010 F. Kulakoğlu – S. Kangal (eds): Anadolu'nun Önsözü: Kültepe-Kaniş Karumu Asurlular İstanbul'da. Bu katalog, Aya Sofya, Aya Irini Müzesi'nde 29 Arahk 2010 – 28 Mart 2011. Kayseri Büyükşekir Belediyesi Kültür Yayinlan 78. Istanbul: Turizm Bakanliği ve Kültepe Kazi 2010.

Kuna 1981 M. Kuna: Zur neolithischen und äneolithischen Kupferbearbeitung im Gebiet Jugoslawiens. GCBI 19 (1981) 13–81.

Lichardus et al. 1995 J. Lichardus – M. Lichardus-Itten – G. Bailloud – J. Cauvin: La protohistoire de l'Europe. Le Néolithique et le Chalcolithique entre la Méditerranée et la mer Baltique. Nouvelle Clio. Paris 1985.

Lutz – Pernicka 1996 J. Lutz – E. Pernicka: Energy dispersive X-ray analysis of ancient copper alloys: empirical values for precision and accuracy. Archaeometry 38 (1966) 313–323.

Makkay 1976 J. Makkay: Problems concerning Copper Age Chronology in the Carpathian Basin. ActaArchHung 28 (1976) 251–300.

Makkay 1985 J. Makkay: A tiszaszőlősi kincs. Nyomozás egy rézkori fejedelem ügyében [The Tiszaszőlős Treasure. In Search of a Copper Age Prince]. Budapest 1985.

Merkl – Steiniger – Strahm 2013 M. Merkl – D. Steiniger – Ch. Strahm: Les Alpes à l'aube de la métallurgie, in: M. A. Borello (ed.): Les hommes préhistoriques et les Alpes. BAR IS 2476. Oxford 2013, 175–194.

Müller 1988 R. Müller: A Kis-Balaton és környékének régészeti leletei. Vendégkiállítás a szegedi Móra Ferenc Múzeum felújított épületszárnyában, 1988. november – 1989. május. [Archaeological Finds from and around the Little Balaton. Guest Exhibition in the Renovated Wing of the Móra Ferenc Museum in Szeged, November 1988 – May 1989]. Szeged 1988.

Němejcová-Pavúková 1974 V. Němejcová-Pavúková: Beitrag zum kennender Postboleráz-Entwicklung der Badener Kultur. SlA 22 (1974) 237–360.

Nemeskéri 1956 J. Nemeskéri: Anthropologische Übersicht des Volkes der Péceler Kultur, in: *Banner 1956* 295–311.

Németh et al. 2010 P. G. Németh – Sz. Honti – L. Költő – K. Magyar – Cs. M. Aradi – I. Molnár: Mit rejt Somogyország földje? [What lies beneath the ground in Somogy County?], SMK Jubileumi kötet (Centenarium edition). SMK 19 (2010) 15–66.

Nevizánsky 1985 G. Nevizánsky: Grabfunde und Überbauerscheinungen der Träger der Badener Kultur im zentralen Gebiet des Karpatenbeckens. SlA 33 (1985) 249–271.

Novotná 1967 M. Novotná: Ein Depot getriebener Bronzen von der Höhensiedlung Burbrich in Veľká Lomnica (slowakische Zips). ActaArchCarp 9 (1967) 63–68.

Novotná 1976 M. Novotná: Beginn der Metallverwendung und -verarbeitung im östlichen Mitteleuropa, in: H. Müller-Karpe (ed.): Les débuts de la métallurgie. IX. Congrès, Union internationale des sciences préhistoriques et protohistoriques, Colloque 23. Nice 1976, 118–133.

Novotná 1984 M. Novotná: Halsringe und Diademe in der Slowakei. PBF 9/4. München 1984.

Novotný 1972 B. Novotný: Výskum vo Veľkej Lomnici, okr. Poprad (Die Ausgrabung in Veľká Lomnica, Kr. Poprad). AR 24 (1972) 10–16.

Novotný 2001 B. Novotný: Die Besiedlung der Gebirgslandschaft in der Nordslowakei im Äneolithikum, in: A. Lippert – M. Schultz – S. Shennan – M. Teschler-Nicola (Hrsg.): Mensch und Umwelt während des Neolithikums und der Frühbronzezeit in Mitteleuropa. Ergebnisse interdisziplinärer Zusammenarbeit zwischen Archäologie, Klimatologie, Biologie und Medizin. Internationaler Workshop vom 9.–12. November 1995, Institut für Ur- und Frühgeschichte der Universität Wien. Rahden – Westfalen 2001, 81–87.

Novotný – Novotná – Kovalčík 1985 B. Novotný – M. Novotná – R. M. Kovalčík: Praveká dedina pod Vysokými Tatrami. Poprad 1985.

Ottaway 2001 B. S. Ottaway: Innovation, Production and Specialisation in Early Prehistoric Copper Metallurgy. EJA 4 (2001) 87–112.

Pavelčík 1979 J. Pavelčík: Depot měděných šperku z Hlinska u Lipníku n. Beč (Hortfund des Kupferschmucks aus Hlinsko bei Lipník a. d. Becva). Památky Archeologické 70 (1979) 319–338.

Pekáry 1954 T. Pekáry: Vörs. ArchÉrt 81 (1954) 72.

Pernicka 2014 E. Pernicka: Provenance Determination of Archaeological Metal Objects, in: B. W. Roberts – Chr. P. Thornton (eds.): Archaeometallurgy in Global Perspective: Methods and Syntheses. New York 2014, 239–268.

Petrović – Đurđekanović 1995 P. Petrović – S. Đurđekanović (eds): Ancient Mining and Metallurgy in Southeast Europe. International Symposium Donji Milanovac, May 20–25, 1990. Belgrade – Bor 1995.

Piggott 1987 S. Piggott: Az európai civilizáció kezdetei. Az őskori Európa az első földművelőktől a klasszikus ókorig (Ancient Europe from the Beginning of Agriculture to Classical Antiquity). Budapest 1987.

Radivojević et al. 2010 M. Radivojević – T. Rehren – E. Pernicka – D. Šljivar – M. Braun: On the Origins of Extractive Metallurgy: New Evidence from Europe. JAS 37 (2010) 2775–2787.

Roberts – Thornton – Pigott 2009 B. W. Roberts – C. P. Thornton – V. C. Pigott: Development of metallurgy in Eurasia. Antiquity 83 (2009) 1012–1022.

Sachße 2010 C. Sachße: Untersuchungen zu den Bestattungssitten der Badener Kultur. Universitätforschungen zur Prähistorischen Archäologie, Band 1979. Bonn 2010.

SAM 1974 K. Bittel – S. Junghaus – H. Otto – E. Sangmeister – M. Schröder: Kupfer und Bronze in der frühen Metallzeit Europas. Studien zu den Anfängen der Metallurgie II. Berlin 1974.

Sulimirski 1961 T. Sulimirski: Copper Hoard from Horodnica on the Dniester. MAGW 91 (1961) 91–97.

Symposium Baden 1973 B. Chropovský (Hrsg.): Symposium über die Entstehung und Chronologie der Badener Kultur. Bratislava 1973.

Vándor – Müller – Szőke 1992 L. Vándor – R. Müller – B. M. Szőke: Sedem tisočletij Blátnem jezeru. Murska Sobota 1992.

M. Virág 1986 Zs. M. Virág: Javarézkori rézleletek Zalavár-Basaszigetről (Middle Copper Age Finds from Zalavár-Basasziget). ArchÉrt 113 (1986) 3–14.

M. Virág 1987 Zs. M. Virág: Viselet- és ékszertörténet a kezdetektől a római korig [Costume and jewelry history from the beginnings to the Roman times], in: R. Müller – K. Petánovics – Zs. M. Virág: Ékszer és viselettörténet. A Balatoni Múzeum Állandó Kiállításainak Katalógusai 5. Keszthely 1987, 3–13.

M. Virág 1999 Zs. M. Virág: A badeni kultúra rézleletei Sármellék-Égenföldön (Die Kupferfunde der Badener Kultur in Sármellék-Égenföld). ZalaiMúz 9 (1999) 33–54.

M. Virág 2003 Zs. M. Virág: Early metallurgy in the Carpathian Basin, in: Zs. Visy (ed.): Hungarian Archaeology at the Turn of the Millennium. Budapest 2003, 129–132.

K. Zoffmann 1992 Zs. K. Zoffmann: A Kelet Kárpát-medence neolitikus és rézkori népességeinek embertani vázlata. [Outline of the Anthropology of the Neolithic and Copper Age Population of the Eastern Carpathian Basin]. CSc Thesis. Manuscript. Budapest 1992.

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IVÁN GRESITS

NON-INVASIVE RAW MATERIAL ANALYSIS OF THE VÖRS DIADEM

Keywords: diadem, raw material analysis, ED-XRF, Late Copper Age, Baden culture

Principles of energy dispersive X-ray fluorescence (ED-XRF) analysis

The raw material analysis of the Vörs diadem (housed in the Balaton Museum, Keszthely) was conducted by the Nuclear Spectroscopy Laboratory of the Department of Chemical and Environmental Process Engineering at the Faculty of Chemical and Biochemical Engineering of the Budapest University of Technology and Economics. The applied method is isotope excited energy dispersive X-ray fluorescence (ED-XRF) analysis. This is a non-invasive analytical method for qualitative as well as quantitative determination of elements in a sample without sample preparation or with only a minimal one. (We conduct ED-XRF analyses of historical or archaeological artefacts without sample preparation.) It is based on the fact that elements that are irradiated with high-energetic X-rays have a certain probability of emitting characteristic X-rays, the intensity and energies of which are unique for each element *(fig. 1)*.

The margin of error of the analytical method in ppm trace elements is ±10 relative percent and ±2% in percentage. The longer the time available for the analysis, the more detailed the analysis.

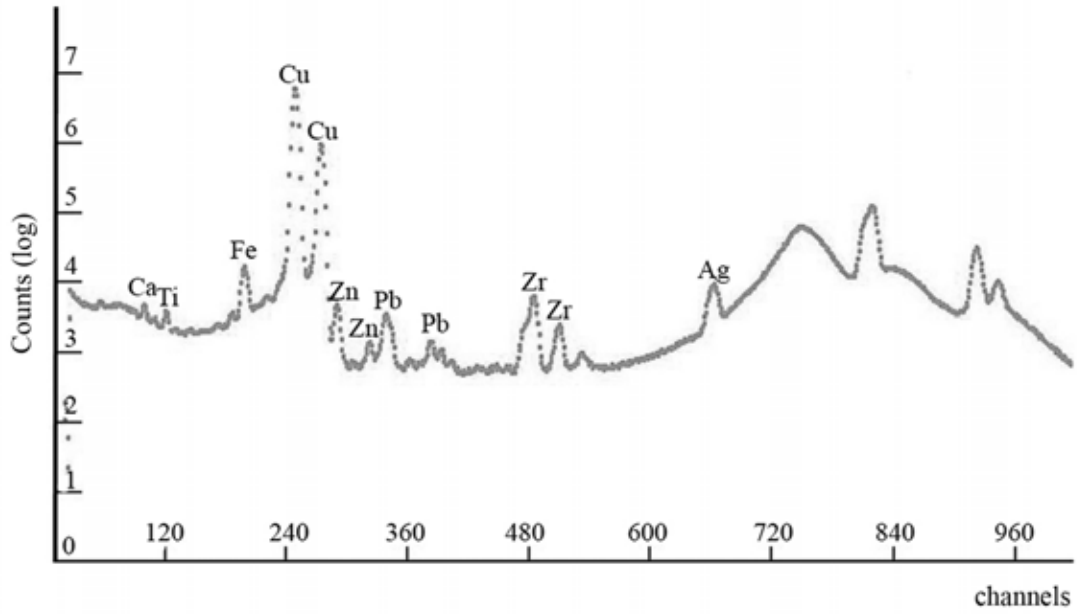

fig. 1. X-ray fluorescence (XRF) spectrum of the Vörs diadem

General features of energy dispersive X-ray fluorescence (ED-XRF) analysis

The instrumentation of the Nuclear Spectroscopy Laboratory of the Budapest University of Technology and Economics contains:

1. X-ray fluorescence measuring head with 125I x-ray source and Canberra SSL 8016 Si(Li) semiconductor detectort,
2. Canberra DSA-1000 digital spectrum analyser (with signal booster and multi-channel analyzer),
3. HP computer.

The elements and their concentration detected in the raw material of the diadem:

Copper (Cu)	99.24 ±0.2 %
Calcium (Ca)	0.224 ±0.05 %
Lead (Pb)	0.19 ±0.02 %
Kalium (K)	0.172 ±0.009 %
Iron (Fe)	0.0789 ±0.008 %
Silver (Ag)	0.0344 ±0.0002 %
Zirconium (Zr)	0.0162 ±0.0002 %
Titanium (Ti)	0.015 ±0.0008 %
Manganese (Mn)	0.0144 ±0.0008 %
Chromium (Cr)	0.001 ±0.0009 %

The results show that the diadem was made of almost pure copper, with some other impurity elements in low concentration.

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KITTI KÖHLER

ANTHROPOLOGICAL ASSESSMENT OF THE VÖRS SKULL

Keywords: anthropology, Late Copper Age, Baden culture, Vörs

Material and method

This study presents the findings of the physical anthropological assessment of the individual wearing a diadem buried in a crouched position in the Late Copper Age Baden grave uncovered at the Vörs-Majorsági épületek site in 1952. The skeletal remains comprise a relatively well-preserved skull and mandibles; the post-cranial bones were lost or dispersed after the excavation.[1] The surviving anthropological material is housed in the collection of the Balaton Museum in Keszthely.[2]

The determination of morphological sex was based on work by Kinga Éry, László Harsányi and János Nemeskéri.[3] For estimating the biological age I used the degree of tooth attrition and of cranial suture closure.[4] I used the procedures set down in the book by Rudolf Martin and Karl Saller for the metric measurements and the calculation of the indices, while classification was based on the categories set up by Valery P. Alekseev and Georgy F. Debets.[5] Anatomical variations were described according to the works of Gertud Hauser and Gian Franco De Stefano,[6] while the description of pathological alterations followed Arthur C. Aufderheide, Conrado Rodríguez-Martin and Donald J. Ortner.[7]

Description

The skull is relatively well preserved, with some damage and missing portions on the right side, at the junction of the frontal and parietal bones. A greenish band encircles the skull where the diadem was worn, which is wider than the artefact was. Following the earlier examination of the skull in 2005, performed by Balázs Gusztáv Mende on Tünde Horváth's request, it was suggested that the individual wearing the diadem was not a man, but a woman.[8] My study confirmed this earlier statement that the skull has unambiguous female traits. The average of the sexualisation values is −1.1.

The degree of cranial suture closure and of tooth attrition would suggest that the individual interred in the grave was a young, 20-30-year-old adult.

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[1] As Mária Bondár has already noted in her overview of the research history of the site and its finds, the anthropological material disappeared. *Nemeskéri 1956* 298, simply mentions the site in his contribution to János Banner's monograph, but does not provide any further details (such as an estimate of the age at death, sexing, metric data, etc.). According to *Banner 1956* 111, the material was taken to the Keszthely museum. The site is not even mentioned in more recent studies on the culture's population *(Zoffmann 1992; Zoffmann 2004).*

[2] Inv. no. 63.53.1.

[3] *Éry – Kralovánszky – Nemeskéri 1963.*

[4] *Miles 1963; Perizonius 1981; Nemeskéri – Harsányi – Acsádi 1960; Meindl – Lovejoy 1985.*

[5] *Martin – Saller 1957; Alekseev – Debetz 1964.*

[6] *Hauser – De Stefano 1989.*

[7] *Aufderheide – Rodríguez-Martin 1988*; *Ortner 2003.*

[8] *Horváth 2006*. In addition, I would like to thank Balázs Gusztáv Mende for his kind personal communication, providing additional detalis in connection with his earlier examination.

Based on the metric analysis, the absolute values of the neurocranium fall into the medium broad/broad/very high category (M1, M8, M17).[9] The forehead is medium broad (M9). The face and the upper face are broad and medium high (M45, M47, M48). The orbits are medium broad and low (M51, M52). The nose is medium high (M54, M55), the palate is very-very long and very broad (M62, M63). The bicondylar and the bigonial breadth of the mandible are broad (M65, M66). The height of the chin and the ramus of the mandible fall into the high and very high categories (M69, M70), while the minimum ramus breadth (M71) and the angle of the mandible (M79) are medium *(Table 1, fig. 1).*

According to the indices, the neurocranium is brachy-, hypsi- and acrocranic (M8:M1, M17:M1, M20:M1, M17:M8, M20:M8). The forehead index belongs to the metriometopic category (M9:M8). The facial and the upper facial indices are mesoprosopic and mesenic (M47:M45, M48:M45). The orbit is chamaeconchic (M52:M51), the palate is leptostaphylinic (M63:M62). The estimated cranial capacity (M38) can be assigned to the hyperaristencephalic category *(Table 1, fig. 1).*

The form of the brain-case viewed from the *norma verticalis* is sphenopid; the *norma occipitalis* view shows a transitional form between the bomb and house shape. The forehead is steep, the nape profile is bathrocranic. The glabellar relief and the external occipital protuberance are weakly developed (grade 1 and grade 0). The orbits are angular, the lower margin of the *apertura piriformis* has a *sulcus praenasalis* form, the *fossa canina* is deep, the alveolar prognathism is pronounced *(fig. 1).*

Among the anatomical variations, the occurrence of smaller and larger so-called surplus bones can be detected in the sagittal and lambdoid suture, and at the point of the lambdoid and the right sided asterion *(ossa suturae sagittalis, ossa suturae lambdoidea, os lambdae, os astericum).*

Martin No.	Vörs 63.53.1
1	174
5	88
8	143
9	96
10	–
11	117
12	125
17	138
20	119
23	515
38	1440?
40	85?
43	101
45	128?
46	95
47	112
48	66?
51	38
51s	39
52d	31
52s	31?
54	–
55	48
60	33
61.	62
62	54?
63	41?
65	123
66	104
68	64
69	32
70	62
71	30
72	–
79	123
8:1	82.2
17:1	79.3
20:1	68.4
17:8	96.5
20:8	83.2
9:8	67.1
47:45	87.5?
48:45	51.6?
52:51d	81.6
52:51s	79.5?
54:55	–
63:62	75.9

Table 1. Skull measurements and indices for the skull from Vörs-Majorsági épületek

[9] M1, M8, M17, etc. are abbreviations of the absolute cranial measurements and indices according to *Martin – Saller 1957.*

fig. 1. Frontal, lateral and posterior view of the skull from Vörs-Majorsági épületek

The examination of the oral pathology revealed that the degree of abrasion (AS2) corresponds to the age at death. The right lower 3rd molar is impacted. On the anterior teeth of the mandible plaque is visible, which reflects an inadequate dental hygiene. The tooth enamel hypoplasia may indicate a bad health status, moreover on the anterior teeth (on the incisors and canine teeth) of the *maxilla* and *mandibula* sign vitamin deficient diet, perhaps due to some disease or starvation.

Other pathological alterations could not be noted on the skull.

Conclusion

Despite its extraordinary importance, the human skeletal remains from the grave excavated in 1952 at the site of Vörs-Majorsági épületek have not been anthropologically examined (or the results of any examination have not been published to date).

It is clearly visible from the excavation photo that the post-cranial skeletal remains were also in a fairly good state of preservation and that although the *ilium* was missing, the *os sacrum* was still in its place at the time the burial was uncovered. However, these remains were lost after the excavation. Thus, the present assessment is based on the surviving skull and on the original grave photos. In contrast to the earlier views published in the archaeological literature, the present assessment found that the skull has female traits in view of its characteristics.

The anthropological make-up of the Baden culture is fairly well known. The human remains from a total of 669 inhumation and cremation burials from smaller and larger cemeteries as well as from settlement and ritual contexts have been published from 36 sites in the Carpathian Basin.[10] Earlier and more recent analyses have shown that the Baden population was rather heterogeneous, with the dominance of dolichocranic and leptoprosopic/leptenic type individuals.[11] Additionally, compared to the Middle Copper Age, a new, brachy- and mesocephalic and euryprosopic element appeared in the culture's population. The woman who wore the copper diadem represents this latter, brachycranic variant.

[10] *Köhler 2009; Köhler 2014b.*

[11] *Nemeskéri 1956; Zoffmann 1992; Zoffmann 2004; Köhler 2014a.*

REFERENCES

Alekseev – Debetz 1964 — В. П. Алексеев – Г. Ф. Дебец: Краниометрия. Методика антопологических исследоваий. Москва 1964.

Aufderheide – Rodríguez-Martin 1998 — A. C. Aufderheide – C. Rodríguez-Martin: The Cambridge Encyclopedia of Human Paleopathology. Cambridge 1998.

Banner 1956 — J. Banner: Die Péceler Kultur. ArchHung 35. Budapest 1956.

Éry – Kralovánszky – Nemeskéri 1963 — K. Éry – A. Kralovánszky – J. Nemeskéri: Történeti népességek rekonstrukciójának reprezentációja (A representative reconstruction of historic population). AnthrKözl 7 (1963) 41–90.

Hauser – De Stefano 1989 — G. Hauser – G. F. De Stefano: Epigenetic variants of the human skull. Stuttgart 1989.

Horváth 2006 — T. Horváth: A badeni kultúráról – rendhagyó módon (About the Baden Culture – an Irregular Approach). JAMÉ 48 (2006) 89–134.

Köhler 2009 — K. Köhler: The Anthropological Remains from the Budakalász Cemetery, in: M. Bondár – P. Raczky (eds): The Copper Age Cemetery of Budakalász. Budapest 2009, 304–364.

Köhler 2014a — K. Köhler: Anthropological Examination of the Late Copper Age Human Remains, in: T. Horváth (ed.): The Prehistoric Settlement at Balatonőszöd-Temetői dűlő. The Middle Copper Age, Late Copper Age and Early Bronze Age Occupation. VAH 29. Budapest 2014, 269–292.

Köhler 2014b — K. Köhler: A Kárpát-medence késő rézkori népességeinek antropológiai képe [Anthropological appearance of the Late Copper Age Population in the Carpathian Basin]. Manuscript.

Martin – Saller 1957 — R. Martin – K. Saller: Lehrbuch der Anthropologie in systematischer Darstellung. Band I–II. Stuttgart, 1957.

Meindl – Lovejoy 1985 — R. S. Meindl – C. O. Lovejoy: Ectocranial Suture Closure: A Revised Method for the Determination of Skeletal Age at Death Based on the Lateral-Anterior Sutures. American Journal of Physical Anthropology 67 (1985) 51–63.

Miles 1963 — A. E. W. Miles: The Dentition in the Assessment of Individual Age in Skeletal Material. Human Biology 5 (1963) 191–209.

Nemeskéri 1956 — J. Nemeskéri: Anthropologische Übersicht des Volkes der Péceler Kultur. In: *Banner 1956* 295–311.

Nemeskéri – Harsányi – Acsádi 1960 — J. Nemeskéri – L. Harsányi – Gy. Acsádi: Methoden zur Diagnose des Lebensalters von Skelettfunden. Anthropologischer Anzeiger 24 (1960) 70–95.

Ortner 2003 — D. J. Ortner: Identification of Pathological Conditions in Human Skeletal Remains. San Diego 2003[2].

Perizonius 1981 — W. R. K. Perizonius: Diachronic Dental Research on Human Skeletal Remains Excavated in the Netherlands. I. Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek 31 (1981) 369–413.

K. Zoffmann 1992 — Zs. K. Zoffmann: A Kelet Kárpát-medence neolitikus és rézkori népességeinek embertani vázlata. Kandidátusi értekezés. Kézirat [Outline of the Anthropology of the Neolithic and Copper Age Population of the Eastern Carpathian Basin. CSc Thesis. Manuscript]. Budapest 1992.

K. Zoffmann 2004 — Zs. K. Zoffmann: Őslakosok és bevándorlók a neolitikus és rézkori Kárpát-medencében az embertani adatok alapján (A Somogy megyében újonnan feltárt Badeni temetők Penrose-analízise) (Autochtonous Population and Immigrants in the Carpathian Basin of the Neolithic and the Copper Age after the Anthropological Data [The Penrose Analysis of the Recently Unearthed Baden Cemeteries in Somogy County]). SMK 16 (2004) 127–137.

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PÉTER POLGÁR

TIKOS-HOMOKGÖDRÖK UND ORDACSEHI-BUGASZEG URNENFELDERZEITLICHE ANSIEDLUNGSSTRATEGIEN AM BALATON AUFGRUND ZWEIER FALLBEISPIELE

Stichwörter: Siedlungen, Spätbronzezeit, Urnenfelderkultur, Balaton

Über die spätbronzezeitliche Besiedlung am Balaton[1] hatte die ungarische Forschung anfangs nur ein sehr verallgemeinertes Bild, was in Mangel an Ausgrabungen, bzw. planmäßigen Forschungen kein Wunder war, sie musste ja auf die siedlungsarchäologisch nur geringwertige Informationen tragenden Surveys und kleineren Rettungsgrabungen beruhen.[2] Die Forschungen am See nahmen von Ende der 70-er Jahre mit dem Renaturalisierungsprojekt des Kleinen Balatons einen richtigen Aufschwung, deren vorläufigen Ergebnisse aber in der Monographie von Frigyes Kőszegi noch nicht erscheinen konnten.[3] Neben seiner neuen regionalen und chronologischen Gliederung stellte er allerdings einen Kataster der – bis zum Ende der 70-er Jahre – bekannten spätbronzezeitlichen Fundorte in Transdanubien zusammen. Über die neuen Befunde sind eher populärwissenschaftliche Veröffentlichungen[4] und kleinere vorläufige Mitteilungen[5] zurzeit vorwiegend vorhanden, bzw. die – leider unpublizierte – Dissertation von Szilvia Honti[6] sollen wir noch erwähnen. Die Bauarbeiten der Autobahn M7 aber riefen dann von Anfang der 90-er bis in die Mitte der 2000-er Jahre eine vorher in Ungarn unbekannte archäologische Aktivität am Südufer des Balatons hervor,[7] was eine gewaltige Menge an den aufzuarbeitenden Informationen zur Folge hatte. In Verbindung damit – und dank der günstig angelegten Trasse der Autobahn – fingen die intensiven landschaftsarchäologischen Forschungen natürlich auch an, die bis heute noch weiter laufen. Die urzeitlichen Siedlungsverhältnisse sind nämlich unter den heute schon stark geregelten landschaftlichen Umständen des Sees nicht mehr zu deuten, und sogar die Karten der ersten (josephinischen) Landesaufnahme aus dem 18. Jahrhundert können uns nun ein annähernd naturähnliches Bild angeben.[8] Die unten vorgeführten Ansiedlungen belegen ja eben eine Epoche, die klimatisch besonders stark beeinflusst war[9] und der Balaton seine größte urzeitliche Ausdehnung[10] dabei erreichen mochte. Wie diese klimatischen Veränderungen archäologisch belegt werden können, kann man vielleicht am besten bei den Feuchtbodensiedlungen bzw. überhaupt durch die Besiedlungsgeschichten an Stillgewässern untersuchen, die als sehr empfindliche Klima-Indikatoren wirken. Aufgrund korrespondierender siedlungsgeschichtlicher Tendenzen scheint es natürlich auf der Hand

[1] Dieser Beitrag ist eine abgekürzte Zusammenfassung meines Dissertationsthemas (P. Polgár: Landschaft und Siedlungswesen während der Urnenfelderzeit am Balaton, Universität Wien).
[2] *Patek 1968* 15–83.
[3] *Kőszegi 1988*.
[4] *Honti – Horváth 1996* 57–75.
[5] *Honti 1993* 147–155; *Horváth 1994* 219–235.
[6] *Honti 1987*, hier möchte ich Szilvia Honti (Rippl-Rónai Museum in Kaposvár) meinen Dank aussprechen, dass sie mir zu ihrer Dissertation freien Zugriff erlaubte.
[7] *Bondár – Honti – Kiss 2000* 94–114; *Honti et al. 2002* 3–36; *Honti et al. 2004* 3–70; *Honti – Németh – Siklósi 2007* 7–70; *Raczky 2007* 5–36; *Honti et al. 2013* 107–136.
[8] *Sági 1968* 441–466; *Bendefy – Nagy 1969*; *Zlinszky 2011* 49–60.
[9] *Sümegi et al. 2004* 410–411; *Holzhauser et al. 2005* 791, 796, 798, Abb. 2, 5; *Sümegi et al. 2011* 562; *Nussbaumer et al. 2011* 710.
[10] *Sümegi et al. 2004* 410, Abb. 18.

zu liegen, unter anderen sich auf die bronzezeitlichen Ufersiedlungen der schweizerischen[11] oder südwestdeutschen[12] Seen zu berufen, die die damaligen Ereignisse unter anderen dendrochronologisch und radiokarbondatiert ziemlich gut abbilden. Hier dürfen wir aber die besiedlungsbedingenden andersartigen geographischen Umstände und das Relief, sowie das lokale Klima des Balatons auch nicht vergessen, wobei es Unterschiede sogar zwischen dem nördlichen Bergland und dem südlichen Flach- und Hügelland gibt.[13] Ohne auf die Einzelheiten eingehen zu wollen möchten wir hier noch kurz darauf hinweisen, dass während die schweizerischen und südwestdeutschen Seen tiefe Gletscherseen sind, ist der Balaton ein aus mehreren Becken bestehender seichter tektonischer See, was in Verhältnis der Klimaveränderungen und der Niederschlagsverteilung ebenfalls unterschiedlich bewirken konnte.[14]

In diesem Beitrag werden zwei urnenfelderzeitliche Siedlungen *(Abb. 1)* anhand ihrer freigelegten Befunde vornehmlich aus siedlungsarchäologischen Hinsicht den Möglichkeiten gemäß untersucht,[15] ergänzt mit einer zusammenfassender Beschreibung des Fundmaterials, dessen ausführliche Vorlegung aber hier nicht angezielt war. Beide vertreten je eine eigenartige, sich zu den mikroregionalen Naturumständen anpassende Ansiedlung aus verschiedenen Phasen der gleichen Kulturperiode[16] und weisen zugleich zwei verschiedenartig aufgebaute innere Strukturen auf.

Abb. 1. Die Fundstellen: 1. Tikos-Homokgödrök 2. Ordacsehi-Bugaszeg (links oben); Die geographische Lage der Fundstelle Tikos-Homokgödrök (rechts oben auf der Karte der ersten josephinischen Landesaufnahme)

[11] Vgl. Zug-Zumpf: *Seifert et al. 1996*; Greiffensee-Böschen: *Eberschweiler – Riethmann – Ruoff 2007.*
[12] *Kimmig 1992*.
[13] *Dövényi 2010* 433–483; *Szőke – Vándor 1987* 83–100.
[14] *Padisák – Reynolds 2003* 1–11.
[15] Aus vornehmlich finanziellen aber auch sonstigen Gründen fiel die Auswertung der pedologischen, palynologischen und zoologischen Materialien leider aus.
[16] Zur Datierung wende ich Stufen von *Müller-Karpe 1959* und *Sperber 1987* an.

Tikos-Homokgödrök

Der Fundort liegt westlich-nordwestlich der heutigen Ortschaft Tikos, auf einer nach Westen sanft ansteigenden Terrasse an der nordwestlichen zum Kleinen Balaton hinauslaufenden Seite des Marcaler Rückens, in etwa 114 bis 116 m ü. M. In dem hier sich nord-südgerichtet erstreckenden, tiefliegenden, einst sumpfigen Tal, das Anfang des 19. Jahrhunderts auch als Ormándi-berek genannt wurde,[17] verläuft nur ein Grenzkanal zwischen den heutigen Komitaten Zala und Somogy bis zum Becken des Kleinen Balatons heute schon *(Abb. 1).*

Mit ihrer insgesamt mehr als 46 000 m² freigelegte Fläche[18] kann unsere Siedlung – die innere Anordnung der Befunde miteinbezogen – größtenteils als erforscht angesehen werden. 576 Objekte datieren sich auf die Urnenfelderzeit, zu denen weitere 341 fundlose noch hinkommen. Die vermutlichen südlicher liegenden Befunde sollten beim modernzeitlichen Sandausbau höchstwahrscheinlich zerstört worden sein *(Abb. 2).*

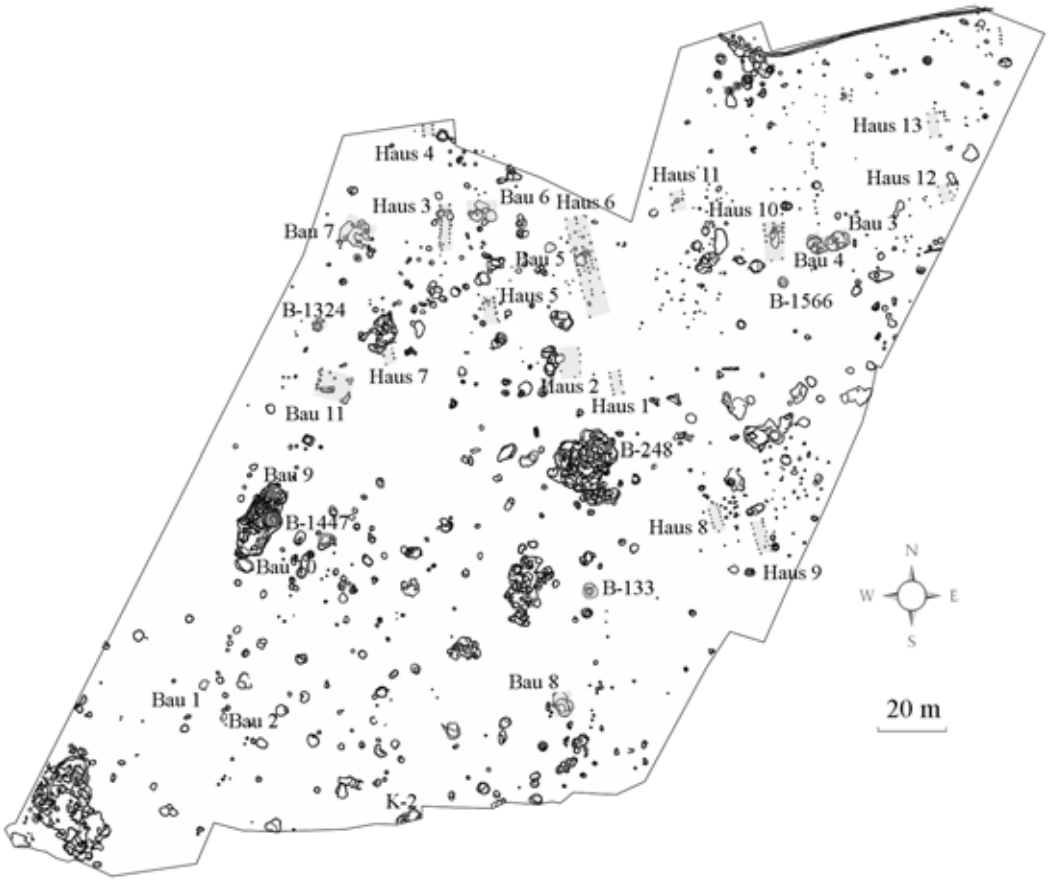

Abb. 2. Der Gesamtplan der Urnenfeldersiedlung bei Tikos

[17] *Bencze 2004* 207–217.

[18] *Honti et al. 2004* 45; *Honti et al. 2007* 16–18; *Honti – Németh – Siklósi 2007.* Hier möchte ich dem Ausgräber Gábor Serlegi (Ungarische Akademie der Wissenschaften Forschungszentrum für Humanwissenschaften Archäologisches Institut, Budapest) meinen Dank aussprechen, dass er mir die urnenfelderzeitlichen Befunde und Funde der Fundstelle zum Publizieren übergab.

Häuser

Haus 1
Im nördlich-mittleren Teil der Fläche ist es von 10 Pfostenlöchern markiert, die zwei parallelen Reihen bilden. Bei den beiden Seiten wurden die zweiten Pfosten von Norden her mit je einem kleineren Durchschnitts verstärkt. Die Richtung ist NW–SO. L. 6,7 m, B. 3,3 m. Mit Pfostenloch B-74 konnte es vielleicht mit Haus 2 in Verbindung stehen.

Haus 2
Es befindet sich im nördlich-mittleren Teil, neben dem Haus 1, nordwestlich davon. Die eine Seite ist von 4 reihenbildenden Pfostenlöchern markiert und schließt sich vielleicht apsisartig ab. Seine Bestimmung als Haus ist unsicher. Die Richtung ist NW–SO. Seine abmessbare Länge beträgt 7,37 m. Vermutlich gehört das Pfostenloch B-16 auch noch dazu.

Haus 3
Es lag im nordnordwestlichen Teil. Seine 23 Pfostenlöcher bilden zwei parallele Reihen, die südliche kürzere Seite konnte in Halbkreisbogen abgeschlossen sein. Mitten bei der westlichen Langseite waren zwei Pfosten, bei der östlichen, etwas südlicher eins verstärkt. Ein weiteres Pfostenloch ist in der Mittelachse, bei der Apsis zu beobachten. Der nördliche Teil des Hauses schneidet eine seichte Grubengruppe durch. Die Richtung ist N-S. L. 13,67 m, B. 3,44 m.

Haus 4
Es lag im nordnordwestlichen Teil. Seine 6 Pfostenlöcher bilden zwei parallele Reihen, es kann aber nicht ausgeschlossen werden, dass diese Hausstelle außerhalb der freigelegten Fläche noch weitere Pfostenlöcher haben durfte. Die Richtung ist NW-SO. Abmessbare L. 3,42 m, B. 3,41 m.

Haus 5
Im nordnordwestlichen Teil wird die eine Seite des vermutlichen Gebäudes von 6 Pfostenlöchern gebildet, so dass seine genaue Grundfläche nicht angegeben werden kann. Die Richtung ist NW-SO. Die vermutliche Seitenlänge beträgt 7,6 m.

Haus 6
Die größte Hausstelle der urnenfelderzeitlichen Siedlung mit insgesamt 43 Pfostenlöchern lag im nordnordwestlichen Teil. An der südlichen und nördlichen Seite gehören vielleicht weitere 5 Pfosten zur Konstruktion. An dem nördlichen und südlichen Ende der Mittelachse, insofern in deren Mitte befinden sich Innenpfostenstellen, aber die Pfostengruppe, die in drei Reihen auch in der Mitte des Gebäudes zu beobachten ist, bilden schon eine abgesonderte architektonische Einheit. Letztere schneidet eine größere Grube durch, sodass sie das Gebäude *quasi* in drei Teile unterteilt. Es ist nordost-südwest gerichtet. L. 23 m, B. 6,12 m.

Haus 7
Es lag im nordwestlichen Teil, die 5 Pfostenlöcher ordnen sich in zwei parallele Reihen. Die Richtung ist NW-SO. Die gesamte Grundfläche ist nicht festzustellen, der große und amorphe Grubenkomplex direkt daneben nordwestlich ist wahrscheinlich draufgegraben worden. Abmessbare L. 3,2 m, B. 3,4 m.

Haus 8
Es befindet sich im östlichen Teil, direkt neben dem Haus 9, von 10, zwei parallele Reihen bildenden Pfostenlöchern markiert. Die südöstliche und vielleicht auch die nordwestliche kürzere Hausseite hatten je eine apsisartige Abschließung. Die Richtung ist NW-SO. L. 6,9 m, B. 3,1 m. Möglicherweise hatte es mit der Grubengruppe direkt daneben nördlich auch etwas zu tun.

Haus 9
Es lag im östlichen Teil, südöstlich von Haus 8. Seine 15 Pfostenlöcher bilden zwei parallele Reihen. Das Pfostenloch B-729 ist am südöstlichen Ende der Mittelachse. Die Richtung ist NW-SO. L. 9,5 m, B. 3,5 m. Die Pfostenlöcher B-429 und B-431 können einen Nebenraum an der östlichen Seite des Gebäudes markieren.

Haus 10
Es lag im mittleren-nordöstlichen Teil, seine 9 Pfostenlöcher bilden zwei parallele Reihen, bzw. 2 weitere befinden sich parallel zu den Reihen am nördlichen Ende der Mittelachse. Das Pfostenloch B-1230 bei der östlichen Reihe deutet vielleicht auf eine innere Wand hin. Das Pfostenloch mitten in der westlichen Reihe ist verstärkt. Die Richtung ist N-S. L. 6,1 m. B. 5,3–6,0 m. Es ist nicht auszuschließen, dass der seichte Grubenkomplex darin als Arbeitsgrube des Gebäudes betrachtet werden kann. So ist es leicht vorstellbar, dass die Grundfläche des Hauses damit auch größer war, und ergänzt sich mit den Pfostenlöchern B-1567 und B-1607 südlich, bzw. B-1172 nördlich. Die Länge beträgt so 13,5 m.

Haus 11
Es lag im mittleren-nördlichen Teil. Seine 6 Pfostenlöcher bilden zwei parallele Reihen, die Mitte der westlichen Seitenwand konnte verstärkt worden sein. Die Richtung ist NW-SO. Die Gesamtfläche ist unsicher, die abmessbare L. 5,3 m, B. 3,5 m.

Haus 12
Es lag im nordöstlichen Winkel der Fläche. Seine vermutlichen 5 Pfostenlöcher stehen in zwei parallelen Reihen. Die Richtung ist NW-SO. L. etwa 5,3 m, B. etwa 3,4 m. Die weiteren Pfostenlöcher östlich und westlich daneben können vielleicht als Nebenräume interpretiert werden.

Haus 13
Es liegt etwas nördlicher von Haus 12. In diesem Fall können zwei parallelen Pfostenreihen mit 6 Pfosten rekonstruiert werden, denen sechs weiteren nordöstlich vielleicht noch hinzuzurechnen sind. Letzteren dürfen möglicherweise einen Nebengebäude markieren. Die Richtung ist NW-SO. L. etwa 7,1 m, B. etwa 3,0 m.

Unsere als Wohngebäuden bestimmbaren Bauten standen also in drei Gruppen an ca. 114 und 115,1 m ü. M. Die Richtung ist grundlegend NW-SO, die bei einigen Fällen in der Ostgruppe nach N/NW-S/SO abweicht. Die nach N/NW gerichteten kürzeren Seiten weisen offensichtlich auf eine Schutzweise gegen den herrschenden Wind.[19]

Strukturell sind sie bodenständig, ihre viereckigen Innenräume werden mit senkrechten Wänden abgegrenzt, die zwischen den Pfosten aus verputztem Rutengeflecht aufgezogen worden waren *(Abb. 3)*. Die Pfosten hatten einen runden oder ovalen Durchschnitt (ca. 0,45 × 0,5 m), deren in den Boden eingetiefte Teil zwischen 0,09 bis 0,25 m (die kleinste Tiefe war 0,02 m, und die größte 0,42 m) schwankte. In Hinsicht des Aufbaus soll man das übergroße Haus 6 gesondert behandeln, insofern es vielleicht als ein Gemeinschaft- oder Wirtschaftsgebäude betrachtet werden kann. Bei den abmessbaren Fällen stellen sich die Langseiten der Häuser aus 3–3, 5–5 (4), oder 8–8 Pfosten zusammen. Verstärkung mit einem weiteren Stützpfosten kommt in vier Fällen vor (bei Haus 1, 3, 10 und 11) – immer an der Westseite, ausgenommen bei der Ostgruppe, wo diese Bauweise fehlt. Als Erklärung kann wiedermal der vorherrschende Wind meiner Meinung nach in Frage kommen. Die apsisartige Abschließung der einer kürzeren Seite ist dreimal zu beobachten, bei je einem Haus der Nordwest- und Ostgruppe (Haus 3, Haus 8 und vielleicht Haus 2). An der Mittelachse liegende Pfostenreihe konnte bei Haus 6 und Haus 10 dokumentiert, bzw. bei Haus 9 angenommen werden. Die in der Verfüllung der einigen Pfostenlöcher von Haus 1, 3, 4 und

[19] *Sielmann 1971* 76–77.

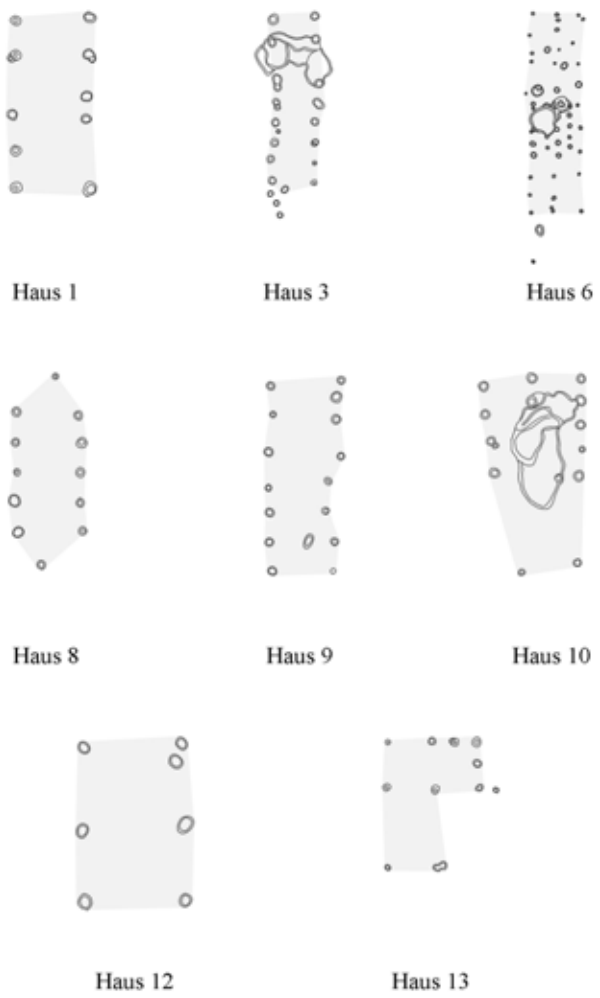

Abb. 3. Die charakteristischen Häusertypen in der Urnenfeldersiedlung bei Tikos

6 identifizierbaren Holzkohlenschichten sind höchstwahrscheinlich Überreste der einstigen Holzpfosten, auf Bauschutt weisen die Verputzstücke, bei manchen mit Rutenabdrücken, aus den Pfostenlöchern der Häuser 2, 3, 6, 10 hin. Die Häuser sind also durchschnittlich ca. 8,57 m lang und ca. 3,58 m breit, d.h. die Durchschnittsgrundfläche beträgt etwa 30,68 m², wobei die kleinste 22,11 m² und die größte 47,02 m² ist. Bei den Häusern 6, 12 und 13 belegen die weiteren Pfostenlöcher das Vorhandensein kleinerer Anbauten, welches vielleicht bei Haus 8 auch zu vermuten ist.

Als jüngere Parallele können hier die Befunde in Paphomlok-Flur bei Börcs[20] oder zu den in Halbbogen endenden Häusern die späthügelgräber–frühurnenfelderzeitliche Pfostenbauten in Székes-Flur bei Dunakeszi[21] unter anderen angeführt werden. In der Gliederung nach Grundrisstypen von Uwe Müller[22] rechnen unsere Häuser mehrheitlich zu den 6-Pfosten- und den 3-Joch Bauten der späten Bronzezeit, die aber bei Haus 9 vielleicht mit einer 5-Joch Bau noch ergänzt werden kann. Haus 3 und besonders Haus 6 sind schon danach Langbauten.

Haus 6 weicht sowohl mit seiner Größe, als auch mit seiner komplexeren Struktur von den anderen ab. Als dadurch alleinstehend – zumindest auf der freigelegten Fläche der Siedlung – konnte es vielleicht für Gesellschaftszwecke dienen. Der Innenraum mit ca.

[20] *Figler 1996* 11–12, 14, Abb. 2. 23, Tab. VI.
[21] *Horváth et al. 2003* 5–17.
[22] *Müller 1997* 168–171.

140,76 m² Grundfläche wird von einer Pfostenreihe in der Mittelachse auf zwei Teile verteilt, in seiner östlichen Mitte sind allerdings zwei aus je vier oder fünf Pfostenlöchern bestehende weiteren Reihen zu beobachten. Die Seitenwände tragenden Pfosten waren 0,35 bis 0,38 m stark, bei den Innenträger, bzw. den an den parallelen Wandstrecken stehenden war es größer: 0,42 bis 0,59 m. Ihre Tiefen sind auch verschieden: ca. 0,1 bis 0,2 m und 0,2 bis 0,24 m.

Höchstwahrscheinlich bestand die urnenfelderzeitliche Siedlung zwar auch aus mehreren Häusern, deren Befunde nicht mehr erhalten blieben, bzw. während der Ausgrabungen nicht erfassbar waren, allerdings belegen einige Pfostenreiheneinheiten in der Nordzone eventuell eine innere Aufteilung eher nach Grundstücken.

Werkstattartige und übrige Bauten

Bau 1
Eingegrabenes, abgerundet viereckiges Gebäude im südlich-südwestlichen Teil der freigelegten Fläche. Die Richtung ist NO-SW. Die Tiefe beträgt 0,23 bis 0,4 m. An seiner östlichen Langseite konnten je ein Pfostenloch bei der nördlichen und südlichen Ecke dokumentiert werden, was auf ein Halbdach hinweist. L. ca. 3,0 m, B. ca. 2,4 m. Verfüllungsschichten: 1. gemischt grauer lößiger Boden mit ausgebrannten Lehmstückchen. 2. gemischt gelbgrauer lößiger Boden mit Kalkstein.

Bau 2
Eingegrabenes, abgerundet viereckiges Gebäude, 8,8 m entfernt vom Gebäude 1, südöstlich. Die Richtung ist NO-SW. Die Tiefe beträgt ca. 0,08-0,18 m. An der südwestlichen Seite ist ein Pfostenloch eingegraben. L. ca. 2,5 m, B. ca. 1,5 m. Verfüllungsschichten: 1. gemischt rotbrauner Boden mit Löss.

Bau 3
Es liegt im nördlich-nordöstlichen Teil der freigelegten Fläche, direkt am Bau 4, dem es am südwestlichen Ende direkt anschließt. Seine Form ist abgerundeter Viereck, NO-SW gerichtet. Seine Tiefe beträgt ca. 0,51 bis 0,71 m. Am nordöstlichen Rand ist es bankenförmig ausgebildet. Es besteht aus mehreren kleineren und größeren Gruben, in der Mitte gab es fünf Pfostenlöcher in Halbkreis (B-1339, B-1340, B-1341, B-1342, B-1343), etwas südlicher eins (B-1299), an den südlichen und nördlichen Rändern weitere je eins (B-1300 und B-1303). L. ca. 7,5 m, B. ca. 5,1 m. Verfüllungsschichten nach den eingegrabenen Gruben: B-1228 – 1. homogen rotbrauner Boden. 2. gemischt grauer Boden mit Holzkohle. 3. gemischt hellgrauer lößiger Boden mit Holzkohle. B-1301 – 1. homogen rotbrauner Boden. 2. gemischt grauer Boden mit Holzkohle. 3. gemischt hellgrauer lößiger Boden mit Holzkohle.

Bau 4
Es liegt im nördlich-nordöstlichen Teil der freigelegten Fläche, direkt am Bau 3, dem es am südöstlichen Ende direkt anschließt. Seine Form ist abgerundeter Viereck, NW-SO gerichtet. Am NW-Rand ist es bankenförmig ausgebildet, daneben liegt eine amorphe, tiefere (-0,63 bis 0,69 m) Grube (B-1224), der südöstliche Teil ist aber höher, nur ca. 0,16 bis 0,21 m. Die Pfostenlöcher befinden sich auch in dem höher liegenden Teil (B-1222, B-1304, B-1335, B-1336, B-1337), bzw. ein weiteres am nordöstlichen Rand (B-1293). Noch eins kann aufgrund des Gesamtplans am südlichen Rand vermutet werden. L. ca. 6,95 m, B. ca. 4,6 m. Verfüllungsschichten nach den eingegrabenen Gruben: B-1224 – 1. gemischt dunkelbrauner lößiger Boden mit Holzkohle. 2. gemischt dunkelgrauer Boden mit Asche und Holzkohle. 3. gemischt hellgrauer Boden mit Asche und Holzkohle. 4. gemischt graubrauner lößiger Boden mit Holzkohle. B-1225 – 1. gemischt braungrauer Boden lößiger Boden mit Holzkohle. 2. gemischt grauer Boden mit Holzkohle. 3. gemischt graubrauner lößiger Boden mit Holzkohle. B-1226 – 1. gemischt dunkelbrauner lößiger Boden mit Holzkohle. B-1227 – 1. gemischt graubrauner Boden mit Holzkohle. 2. gemischt grauer Boden mit Holzkohle und ausgebrannten Lehmstückchen.

Bau 5
Diese eckig ovale Grube befindet sich im nordwestlichen Teil der freigelegten Fläche, direkt neben dem Haus 6, westlich davon. Die Tiefe beträgt ca. 0,28 bis 0,51 m. Am nordöstlichen Rand konnte ein Pfostenloch (B-828) bestimmt werden. Größe: ca. 3,45 × 3,5 m. Verfüllungsschichten: 1. gemischt dunkelgrauer lößiger Boden mit Holzkohle und ausgebrannten Lehmstückchen.
Fundstücke handwerklicher Art: Spinnwirtel.

Bau 6
Dieser große und amorphe Grubenkomplex, die aus mehreren eingegrabenen Gruben verschiedener Form und Größe (B-871, B-1014, B-1031, B-1035, B-1050) besteht, erstreckt sich im nordwestlichen Teil der freigelegten Fläche, direkt neben dem Haus 3, östlich davon. Am südwestlichen Rand ist es bankenförmig ausgebildet, seine Tiefe schwankt zwischen 0,05 bis 0,28 m. Seine Pfostenlöcher (B-1030, B-1033, B-1034, B-1043, B-1049) gruppieren sich in seiner Mitte, in Ost-West-Richtung, die mit einer kleinen ovalen Grube am B-1034, westlich davon ergänzt werden können. Größe: ca. 7,7 × 5,75 m. Verfüllungsschichten nach den eingegrabenen Gruben: B-871 – 1. gemischt dunkelgrauer lößiger Boden mit ausgebrannten Lehmstückchen. B-1014 – 1. gemischt dunkelgrauer Boden mit Holzkohle und ausgebrannten Lehmstückchen. 2. gemischt hellgrauer lößiger Boden. B-1031 – 1. gemischt hellgrauer lößiger Boden. B-1035 – 1. gemischt hellgrauer lößiger Boden. B-1050 – 1. gemischt dunkelbrauner lößiger Boden mit Holzkohle und ausgebrannten Lehmstückchen.

Bau 7
Dieser große und amorphe Grubenkomplex, die aus mehreren eingegrabenen Gruben verschiedener Form und Größe (B-1101, B-1104, B-1106, B-1115, B-1116, B-1117, B-1118, B-1119) besteht, erstreckt sich im nordwestlichen Teil der freigelegten Fläche, direkt neben dem Haus 3, westlich davon. Die Tiefe ist 0,12 bis 0,43 m. Die Pfostenlöcher B-1103 und B-1399 gehören vermutlich auch hierzu. Die Innenpfosten standen also auf dem NW-, mittleren NO-, SO-Seite, und die Außenpfosten auf dem S- und O-Seite. Größe: ca. 8,86 × 9,5 m. Verfüllungsschichten nach den eingegrabenen Gruben: B-1101 – 1. gemischt hellgrauer lößiger Boden mit ausgebrannten Lehmstückchen. B-1106 – 1. gemischt graubrauner löss- und lehmiger Boden mit Holzkohle. 2. gemischt gelbgrauer löss- und lehmiger Boden. B-1117 – 1. gemischt graubrauner lößiger Boden mit Holzkohle. B-1118 – 1. gemischt gelbbrauner löss- und lehmiger Boden. B-1119 – 1. gemischt dunkelgrauer Boden mit Holzkohle und ausgebrannten Lehmstückchen. 2. gemischt gelbgrauer löss- und lehmiger Boden. Fundstücke handwerklicher Art: Steingerät mit Bearbeitungsspuren, Spinnwirtel.

Bau 8
Es befindet sich im südöstlichen Teil der Fläche als abgerundet viereckiger Grubenkomplex. Die Richtung ist NW-SO. Sein nordwestlicher, höherliegender Teil ist bankenartig ausgebildet. Die Tiefe schwankt zwischen 0,05 bis 0,72 m. L. ca. 7,7 m, B. 5,64 m. Verfüllungsschichten nach den eingegrabenen Gruben: B-121 – 1. gemischt brauner Boden mit Holzkohle und ausgebrannten Lehmstückchen. B-160 – 1. gemischt brauner Boden mit Holzkohle. 2. gemischt brauner lößiger Boden. 3. gemischt brauner Boden mit Holzkohle und ausgebrannten Lehmstückchen. B-161 – 1. gemischt brauner lößiger Boden. B-162 – 1. gemischt brauner lößiger Boden. Fundstücke handwerklicher Art: Schleifstein, Tongewicht, Spinnwirtel, Knochennadel, Steinstücke mit Bearbeitungsspuren.

Bau 9
Nach der Beobachtung des Ausgräbers durfte ein viereckiges Grubenhaus am nördlichen Rand des großen Grubenkomplexes B-1387 im Westteil der Fläche liegen. Seine Ostseite ist stark zerstört, aber am nördlichen Rand (B-1443, B-1444, B-1445, B-1699, B-1701) und in der Mitte (B-1547, B-1698, B-1703) wird es von Pfostenlöchern doch markiert, und in den südwestlichen und südöstlichen Ecken können weitere Pfosten angenommen werden. Anhand deren kann man ein NW-SO gerichtetes Gebäude/Haus vermuten.

Bau 10
Am südöstlichen Rand des großen Grubenkomplexes B-1387 im Westteil der Fläche weisen die Pfostenlöcher B-1481 – B-1491 eine regelmäßig scheinende Anordnung auf. Aufgrund der zwei parallelen Reihen kann ein NO-SW gerichtetes, Pfostengebäude/-haus rekonstruiert werden, dessen NO-Ende sich vielleicht apsisförmig abschließt.

Bau 11
Am westlich-nordwestlichen Rand der freigelegten Fläche können wir eine aus größeren Pfostenlöchern oder kleineren ovalen Gruben und länglichen Gruben stehende quadratische Formation beobachten. Größe: etwa 6,5 × 10,8 m. Die Verfüllung ist gemischt lößiger Boden bei allen Gruben.

Brunnen (Abb. 4)

B-1324
Dieser Brunnen befindet sich in dem nord-nordwestlichen Teil der Fläche, in etwa 114,65 m ü. M. Seine Tiefe ist ca. 2,05 m, die Sohle erreicht das heutige Grundwasserniveau, wo Überreste von Holzkonstruktionen ziemlich guten Zustandes ans Tageslicht kamen, die auf eine einstige Holzausbettung hinweisen müssen. Beschreibung: rundmündig (2,9 × 3,3 m), an den NW-, SO- und SW-Rändern ist die Wand muldenförmig, sich nach unten verengernd. Er hängt mit den Pfostenlöchern B-1320, B-1322 und B-1325 zusammen, die ihn halbkreisförmig umfassen, das letztere ist auf die NW-Bank gegraben. Wir können an einen brunnenhausartigen Überbau denken. Verfüllungsschichten: 1. gemischter graubrauner Boden mit Löss. 2. gemischter graugelber Boden mit Löss. 3. gemischter dunkelgrauer Boden mit Löss.

B-1447
Er befindet sich westlich auf der Fläche, in ca. 115,85 m ü. M., als Teil der übergroßen, aus vielen kleineren und größeren Gruben bestehenden B-1387, an dessen östlichen Rand, in ca. 115,7 m ü. M. Seine Tiefe ist ca. 3,25 m, die Sohle war am Rand rundherum mit größeren Steinen ausgepackt. Nach der Beobachtung des Anleiters der Ausgrabung kamen organische (Holz-) Überreste aus den unteren Verfüllungsschichten vor, leider in vollkommen verfaultem Zustand, was auf eine Holzausbettung hinweist. Beschreibung: oval, sich nach unten verengernd. Verfüllungsschichten: 1. gemischter rotbrauner Boden mit Holzkohle. 2. gemischter grauer Schlamm. 3. gemischter gräulicher Boden mit Löss. 4. gemischter hellgrauer Boden mit Asche und Holzhohle. 5. gemischter dunkelgelber Boden mit Löss. 6. gemischter gelbgrauer Boden mit Löss. 7. homogener roter Boden. 8. homogener gelber Löss. 9. gemischter gelbgrauer Schlamm mit Löss. 10. gemischter graugelber Boden mit Löss. 11. gemischter gelbgrauer Boden mit Löss.

B-1566
Der vermutete Brunnen befindet sich im nördlich mittleren Teil der Fläche, in ca. 114,7 m ü. M. Seine Tiefe ist etwa 2,1 m, aber der heutige Grundwasserstand erschien bereits bei der Tiefe von 1,9 m. Nach der Beobachtung des Anleiters der Ausgrabung kamen organische (hölzerne?) Überreste aus den unteren Verfüllungsschichten vor, die allerdings wegen des sehr schlechten Zustands weder freigelegt noch herausausgehoben werden konnten. Beschreibung: oval, sich nach unten verengernd. Verfüllungsschichten: 1. gemischter graubrauner Boden mit Holzkohle. 2. gemischter grauer Boden mit Löss. 3. gemischter dunkelgrauer Boden. 4. gemischter gelbgrauer Boden mit Kalkstein.

Aufgrund ihrer Holzüberreste weisen alle drei Brunnen eine innere Konstruktion auf, wobei wir aber wegen der schlechten Erhaltung der organischen Materialien nicht eindeutig bestimmen können, ob es da um Holzkammern,[23] geflochtene[24] oder aus ausgehöhltem Baumstamm gefertigte Röhrenkonstruktionen[25] geht.

[23] *Grynaeus 1999* 73–81; *Horváth et al. 2001* 123, Abb. 4; *Somogyi 2002* 38–39, Abb. 2–4.
[24] *Figler 1996* 11; *Horváth et al. 2001* 122, Abb. 3; *Szabó 2005* 146–165.
[25] *Szilas 2002* 291–303.

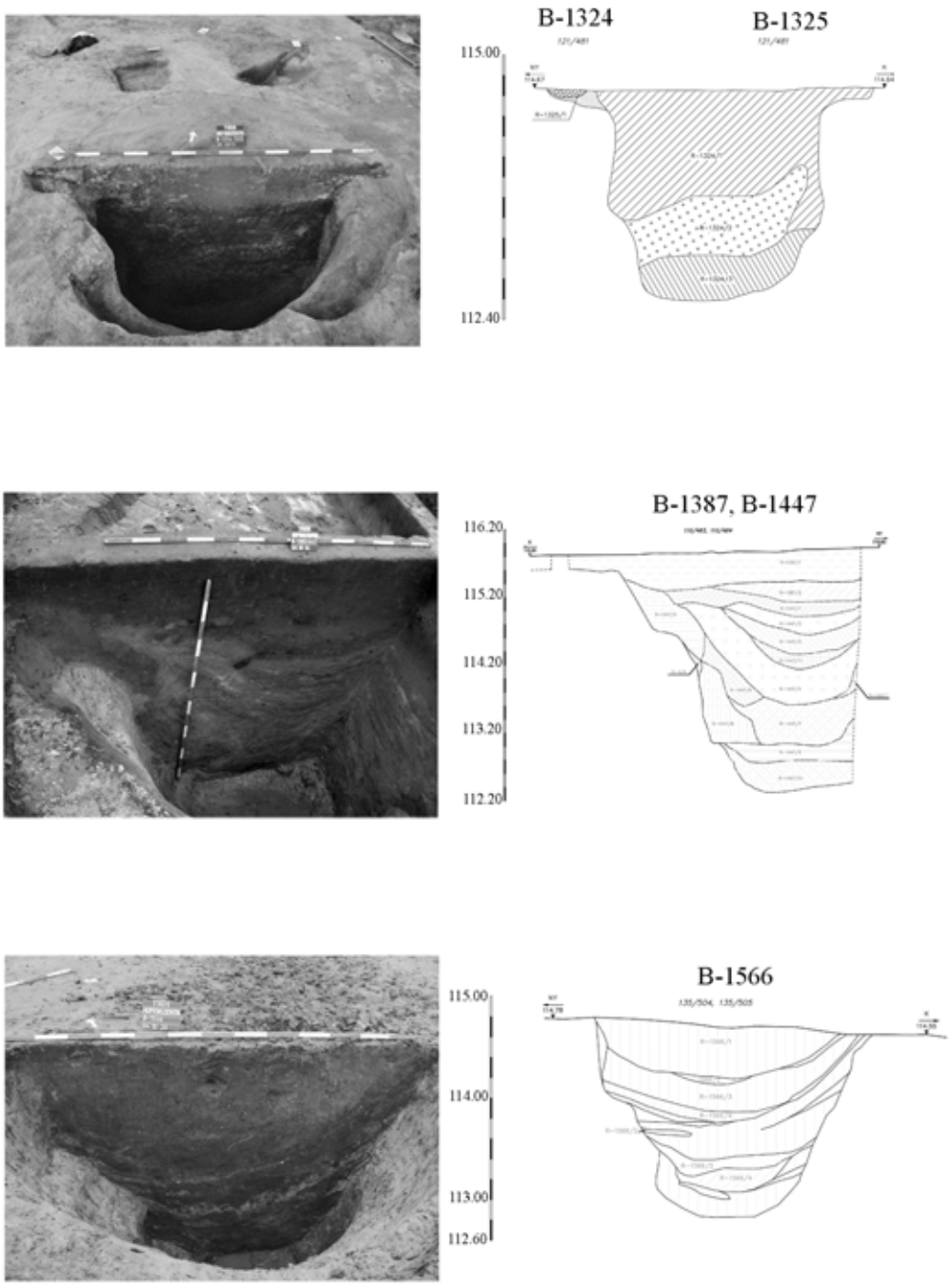

Abb. 4. Brunnen der Urnenfeldersiedlung bei Tikos

Aufgrund der Tiefe und Form kann man noch weitere als Brunnen bestimmbare Befunde in der spätbronzezeitlichen Siedlung annehmen:

B-133

Er befindet sich in der Mitte der freigelegten Fläche und zugleich der spätbronzezeitlichen Siedlung, in 114,5 m ü. M. Seine Tiefe beträgt ca. 2,36 m, wo das heutige Grundwasserniveau nach der Beobachtung des Anleiters der Ausgrabung auch liegt.

Beschreibung: oval, der obere Teil ist trichterförmig, nach unten schlachtartig verengert er sich. Befund für eine Ausbettung konnte nicht dokumentiert werden. Verfüllungsschichten: 1. leicht gemischter dunkelbraun-dunkelgrauer Boden. 2. gemischter rötlich gelbbrauner Boden mit Ton. 3.

leicht gemischter hellgrauer Boden. 4. gemischter gelbschwarzer Schlamm mit Ton. 5. gemischter dunkelgrauer Boden mit intensiver Holzkohlenaufhäufung. 6. homogene Tonschicht. 7. gemischter schlammiger grauer Boden.

B-248
Er ist 40 m entfernt von B-133 nördlich, als Teil des ziemlich großen Grubenkomplexes B-57, an dessen NNO-Rand, in ca. 114,5 m ü. M. Seine Tiefe beträgt etwa 1,85 m, das Grundwasser erschien nach der Beobachtung des Anleiters der Ausgrabung schon 20 cm höher. Beschreibung: rund, sich nach unten verengernd. Befund für eine Ausbettung oder andere Konstruktionen konnte nicht dokumentiert werden. Verfüllungsschichten: 1. gemischter hellgrauer Boden mit Holzkohle. 2. gemischter gelbgrauer Boden mit Löss. 3. gemischter dunkelgrauer Boden mit Löss.

Öfen

K-2
Der Ofen befindet sich am südlichen Rand der freigelegten Fläche, in die obere Verfüllungsschicht der Grube B-82 eingegraben. An seiner Nordseite blieben verputzte senkrechte Wandüberreste auch erhalten. Unter der Platte lag eine Grundschicht aus Keramikscherben. Die Aschengrube konnte nicht identifiziert werden, allerdings ist es nicht auszuschließen, dass die die Grube B-188 südwestlich sein darf.

Beschreibung der Grube B-188: oval, die Wände sind schräg, die Sohle ist gerade. Verfüllungsschichten: 1. gemischt grauer holzkohlenhaltiger Boden mit Löss. 2. gemischt gelbgrauer Boden mit Löss.

K-6
Der Ofen befindet sich im süd-südwestlichen Teil der freigelegten Fläche, in die Grube B-1548 eingegraben, nicht weit entfernt von Bau 1 und 2. Seine stark ausgebrannte Wölbung kam als Schutt in der oberen Schicht der Grubenverfüllung vor. Die darunter liegende vermutliche Platte ist gut ausgebrannt. Die Öffnung wird von dem Ausgräber auf der östlich-südöstlichen Seite angenommen. Die Aschengrube konnte nicht dokumentiert werden.

Es war offensichtlich kein Zufall, dass die Öfen eben im Südteil der Siedlung angelegt wurden, und aufgrund ihres Ausmaßes können auch weitere, mit den erwähnten rezenten Störungen schon vernichtete Öfen außerhalb der freigelegten Fläche hier vermutet werden. Ich denke an die vorherrschende nordwestliche Windrichtung, die demnach auch in der behandelten Epoche die gleiche sein sollte, und so ein ungewollter Brand zu vermeiden war.

Graben
Der am nördlichen Rand ost-westlich verlaufende, leicht abbiegende, schmale und seichte Graben B-1231 durfte bei niedrigem Wasserstand eventuell zur Wasserableitung dienen, was die hier beobachteten, teils weniger sicherlich datierbaren Objekte, auch Pfostenlöcher, ebenfalls zu beweisen scheinen. Dieser Graben schneidet allerdings mehrere Gruben durch, d.h. seine Funktionszeit fällt in die späte Siedlungsphase.

Aktivitätszonen anhand der Anhäufungen der charakteristischen Fundtypen[26]
Die während der Freilegung der spätbronzezeitlichen Siedlung vorgekommenen Ton-, Metall-, Bein- und Steinfunde weisen mehrere Anhäufungszonen auf dem bewohnten Areal auf *(Abb. 5)*. Das repräsentativste Muster ergeben die Tongewichte, die Spinnwirtel, die Bronzenadeln und die Steingewichte. Die bronzenen Gegenstände zählen sich allerdings größtenteils zur Kategorie der Schmuckstücke, bzw. der Waffen (ausgenommen die Meißeln, die Ahlen und die Sichel), die einigen Schlackenstücke und Klumpen vertreten nur einen

[26] Die Fundstücke hat László Békei abgezeichnet.

sehr bescheidenen Anteil, so dass man kaum über eine wirklich lokale Metallgießerei und -bearbeitung sprechen kann. Infolge dessen sind die letzteren keinen eindeutig absonderbaren Aktivitätszonen zuzurechnen.

Spinnen und Weben (Abb. 6)

Der Gerätbestand des Spinnens und Webens wird mit einem ganzen Spektrum verschiedener Typen aus nachhaltigen Materialien vertreten. Die ziemlich hohe Anzahl der Tongewichte (45 St.) und Spinnwirteln (63 St.), bzw. die Formvarianten der letzteren belegen vermutlich mehrere Garnituren. Im Alltagsleben musste es eine wichtige Rolle spielen, die sekundär bearbeiteten Keramikscheiben durften ja zum Ersetzen der Spinnwirtel dienen.

Das Fehlen der eindeutig als Webehaus dokumentierbaren Gebäude benötigt das Bestimmen der Anhäufungen der einzelnen Geräte zur Lokalisierung dieser Tätigkeit. Das dichteste Vorkommen finden wir in der NW- und der mittleren Zone, in der letzteren ausgeglichener, aber die S- und SW-Zonen weisen auffälligerweise die gesamte Skala (d.h. ergänzt mit den Spulen) auf, zudem sind die Proportionen hier auch ähnlich. In der S-Zone befinden sich die zwei Objekte, aus deren Verfüllungen Tongewichte in bedeutend größerer Anzahl ans Tageslicht kamen. Besonders interessant ist hier das Pfostenloch B-1479, auf dessen Boden mindestens neun schwach ausgebrannte pyramidenförmige Tongewichte aneinander lagen. Sein Verhältnis zur Grube B-1531 nebenan und dem etwas größeren Pfostenloch B-1532 ist unklar. Das andere, komplexe Objekt ist größeren Ausmaßes und kann vermutlich als eine Werkstattgrube beschrieben werden (s. Bau 8). Hier wurden fünf Tongewichtfragmente gefunden.

Bei den Spinnwirteln ist eine größere Streuung zu bemerken, in einer recht großen Menge kommen sie allerdings in den Grubenkomplexen B-57 (11 St.) der mittleren und B-1387 (10 St.) der W-Zone vor. Bei B-57 waren alle, bei B-1387 sieben Stücke in der oberen, auf Gruben noch nicht teilbaren Schicht.

Typen[27]

Spinnwirtel

Insgesamt wurden 63 Spinnwirteln verschiedenen Typs während der Freilegung dokumentiert, der Großteil (50 Stück) ist gut ausgebrannt, fein bearbeitet, die anderen waren aber in einem schlechten Zustand, dass sie nach dem Aufnehmen nicht erhalten blieben und wegen der Zerbröckelung konnten nicht mehr bestimmt werden. In einigen Fällen wurden die Spinnwirtel mit eingeritzten oder eingestochenen Mustern versehen. Unter den leicht gedrückten konischen Spinnwirteln kommen die größeren, kegelförmigen, und unter den leicht gewölbten die halbkugelförmigen auch vor. Bei den doppelkonischen Spinnwirteln können die symmetrisch und asymmetrisch doppelkonischen Varianten unterschieden werden. An einem der letzteren ist ein fein eingeritztes, zickzackartig herumlaufendes Linienbandmotiv zu beobachten. Weitere Varianten der hier vorkommenden Spinnwirteln bilden noch die gedrückt kugel-, zylinder-, spulen- sowie die scheibenförmigen Stücke, bei den letzteren ist einer mit eingestochenen konzentrischen Kreisen verziert. Der spulenförmige Wirtel konnte aufgrund seiner Form über eine Doppelfunktion verfügen.

Tongewichte

All die während der Freilegung ans Tageslicht gekommenen 52 Tongewichte waren fragmentiert, was sich vor allem aus ihrer schwachen Ausgebranntheit ergab, so dass nur 12 zuletzt erhalten blieben. Die übrigen zerbröckelten sich bereits beim Aufheben oder direkt danach. In Hinsicht der Form waren sie alle pyramidenförmig, durchgebohrt im oberen Drittel. Wegen der Fragmentiertheit können die konkreten Umfänge nicht angeben werden, so ist es auch nicht möglich, sie nach Gewichten zu gruppieren.

[27] Hier möchte ich Judit Pásztókai-Szeőke für die Hilfe beim Bestimmen der Textilgeräte meinen Dank aussprechen.

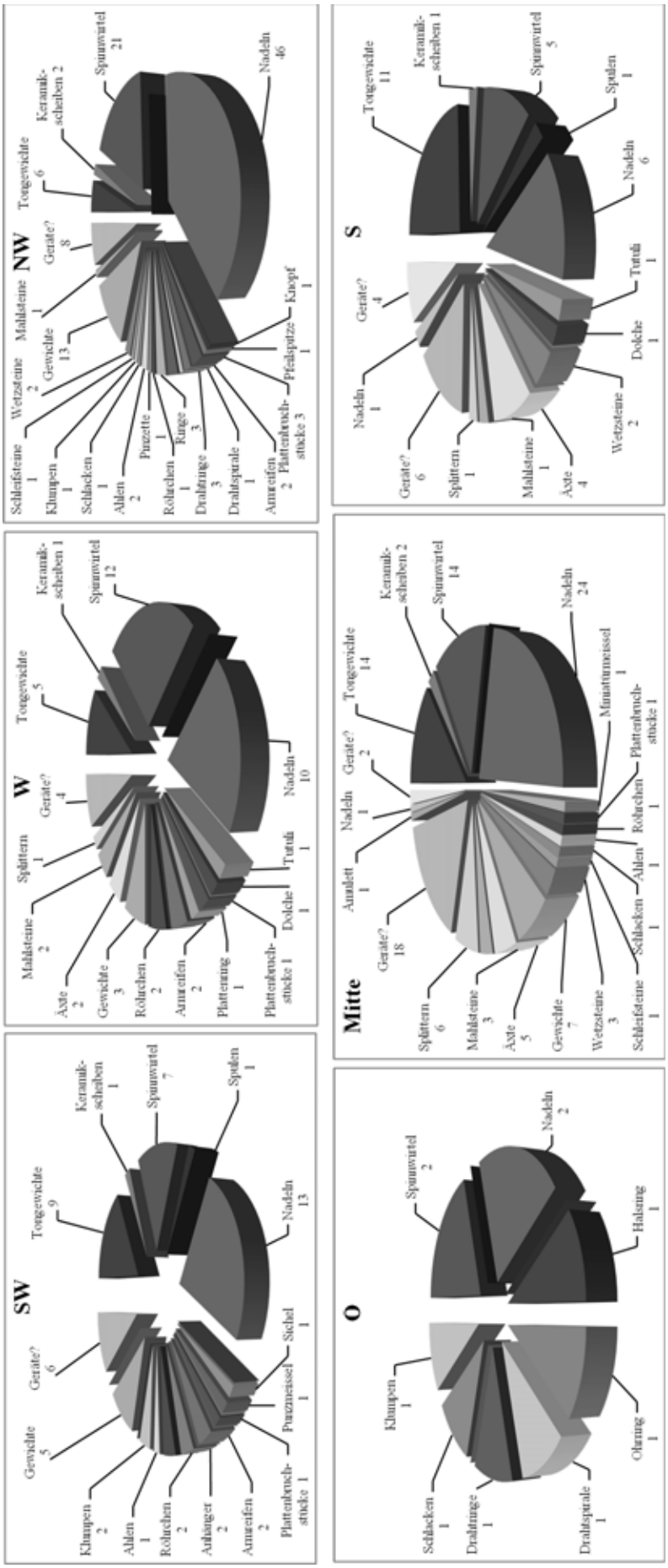

Abb. 5. Anhäufungen der charakteristischen Fundtypen auf der Fundstelle bei Tikos (in Stückzahl)

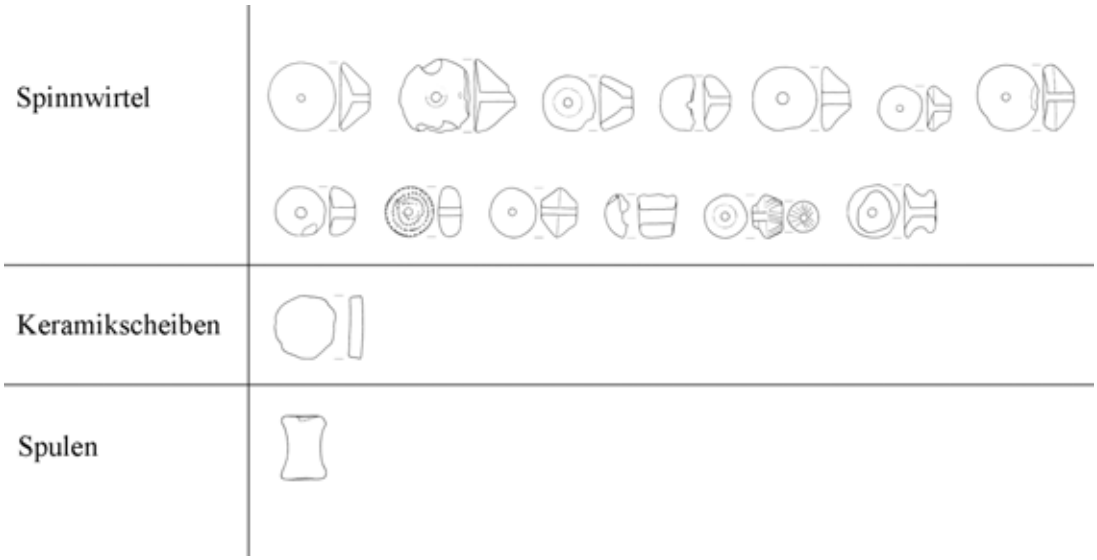

Abb. 6. Auswahl aus den charakteristischen Fundstücken des Spinnens und Webens auf der Fundstelle bei Tikos (ohne Maßstab)

Spulen
Die zwei Spulen ähnelt einander in der einfach verfertigten Form, nur in der Größe gibt es zwischen ihnen einen kleinen Unterschied (L: 3,6 cm und 4,02 cm; Dm: 2,0 und 2,05 cm).

Keramikscheiben
Aus Keramikscherben wurden die abgerundeten flachen Scheiben verfertigt, die nach den Analogien aus späteren Zeitaltern auch als Spieljeton bestimmt werden können, allerdings durften sie gleichfalls als zur Verwendung vorbereiteten Spinnwirteln dienen. Letzteres unterstützen die in der Mitte durchgebohrte Exemplare aus anderen Fundstellen.

Da kein eindeutig als Webehaus identifizierbares Gebäude auf der freigelegten Fläche dokumentiert werden konnte, werden die Spinn- und Webetätigkeitsplätze innerhalb der spätbronzezeitlichen Siedlung anhand der Werkzeugkonzentrationen vermutet.

Metallbearbeitung (Abb. 7)
Es ist augenfällig, dass die richtigen Konzentrationspunkte (NW-, SW-Zone und die mittlere Zone) mit denen der Spinn- und Webegeräte zusammenzufallen scheinen. Es stellt sich nun die Frage, ob die zwei intensivsten (NW- und mittlere Zonen) mit den Lagen der Wohnarealen in Verbindung gebracht werden können. Wie oben gesagt, die geringzähligen kleinen Schlacken- und Klumpenstückchen bieten keinen festen Beweis für eine lokale Metallbearbeitung, es darf sich zumindest um gelegentliche Reperaturarbeiten handeln und eine als Werkstatt fungierende Arbeitsgrube wurde auch nicht dokumentiert. Anhand der Menge und der Vielfalt der Metallgegenstände können wir in unserem Fall eher vielleicht über eine Deponierung sprechen, was vermutlich auch auf die Bedeutung unserer Siedlung unter den anderen spätbronzezeitlichen Siedlungen in Kleinregion hinweist.

Typen
Nadeln
Nach Stoff können die Nadeln zweierlei klassifiziert werden: schwächer legierte Stücke mit betontem Kupferinhalt und massive, fein bearbeitete Stücke.

Die Deformierung oder Abbrechung der in spätbronzezeitlichen Depotfunden vorkommenden Nadeln wurden bereits bei Friedrich Holste als charakteristische

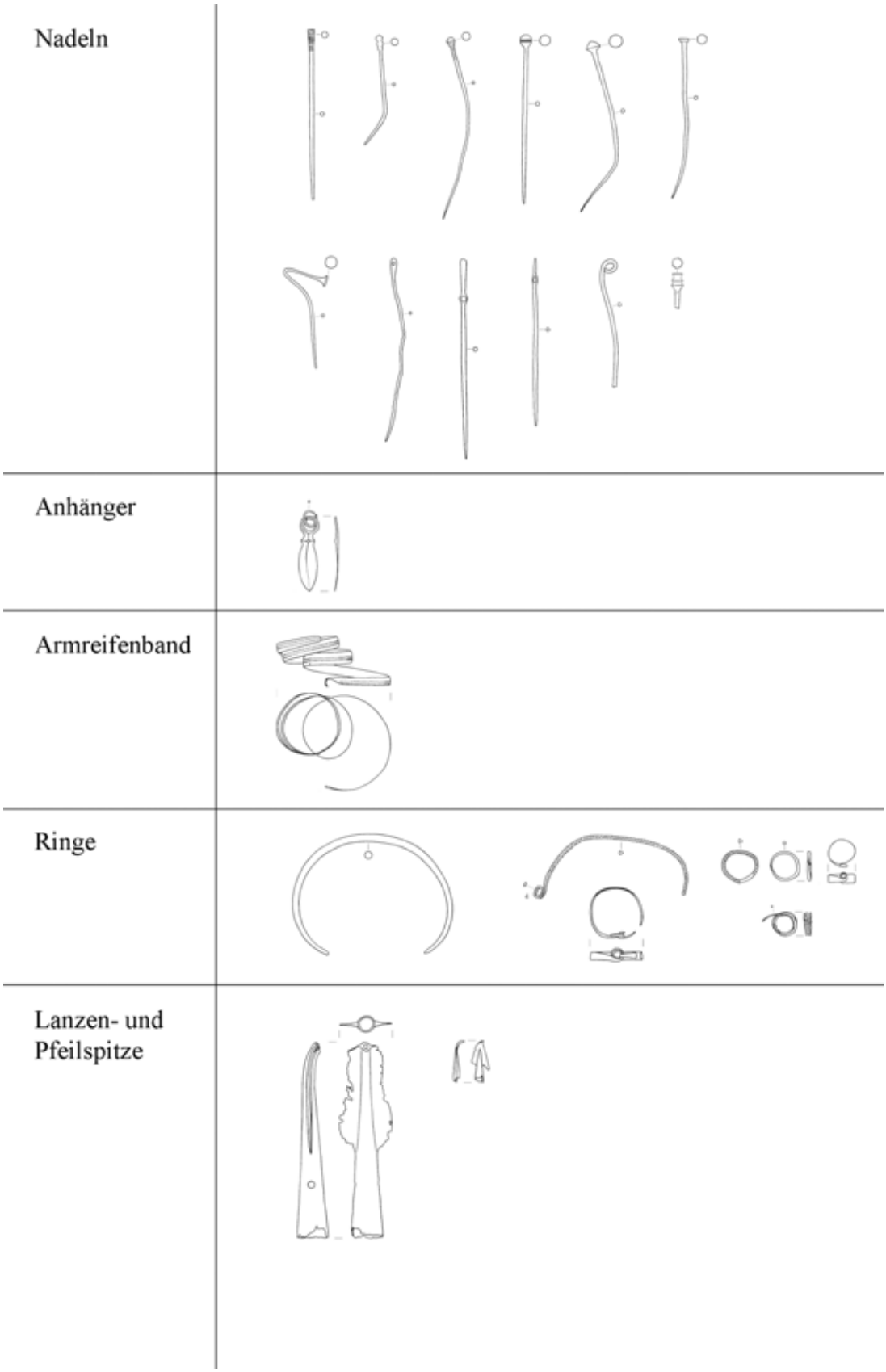

Abb. 7. Auswahl aus den charakteristischen bronzenen Fundstücken auf der Fundstelle bei Tikos (ohne Maßstab)

urnenfelderzeitliche Gewohnheit erklärt.[28] Als eine Variante dieser Gewohnheit sind die 12 Nadeln zu betrachten, bei denen die Schaft gleicherweise „pfeifenförmig" umgebogen ist. Es kann beim Keulenkopf (3 Stück) und den Nagelkopfnadeln (3 Stück) beobachtet werden.[29]

Unter den typologisch bestimmbaren 63 Stücken vertritt die Nähnadel den in größter Anzahl vorkommenden Typ (22 Stück). Nach Rastko Vasić lässt er sich in zwei Varianten unterteilen: Die mit abgerundetem Kopf gehören zur Variante 'a' der Gruppe I. und die, bei denen der Kopf in einer Spitze oder ein wenig breiterem Glied endet, ferner die Durchlochung in das obere Drittel fällt, zählen zur Gruppe II. Beide Varianten begleiten zwar während der ganzen Epoche, findet die letztere meistens eher in der Periode HaA1.[30] Zum Typ der Keulenkopfnadeln zählen insgesamt 16 Stücke, unter denen sowohl die einfach bearbeiteten Varianten mit unverziertem (5 Stücke), als auch die mit verziertem Kopf (11 Stücke) vorhanden sind. Bei der letzteren wird dieses Verzierelement mit dem in der Spätbronzezeit charakteristischen Tannenzweigmotiv bezeichnet, das von oben und unten mit je einer Linie abgeschlossen ist. Neben der hohen Anzahl kann ihre besondere Qualität hervorgehoben werden. Der Typ ist zwar für genauere Datierung unanwendbar, die Forschungen von Rastko Vasić stellten fest, dass die Varianten zum Beispiel im Nordbalkan in der Periode HaA1 in größter Zahl erscheinen.[31] Nach der Typologisierung von Jiří Říhovský[32] gehören unsere Nadeln mit doppelkonischem Kopf zu den einfachen doppelkonischen Nadeln, bei Rastko Vasić[33] können sie in die nördliche Gruppe der doppelkonischen oder gedrückt kugelköpfigen Nadeln gesetzt werden, und nach Mária Novotná[34] können sie als Ilava-Typ, bzw. zum Ilava-Typ nahestehende Form bestimmt werden. Während der ganzen urnenfelderzeitlichen Periode sind sie vorhanden, sogar in der Früheisenzeit haben sie noch Varianten. Unter den westungarischen Exemplaren haben nur die Depots von Románd[35] und Velemszentvid[36] ein Datierungswert, die aufgrund der Begleitfunde auf den Anfang der jüngeren Urnenfelderphase gesetzt werden können. Die Kugelkopfnadeln sind für die ganze urnenfelderzeitliche Periode charakteristisch, aber bei den späteren Varianten wird der Kopf ein wenig gedrückter, pilz- oder halbkugelförmig, was dann als ein bestimmendes Formenelement betrachtet werden kann.[37] Vor allem herrscht er auf Lausitzer Gebiet vor, aber in Süddeutschland und in mitteldonauländischem Kreis kommen sie auch vor.[38] Unter den Nagelkopfnadeln können die mit massivem, scheibenartig geformtem Kopf,[39] bzw. die mit kleinem Kopf und unverzierter Schaft[40] unterschieden werden, aber es gibt auch eine Variante mit trichterartigem Kopf.[41] Obwohl der Typ von der Hügelgräberperiode an bis in die frühe Eisenzeit zu begleiten ist, charakterisiert er vorerst die späte Hügelgräber-und die frühe, bzw. ältere Urnenfelderkultur. Während er z. B. in der Slowakei[42] von der Phase Piliny I/Salka (BC1) bis Piliny III vorkommt, erscheint im südslawischen Raum,[43] im Banat und südlichen Teil des Batschkas nur in HaA1, bzw. südlich der Sava bereits spätestens von BD. Der in unserem Fundmaterial mit 3 Stücken vertretene Typ der Hirtenstabnadeln repräsentiert die gängigste Form der Bronzezeit, die in verschiedenen Varianten von der Frühphase an vorhanden ist. Während der Spätbronzezeit

[28] *Holste 1936* 8.
[29] Und es gibt noch 6 Schaftbruchstücke, bei denen kein Typ bestimmt werden kann.
[30] *Vasić 2003* 133; *Carancini 1975* 176.
[31] *Říhovský 1979* 145–153, Taf. 45–47; *Novotná 1980* 139–145, Taf. 41–42; *Vasić 2003* 82–90, Taf. 31–35.
[32] *Říhovský 1979* 116–121.
[33] *Vasić 2003* 61–63.
[34] *Novotná 1980* 116–121.
[35] *Říhovský 1983* Taf. 7. 113–116.
[36] *Říhovský 1983* Taf. 35. 3, 36. 16.
[37] *Říhovský 1983* 130.
[38] *Novotná 1980* 124.
[39] *Říhovský 1979* Taf. 8. 121–146, 9. 147–153.
[40] *Vasić 2003* Taf. 16. 221–245.
[41] *Říhovský 1979* Taf. 8. 136–146.
[42] *Novotná 1980* 72.
[43] *Vasić 2003* 46.

kommt er in der Slowakei in den Phasen Mikusovice und Diviaky I (BD–HaA1), und später in der lausitzer-schlesischen (HaB) vor.[44] Ein einziges Stück kann zu den Spindelkopfnadeln gezählt werden, das die Variante Gemeinlebarn[45] vertritt. Sein frühestes Vorkommen fällt auf die Phase BD, in größter Zahl erschien er aber während HaA1, und war bis in die mittlere Phase der Periode vorhanden. Die zwei dem Typ der Halswulstennadeln nahestehenden Nadeln können nach keinen typologischen Systemen eindeutig bestimmt werden. Vielleicht stehen sie am nahesten dem Halswulstennadelntyp, und können mit der Variante Blučina II[46] oder Velemszentvid II,[47] bzw. der mit rundem/doppelkonischem Kopf des Typs Velemszentvid[48] verglichen werden, zwar kann die charakteristische Rippengliederung am Kopf bei keinem unserer Exemplaren beobachtet werden. In Hinsicht der Datierung ist es problematisch, weil die Variante Blučina II auf die frühe, und die Velemszentvid II auf die mittlere Urnenfelderphase fällt. Allerdings verbreiteten sich beide vor allem in dem mitteldoanuländischen Raum, bzw. die letztere hauptsächlich auf den südlichen Gebieten, von Slowenien bis Nordserbien.

Anhänger

Die Anhängern vertreten in unserem Fall nur zwei lanzettenförmige Anhänger, deren genaue Parallelen unserer zwei Exemplaren sind z. B. im Depot von Szárazd (Horizont Kurd nach Mozsolics),[49] bei den Funden von Dedinka/Slowakei[50] oder Aislingen-Aschberg/ Deutschland[51] bekannt. Die lanzettenförmigen Anhänger begleiten gewöhnlich als von Ketten herunterhängendes Zugehör die Posamenteriefibeln, erscheinen aber für sich auch. Sie vertreten einen charakteristischen Typ der älteren Urnenfelderzeit, der sowohl in Horizont Kurd, als auch in Horizont Gyermely zu finden ist, aufgrund der Beigabe des Grabes Nr. 415. des hügelgräberzeitlichen Gräberfeldes (BC) bei Tápé[52] kann dennoch sein früheres Erscheinen auch angenommen werden.

Armreifenband

In der Mittellinie unseres Armreifenbandes mit hackenartig abgehammerten Enden laufen zwei aus kurzen senkrechten Strichen bestehende Reihen. Dieses Muster kann als allgemein während der späten Bronzezeit vorkommendes Verzierelement interpretiert werden.

Ringe

Der unverzierte, glatte Halsring mit rundem Querschnitt und offenen Enden und das Armring gleicher Ausführung repräsentieren eine uncharakteristische Form in der Bronzezeit. Eine interessante Variante der letzteren ist aber das Ring mit Schleifen an beiden Enden zum Schließen. Der eigentlich nur ein Torques nachahmende, einfach ausgeführte Halsring wurde aus zwei fest zusammengewickelten Drahten angefertigt, die an ihren Enden schleifenartig zurückgebogen sind. Unter den Fingerringen finden wir zwei Typen: die gleiche Ausführung der beiden Spiralringe macht es wahrscheinlich, dass diese zwei Stücke in einer Werkstatt angefertigt wurden, sogar vielleicht als Teile eines Bestandes, und bei dem aus Blech gebogenen Fingerring liegen die Enden aufeinander, indem das eine sich verjüngende Spiralform aufnimmt. Ein glattes Ring mit sich aneinander schließenden Enden und ein geschlossenes mit im dreiviertel Teil gedrehtem Körper sind wegen ihrer kleinen oder mittleren Größe zweierlei zu interpretieren: sie sind entweder Fingerringe oder konnten als Kinderarmringe auch dienen.

[44] *Novotná 1980* 39–40.
[45] *Říhovský 1979* Taf. 53–55.
[46] *Říhovský 1979* 100–102, Taf. 29. 537–550.
[47] *Říhovský 1979* 102–105, Taf. 30. 560–563.
[48] *Vasić 2003* 68–69, Taf. 25. 394–396.
[49] *Mozsolics 1985* Taf. 27. 11.
[50] *Furmanek – Veliačik – Vladár 1999* Abb. 31. 11.
[51] *Wels-Weyrauch 1991* Taf. 28. 698.
[52] *Trogmayer 1975* 155.

Knöpfe und Bleichstreifen
Neben den Knöpfen kann man über das Blechstreifenbruchstück auch nur weniges sagen, sie waren wahrscheinlich Zierelemente einer Tracht.

Lanzenspitze
Unsere Lanzenspitze zählt sich zur Grundform C des Typs mit glattem Blatt,[53] die während der Phase BD erschien, dann, in der mittleren Phase wurde sie seltener, und von HaB1 bis Ende der Periode kam in größer Anzahl vor.[54]

Pfeilspitze
Bei der Pfeilspitze geht es um die Grundform E des zweiflügeligen Typs mit Tülle, bei der die Länge der Tülle macht die Hälfte der ganzen Länge aus.[55] Die Form erschien von der älteren Phase der Hügelgräberperiode, und charakterisiert vor allem die ältere Phase, bzw. die erste Hälfte der jüngeren Phase der Urnenfelderkultur. Aufgrund der Größe der Flügel und des Fehlens der Schafthacke kann unser Stück auf die ältere Phase der Urnenfelderzeit datiert werden.

Dolch
Der Dolch ist eine flachgehammerte Blechklinge, auf deren Griffzungenfragment die Anheftungsstellen der Griffplatten teils noch zu beobachten sind. Die nähere Typologisierung ist wegen seiner Fragmentiertheit nicht möglich.
Im Fundmaterial befinden sich noch mehrere fragmentierten Tutuli und eine Pinzette.

Knochengeräte
Im Fundmaterial der spätbronzezeitlichen Siedlung sind die Knochengeräte sowohl in Anzahl als auch in Typen auffällig unterrepräsentiert, zwar ist die Menge der Tierknochen hingegen überaus groß. Sie streuen sich im mittleren und südlichen Teil.

Der Rohstoff wurde mit Spalten und Schleifen bearbeitet, die Abnutzungsspuren weisen eine häufige Verwendung auf. Die drei Nadeln und sechs bearbeitete oder teils bearbeitete Bruchstücke nicht bestimmbarer Funktion können als Werkzeuge beschrieben werden, auf Trachtgegenstand weist nur ein längliches Amulett hin. Es ist leicht vorstellbar, dass man mit diesen Nadeln zum Beispiel die Fischernetze knotete.

Steingeräte
Unter den Steingeräten sind von den grob bearbeiteten, oder nur bearbeitungsspuren aufweisenden durch die auf die Form hin gesplitterten bis zu den fein geschliffenen zahlreiche Typen (Schleifsteine, Wetzsteine, Gewichte, Äxte, Mahlsteine, Splittern) abzusondern. Ohne eine typologische Einordnung konzentrieren sie sich im mittleren und südlichen Teil. Hier können wiederum die großzählig (28 St.) vorgefundenen kugelförmigen, in der Mitte durchgebohrte Steingewichte hervorgehoben werden, die neben dem Weben (auch) bei der Fischerei verwandt werden konnten.

Töpferei (Abb. 8)
Das in großer Menge gefundene und vielfaltige Formen aufweisende Keramikmaterial deutet darauf hin, dass wir hier mit einer intensiven und vermutlich auch langlebigen spätbronzezeitlichen Siedlung zu tun haben. Die Bedürfnisse wurden – wenigstens zum Teil – mit lokalen Töpfereiprodukten versorgt, was die unter den gleichmäßig ausgebrannten Gefäßen vorkommenden sekundär durchgebrannten oder bis zum porösen Zustand

[53] *Říhovský 1996* Taf. 6. 51– 8. 65.
[54] *Říhovský 1996* 13. Abb. 5.
[55] *Říhovský 1996* 15. Abb. 6.

überbrannten Ausschüsse, bzw. die schwach ausgebrannten, sowie beim Ausbrennen deformierten asymmetrischen Stücke zu beweisen scheinen.

Die Ausführung kann in ihrer Gesamtheit als gut betrachtet werden, in einigen Fällen erreicht sie sogar ein hohes technisches Niveau. Aus dem vermutlich am Ort ausgehobenen Rohstoff wurden die erwünschten Gefäße bei der Feinkeramik mit Sand- oder Kieselkornmagerung und bei der Haushaltskeramik mit gröberen Kiesel-, bzw. Keramikmagerung angefertigt. Einige Gegenstände mit unsicherer Funktion, wie zum Beispiel eine grob ausgeführte, kleine halbkugelförmige Tonplatte mit zusammengekniffenem Griff, oder ein längliches, verflachtes, durchgebohrtes Fragment aus Ton dürfen wohl zu den Werkzeugen zählen, die bei der Gestaltung der Keramikoberfläche eine Rolle hatten.

Da keine auf Keramikbrennen hindeutenden Befunde gefunden wurden, können wir Brenngruben vermuten. Die Oberfläche ist meistens braun oder schwarz, aber es ist die für die Periode charakteristische Kombination – außen braun/schwarz und innen rot oder umgekehrt – auch häufig. Die Polierung der Oberfläche ist auch ein charakteristisches Kennzeichen, womit man einen metallischen Effekt erreichen konnte.

Typologisch kann das Keramikmaterial auf große Vorratsgefäße, kleinere und größere Töpfe, Krüge, Schüssel und Schalen, sowie auf Tassen aufgeteilt werden, unter denen die Töpfe und die Schalen dominieren. Bei den ersten müssen die häufig vorkommenden plastischen Zierelemente, bei den letzten die hohe Anzahl der Einzugsrandvariante betont werden. Unter den einzelnen Typen ist die Hügelgräbereinwirkung sowohl in Formen als auch in Motiven neben den bestimmenden Čakaer und Velatice-Baierdorfer Grundformen besonders auffallend. In Gesamtheit zeigt das Keramikmaterial von Tikos – im Netz der Nachbarfundstellen gleicher Periode in der Umgebung[56] eng eingebettet – ziemlich gute Fernkontakte, besonders südlich mit der Nordwestbalkan-Region.[57]

Typen

Doppelkonus

Beim Typ der Doppelkonusse finden wir in unserem Fall sowohl die Variante mit dem für die frühe und ältere Urnenfelderperiode charakteristischen scharfkantigen als auch die mit dem späteren gerundeten Bauchumbruch.

Zylinderhalsgefäße

Der eine Teil unserer Zylinderhalsgefäße gehören zu den Varianten, bei denen der Bauch ein weinig gedrückt und der Rand ziemlich unbetont oder abgeflacht ausladend ist. Charakteristisch ist der Schulterbruch. Der hauptsächlich älterurnenfelderzeitliche Typ kommt sowohl verziert als auch unverziert vor, beim letzteren sind die waagerecht verlaufende Leiste an der Schulter, die senkrechte Kannelur und Henkel, sowie die unter dem Henkel hervorlaufende Leistenreihe zu erwähnen. An der Schulter des bauchigen Zylinderhalsgefäßes hügelgräberzeitlicher Herkunft sitzen zwei gegenständige Henkel. Der von der scharf profilierten Schulter hinaufkommende Hals ist relativ kurz. In einem Fall umläuft ein eingeritztes Motiv aus verdoppelten V- und darunter schraffierten Dreiecken stehenden Reihen den Schulterbereich, das ein klassisches Hügelgräbermotiv ist.

Kegelhalsgefäße

Unter den wenigen Kegelhalsgefäßen ohne Verzierung gibt es auch einige mit gedrücktem Bauch, bei denen der Schulterbereich mit einem Bruch, bzw. mit einfacher oder mehrfacher Kannelur betont wird. Zwar charakterisiert diese Ausführung die jüngeren Phasen, überliefert ein von unten her kannelierter größerer Buckel am Bauch noch ein Hügelgräbermotiv.

[56] Zusammenfassend *Honti – Horváth 1996* 72–73; *Kiss – Kulcsár 2007* 112–116.
[57] *Dular – Švala – Tecco Hvala 2002* 194–196.

Abb. 8. Auswahl aus den charakteristischen Keramikformen auf der Fundstelle bei Tikos (ohne Maßstab)

Trichterhalsgefäße
Die bauchigen Trichterhalsgefäße haben einen ausladenden Rand und die Schulter ist scharf profiliert, die auch von einem Henkel überwölbt werden kann.

Krüge
Für die Krüge ist der mehr oder weniger gezogene Hals charakteristisch, an dem ein Henkel sitzen kann. Meistens sind sie unverziert.

Schüsseln
Bei den frühen, unverzierten bauchigen Schüsseln mit ausladendem Rand ist der Bauchumbruch noch scharfkantig, deshalb haben die eine doppelkonische Form. Wenn der Rand hier stark auslädt, ist die Schüssel ziemlich groß und der Gefäßkörper meistens leicht gedrückt. Die Variante charakterisiert bestimmend die frühurnenfelderzeitliche Periode, so wie die Schüssel auf Hohlfuß mit scharfkantigem Bauchumbruch und stark ausladendem Rand. Die entwickelten Formen haben schon an der inneren Seite des Randes eine Facettierung.

Die Ausladung des Randes bei den Schüsseln mit abgerundetem, in bestimmten Fällen leicht oder ausdrücklich gedrücktem Bauch, variiert in ganz breitem Spektrum bis zur Trichterform. Die Oberfläche kommt sowohl unverziert als auch verziert vor, beim letzten sind die an der Bauchung umlaufende gebogene Fingertupfenleiste und die mit kleineren Buckeln umgebrochene Leiste als einfache plastische Zierelemente zu erwähnen, die aber auch als funktionelle klärbar sind. Am Bauchbereich treffen wir noch die senkrechte oder schräge Rippenreihen, die einritzten Tannenzweigmotiv, sowie die schräge Kannelur. Die Variante existiert bis in die mittlere Phase, wo die breite Mund, die leicht gebrochene Bauchwand und das Tannenzweigmotiv schon als „altmodisch" betrachtet werden können.

Die Schüsseln mit gedrücktem oder leicht gedrücktem Bauch und ganz kurzem, ausladendem Rand sind nicht mehr so weitmündig, wie die früheren Typen. Verzierelement kann nur in einem Fall erwähnt werden: eine am oberen Bauchteil verlaufende senkrechte Rippenreihe. Die Variante lebt während der ganzen Urnenfelderperiode, wobei der leichte Bauchumbruch auf die ältere Phase hindeutet.

Der obere kürzere Teil des asymmetrisch doppelkonischen Gefäßkörpers endet in einem leicht gewölbten unbetonten Rand. In dem einen Fall sitzt über dieser Wölbung ein kleiner Henkel mit rundem Querschnitt, in dem anderen liegt eine Leiste am Bauchumbruch. Die Variante ist für die frühe und ältere Urnenfelderzeit charakteristisch.

Die Zylinderhalsschüsseln sind entweder am leicht gedrücktem Bauch ganz mit dicht eingestrichener senkrechter Kannelur bedeckt, wobei der leicht hochgezogene Henkel auf der gewölbten Schulter sitzt oder der Bauch ist stark gedrückt und aus der profilierten Schulter hinaufgehende Hals endet in einem stark ausladendem Rand.

Bei den Kegelhalsschlüsseln ist der Bauch gedrückt und mit schrägen Kanneluren verziert oder der scharfkantige Schulterbereich ist besonders betont, den ein von oben mit konzentrischen Rillen umgebener Knubbel am Bauchumbruch noch hervorhebt. Dieser Knubbel wird von beiden Seiten mit eingeritzten schrägen Linienbündeln in einem Streifen zwischen Schulter und Bauch begleitet. Über diesem am Hals befinden sich drei eingedrückte kleine Kreise nebeneinander. Ähnliche Verzierungsart charakterisiert auch die sog. amphorenförmigen Krügen und Tassen unter den spätbronzezeitlichen Gefäßtypen der Slowakei,[58] aber Parallele können ebenfalls in den ostungarischen spätbronzezeitlichen Materialien gefunden werden.[59]

Sowohl die Form als auch die Zierweise deuten in beiden Fällen auf die älterurnenfelderzeitliche Periode hin.

[58] *Veliačik 1983* Taf. IX. 2; XIV. 6; XXI. 13, 15.
[59] Litke: *Kemenczei 1984* Taf. VIII. 27–29; Szajla: *Kemenczei 1984* Taf. LXXI. 9.

Der Bauch der Schüsseln mit Trichterhals ist gedrückt und alle in unserem Fundmaterial bekannten Varianten sind verziert: neben dem waagerecht kannelierten Hals und der senkrechten Rippenreihe kann die schräge Kannelur am Bauch als charakteristisches Motiv betrachtet werden. Aufgrund der Zierweise können sie zu den Typen der älteren Urnenfelderzeit gerechnet werden.

Als Sondertypen können folgende Varianten erwähnt werden:

Mittelgroße, doppelkonische Schüssel mit waagerecht ausladendem Rand, bei denen die Oberfläche und der Mundbereich teilweise oder in ganzem mit plastischen Motiven reich verziert sind. Die Zierelemente bestehen aus Leisten ohne oder mit Fingertupfen, kleinen Knubbeln, bzw. der Rand und der Bandhenkel kann eingeschnitzelt werden.

Besonders hervorzuheben ist ein Schüssel, deren eigenartige Verzierung vermutlich über die bravuröse Dekorationstechnik schon hinausweist und vielleicht die formalen Elemente der Bronzeschalen nachahmt. Vor allem darauf weist der von Fingertupfenleisten abgegrenzte Streifen an der Ausbauchung hin, in deren Mittenlinie eine Knubbelreihe umläuft. Sie kann mit einem konkreten Typ nicht in Zusammenhang gezogen werden, es scheint eher so, als hätte der Töpfer eine charakteristische älterurnenfelderzeitliche Form aufgenutzt und die mit einem bestimmenden Motiv der bronzenen Tassen verbunden.[60] Und dieses Motiv ist anscheinend unter den Tassen der Periode in Tschechien[61] und Mähren[62] besonders häufig.

Schalen

Die weitmündigen Schalen können einen kaum betonten Bauch haben, der scharf gebrochen ist. Bei der einen Variante ist der Bauchumbruch mit einer Leiste hervorgehoben. Bei der „Schwedenhelm"-artiger Ausführung ist aber der unbetonte Bauchteil gerundet. Im Allgemeinen sind sie unverziert, bzw. am Bauch kommt ein kleiner Buckel oder Fingertupfenleisten manchmal vor, aber es ist noch eine Variante mit waagerechter Kannelur unter dem Rand zu erwähnen, bei der am Bauch ein Zick-Zack-Motiv umläuft. Henkelapplikation kommt nur in einigen Fällen vor, wobei der kurze Bandhenkel oder eckige und grobe Griffhenkel unter dem ausladenden Rand sitzt. Die verdoppelte Durchlochung am Rand einer ganz kleinen Schale deutet auf Aufhängen hin. Der Typ charakterisiert in erster Linie die Frühurnenfelderzeit, aber kommt auch in der älteren Phase noch vor.

Bei den konischen Schalen mit kurzem ausladendem Rand kann der konische Körper ein wenig abgerundet werden. Die umlaufende Leiste oder Fingertupfenreihe bezeichnet die Absonderung der Schulterbereichs. Als weiteres Motiv kann der Fingertupfenleiste betrachtet werden, von winzigen Knubbeln begleitet. Ein Bandhenkel kommt am Rand oder als ein den Rand und eine am Körper umlaufende Leiste verbindendes Element vor. In anderen Fällen variiert sich die Randgestaltung: der Gefäßkörper – manchmal mit Fingertupfenreihe – endet in einem ganz kurzen, unbetonten Rand oder der Rand ist abgeflacht, darunter sitzt ein grober Bandhenkel, dessen untere Teil eine umlaufende Leiste unterbricht. Bei einem kurzen stehenden Rand biegt der Oberteil des konischen Körpers stark nach innen hin, auf der sich ein kurzer, stehender oder abgeflachter Rand absondert. Wenn der Randteil unprofiliert bleibt, ist er über einem Band- oder Tunnelhenkel lappenartig aufgezogen, was als ein typisch frühurnenfelderzeitliches Merkmal betrachtet werden kann. Der Rand kann natürlich mit einfachem Verdicken oder Abflachen nach innen nur markiert werden.

Schalen mit kurzem ausladendem bzw. unprofiliertem Rand kommen eigentlich fast während der ganzen urnenfelderzeitlichen Epoche vor.

[60] *Patay 1990* Taf. 12. 17, 16. 23; *Novotná 1991* Taf. 9. 49; *Prüssing 1991* Taf. 2. 11–15.
[61] *Kytlicová 1991* Taf. 2–4, 40–42.
[62] *Nekvasil – Podborský 1991* Taf. 1–4.

Einzugsrandschalen
Bei den früheren Varianten der Einzugsschalen kann der Rand noch ein wenig verdickt sein. Der im Allgemeinen asymmetrisch doppelkonische Gefäßkörper bildet manchmal auch eine stark gedrückte Kugelform. In unserem Fall kommen bei den einfacher ausgeführten Exemplaren ein gedrückter waagerechter Griffbuckel unter der Ausbauchung, bzw. eine senkrecht durchgebohrte waagerechte Buckel daran vor.

Neben den am Rand schräg kannelierten Varianten („Turbanrand") kommt eine von dem Rand bis an die Ausbauchung mit fein eingeglätteter Facettierung verzierte Schale im Fundmaterial hervor, an deren leicht eingezogenen Rand sich ein aufgezogener Henkel mit dreieckigen Durchschnitt platziert. Formal kann sie zu den älterurnenfelderzeitlichen Stücken eingereiht werden, ihre Parallele ist mir einstweilen nicht bekannt.

Ähnlich sind die Schalen mit asymmetrisch doppelkonischem, und ziemlich großem Gefäßkörper, bei denen die Oberfläche mit plastischen (aus Leisten und eingeschnitzten Leisten bestehenden) Motiven und Kanneluren verzieren wird. Bei dem einen Stück sitzt ein vertikal kannelierter Bandhenkel am Bauch.

Zu den Sonderformen zählen sich auch die Fischbratenschalen. Insgesamt 4 Stücke sind im Fundensemble bekannt.

Tassen
Konische Tassen ohne Henkel finden sich praktisch während der ganzen Periode.

Die Henkeltasse repräsentieren hier die Tassen des Typs von Velatice-Bayerdorf, die charakteristischer Tassentyp der älteren Urnenfelderzeit sind. Beide Varianten mit Bauchumbruch und mit abgerundetem Bauchteil kommen im Allgemeinen zusammen im ganzen Mittel-Donaugebiet vor. Allerdings nimmt nur die letztere in der späteren Entwicklung der Form teil. Ein weiteres wichtiges Merkmal des Typs ist der in verschiedenem Maß über den Rand hinaufgezogene Henkel mit vier- oder dreieckigem, bzw. rundem Querschnitt. Die am Bauchteil der abgeflachten Tasse mit aufgezogenem Bandhenkel umlaufende schräge Kannelierung deutet auf Čaka-Einwirkung hin.

Töpfe
Die Varianten verschiedener Größe und Ausführung lassen eine genauere Datierung nicht zu. Allein die Oberflächenbehandlung kann uns dabei verhelfen, die häufig eine ziemlich starke Hügelgräbertradition widerspiegelt. Die bauchigen Töpfe mit mehr oder weniger ausladendem Rand sind meistens mit Leisten mit oder ohne Fingertupfen, bzw. mit deren Kombinationen bedeckt, aber es finden aus winzigen Knubbeln bestehendes Feld unter dem Rand, sowie außer der Facettierung Rippen und eingestrichenes Netzmuster am Rand dabei auch.

Vorratsgefäße
Zu dieser Gruppe zählen sich beträchtlich größeren, leicht profilierten Gefäße, an deren Oberfläche einfache Leisten mit oder ohne Fingertupfen vorkommen. Unter dem Rand ist ein Bandhenkel, bei einer Variante mit stärkerer Ausbauchung und Schulterumbruch sitzt ein horizontaler Griffbuckel am unteren Teil des Bauches.
Hier können die Siebgefäße und die Deckel zu den Sonderformen rechnen.

Datierung
Die charakteristischen Funde datieren Tikos-Homokgödrök etwa von der entwickelten Phase der frühen (R BD), bis in die ältere (Ha A1) Urnenfelderzeit, was etwa mit den Phasen SB Ib bis SB IIa des Sperber – Chronologiesystems gleichgesetzt werden könnte.

Die Hügelgräberformen überliefernden Keramikbruchstücke finden sich interessanterweise eher in der W-Zone, einschliessend auch den NW- und SW-Teil, was vielleicht auch auf eine frühere Etappe des Ansiedelungbeginns verweist.

Ordacsehi-Bugaszeg[63]

Der Fundort befindet sich am mittleren am Südufer des Balatons, nördlich-nordöstlich der heutigen Ortschaft Ordacsehi, auf einem nach Osten und Süden sanft ansteigenden lössbedeckten Hügelrücken, der nach Norden und Westen halbinselartig in das einst sumpfige, zum Zuflussgebiet des Balatons angehörte Nagyberek (’Große Marsch’), in etwa 107,5 bis 108,5 m ü. M., hineinreicht *(Abb. 9)*.

Auf der ca. 109 000 m² gesamt freigelegten Fläche[64] beträgt das urnenfelderzeitliche Ansiedlungsareal mit 114 Objekten etwa 23 600 m². Die günstigen Umstände werden durch die vorangehenden Siedlungsbefunde der früh- und entwickelten Hügelgräberperiode[65] auch belegt *(Abb. 10)*.

Hinblickend auf den Ausgrabungsplan kann man sofort feststellen, dass keine zum Wohnen dienenden Bauten im Unterschied zu der oben dargestellten Fundstelle hier vorzufinden sind. Das tatsächliche Ausmaß der Urnenfeldersiedlung kann dagegen ganz genau bestimmt werden, ist etwa in 75% – bis auf das W-Viertel – freigelegt worden, und die Anordnung der Befunde weisen ein klares Innenstruktur auf. Die auf einem unregelmäßig

Abb. 9. Die geographische Lage der Fundstelle Ordacsehi, Bugaszeg (rechts unten auf der Karte der ersten josephinischen Landesaufnahme)

[63] Hier möchte ich den Ausgräberinnen Katalin Sebők (ELTE Philosophische Fakultät, Institut für Archäologische Wissenschaften, Budapest), Ágnes Nagy†, Szilvia Honti (Rippl-Rónai Museum von Kaposvár), Péter Gergely Németh (Rippl-Rónai Museum von Kaposvár), Krisztina Somogyi (Budapest Historisches Museum, Aquincum Museum), József Zsolt Gallina (ASATARS Kulturell-Archäologische Dienstleistungsgesellschaft GmbH) und Viktória Kiss (Ungarische Akademie der Wissenschaften Forschungszentrum für Humanwissenschaften, Archäologisches Intitut, Budapest) meinen Dank aussprechen, dass sie mir die von ihnen freigelegten urnenfelderzeitlichen Befunde und Funde der Fundstelle zum Publizieren übergaben.

[64] Ordacsehi-Bugaszeg, Ausgrabungsbericht von József Zsolt Gallina und Krisztina Somogyi: *Honti et al. 2002* 15–20; Ordacsehi-Bugaszeg, Ausgrabungsbericht von Péter Polgár und Judit Pásztókai-Szeőke: *Honti et al. 2000* 40–45.

[65] *Kiss 2011* 101–108.

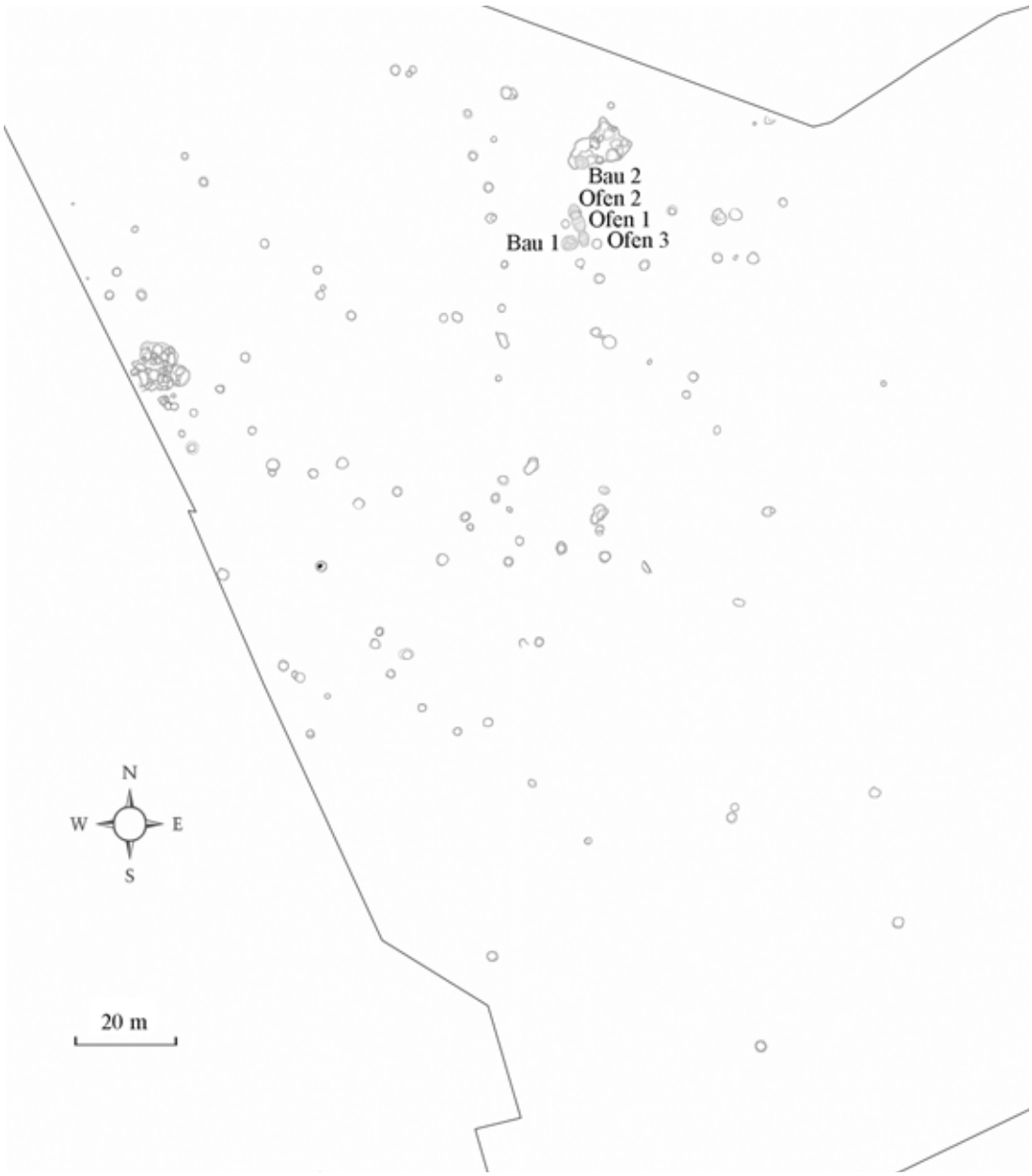

Abb. 10. Der Gesamtplan der Urnenfeldersiedlung bei Ordacsehi

rundförmigen Areal liegenden Gruben, bzw. Grubenkomplexe reihen sich aneinander, indem sie Leerplätze bilden, zwar wird es in der Südzone schon viel lockerer, bzw. in der N- und W-Zone auch durch die Grabenkomplexe etwas dichter. Die befundfreien Räume betragen ca. 1000 bis 2000 m², wo die Häuser – offensichtlich mit Pfostenbauweise – stehen mussten, die das Vorkommen der Verputzfragmente vielleicht am besten belegen. Sie streuen sich ziemlich gleichmäßig, fehlen nur in der O- und S-Zone. An mehreren sind die Abdrücke baukonstruktionellen Elemente (Rutengeflechte, Pfosten, Bretter u.a.) zu sehen.

Gruben

Die dokumentierbar siedlungsbildenden Faktoren sind also diesmal die Gruben, unter denen die muldenförmigen Vorratsgruben in einer augenfällig hohen Anzahl (44%) vorkommen. Die sind zwar auf der ganzen Fläche vorzufinden, weisen sie doch eine ziemliche Anhäufung vielleicht in der westlichen Zone auf. Es ist dabei bemerkenswert, dass nur zwei von denen mit

ausgebranntem Lehm ausgebettet war, und beide lagen am Rande des Siedlungsareal (NW und W). Andererseits ist aber die Proportion der Asche und Holzkohle in den Verfüllungen auch auffällig.

Werkstattartige und übrige Bauten

Bau 1 (Str.Nr. 2447/Obj.Nr. 1668)
Beschreibung: oval, am NW-Rand schachtartig schräg eingetiefte Grube. Randbreite: etwa 3,1 m, Tiefe: etwa 0,5-1,0 m, mit gesamt der Grube: etwa 1,8 m.

Verfüllung: 1. gemischt brauner sandiger Boden. 2. gemischt gelbbrauner humusiger Sand. 3. gemischt dunkelgrauer aschenhaltiger Boden. 4. gemischt gelber Sand. 5. gemischt graubrauner aschenhaltiger Boden. 6. gebrannte Verputzstücke. 7. Aschenschicht. 8. gemischt dunkelbrauner aschen- und humusiger Sand mit Verputzstücken.

Fundstücke handwerklicher Art: bearbeitetes Geweihbruchstück, Tierknochenstücke teils mit Bearbeitungsspuren, Tongewichts- und Mahlsteinfragmente.

Position auf dem Siedlungsareal: im Nordteil, neben den großen eingetieften Öfen, direkt westlich von Str. 2460/Obj.Nr. 1679.

Bau 2 (Str.Nr. 2485/Obj.Nr. 1699)
Beschreibung: oval, der Rand größtenteils stufenartig ausgestaltet. Randbreite: etwa 4,1 m, Tiefe: etwa 0,8 m.

Verfüllung: 1. gemischt dunkelbrauner Boden mit Lehmstückchen und Lösskindeln. 2. gemischt graubrauner Boden mit Verputzstücken. 3. gemischt gelbbrauner Sand. 4. gemischt gelber Sand. 5. gemischt gelbbrauner lehmiger Sand mit Lösskindeln. 6. gemischt rotbrauner Boden mit Verputzstücken.

Fundstücke handwerklicher Art: gut bzw. kaum ausgebrannte Tongewichte in größerer Anzahl, Mahlsteinstücke.

Position auf dem Siedlungsareal: am Nordrand, in einem größeren Komplex (Obj.Nr. 1699) eingegraben.

Öfen

Ofen 1 (Str.Nr. 2453/Obj.Nr. 1674)
Beschreibung: oval, eingetieft. Stark gestört, die mit gebranntem Lehm ausgebettete Wand teils erhalten. Dm: etwa 2,5 m, Tiefe: etwa 1,1 m.

Verfüllung: 1. gemischt gelbrauner Sand. 2. gemischt dunkelgrauer aschenhaltiger Boden. 3. gemischt graubrauner aschenhaltiger Boden.

Ofen 2 (Str.Nr. 2455/Obj.Nr. 1675)
Beschreibung: oval, eingetieft. Stark gestört, die mit gebranntem Lehm ausgebettete Wand teils erhalten. Dm: etwa 3,0 m, Tiefe: etwa 0,8 m.

Verfüllung: 1. gemischt graulicher humusiger Sand. 2. gemischt gelbbrauner Sand. 3. gemischt gelber Sand.

Ofen 3 (Str.Nr. 2460/Obj.Nr. 1679)
Beschreibung: oval, eingetieft. Stark gestört, die mit ausgebranntem Lehm gebettete Wand und die Platte teils erhalten. Dm: etwa 3,0 m, Tiefe: etwa 1,1 m.

Verfüllung: 1. gemischt brauner humusiger Sand. 2. gemischt gelbbrauner humusiger Sand. 3. gemischt graubrauner Boden mit Verputzstücken. 4. gemischt dunkelgrauer aschenhaltiger Boden. 5. gemischt gelbbrauner Sand.

Die drei beträchtlichen Öfen sind in NW-SO gerichteter Reihe angeordnet, zwischen den zwei oben beschriebenen werkstattartigen Bauten, im Nordteil des Siedlungsareals. Sie

liegen zwar ganz nahe zueinander, im Schnitt zeigte es sich aber, dass sie nicht gleichzeitig benutzt wurden.

Aktivitätszonen anhand der Anhäufungen der charakteristischen Fundtypen[66]
Die Hinweise für hausgewerbliche Tätigkeiten sind ziemlich spärlich vorhanden, aus dem Fundmaterial können wir bloß die Mahlsteine und Geräte zum Spinnen und Weben (Spinnwirtel, Tongewichte und Tonringe) zahlenmäßig hervorheben. Sogar diese fragmentierten Stücke streuen sich größtenteils aber als Abfall im Siedlungsareal, so dass die Aktivitätszonen auch nicht eindeutig zu bestimmen sind. Vielleicht können die zwei werkstattartigen Bauten und die drei Öfen eine Aktivitätszone im Nordteil aber doch markieren. Bei Spinnen und Weben sollen drei Anmerkungen[67] hinzugefügt werden:

1. Während die angehäuften schwach ausgebrannten Tongewichte in der unteren Verfüllungsschicht des Baus 2 eindeutig die Webetätigkeit belegen, bei den anderen, massiven Stücken besteht die Möglichkeit der Verwendung auch in der Fischerei.
2. Es kamen insgesamt zwei Spinnwirtel vor, der eine in der Nord-, der andere in der Südzone.
3. Die gefundenen Tonringe durften wohl auch zweierlei Funktionen versehen: sie konnten als Gewichte sowohl beim Weben als auch bei der Fischerei, bzw. der Krebsfangerei benutzt werden.

Metallbearbeitung
Es kann ein einziges fragmentiertes Gießlöffel hier eigentlich nur erwähnt werden, das wir offensichtlich nicht als indirekten Beweis für eine lokale Schmiederei betrachten können, umso mehr, als keine weitere Befunde, wie zum Beispiel Schlacken oder Klumpen vorkamen. Interessant ist es aber, dass unser Exemplar eben in einer Grube jener auf größerer Fläche liegenden seichten Eintiefung war, aus deren Verfüllung die Tongewichte in der größten Anzahl ans Tageslicht kamen und der auch Bau 2 zugehörte.

Knochengeräte
Unter den aus Geweih gefertigten Stücken ist das eine an einem Ende schneidenartig schräg abgeschnitten und hier stark abgenutzt, das andere ist an beiden Enden gerade abgeschnitten. Bei drei der aus Röhrenknochen gefertigten fünf Stücke deuten die polierten Oberflächen auf Bearbeitung nur hin. Die zwei weiteren Exemplare sind am Ende gerade abgerieben. Ein aus Wildschweineckzahn abgespaltenes Schmuckstück ist an beiden Enden durchgebohrt.

Steingeräte
Die Abschläge erscheinen im Fundmaterial nur sehr geringzählig. Bei einem der zwei abgerundeten Keulenfragmente kann die Durchbohrung auch beobachtet werden, ebenso wie das Schaftloch eines fragmentiert erhaltenen Steinbeils. Mahlsteine kamen in augenfällig großer Anzahl in den Verfüllungen verschiedener Befunde der Siedlung vor.

Töpferei
Keramik *(Abb. 11)*
Die Keramikformen sind typologisch nicht besonders abwechslungsreich, aber chronologisch lassen sie sich gut umgrenzen, wobei die Elemente der jüngeren Phase der Urnenfelderformen- und verzierungswelt schon vorherrschen.

Zwar kann eine lokale Töpferaktivität nicht ganz ausgeschlossen werden, was die zahlreichen Fehlbrände (gerissen oder deformiert bzw. schwach begbrannt), sowie zwei blasig ausgebrannte Fragmente auch belegen. Eindeutig als Werkstatt identifizierbarer Befund kam aber nicht vor und die erwähnten Stücke weisen keine Anhäufung auf.

[66] Die Fundstücke haben Tamás Baranya und Mihály Göbölyös abgezeichnet.
[67] Ich möchte mich Judit Pásztókai-Szeőke für die Anmerkungen bedanken.

Fertigungstechnisch ist die hervorspringend hohe Proportion der Beimengung mit gemahlenen Scherben besonders interessant, in manchen Fällen mit Sand- oder gemahlenem Kieszusatz.

Typen

Das Gefäßensemble der Siedlung wird grundlegend vom Typ der bauchigen Gefäße mit ausladendem Rand und ohne Hals bestimmt. Der weniger oder stärker gebogene Bauch geht indirekt zum ausladenden Rand hinüber, dessen innere Fläche waagerecht kanneliert sein kann. Die häufigsten Verzierelemente sind das Fingertupfen und der Nageleindruck am Rand, unter denen kleiner waagerechter Buckel, Fingertupfenleisten oder Fingertupfenreihe sitzt.

Der Rand der Zylinderhalsgefäße mit ausladendem Rand ist am häufigsten mit Fingereindrücken verziert, und am Bauch verlaufen Fingertupfenleisten. Die Facettierung der inneren Randfläche kommt natürlich auch hier vor.

Bei den Gefäßen mit konischem Hals und ausladendem Rand ist neben den Fingertupfenleisten am Hals die eingeglättete senkrechte oder schräge Kannelur am Bauch viel häufiger. Eine Variante ist die am Hals waagerecht und am Bauch senkrecht einegtiefte feine Rille, bzw. die dichte Kannelur um die Schulter mit Bandmuster aus eingeritzten Doppellinien am Bauch, das oben und unten von Einschnitten verfolgt ist.

Die Gefäße mit Trichterhals und ausladendem Rand bilden im Keramikbestand eine kleinere Gruppe.

Die urnenförmigen Gefäße sind meistens gedrückt bauchig und mit konischem Hals ausgeführt. Bei den Varianten mit fein eingeglätteter senkrechter Kannelur am Bauch sitzt ein dicker Henkel an der Schulter. Die breite Kannelierung weist auf älterurnenfelderzeitliche Überlieferung zurück. Auf der Schulter kann eine waagerechte Kannelur auch vorkommen.

Vorratsgefäße

Im Allgemeinen gehören die dickwandigen Gefäße mit größerem Ausmaß zu dieser Gruppe, die funktionsgemäß die einfache formale Ausführung vertreten. An der grob bearbeiteten Oberfläche können Fingertupfenleisten angesetzt sein, eher zum Zweck des leichteren Anfassens.

Schüsseln

Die bauchigen Schüsseln mit ausladendem Rand kommen sowohl ohne Hals, als auch mit einem Zylinder- oder konischem Hals vor. Als charakteristisches Verzierelement kann die eingeglättete Kannelur hervorgehoben werden, deren dicht ausgeführte Variante schon auf die jüngere Phase der Urnenfelderperiode hindeutet.

Die konischen Schüsseln kommen hier nur in kleiner Anzahl vor, sie sind von dem am Rand sitzenden oder hochgezogenen Henkel charakterisiert. Als Verzierung finden wir die Fingereindrücke am Rand.

Einzugsschalen

Dieser Typ ist auch in ziemlich großer Anzahl in unserem Keramikmaterial, sowohl mit schräger Kannelur als auch mit Facettierung am Rand anwesend.

Tassen

Bei dem konischen Typ sitzt der Henkel entweder am Rand oder ist hochgezogen.

Die mit Zylinderhals sind mit Ritzen und Kerben verziert, der Bandhenkel bindet den Rand und den Bauch zusammen, mit konischem Hals sitzt der vom Rand hochgezogene Bandhenkel auf der Schulter oder geht von der Schulter hinauf und sitzt auf den Bauch.

Siebgefäße

Neben einem leicht überrandständigen kleinen Bandhenkel ist nur der Boden bzw. den ganzen Körper durchgelocht.

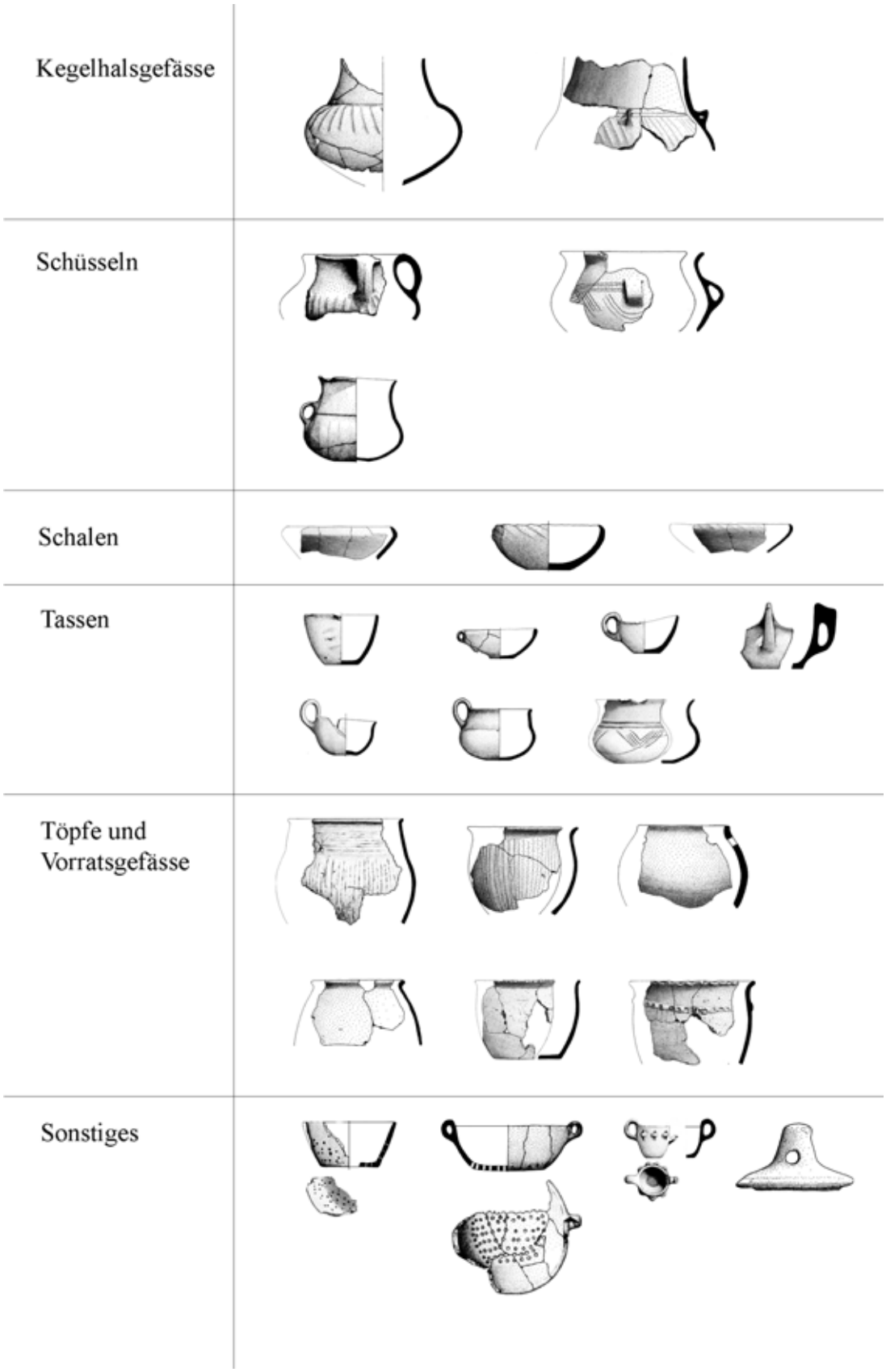

Abb. 11. Auswahl aus den charakteristischen Keramikformen auf der Fundstelle bei Ordacsehi (ohne Maßstab)

Deckel
Das Exemplar ist treppenartig ausgeführt, mitten sitzt ein dicker, runder und hochgezogener Griffbuckel mit einer breiten Durchlochung. Der Buckel ist abgedrückt. Die untere Seite ist am Rand kantenartig ausgebildet. Typs B1.68. Als Abfall kam er aus einer Voratgrube vor.

Feuerbock
Unser Exemplar ist eigentlich eine unverzierte Grundform des urnenfelderzeitlichen Typs B1.68. Als Abfall kam er aus einer vorratsgrube vor.[68]

Datierung
Anhand der Keramikformen, bzw. der Verzierungsmotive lässt sich diese kleinere, weilerartige Ansiedlung bei Ordacsehi-Bugaszeg eher schon auf einen jüngeren Abschnitt der UK datieren, der vermutlich mit der Stufe von HaB1 (d.h. etwa SB IIc nach Sperber) gleichgesetzt werden kann.

Zur Stellung der Ansiedlungen bei Tikos und Ordacsehi in dem urnenfelderzeitlichen Siedlungswesen am südlichen Balatonufer

Mit einem raschen Zuwachs in der zweiten Hälfte der frühen und mit einem allmählichen Ausklang von der mittleren Phase fiel die Blütezeit der urnenfelderzeitlichen Besiedlung am Balaton etwa auf deren ältere Phase, in der sich die Siedlungen verschiedenen Typs[69] vermutlich zu einer ziemlich dicht bewohnten Siedlungskammer ordneten.

Die kartierten Fundstellen zeigen wirklich eine augenfällig dicht bewohnte Mikroregion sowohl am Kleinen Balaton als auch am Südufer des Balatons während des angesprochenen Zeitabschnittes. Die Schlüsselposition der beiden Regionen hing mit den natürlichen Bedingungen zusammen, indem sie ihre, sowohl die Verkehrs- und Verpflegensmöglichkeiten des Sees als auch das Agrarpotenzial ihrer Umgebung[70] zugleich ausnutzende Siedlungskammer unterhalten konnten.

In Anbetracht der Siedlungsorganisation weisen die beiden Mikroregionen einen eigenartigen Charakter auf. Während sich die mit Graben gegliederte und auch umgebene Siedlung von Hídvégpuszta[71] auf einer niedrigen Anhöhe an der Überfahrtstelle bei Balatonmagyaród– großflächig ausdehnte, finden wir die teils auch mit Graben abgegrenzte Siedlung mit einer intensiven handwerklichen Aktivität von Borkombinát[72] auf dem Abhang eines Ausläufers des mit meridionalen Tälern gespalteten Hügellandes bei Balatonboglár. Die letztere brachte Szilvia Honti mit der Schanzenbefestigung auf dem Várhegy[73] in Balatonboglár etwa 1 km davon entfernt in Beziehung, die zwar vorläufig unerforscht ist, hat aber keine bekannte Parallele am Kleinen Balaton. Wenn wir nun die Ansiedlung bei Tikos mit der bei Ordacsehi vergleichen, können wir feststellen, dass die beiden weder strukturell noch wirtschaftlich nicht auf der gleichen Stufe standen und auch hierarchisch nicht gleichrangig sein durften. Die bei Tikos stand mit ihrer Ausdehnung, auf Wohn- und Aktivitätszonen geteilte innere Struktur wohl den ersterwähnten näher und aufgrund ihres vielfältigen Fundmaterials durfte sie sogar weiträumige Handelsbeziehungen besitzen. Als anderer bestimmender Faktor in dieser Mikroregion soll die Umgebung von Vörs noch erwähnt werden,[74] wo ein schon über 100 Gräber zählendes Gräberfeld neben Siedlungsbefunde deren

[68] *Nagy 1979* 32; *Polgár 2008* 167–169.
[69] *Polgár 2011* 109–118.
[70] *Sümegi et al. 2007* 247; *Sümegi et al. 2011* 557.
[71] *Horváth 1994* 228.
[72] *Honti – Németh – Siklósi 2007* 183, Abb. 171.
[73] *Honti – Németh – Siklósi 2007* 174.
[74] *Honti – Horváth 1996* 73; *Honti 2009* 143–144.

dichte älterurnenfelderzeitliche Besiedeltheit bezeugt.[75] Zwar sind die Siedlungsverhältnisse nicht soweit eindeutig, ich bin der Meinung, dass es den in der Umgebung von Ordacsehi und Balatonboglár erforschten übrigen urnenfelderzeitlichen Siedlungen weniger oder sogar gar keine wirtschaftliche Selbständigkeit zuzuschreiben ist, wobei eine stärker gegliederte Hierarchie – eventuell mit der Schanzenbefestigung auf dem Várhegy an der Spitze – hier wirklich bestehen konnte. Ob die kleine Ansiedlung bei Ordacsehi aber in die untere Stufe dieses Systems passt oder zu jener Zeit ist das schon zerfallen, bleibt doch eine offene Frage, sie datiert sich ja später als die anderen im besprochenen Gebiet, die schon während der Phase HaA1 enden. Zudem ist die chronologische Einordnung der Urnenfeldersiedlung von Kistöltés[76] bei Ordacsehi, die auf einer Anhöhe direkt am Sumpfgebiet lag, noch auch nicht eindeutig geklärt, was sogar auch deshalb wichtig wäre, weil sie vermutlich auch eine Übergangsphase zur Hallstattperiode schon belegt. Wenn wir es aber in Betracht ziehen, dass sich die beiden Dörfer bei Ordacsehi in der Mündung eines meridionalen Tals befinden, und Routen nicht nur um sondern sicherlich auch durch das Gewässer führten, so können wir vermuten, dass die schon an einer nord-südlich verlaufende Verkehrslinie der jüngeren Urnenfelderphasen angeknüpft waren, wobei die befestigte Höhensiedlung auf dem Nagyláz-hegy bei Várvörgy[77] am Tapolcaer Becken – wenigstens eine Weile – Vermittlerrolle von Balaton-Hochland her ausfüllen sollte. Es muss allerdings angemerkt werden, dass die HaA2–HaB1 Zeitstellung der letzteren neuen Fragestellungen in der Problematik des spätbronzezeitlichen Siedlungswesens im Balatonumland erweckt.

Nach der älterurnenfelderzeitlichen Blütezeit ist also eine radikale Umwandlung im Siedlungsnetz auch am Balaton zu beobachten, dessen Gründe aber nicht eindeutig sind. Einerseits ist ein Zusammenbruch wegen feindlichen Einbruchs von außen archäologisch eigentlich nicht belegt, andererseits widersprechen die angeführten Beispiele dem drastischen Anstieg der Wasserhöhe, zumindest bis in die späte HaB Phase, ebenfalls. Hier muss besonders betont werden, dass wir praktisch keine genauen Daten darüber besitzen, wie und wann die Überflutung in Hinsicht der Siedlungsplätze während der jüngeren Phasen der Urnenfelderzeit schon wirklich bedrohend geworden ist.[78] Interessant kann der Vorkommensort des Hortfundes bei Balatonfenyves zum Beispiel sein, den Amália Mozsolics auf ihre HaB1 fallende Hajdúböszörmény-Phase setzte. Nach der Beschreibung wurde er nämlich bei Pflügen auf einer Sandbank gefunden, die genaue Stelle blieb unbekannt, aber diese Sandbank erstreckt sich eigentlich als eine niedrig liegende natürliche Bildung zwischen dem offenen Wasser und dem davon abgeschlossenen wässrigen, einst sumpfigen Gebiet, die vor den Regelungen bereits bei einem minimalen Wasserhöhenanstieg überflutet sein konnte. Da die Ausdehnung der bebaubaren Ackerländer und das Holzbedürfnis für Hausbauen und nicht zuletzt für Metallbearbeitung allerdings eine vermutliche Waldlichtung von großen Maße zur Folge gehabt hatten, können wir eher an das Absinken der Produktivität denken, was die hier lebende großzählige Urnenfelderbevölkerung offensichtlich zum Umgestalten ihres ökonomischen und zugleich gesellschaftlichen Aufbaus, bzw. zum Teil vielleicht auch zum Abwandern zwang.

[75] *Honti – Horváth 1996* 67 zum Nachdenken bringt es einen auch, dass der Hügelgrab der späten Hügelgräberzeit bei Sávoly ebenfalls hier angelegt worden war und nach mündlicher Mitteilung der Ausgräberin können weitere Hügelgräber in der Nähe vermutet werden.

[76] Ordacsehi-Kis-töltés, Ausgrabungsbericht von Gabriella Kulcsár: *Honti et al. 2002* 26, 35.

[77] *Müller 2006* 5–26.

[78] Die Problematik hat der Autor mit dem Titel *Konnte man es wirklich nicht mehr hier aushalten? – Veränderungen im Siedlungswesen am Balaton während der jüngeren und späten Urnenfelderzeit* an der internationalen Konferenz in Zagreb 2013 eingehend vorgetragen, im Erscheinen in: D. Ložnjak Dizdar (Hrsg.): Proceedings of the Conference „Late Urnfield Culture between the Eastern Alps and the Danube" vom 7–8. November 2013 Zagreb.

LITERATURVERZEICHNIS

Bencze 2004 — G. Bencze: Kísérlet az Ormándi-berek lecsapolására (1814–1821) [Versuch zur Entwässerung der Ormánderen Haine]. ZalaiMúz 13 (2004) 207–217.

Bendefy – Nagy 1969 — L. Bendefy – I. V. Nagy: A Balaton évszázados partvonalváltozásai [Die jahrhundertelangen Änderungen der Küstenlinie des Plattensee]. Budapest 1969.

Bondár – Honti – Kiss 2000 — M. Bondár – Sz. Honti – V. Kiss: A tervezett M7-es autópálya Somogy megyei szakaszának megelőző régészeti feltárása (1992 – 1999). Előzetes jelentés 1 (The preceding archaeological excavation of the planing m7 highway in County Somogy (1992 – 1999). Preliminary report 1). SMK 14 (2000) 94–114.

Carancini 1975 — G. L. Carancini: Die Nadeln in Italien. Gli spilloni nell'Italia continentale. PBF 13/2. München 1975.

Dövényi 2010 — Z. Dövényi (Hrsg.): Magyarország kistájainak katasztere [Kataster der Kleinlandschaften in Ungarn]. Budapest 2010.

Dular – Švala – Tecco Hvala 2002 — J. Dular – I. Švala – S. Tecco Hvala: Bronzezeitliche Siedlung Oloris bei Dolnji Lakoš. Opera Instituti archaeologici Slovaniae 5. Ljubljana 2002.

Eberschweiler – Riethmann – Ruoff 2007 — B. Eberschweiler – P. Riethmann – U. Ruoff: Das spätbronzezeitliche Dorf von Greifensee-Böschen. Monographien der Kantonarchäologie Zürich 38/1. Zürich 2007.

Figler 1996 — A. Figler: Adatok Győr környékének bronzkorához (Angaben zur Bronzezeit in der Umgebung von Győr). Acta Musei Papensis 6 (1996) 7–29.

Furmanek – Veliačik – Vladár 1999 — V. Furmanek – L. Veliačik – J. Vladár: Die Bronzezeit im slowakischen Raum. Prähistorische Archäologie in Südosteuropa 15. Rahden – Westfalen 1999.

Grynaeus 1999 — A. Grynaeus: A Mosonmagyaróvár-Német dűlőben feltárt bronzkori kút dendrokronológiai vizsgálata (Dendrochronologische Untersuchung des am Fundort Mosonmagyaróvár Német-dűlő freigelegten bronzezeitlichen Brunnens). Savaria 24/3 (1999) 73–81.

Holste 1936 — F. Holste: Der Bronzefund von Winklsaß, B.-A. Mallersdorf, Niederbayern. Bayerische Vorgeschichtsblätter 13 (1936) 1–23.

Holzhauser – Magny – Zumbu 2005 — H. Holzhauser – M. Magny – H. J. Zumbu: Glacier and Lake-Level Variations in West-Central Europe over the Last 3500 Years. The Holocene 15/6 (2005) 789–801.

Honti 1987 — Sz. Honti: Somogy megye későbronzkori története (Die spätbronzezeitliche Geschichte des Komitats Somogy). Dissertation, Manuskript. Budapest 1987.

Honti 1993 — Sz. Honti: Angaben zur Geschichte der Urnenfelder-Kultur in Südwest-Transdanubien, in: J. Pavúk (Hrsg.): Actes du XIIe Congrès International des Sciences Préhistoriques et Protohistoriques. Bratislava 1993, 147–155.

Honti 2009 — Sz. Honti: Balatonszentgyörgy, Battyáni-disznólegelő. RKM 2008 (2009) 143–144.

Honti – Németh – Siklósi 2007 — Sz. Honti – P. G. Németh – Zs. Siklósi: Balatonboglár-Berekre-dűlő és Balatonboglár-Borkombinát, in: K. Belényesy – Sz. Honti – V. Kiss (Hrsg.): Gördülő idő. Régészeti feltárások az M7-es autópálya Somogy megyei szakaszán Zamárdi és Ordacsehi között. Kaposvár – Budapest 2007, 167–183.

Honti – Horváth 1996 — Sz. Honti – L. Horváth: Késő bronzkor [Die Spätbronzezeit], in: L. Költő – L. Vándor (Hrsg.): Évezredek üzenete a láp világából (Régészeti kutatások a Kis-Balaton területén 1979– 1992). Kaposvár – Zalaegerszeg 1996.

Honti et al. 2002 — Sz. Honti – K. Belényesi – Zs. Gallina – V. Kiss – G. Kulcsár – T. Marton – Á. Nagy – P. G. Németh – K. Oross – K. Sebők – K. Somogyi: A tervezett M7-es autópálya Somogy megyei szakaszán 2000 – 2001-ben végzett megelőző régészeti feltárások. Előzetes jelentés II (Rescue Excavations in 2000 – 2001 on the Planned Route of the M7 Motorway in Somogy County. Preliminary Report II). SMK 15 (2002) 3–36.

Honti et al. 2004 Sz. Honti – K. Belényesi – Sz. Fábián – Zs. Gallina – Á. D. Hajdú – B. Hansel – T. Horváth – V. Kiss – I. Koós – T. Marton – P. G. Németh – K. Oross – A. Osztás – P. Polgár – J. P-Szeőke – G. Serlegi – Zs. Siklósi – A. Sófalvi – G. Virágos: A tervezett M7-es autópálya Somogy megyei szakaszának megelőző régészeti feltárása (2002–2003). Előzetes jelentés III (Preliminary Report III. The preceding archaeological excavations (2002–2003) of the M7 highway in Somogy County). SMK 16 (2004) 3–70.

Honti et al. 2013 Sz. Honti – Á. D. Hajdú – L. Költő – I. Molnár – P. G. Németh – C. Sipos: Régészeti feltárások Somogy megyében 2007–2011 között (The article comprises the short description of excavations in Somogy county between 2007–2011). KRMK 1 (2013) 107–136.

Horváth 1994 L. Horváth: Adatok Délnyugat-Dunántúl későbronzkorának történetéhez (Angaben zur Geschichte der Spätbronzezeit in SW-Transdanubien). ZalaiMúz 5 (1994) 219–235.

Horváth et al. 2001 L. A. Horváth – G. Szilas – A. Endrődi – M. A. Horváth: Őskori telepek és sírok feltárása Dunakeszi határában (Excavation of prehistoric settlements and graves in Dunakeszi). Aquincumi füzetek 7 (2001) 115–127.

Horváth et al. 2003 L. A. Horváth – G. Szilas – A. Endrődi – M. A. Horváth: Előzetes jelentés a Dunakeszi, Székes-dűlőn végzett őskori telepásatásról (Vorbericht über die Ausgrabung der urzeitlichen Siedlungen von Dunakeszi, Székes-dűlő). RKM 2000 (2003) 5–17.

Kemenczei 1984 T. Kemenczei: Die Spätbronzezeit Nordostungarns. ArchHung 51. Budapest 1984.

Kimmig 1992 W. Kimmig: Die „Wasserburg Buchau" eine spätbronzezeitliche Siedlung. Materialhefte zur Vor- und Frühgeschichte in Baden-Württemberg 16. Stuttgart 1992.

Kiss 2011 V. Kiss: Settlement of the Tumulus culture at Ordacsehi, in: C. Gutjahr – G. Tiefengraber (Hrsg.): Beiträge zur Mittel- und Spätbronzezeit sowie zur Urnenfelderzeit am Rande der Südostalpen. Akten des 1. Wildoner Fachgespräches vom 25. bis 26. Juni 2009 in Wildon/ Steiermark (Österreich). Internationale Archäologie – Arbeitsgemeinschaft, Symposium, Tagung, Kongress Band 15. Rahden – Westfalen 2011, 101–108.

Kiss – Kulcsár 2007 V. Kiss – G. Kulcsár: Bronze Age settlement patterns in the Little Balaton region and the Balaton Uplands, in: Cs. Zatykó – I. Juhász – P. Sümegi (eds): Environmental Archaeology in Transdanubia. VAH 20. Budapest 2007, 105–116.

Kőszegi 1988 F. Kőszegi: A Dunántúl története a későbronzkorban (The History of Transdanubia during the Late Bronze Age). BTM Scientific Workshop 1. Budapest 1988.

Kytlicová 1991 O. Kytlicová: Die Bronzegefäße in Böhmen. PBF 2/12. Stuttgart 1991.

Mozsolics 1985 A. Mozsolics: Bronzefunde aus Ungarn. Depotfundhorizonte von Aranyos, Kurd und Gyermely. Budapest 1985.

Müller 1997 U. Müller: Die Gebäude der späten Bronze- und der Urnenfelderkultur im erweiterten Mitteleuropa, in: H. Beck - H. Steuer (Hrsg.): Haus und Hof in ur- frühgeschichtlicher Zeit. Bericht über zwei Kolloquien der Komission für die Altertumskunde Mittel- und Nordeuropas vom 24. bis 26. Mai 1990 und 20. bis 22. November 1991 (34. und 35. Arbeitstagung): Gedenkschrift für Herbert Jankuhn. Abhandlungen der Akademie der Wissenschaften in Göttingen, Phil-hist. Klasse Dritte Folge 218. Göttingen 1997, 162–192.

Müller 2006 R. Müller: Késő bronzkori magaslati település kutatása Várvölgy, Nagyláz-hegyen (2003–2006) (Investigation of a hill settlement from the Late Bronze Age at Várvölgy, Nagyláz-hegy (2003–2006)). RKM 2006 (2007) 5–26.

Müller-Karpe 1959 H. Müller-Karpe: Beiträge zur Chronologie der Urnenfelderzeit nördlich und südlich der Alpen. Römisch-Germanische Forschungen 22. Berlin 1959.

Nagy 1979 L. Nagy: A tüzikutya és a holdidol kérdése magyarországi leletek alapján (Zur Feuerbock- und Mondidolfrage aufgrund der ungarländischen Funde). VMMK 14 (1979) 19–73.

Nekvasil – Podborský 1991 J. Nekvasil – V. Podborský: Die Bronzegefäße in Böhmen. PBF 2/13. Stuttgart 1991.

Novotná 1980 M. Novotná: Die Nadeln in der Slowakei. PBF 13/6. München 1980.

Novotná 1991 M. Novotná: Die Bronzegefäße in der Slowakei. PBF 2/11. Stuttgart 1991.

Nussbaumer et al. 2011 S. U. Nussbaumer – F. Steinhilber – M. Trachsel – P: Breitenmoser – J. Beer – A. Blass – M. Grosjean – A. Hafner – H. Holzhauser – H. Wanner – H. J. Zumbühl: Alpine Climate during the Holocene: a Comparison between records of glaciers, lake sediments and solar activity. Journal of Quaternary Science 26/7 (2011) 703–713.

Padisák – Reynolds 2003 J. Padisák – C. S. Reynolds: Shallow lakes: the absolute, the relative, the functional and the pragmatic. Hydrobiologia 506–509 (2003) 1–11.

Patay 1990 P. Patay: Die Bronzegefäße in Ungarn. PBF 2/10. München 1990.

Patek 1968 E. Patek: Die Urnenfelderkultur in Transdanubien. ArchHung 44. Budapest 1968.

Polgár 2008 P. Polgár: Újabb adatok a tüzikutyák magyarországi elterjedéséhez a késő bronzkorban. SMK 18 (2008) 167–169.

Polgár 2011 P. Polgár: Siedlungsforschungen der Urnenfelderkultur in Südtransdanubien, in: C. Gutjahr – G. Tiefengraber (Hrsg.): Beiträge zur Mittel- und Spätbronzezeit sowie zur Urnenfelderzeit am Rande der Südostalpen. Akten des 1. Wildoner Fachgespräches vom 25. bis 26. Juni 2009 in Wildon/ Steiermark (Österreich). Internationale Archäologie – Arbeitsgemeinschaft, Symposium, Tagung, Kongress Band 15. Rahden – Westfalen 2011, 109–118.

Prüssing 1991 G. Prüssing: Die Bronzegefäße in Österreich. PBF 2/5. Stuttgart 1991.

Raczky 2007 P. Raczky: Az autópálya-régészet helyzete Magyarországon. Módszerek és tapasztalatok az 1990 és 2007 közötti munkálatok alapján (The state of „motorway archaeology" in Hungary. Methods and experience based on the work carried out between 1990 and 2007). ArchÉrt 132 (2007) 5–36.

Říhovský 1979 J. Říhovský: Die Nadeln in Mähren und im Ostalpengebiet. PBF 13/5. München 1979.

Říhovský 1983 J. Říhovský: Die Nadeln in Westungarn I. PBF 13/10. München 1983.

Říhovský 1996 J. Říhovský: Die Lanzen-, Speer- und Pfeilspitzen in Mähren. PBF 5/2. Stuttgart 1996.

Sági 1968 K. Sági: A Balaton vízállástendenciái 1863-ig a történeti és kartográfiai adatok tükrében (Water-level Tendencies of Lake Balaton until 1863 based on Historical and Chartographical Data). VMMK 7 (1968) 441–468.

Seifert et al. 1996 M. Seifert – S. Jacomet – S. Karg – J. Schibler – B. Kaufmann: Die spätbronzezeitlichen Ufersiedlungen von Zug-Sumpf. Zug 1996.

Sielmann 1971 B. Sielmann: Der Einfluss der Umwelt auf die neolithische Besiedlung Südwestdeutschlands unter besonderer Berücksichtigung der Verhältnisse am nördlichen Oberrhein. APA 2 (1971) 65–197.

Somogyi 2002 K. Somogyi: Előzetes jelentés a Kaposvár 61-es főút elkerülő szakaszának 9–10. és 36. sz. lelőhelyén 2000–2001-ben végzett megelőző régésztei feltárásról (Preliminary report of the preceding excavation of 2000–2001 (sites Nr. 9–10 and 36) on the encircling section of Road Nr. 61. around Kaposvár). SMK 15 (2002) 245–249.

Sperber 1987 L. Sperber: Untersuchungen zur Chronologie der Urnenfelderzeit im nördlichen Alpenvorland von der Schweiz bis Oberösterreich. Antiquitas 3. Bonn 1987.

Sümegi et al. 2004 P. Sümegi – E. Bodor – I. Juhász – Z. Hunyadfalvy – S. Molnár – K. Herbich – G. Szegvári – M. Imre – G. Tímár: A balatoni déli autópálya régészeti lelőhelyeinek környezettörténeti feldolgozása (Environmental history investigation on the archaeological sites of the south motorway at Balaton), in: G. Ilon (ed.): ΜΩΜΟΣ III. Őskoros kutatók III. összejövetelének konferenciakötete: Halottkultusz és temetkezés, Szombathely – Bozsok 2002. október 7–9. Szombathely 2004, 399–420.

Sümegi et al. 2007 P. Sümegi – E. Bodor – I. Juhász – Z. Hunyadfalvi – K. Herbrich – G. Molnár – G. Tímár: A Balaton déli partán feltárt régészeti lelőhelyek környezettörténeti feldolgozása [Environmental history of the archaeological sites along the southern shore of Lake Balaton], in: K. Belényesy – Sz. Honti – V. Kiss (Hrsg.): Gördülő idő. Régészeti feltárások az M7-es autópálya Somogy megyei szakaszán Zamárdi és Ordacsehi között. Kaposvár – Budapest 2007.

Sümegi et al. 2011 P. Sümegi – O. Heinrich-Tamáska – T. Törőcsik – G. Jakab – P. Pomázi – P. Majkut – G. D. Páll – G. Persaits – E. Bodor: Reconstruction of the environmental history of Keszthely- Fenékpuszta, in: O. Heinrich-Tamáska (Hrsg.): Keszthely-Fenékpuszta im Kontext spätantiker Kontinuitätsforschung zwischen Noricum und Moesia. Castellum Pannonicum Pelsonense 2. Budapest – Leipzig – Keszthely – Rahden – Westfalen 2011, 541–572.

Szabó 2005 G. V. Szabó: Polgár határában előkerült késő bronzkori kút feltárása és rekonstrukciója (Freilegung und Rekonstruktion eines Brunnens in der Gemarkung von Polgár). Ősrégészeti Levelek 7 (2005) 146–165.

Szilas 2002 G. Szilas: Die Freilegung eines bronzezeitlichen Brunnens speziellen Typs in Dunakeszi. BudRég 36 (2002) 291–311.

Szőke – Vándor 1987 B. M. Szőke – L. Vándor: Kísérlet egy táji egység településtörténeti rekonstrukciójára (A Kisbalaton programot kísérő régészeti leletmentő ásatások (1980–1985) tapasztalatai (Versuch einer siedlungsgeschichtlichen Rekonstruktion einer Region (Erfahrungen aus den das Programm „Klein-Balaton" begleitenden archäologischen Rettungsgrabungen 1980–1985). Zalai Gyűjtemény 26 (1987) 83–100.

Trogmayer 1975 O. Trogmayer: Das bronzezeitliche Gräberfeld bei Tápé. FontArchHung Budapest 1975.

Vasić 2003 R. Vasić: Die Nadeln im Zentralbalkan. PBF 13/11. München 2003.

Veliačik 1983 l. Veliačik: Die Lusitzer Kultur in der Slowakei. Studia Archaeologica Slovaca 2. Nitra 1983.

Wels-Weyrauch 1991 U. Wels-Weyrauch: Die Anhänger in Südbayern. PBF 11/5. Stuttgart 1991.

Zlinszky 2011 A. Zlinszky: A Balaton és a környező mocsarak történelmi rekonstrukciója térinformatikai módszerekkel [Historische Rekonstruktion des Balatons und der umliegenden Sümpfe mit geoinformatischen Methoden]. Ecology of Lake Balaton. A Balaton ökológiája. MTA BLKI Elektonrikus folyóirata 1 (2011) 49–60.

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ANDREA VADAY

THE LANGOBARD CEMETERY AT MÉNFŐCSANAK

Keywords: langobard, biritual cemetery, burial costume, grave robbing

András Uzsoki uncovered several Bronze Age, Celtic and Roman-period graves at Ménfőcsanak near Győr in the 1960s *(fig. 1. 1a)*.[1] Following the 1990 transition, several large-scale salvage excavations were conducted near the site of these burials: on the planned site of the northern exit at Ménfőcsanak along the Győr bypass section of the M1 Motorway in 1990–91,[2] and along Road 83 leading to the motorway exit along the Ménfőcsanak bypass section in 1993–94.[3] In 1995, new investigations were begun in an area adjoining Road 83, preceding the construction of a shopping centre.[4] The investigated area was divided into two excavation areas by Eszter T. Szőnyi, Péter Tomka and Ildikó Egry.[5]

The humus was removed in several phases over the extensive territory and longitudinal humus dumps were created.[6] The author's excavation was restricted to the narrow, long section between two humus dumps, where further cremation burials of the Middle Bronze Age, settlement features of the La Tène and Roman period, and twenty-three inhumation and three cremation burials of the Langobard cemetery were uncovered, alongside a trench from World War 2, which often cut the archaeological features *(fig. 1. 1b)*.

Péter Tomka uncovered an additional four graves[7] under the humus dump in the northern and northwestern part of the investigated area in 1997,[8] completing thereby the excavation of the Ménfőcsanak cemetery *(fig. 1. 2)*.

The archaeozoological sample from the cemetery section investigated in 1995 was examined and assessed by László Bartosiewicz,[9] while the animal bones from Grave 946, uncovered later, were identified by Péter Tomka.

Balázs Gusztáv Mende, who had visited the excavation, presented a report on the anthropological remains in the Archaeological Institute of the Hungarian Academy of Sciences.[10] The assessment of the finds took place in Győr and in the Archaeological Institute. In 2012, DNA samples were taken from sixty-four burials uncovered in the cemeteries investigated at Ménfőcsanak, Gyirmót and Fertőszentmiklós, which were to be examined

[1] *Uzsoki 1968; Uzsoki 1969; Uzsoki 1969a; Uzsoki 1970; Uzsoki 1970a; Uzsoki 1970b; Uzsoki 1987.*

[2] Excavation of András Figler, Erzsébet Jerem, Gabriella Németh, Miklós Takács, Eszter T. Szőnyi and Péter Tomka.

[3] Remains of a Copper Age settlement, the settlement and the biritual cemetery of the Middle Bronze Age Transdanubian Encrusted Pottery culture, Celtic settlement features and graves, an early and late Roman settlement, an Avar settlement and two medieval villages were uncovered during the excavations directed by the present author. A Langobard cemetery was investigated by Eszter Szőnyi and Péter Tomka in the next section of the road towards Gyirmót. For the preliminary report, see *Tomka 2005.*

[4] *Egry et al. 1997.*

[5] The investigation of the section adjoining Road 83 was directed by Ildikó Egry, Eszter T. Szőnyi and Péter Tomka, while the area lying closer to Ménfőcsanak by the present author.

[6] Regarding documentation, the creation of humus dumps in the investigated area was not a good solution because very often, it was difficult to correlate the features and ditches extending across both excavation areas.

[7] Actually, there were five graves. See the description of Grave 945 below.

[8] *Tomka 2005* 248. I would here like to thank my colleague Péter Tomka for kindly allowing the publication of the graves.

[9] I would here like to express my gratitude for his work, see: László Bartosiewicz this volume.

[10] See: Balázs Gusztáv Mende this volume.

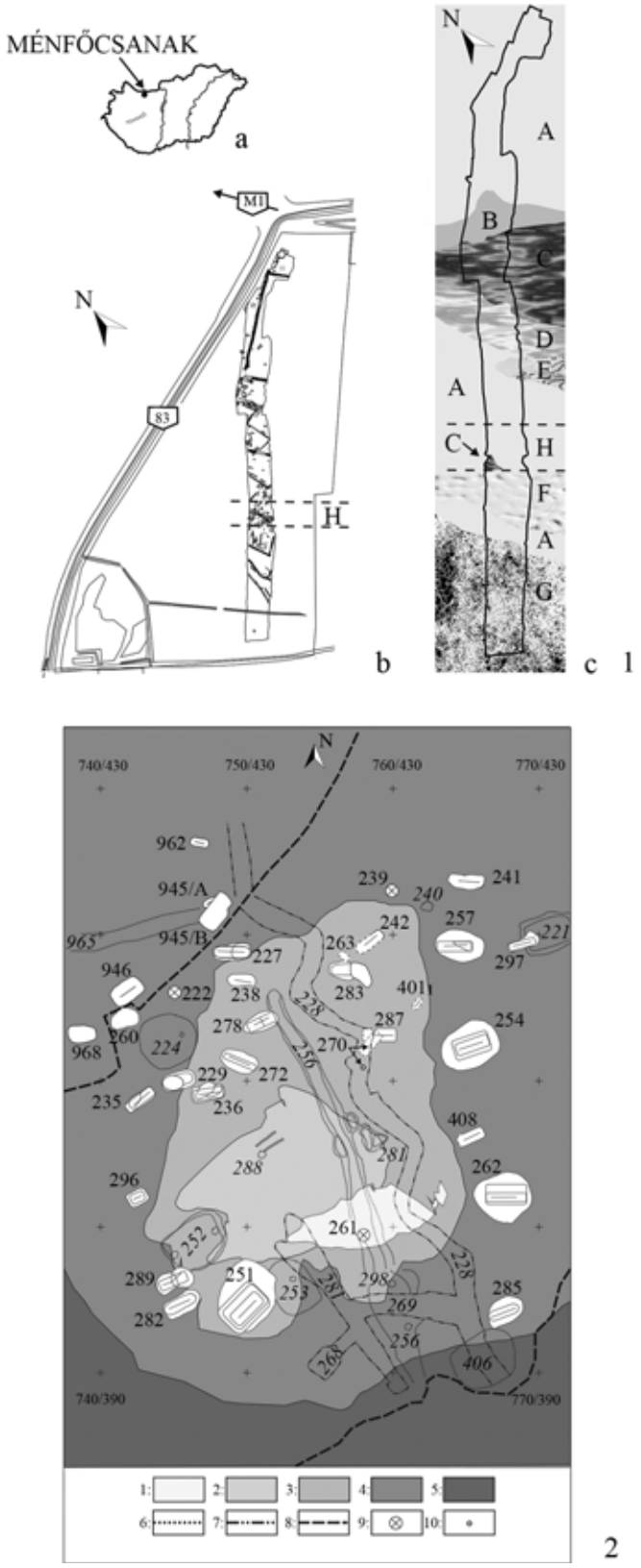


fig. 1. 1 a: Location of the site; b: location of the excavated area between the humus dumps; c: soil types: A: yellow sand, B: grey alluvial soil, C: grey, clayey alluvial soil with black inwash, D: grey clayey alluvial soil mixed with yellow sand, E: clayey sand mixed with loam, F: brown pebbly alluvial debris, G: yellow gravel, H: location of the Langobard cemetery; 2. Plan of the cemetery. Key: 1. 1: 97.5 m, 2: 97 m, 3: 96 m, 4: 95 m, 5: 94.5 m, 6: earlier graves, 7: military trench, 8: edge of the humus dump, 9: cremation burial, 10: skull

as part of an international research project, "Tracing Langobard Migration through DNA Analysis". However, these samples were not analysed after all.[11]

The Győr museum lacked the conservation and restoration capacity as well as the necessary funds for the conservation of the entire material.[12] The greater part of the finds was drawn after they had been lifted from the graves. A few artefacts were conserved and restored for an exhibition in the Xantus János Museum of Győr in 2008. A preliminary report of the Langobard cemetery, accompanied by a few colour photos, can be found in the guide to the exhibition.[13]

Technical remarks

During the excavation of the area along Road 83, we found several Middle Bronze Age burials, which had no soil marks and neither could the grave pit itself be clearly distinguished from the surrounding soil. We therefore proceeded downward in control trenches, in which we found additional graves. We used the same procedure in the case of the Langobard graves; the loose sandy soil covering the hill sparsely covered with vegetation in the sixth century was blown away by wind and eroded by rain, creating seemingly untouched areas on both the gentler and steeper slopes.

The excavated features were numbered sequentially; we did not number the graves separately. The grave index specified in the description of the graves[14] enables the objective comparison of the graves with different dimensions and their ordering into a metric series as well as the determination of their form.[15]

An additional index is used in the case of the deeper, collapsed graves and the looted burials: this index was calculated from the dimensions of the grave floor or from the soil mark once the outline of the grave pit could be accurately determined. I used the latter index in the analysis.

The longitudinal axis of the grave pit and/or the robber's pit and the orientation of the deceased, which occasionally diverged slightly, are specified in degrees east of north.

The altitudes refer to the current surface of the hill in meters above Baltic seal level. In the following, only the meter figures are specified.

Only statistically typical and characteristic population numbers can be used in a relative frequency analysis employed in the comparison of sites. The lower these figures, the more uncertain the percentage comparison of the data. This must be borne in mind in the case of the completely excavated Ménfőcsanak cemetery, the relative frequencies and the percentage distribution figures owing to the low number of burials. A comparison of relative frequencies is virtually meaningless in the case of partially excavated burial grounds because the total number of the one-time graves is not known.[16]

In the following, I shall quote the data providing the largest amount of information about the site; also, when citing the parallels to the finds and the phenomena generally typical for Langobard cemeteries, it is not my goal to quote all the known analogies.

[11] Tivadar Vida's kind personal communication.

[12] I could not catalogue the finds taken to the Xantus János Museum in Győr owing to their condition.

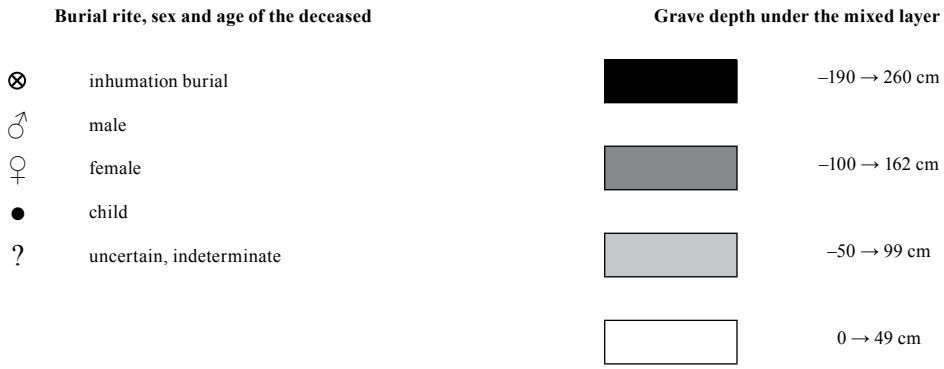
[13] *Vaday 2008*. The grave plan published in the introduction to the guide was made by Andrea Nagy, the photos were made by Attila Molnár.

[14] The grave index is the quotient of the grave's length and width. If the width differed at the head and the leg end, I used the mean value.

[15] The grave index of square or round graves is 1; the higher the grave index, the more narrow rectangular the grave. This also means that graves with different lengths can have the same grave index.

[16] This is why I refrain from quoting the percentage figures appearing in the archaeological literature.

Key to the symbols used in the analysis and the illustrations



The environment

The ploughed, disturbed soil layers were removed mechanically before the excavation. No archaeological finds were recovered from these layers. After the excavation was begun, the scatter of Celtic and Roman finds indicated the density of archaeological features covering the site following the removal of the mixed upper layer that still covered the area in some spots.

The soils formed distinct zones, corresponding to the shallower and deeper valleys running perpendicular to the bed of the Öreg-Rába between the hill ridges *(fig. 1. 1c)*.

A lower-lying sandy ridge lay at the northeastern end of the investigated area, located closer to the exit of the M1 Motorway. This was followed by a north–northwest to south–southeast running valley in a south–southwest direction. The sandy natural subsoil was overlain by a greyish, clayey alluvial soil, covered with black, clayey inwash and sediments in the lower-lying sections. This was followed by a grey, clayey alluvial soil mixed with yellow sand with the occasional black inwash at the edge of the ridge. The Langobard cemetery lay on the next ridge covered with yellow sand *(fig. 1. 1c. H)*. The north–northeastern and south–southwestern ends of the cemetery extended into a smaller valley, whose sandy natural subsoil was covered with an alluvial clay layer with black inwash. The brown, pebbly, alluvial fill at the base of the south–southwestern slope continued in another ridge. A more compact, yellow gravelly soil was noted in the south–southwestern quarter of the investigated area.

The valley with alluvial soil in the area's northeastern third was mostly covered with water during the excavation, in part owing to rainfall, and in part owing to the high water-table.[17] The more compact gravelly and the looser sandy ridges overlooking the surrounding area differed markedly both regarding their colour and their texture from the soil in the valley, mixed with alluvial sediment deposited by intermittent watercourses.[18]

The Langobard cemetery lay on the slope of the higher sandy ridge covered with ploughed humus mixed with sand of varying thickness. The burial ground covered an approximately 890 m^2 large area. The ridge rose from 94.5 meters to 97.5 meters *(fig. 1. 2)*.

The higher-lying parts of the hill were continuously eroded from the sixth century onward to the present; the soil was washed down in all directions by rainfall. The northern slope is gentler, the others were slightly steeper and stepped along some sections. At the time of the excavation, the higher-lying parts of the hill were covered with a 50–60 cm thick humus mixed with sand, while this mixed humus cover was over 90 cm at the foot of the slopes. The skull lay immediately underneath the ploughed humus in Grave 408, a shallow grave on the eastern slope, while a half metre thick washed-down sand mixed with humus

[17] The excavation was conducted under difficult circumstances because of the rising ground-water despite continuous pumping.

[18] See *Nagy 1999* for a comprehensive overview of the area's soil conditions.

had accumulated secondarily in the region of the feet, lying towards the base of the slope.[19] The humus layer was thinned by erosion and thus ploughing also disturbed the upper part of the natural subsoil, and a part of the graves lay under the ploughzone, in the level of the subsoil. A few settlement features from earlier ages lay scattered over the highest part of the hill: only a smaller section of Feature 288, a shallow ditch, could be made out, while Feature 256, a longer and deeper ditch, ran along the western side of the military trench. The 10–20 cm thick undisturbed layer covering the Celtic and Roman features could be observed after shovel-shining.

The ploughed soil at the foot of the slope was darker and clayier than on the top of the hill because ploughing had disturbed the darker, more compact alluvial soil. The alluvial soil was later covered by humus.

The Langobard burials lay on the hill slope; only Grave 261, an inhumation burial, lay on the highest part. A larger flood inundated the hill slope to a height of 96 metres. This flood occurred after the sixth century because there was no trace of alluvial soil in some burials, while its presence was attested in the robber's pit of several other graves. The darker floodwater did not seep through the loose, sandy sides of a few graves lying some 1–2 meters from the hill section lying above 96 meters, suggesting that the soil had been frozen and that the floodwater had receded swiftly, meaning that the flood had occurred after the winter snow had melted, in late winter or early spring.

Owing to the light brown or yellowish-grey thin humus layer mixed with sand covering the one-time surface of the hill, the fill of the grave pits could barely be distinguished from the surrounding area, or not at all. The loose soil meant that the contours of the grave pits and the robber's pits were not always clearly discernible. They were only outlined occasionally, after a heavy rain lasting several days.

The soil marks of the few deeper, looted graves lying on the territory of the earlier Celtic and Roman settlement resembled those of the settlement features,[20] and their fill sometimes contained finds of the preceding periods. The form and dimensions of the grave pit could only be determined at a lower depth, occasionally only on the floor of the grave pit.

Given that the topsoil was stripped away mechanically, most of the graves were excavated from an artificial level, which had never existed in the archaeological period. Thus, the depth of the features is a relative depth measured from this level and is not identical with their original depth.

The coordinate grid was laid out after the mechanical removal of the ploughed topsoil in the area of the planned shopping centre. During the mechanical removal of the soil, the dumps were created without any system, in rows. Because the mechanical soil removal was performed before the beginning of the excavation, it was not possible to determine the exact findspots of the artefacts in the mixed layer, which survived in a few patches in the Langobard cemetery. Even so, the Langobard-period occupation level could not be determined owing to erosion and disturbance by ploughing. One good indication of the extent to which the occupation level had been destroyed is that some of the child and servant burials, which had been shallower to begin with, were found under the ploughed humus and were in part disturbed by modern agricultural activity.

[19] Similar circumstances were noted in the case of Grave 3, a child burial, of the Mödlingen cemetery; see *Stadler 1979* 35, Abb. 3.

[20] For this reason, we half- or quarter-sectioned the features until the contours of the grave pit could be clearly established. We separated the secondarily redeposited archaeological artefacts accordingly.

Inhumation burials

Grave 227

The irregular, light brownish soil mark, which could barely be distinguished from the surrounding area, lay under 96 m. The outline of the grave was slightly irregular in the northwest; the sides were curved, the southeastern corner was rounded. Owing to the later disturbance, it was wider at the head. The pit had slightly sloping walls, the floor of the grave pit was slightly trapezoidal with rounded corners. The colour and texture of the fill of the robber's pit did not differ from the fill of sand and little humus of the grave pit. The grave marker and the heap of earth over the grave could still be seen at the time the grave was robbed, some time after the funeral, because the looters dug their pit in the head region.

The deceased was interred in an extended position, laid on the back, with the head towards the east. The head area of the grave was disturbed when the burial was looted. The greater part of the disturbed skeletal remains lay in the grave pit's western half at a depth of 85–90 cm. The skull was no longer to be found. The postcranial bones lay *in situ* from the pelvis downward, including the forearms. The legs were laid slightly diagonally, the feet were turned inwards.

The burial was looted after the body's complete decomposition. The robbers left the worthless rusty arrowheads in the grave, but took away the metal objects that had lain on the right elbow bone and the head of the thigh bone. Quite some time had to elapse after the decomposition for the bones and the earth under the metal artefacts to be stained green. The robbers were apparently familiar with the period's fashion because they were content with the spoil collected from the region of the upper body, the pelvis and the legs, and did not disturb the pelvic bone: the finds which had slipped under the pelvic bone were found *in situ (fig. 2. 9; fig. 3, top right*[21]*)*.

Axial length: 245 cm, greatest width: 105 cm. Length at the level of the skeletal remains: 205 cm, width: 65–60 cm. Total depth: 105 cm + humus at the head, 100 cm + humus at the feet. Grave index: 2.3 (top), 3.3 (grave floor). The orientation of the grave pit and the *in situ* skeletal remains of the deceased was identical: N+75°. Length of body from the upper part of the pelvis to the heel bone 110 cm.

According to Balázs Gusztáv Mende, the postcranial bones indicated that the deceased was a 35-55-year-old male *(maturus)* with a high stature. The bones survived in a medium good condition; the smaller bones of the legs and the hands had crumbled away.

Grave goods

1. Five socketed *iron arrowheads* in the region of the right shoulder blade, under the skeleton. Three lay immediately next to one another, the other two lay underneath, corroded to them *(fig. 2. 1–5)*. The sockets were made by flattening the section under the blade into a flat sheet and folding together the two edges. Fragments of the wooden arrow preserved by corrosion survived inside the sockets.[22] A scrap of animal hide (?) with a perforation by the edge was corroded to the side of one of the arrowheads *(fig. 2. 5, 7)*, alongside a small ribbed, blackened wood fragment *(fig. 2. 6)*. Judging from their position tightly beside each other, the arrowheads had been deposited in a quiver. It is possible that the leather scrap and the wood fragment came from the quiver.
2. A broken, damaged, large, single-edged *iron knife*, lying slightly diagonally under the right pelvic bone *(fig. 3. 1)*. The broken fragments were slightly dislodged. The remains of the wooden haft made from two halves held together by an iron band were rusted to the tang with rectangular section topped by a biconical pommel.[23] Patches of the leather covering the wooden scabbard, similarly made from two parts, also survived. The

[21] A drawing made before the finds were lifted.

[22] Some of the arrowheads restored for the exhibition (*Vaday 2008* photo on p. 51, bottom) are longer than originally by a few millimetres owing to the conservation and their form was also slightly modified during restoration. The photos shown in *fig. 2. 1–5* were made before the conservation and restoration of the finds.

[23] The pommel of the weapon, broken into several fragments, could no longer be found. The weapon itself was not conserved or restored.

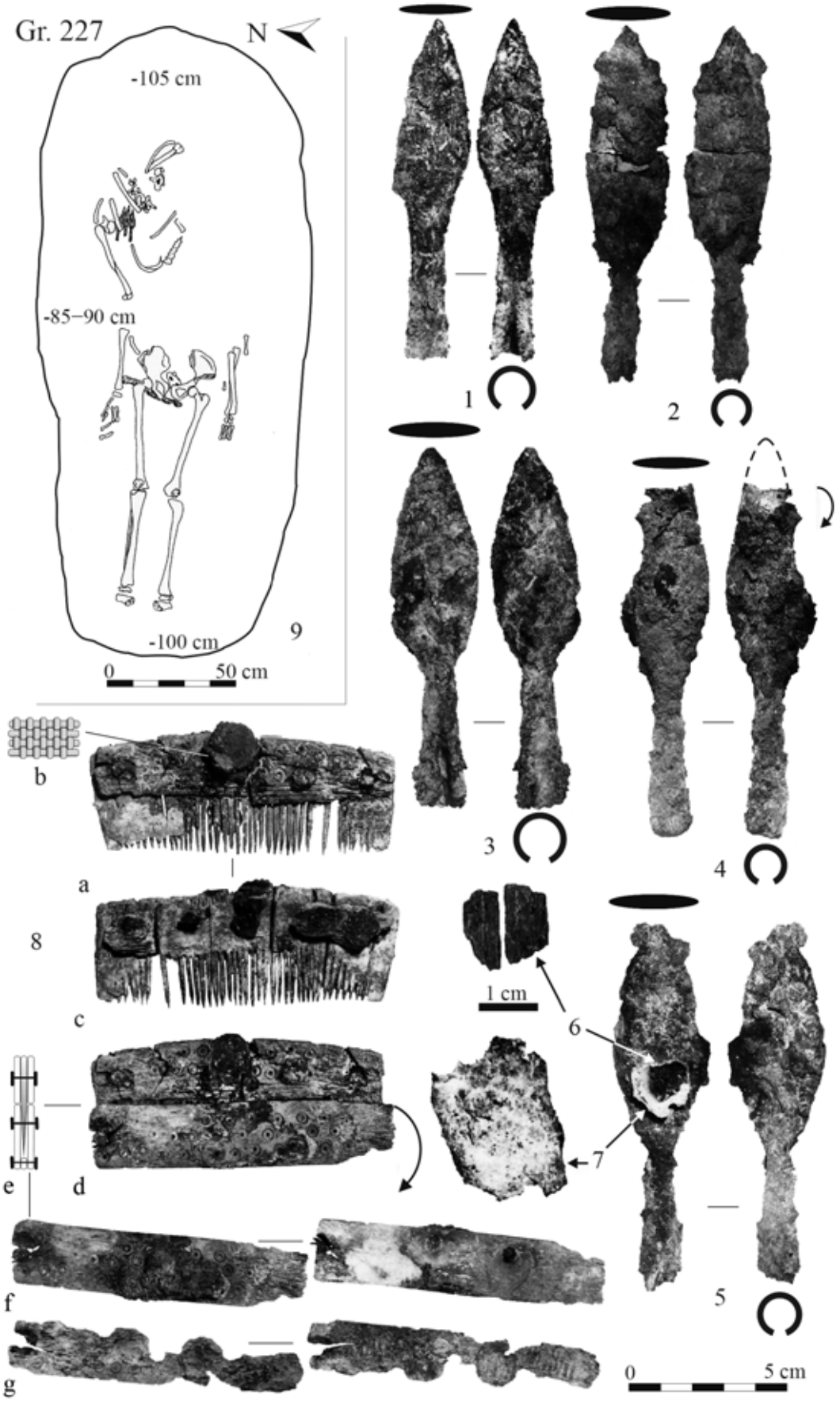


fig. 2. 1–9: Grave 227

fragment of a small bronze band which had been folded over the scabbard and the rivet had slipped beside the scabbard *(fig. 3. 3)*. A U-shaped chape of slightly irregular sheet silver was folded over the tip of the scabbard and held in place by two rivets; the form of the chape conformed to that of the knife blade *(fig. 3. 2a)*. Two pairs of parallel lines were incised onto the chape above and below the rivets. The iron rust between the stem of the chape covered the small fragment of the metal plate insert and imbued the other sheet metal fragment on the upper part of the wood. The latter's material could be identified as silver already at the time the finds were lifted. The sheet was decorated with an interlace pattern of intersecting double lines and a punched dot in the centre of the loops. An incised pair of curved lines frames the surviving edges of the sheet *(fig. 3. 2b)*. Length of knife from the pommel to the tip of the scabbard: 21.7 cm, length of scabbard: 18.8 cm, length of tang: 6.3 cm, length of broken blade: 13.4–13.5 cm *(fig. 3. 1a)*. A reconstruction of the knife is shown in *fig. 3. 1b*.

3. A broken *iron ring* under the upper, mostly intact portion of the knife's scabbard. A textile fragment was corroded onto it *(fig. 3. 9)*.

The articles probably kept in a pouch were found *in situ* under the deceased.

4. A broken one-sided *bone comb* with its case, under the left pelvic bone. The slightly curved sideplate on the more intact side was fixed to the teethplate with one larger and five smaller disc-headed rivets *(fig. 2. 8a)*. The larger rivet is set in the midline of the sideplate, its head extending slightly beyond the line of the comb. A fragment of the thin textile from the deceased's clothing was corroded to the rivet *(fig. 2. 8b)*.[24] The sideplate is decorated with dotted circles, the edge towards the teeth with four incised horizontal lines. The other side is strongly damaged; barely anything survived of the sideplate *(fig. 2. 8c)*. The upper part of the case protecting the teeth is more intact *(fig. 2. 8f)*, while the lower one is strongly worn and damaged *(fig. 2. 8g)*. Both sides are adorned with dotted circles. The case was manufactured from three parts: the smaller plate between the upper and lower ones perished *(fig. 2. 8e)*; the plates at the base of the case were fixed with smaller bronze rivets. The shank of a larger bronze rivet at one edge served as the axis for swivelling the case. The comb was closed at the time it was placed in the grave; some of the teeth were stained green by the bronze rivets.
5. A single-edged *iron knife* with straight back aligning with that of the narrow tang, found *in situ* under the right pelvic bone. It was damaged already at the time of deposition. The tip of the blade broke off, the broken part of the tang was corroded to it. Length of broken blade: 4.7 cm, total length of tang: 3.4 cm *(fig. 3. 4)*.
6. Two strongly worn, late Roman bronze *folles* with illegible inscription, found adhering to each other among the knives *(fig. 3. 7–8)*.
7. *Bronze tweezers*, lying under the coins, near the longer knife. The arms flare into a trapezoidal form. Length: 7 cm *(fig. 3. 5)*.[25]
8. The upper, thickening part of a sewing iron *needle*, corroded to the tweezers. The eye was covered by rust. The broken shank lay under the tweezers, its tip as missing. Length of the two surviving fragments: 7.6 cm *(fig. 3. 6)*.
9. A secondarily burnt, small, broken *stone axe* ground from Krzemionki flint by the left pelvic bone towards the feet.[26] The Langobards had probably found it in one of the cremation burials of the nearby Middle Bronze Age cemetery and re-used it as a flint stone, judging from its blunt edge. Length: 4.5 cm, width of butt: 3 cm, thickness of butt: 1.3 cm *(fig. 3. 11)*.[27]

Several fragmentary artefacts lay in the northern part of the grave, in the robber's pit, on what had been the left side of the deceased, which survived the looting of the burial.

10. Two ossified laryngeal *cartilages of a fowl*. Diameter: 7 mm, 8 mm.
11. Small fragment of a round-sectioned *iron artefact (fig. 3. 15)*.
12. A bent, round-sectioned *iron wire*, one end terminating in an amorphous plate *(fig. 3. 10)*.
13. Fragments of three rectangular-sectioned *iron wires (fig. 3. 12–14)*.

[24] It perished during conservation. For the comb, conserved and restored for the exhibition, see the photos in *Vaday 2008* 47.
[25] *Vaday 2008* 48, top photo.
[26] I would here like to thank Katalin T. Biró for the identification.
[27] Photos in *Vaday 2008* 47.

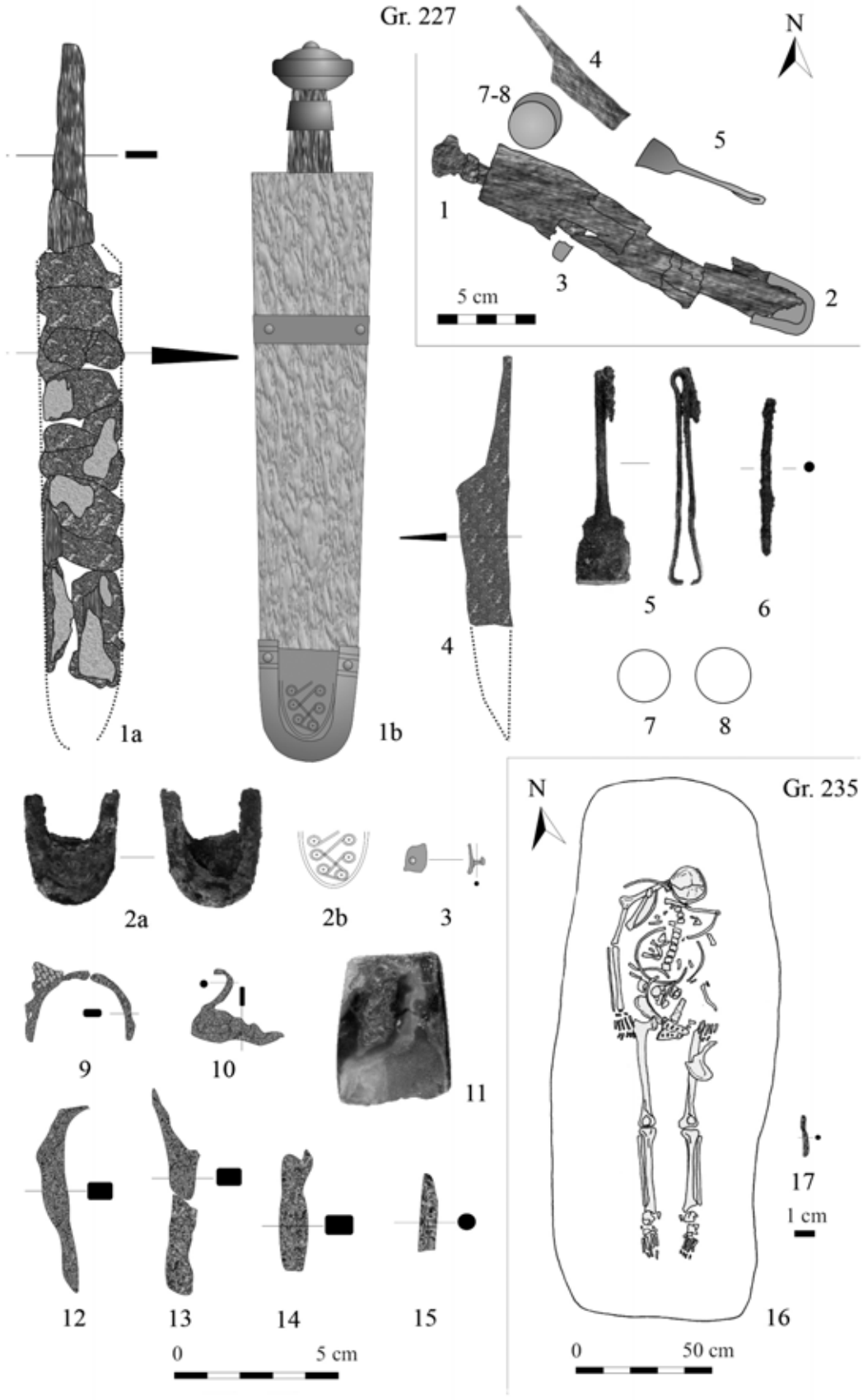


fig. 3. 1–15: Grave 227; 16–17: Grave 235

Several Roman vessel fragments were found during shovel-shining and in the grave pit,[28] while the fill yielded several human bone splinters and stone boulders.

Grave 229

A small fragment of an adult's thigh bone came to light from the ploughed layer; the soil mark of Grave 229, lying somewhat deeper, was first noted some 45 cm to its northeast. Although its eastern half was covered by sand washed down from the hilltop, the grave itself lay below 96 m. It lay beside Feature 224, a larger settlement feature.

The original grave floor only survived intact in the grave's north–northeastern part. A small, ditch-like extension projected from the grave's eastern end. The darker fill of the robber's pit, differing sharply from the sand mixed with humus, could be clearly identified in the section. The grave was backfilled after it was looted: the brownish-yellow, mixed soil on top overlay a mixed soil specked with mixed, blackish-brown alluvial-type soil. The fragment of a Roman *tegula* lay in the robber's pit under the ploughed layer.

The soil mark of the robber's pit had a longish, irregular form and a brownish-yellow colour. Sand patches and smaller and larger patches of irregular brownish-black alluvial soil with sand lenses lay at a depth of 19–20 cm in the mixed soil.

Although no other human skeletal remains were found aside from the above-mentioned adult thigh bone, it seems unlikely that this had been a symbolic burial.[29] The form of the robber's pit and the fill clearly indicated that the grave had been looted and its size too suggested an adult burial. A few bones of a child (Burial 260/A) and of an adult man (Burial 260/B) were redeposited in Grave 260, another looted burial lying 4.5 m to the northwest, after the grave had been robbed. The bones of the adult man probably originated from Grave 229. It would appear that the two graves had been robbed simultaneously by a smaller group of robbers because the soil had been backfilled into the robber's pit haphazardly, as shown by the soils of different colour originating from different depths. Alluvial soil was noted in both graves in the parts disturbed by the looters. Grave 229 had been dug before the flood and had been robbed some time after the flood *(fig. 14. 1–3)*.[30]

Small fragments of wheel-turned and hand-thrown Roman pottery as well as a few animal bones lay at a depth of 20–45 cm in the grave's eastern half. The western half of the grave also contained smaller Roman vessel fragments[31] in addition to sandstone, river pebbles and small bone fragments.[32]

The length of the robber's pit was 238 cm by the southern wall and 266 cm by the northern wall. Its width in the middle was 93 cm. From 30 cm downward, the robber's pit was smaller and had a more regular form. Its total depth was 76 cm + humus; its longitudinal axis was 222 cm, its width by the more curved western wall was 85 cm, and 71 cm by the eastern wall. Grave index: 2.7 (top), 2.8 (grave floor). Orientation of the robber's pit and the grave's longitudinal axis: E–W; N+82–83°.

No grave goods remained in the grave after it was robbed.

Grave 235

The grave was outlined by a pale, light greyish, irregular oval soil mark. The grave pit's sloping walls narrowed downward. The fill of the robber's pit was slightly looser than that of

[28] Body fragment of a brick coloured, red painted biconical bowl; rim fragment of a black, wheel-turned vessel with outturned, slightly thickened rim; base fragment of a grey vessel; handle fragment of a grey, wheel-turned lid.

[29] Empty grave pits are not uncommon in the Pannonian Langobard cemeteries. *Bóna 1993* 123: "Empty graves can be found in all larger burial grounds; their assessment is usually of an ad-hoc nature." For example, a coffin could be clearly documented in Grave 68 at Bezenye, the grave did not contain either human remains or finds see *Bóna 2001* 191.

[30] Similarly as in the case of Grave 260 (see below).

[31] The most characteristic pieces were the fragments of a grey, grit-tempered, wheel-turned lid.

[32] It was impossible to determine whether these were human or animal bones.

the grave pit, but its colour did not differ from the grave pit's fill of sand slightly mixed with humus.

The deceased was interred in an extended position on the back, with the head towards the south–southwest. The right arm and leg bones as well as the right pelvic bone were found *in situ*.

The robber's pit was dug from the grave's eastern wall, barely damaging the wall. It ran obliquely, disturbing the left side of the skeleton and dislodging the left pelvic bone and the pubic bone from their original position; the latter were found some 25 cm higher in a secondary position above the left thigh bone, which lay *in situ*. The robber's pit barely reached down to the spine. The skull was broken and dislodged at this time. The ribs, the breastbone and the left arm bones all lay in a secondary position. The grave was looted after the body had decomposed completely *(fig. 3. 16; 29. 2)*.

The grave pit's length was 206 cm, with a width of 64 cm by the head and 70 cm at the feet. The length of the grave floor was 182 cm, its width was 50 cm. It had a depth of 68–70 cm. Grave index: 3 (top), 3.6 (grave floor). Longitudinal axis of the grave and orientation of the deceased: N+66°.

According to Balázs Gusztáv Mende, the deceased was a 40-60-year-old woman *(maturus)* of medium stature.

Grave goods

1. A round-sectioned *iron* fragment, perhaps from a *needle*, in the place of the left forearm. Length: 2.4 cm *(fig. 3. 17)*.

Grave 236

The grave was outlined by a pale, irregular, oblong-shaped soil mark. Its robbing and perhaps the collapse of the grave wall is suggested by the widening, outward-curving northern wall. Bone splinters came to light in its western half at a depth of 40 cm. The fill of the robber's pit did not differ from the grave fill regarding its colour.

The deceased was laid on the back in an extended position, with the head aligned to the west. The legs lay in a slightly diagonal position from the pelvis downward, the feet were turned left and next to each other. The head was tilted slightly left and forward. The disturbance was indicated by the missing ribs and the ribs dislodged from their original position on the right side of the chest. A few ribs and their fragments lay higher, at a depth of 40 cm, while the right knee-cap lay farther from the thigh bone. The finger bones of the right hand lay scattered by the grave's southeastern corner.

The grave was robbed twice. It was first robbed shortly after the funeral, when the chest and abdominal region had already begun to decay. The robbers sunk a pit into the grave in the region of the feet, barely damaging the walls of the grave still indicated by the pile of earth. The deceased was pulled out by her feet from the coffin or layer of earth covering the upper body, indicated by the position of the leg bones and the pelvis which had turned slightly in the direction from which the body was pulled. The spine probably broke at the lower 3rd, 4th, 5th and 6th vertebra at this time. The robbers were either disturbed or they were satisfied with their booty because the other parts of the body were not disturbed, explaining why the beads of the necklace survived around the neck.

The grave was robbed a second time a long time after the funeral. The robber's pit was dug from outside the grave's longer, northern wall; this pit dislodged the ribs towards the left thigh bone and the right collarbone, but did not affect the vertebrae and the arms. *(fig. 4. 1, 29. 4)*

The slightly irregular soil mark of the grave pit had a W–E axis, with a length of 213 cm and a width of 100 and 86 cm. The width of the area disturbed by the robber's pit was 115 cm. The length of the grave pit at the floor level was 192 cm, its width at the head was 65 cm and 75 cm at the feet. The grave floor lay at a depth of 68–70 cm (+humus) from the shovel-shined level, being only slightly deeper in the head area. Grave index: 2.3 (top), 2.7 (grave floor).

Orientation of the grave and the deceased: N+78°. The length of the adult woman's skeleton measured in the grave was 145 cm.

According to Balázs Gusztáv Mende, the deceased was 24-30-year-old woman *(adultus)* of medium/large-medium stature. The skeletal bones were well preserved.

Grave goods

1. A necklace of sixteen glass beads and two amber beads around the neck.[33]

a. Fragment of a small, round, whitish-blue *glass bead (fig. 4. 2a)*.

b. Small, flattened globular, reddish-brown, opaque *glass bead (fig. 4. 2b)*.

c. A larger and a smaller flattened globular, round-based *glass bead* with brown, black, yellowish-white and reddish-white mottled trailing on the opaque white core *(fig. 4. 2c)*.

d. Two larger, slightly flattened globular, round-based *glass beads* with black and brownish-red mottled trailing on the poor quality, white, opaque core *(fig. 4. 2d)*.

e. A rectangular-based, short prism-shaped, white, translucent, iridescent *glass bead (fig. 4. 2e)*.

f. Two larger, rectangular-based, polyhedral, green *glass beads (fig. 4. 2f)*.

g. Two larger, rectangle-based, polyhedral, gentian blue *glass beads (fig. 4. 2g)*.

h. A barrel-shaped, opaque red *glass bead (fig. 4. 2h)*.

i. A cylindrical, white, opaque, iridescent *glass bead (fig. 4. 2i)*.

j. Two larger, short, cylindrical *glass beads* with brown, black and yellowish-white trailing on the translucent, bluish-white iridescent core. One bead has a red, the other a brownish-red trail at the end *(fig. 4. 2j)*.

k. A hexagon-based, prism-shaped, larger, opaque white *glass bead* with brownish specks *(fig. 4. 2k)*.

l. A smaller, flattened globular, round-based *amber bead (fig. 4. 2l)*.

m. A larger, round-based *amber bead* with an incision encircling the body *(fig. 4. 2m)*.

2. An oval-sectioned, oblong *iron buckle*, found beside the right forearm *(fig. 4. 3)*.

3. Brownish, biconical, *clay spindle* whorl made up of two unequal parts, found on the outer side of the left forearm *(fig. 4. 4)*.

4. A small, undeterminable *animal bone* on the outer side of the right foot, at a depth of 48 cm.

Grave 238

The grave was wholly covered by the sand washed down from the south. The grave pit was slightly irregular oblong with a fill of sand mixed with humus.

The deceased was laid on the back in an extended position. The head was turned left, the arms lay extended beside the body, the hands rested on the thigh. The feet were turned inward *(fig. 4. 6)*.

The soil mark of the pit had a length of 206 cm and a width of 85 cm in the west, at the head and at the feet. The grave floor had a length of 185 cm and a width of 60 cm. The depth of the grave ranged between 20–30 cm, and had a depth of 30 cm (+humus) at the head. Grave index: 2.4 (top), 3.1 (grave floor). Orientation of the grave pit and the deceased: N+98°. Length of skeleton in the grave: 155 cm.

According to Balázs Gusztáv Mende, the deceased was a 35-45-year-old male *(adultus/maturus)* of medium stature.

The burial did not contain any finds.

Grave 241

The fill of the grave, which was first noted as a soil mark of uncertain outline, yielded amorphous iron fragments, iron slag and Roman pottery fragments at a depth of 15 cm. The grave pit had an irregular oval form. A curved intrusion could be noted along the grave's western and southern wall. The colour and texture of the fill of the robber's pit differed little from the grave's original sandy fill mixed with little humus.

The grave was wholly plundered by the robbers. The greater part of the long bones were found in a heap at a depth of 35 cm in the grave's middle, while the rest came to light in the

[33] *Vaday 2008* 51, top photo.

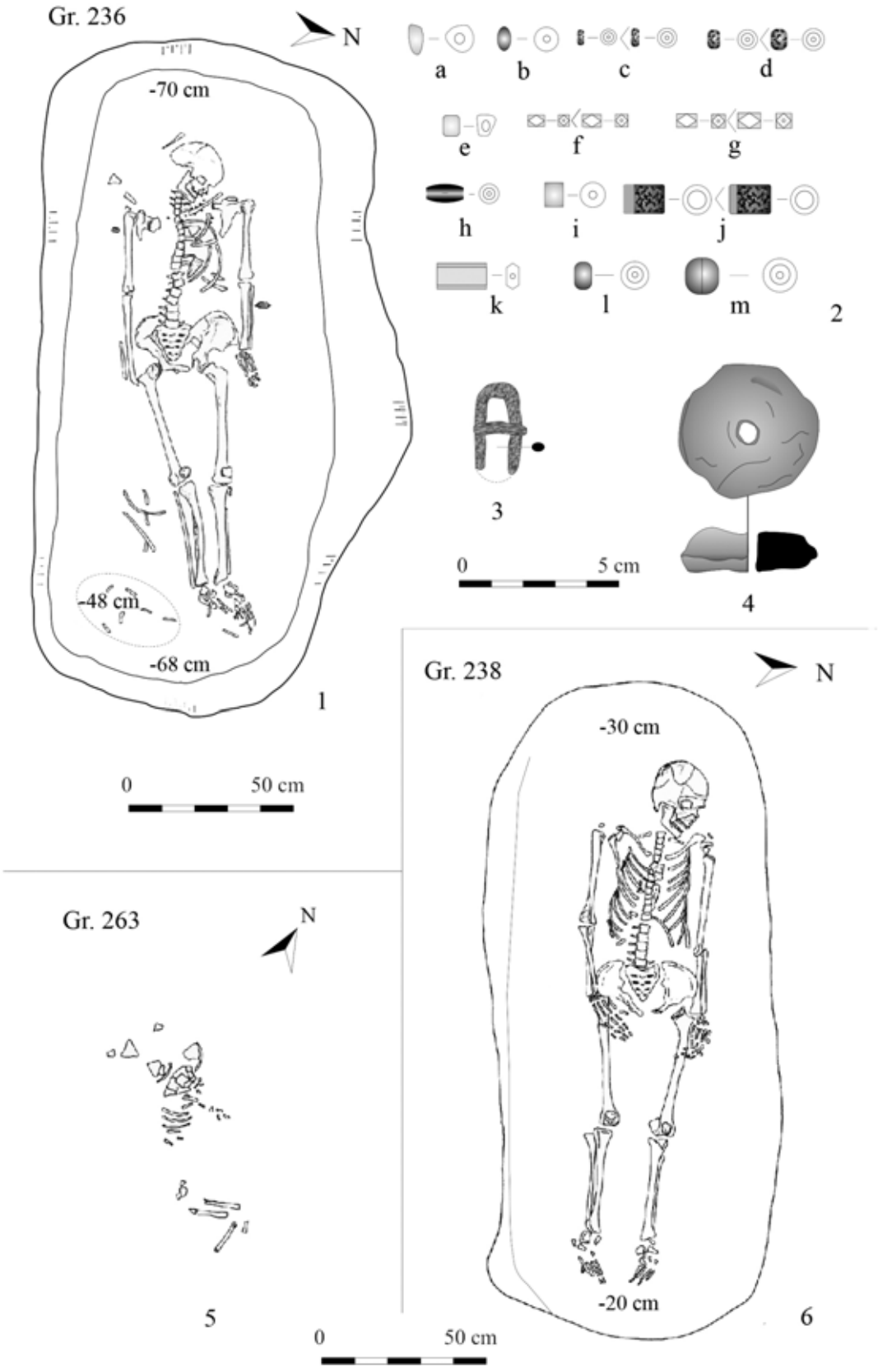


fig. 4. 1–4: Grave 236; 5: Grave 263; 6: Grave 238

grave's southeastern end. The two thigh bones lay above each other at a depth of 12 cm in the grave's eastern half. The ribs, the collarbones and the other bone fragments lay in the grave's northwestern third towards the grave's middle.

The grave was robbed a long time after the burial. The robber's pit was dug from the west (perhaps from the direction of the head region), but the grave's southern long wall was also damaged by the robbers *(fig. 5. 2)*.[34]

The longitudinal axis of the grave pit measured 230 cm, its average width was 80 cm. The grave depth was 72 cm (+humus) in the western part and 56 cm (+humus) in the eastern part. Grave index (disturbed): 2.9. The longitudinal axis of the grave was oriented N+87°.

According to Balázs Gusztáv Mende, the skeletal remains of the 23-x-year old male survived in a fairly good condition.

Grave goods

1. Fragment of an *iron implement*, found at a depth of 6 cm, in the grave's middle. One end is a flat plate, the other has a square section *(fig. 5. 3)*.
2. Amorphous *iron fragments*, found at a depth of 20 cm, in the area of the right pelvic bone.

Grave 242

The higher-lying upper and lower leg bones were damaged during the mechanical topsoil removal before the excavation of the grave was begun. The pale soil mark of the grave could only be documented beside the shorter, eastern wall of the grave and in some uncertain patches; the slightly darker fill of sand mixed with humus could be noted under the skeleton and on the grave floor.

The head lay towards south–southwest. The skull was tilted slightly to the right, a part of the left side was missing; it was probably damaged during ploughing because there were no fresh breaks on the crushed bones. The head faced south–south-east, the upper body was almost supine, the pelvis was turned to the right. The right arm lay across the pelvis, the left arm across the chest and rested on the right upper arm. Despite the partly secondary position of the foot bones, it seemed that the deceased had been interred in a slightly crouched position on the right side. The drawn-up knees lay higher than the grave floor *(fig. 5. 1; 29. 1)*.

The grave floor lay at a depth of 15 cm (+humus). A grave index could not be calculated. Orientation of the deceased: N+62°. Length of skeleton measured in the grave (uncrouched, extended length): ca. 140 cm.

According to Balázs Gusztáv Mende, the skeletal remains of the 45-50-year-old woman *(maturus)* were poorly preserved.

The shallow grave did not contain any finds.

Grave 251

The sand washed down from the north, from the hilltop, had entirely covered the grave, whose irregular, oval, south–southwest to north–northeast oriented soil mark was noted deeper, below 96 m. The northern wall of the robber's pit – towards the hilltop – ran at a steep angle of 72° to the grave lying at a depth of 170 cm, while the southern wall was also steep, but with a stepped profile. The colour of the fill of the robber's pit did not differ from the grave fill. The northern wall of the robber's pit became wet in larger spots from 120 cm downward; the groundwater rose at 43 cm after cutting through the grave floor.

The skeletal remain did not lie in anatomical order in the grave that had been robbed a longer time after the funeral. Neither the bones, nor the grave goods lay *in situ* in their original position. The skull with the upper mandible upwards lay at a depth of 77 cm in the robber pit's south–southwestern part, while the lower mandible was found under the skull. The thigh bones and the shin bones were found beside each other at a depth of 155 cm in the robber pit's north–northeastern part, the two calf bones at a depth of 142 cm in the robber pit's

[34] The secondarily redeposited fragment of a wheel-turned Roman vessel lay on the right side of the chest.

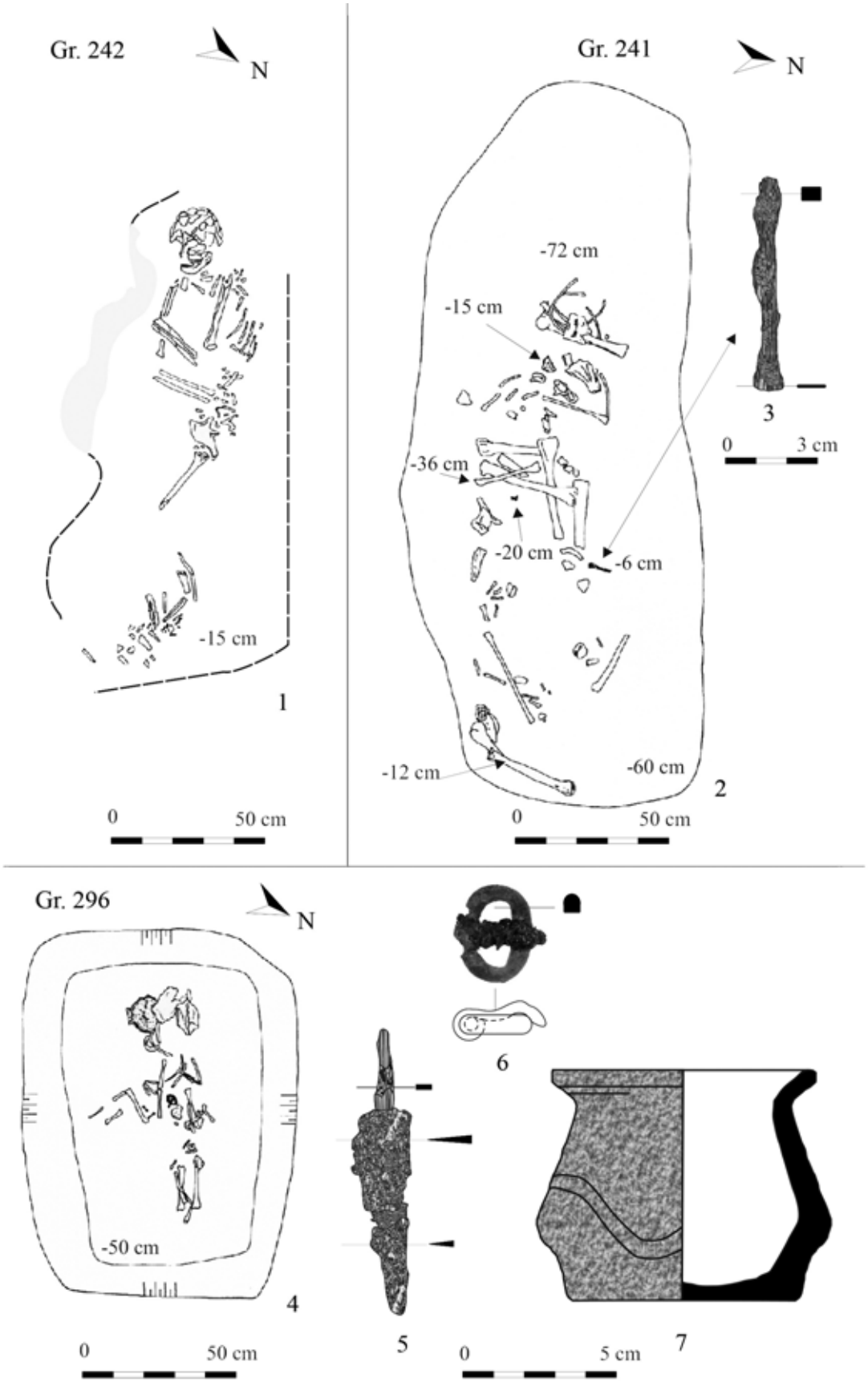


fig. 5. 1: Grave 242; 2–3: Grave 241; 4–7: Grave 296

northern, sloping part, while the shoulder blades, the collarbones and the scattered ribs were heaped on the grave floor at a depth of 192 cm.[35] Judging from the position of the skull and the leg bones, the deceased had been interred with the head aligned to the south–southwest *(fig. 6. 1)*.

Several redeposited Roman finds were recovered from the northern part of the grave down to a depth of 74 cm.[36]

The soil mark's length was 390 cm, its width in the middle was 309 cm. Length: 257 cm, width at the head: 75 cm, width at the feet: 90 cm. Depth of grave: 192 cm (+humus). Grave index: 1.3 (top), 3.1 (grave floor). Orientation of the grave pit: N+52°.

According to Balázs Gusztáv Mende, the deceased was a 19-28-year-old woman.

Grave goods (all in a secondary position)

1. Two *glass beads*: one translucent, mauve, square-based, polyhedral bead and a red, opaque, square-based, longish prism-shaped bead *(fig. 6. 2–3)*. A third white, opaque, short cylindrical bead lay some 20 cm from the former, towards the grave pit's wall *(fig. 6. 4)*.
2. A bent, fragmentary *iron strap-end* lay in the grave's southwestern corner at a depth of 90 cm. Remnants of silvering survived on both sides. One end is straight, the other is curved. A small silver-headed rivet survived in the centre of the curved section and the fragment of a similar rivet survived along the mount's less damaged edge. The other rivet along the edge broke off together with the sheet metal. Judging from the rivets, the belt was about 4–5 mm thick *(fig. 6. 5)*.
3. A *silver belt mount* of two metal plates was found by the white cylindrical bead. The upper and lower plates were attached to the 1.2 mm thick belt by two pairs of dome-headed rivets. One of the rivets was damaged, revealing that the rivet-head of sheet metal was hollow. The material into which the rivet shank was pressed was not preserved. The mount is decorated with four diamond motifs filled with round motifs punched from the reverse, flanked by a row of dots punched from the reverse along each edge. Both sides of the mount are decorated in a similar manner. The mounts were made at the same time: the goldsmith cut out the thinning, perforated parts of the silver sheet and pressed a small piece of sheet metal into it, adding the decoration only afterwards. The two plates of the mount were pressed together; the thickness of the strap between them was about 4 mm *(fig. 6. 6)*.[37]
4. A small *silver strap-end* in the region of the left shoulder, in the robber's pit. The strap-end was made from two plates. The lower, thicker plate is straight on top, its sides are slightly curved and it has a semi-circular end. Another plate with a wavy edge was pressed on top of the first plate, covering about one-third of its length, after which the decoration was added. The edges of the upper end are grooved, with the exception of the lower edge, and four lines forming an X motif were incised in the middle with a straight line underneath. Two parallel lines of dots punched from the reverse run down the centre to the curved end. The obliquely held punch left a pointed mark towards the midline. The plates were perforated separately: the upper plate was perforated from the reverse and the edges were raised on the obverse, while the rivet-hole of the larger plate has a slightly differing contour *(fig. 6. 7)*.[38]
5. Blade fragment of an *iron arrowhead* with rhomboidal section, found in a secondary position by the place of the left shoulder. Its socket was missing *(fig. 6. 8)*.
6. A black-mottled, yellowish-brown bird-shaped (?) *artefact of clay* mixed with sand in the place of the pelvis. The slight surface damages revealed that its interior was grey *(fig. 6. 9)*.
7. Fragments of a *hen egg*, found in a secondary position among the human skeletal remains in the region of the chest.

[35] We took samples of the 2.5 cm thick humus on the sandy grave floor, which had been deposited after the grave was plundered. Sadly, the samples could not be submitted for analysis in the lack of funds.

[36] Grey household pottery; brick-coloured vessel fragment; fragment of a grooved, straight-sided bowl with outturned rim; fragment of a yellow, wheel-turned vessel; fragment of bowl with red-painted interior; body fragment of a jug; fragment of a black, hand-thrown vessel; broken *tegula*; a few indeterminate animal bones, which were also redeposited secondarily in the robber's pit.

[37] *Vaday 2008* 50, bottom photo.

[38] *Vaday 2008* 50, top photo.

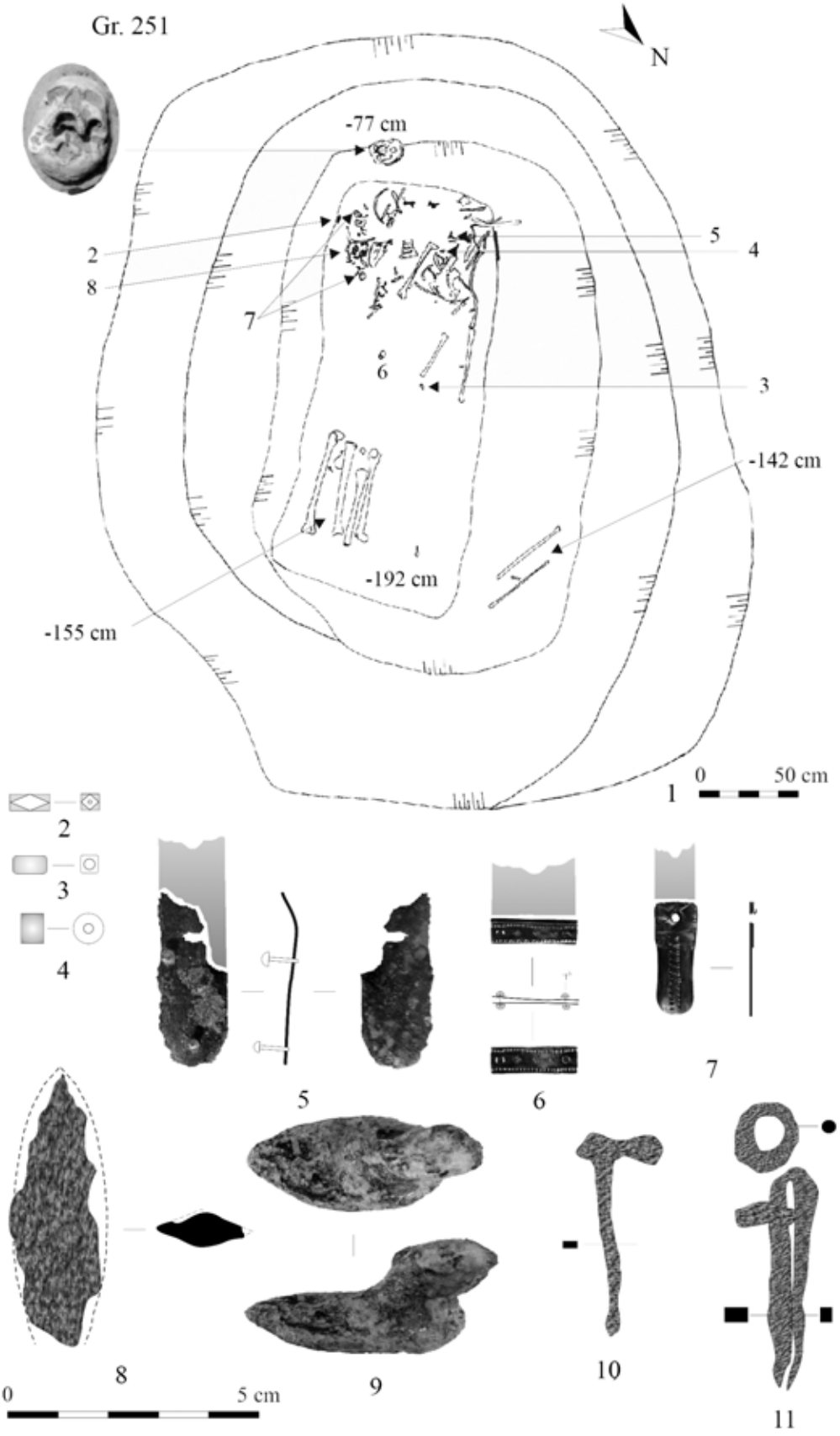


fig. 6. 1–11: Grave 251

8. *Chicken bones*, found beside the egg fragments. It seems likely that the fragment of the laryngeal cartilage of a domestic fowl distorted into an oval shape found in the grave fill comes from the same chicken.
9. The green stain in the middle of the lower mandible indicates the one-time presence of a *silver or bronze artefact* that had fallen prey to the grave robbers.
10. A flat-headed *iron nail* with oblong section, lying on the left side of the head *(fig. 6. 10)*.
11. An *iron cotter pin* with a small *iron ring* on the upper part of the folded stem *(fig. 6. 11)*.
12. Although traces of iron rust were preserved on several bones, the artefacts themselves were no longer to be found.
13. Amorphous *iron fragments* were found in the grave's eastern corner and in its northwestern part beside the ribs as well as in the grave's fill. However, the objects themselves could not be determined.

Grave 254

The grave was first indicated by an irregular oval, pale grey soil mark with a fill of sand mixed with humus. The robber's pit began with steeper and less steeply sloping walls, grading into a vertical shaft from 67–72 cm downward. The pit had a light grey fill mixed with humus and an irregular dished floor at a depth of 70–90 cm.

The grave had an irregular oblong shape along the vertical wall section of the pit. Small animal bone splinters and iron slag fragments were found in a secondary position from 5 cm downward in the grave's southeastern half. A level of uneven thickness made up of light grey soil mixed with humus, ashes and burn daub fragments lay in the middle of the grave. Several Roman pottery fragments were recovered from this level,[39] together with iron slag and sandstone. This was followed by a light brown level mixed with sand in some spots. The black alluvial soil with one larger and several smaller sand lenses was deposited after the grave had been robbed. A round iron artefact and iron slag were found in the middle part of the alluvial soil *(fig. 32. 2)*.

The skull with the skull-cap upward lay at a depth of 200 cm. The grave fill under the skull was mixed yellow sand to the floor of the grave pit. The human remains lay in the middle of the grave, parallel to the grave pit's wall. Only six vertebrae and a few ribs lay *in situ*; the other skeletal remains were found scattered in the pit. Their position suggested that the deceased had been interred in a coffin. The leg bones lay in the grave's western half (with the exception of one), while the skull, the two collarbones, the arm bones and a part of the ribs were found in the grave's eastern half. The pelvic bone lay in the middle, slightly dislodged from its original position. The remains found in a position conforming to their anatomical order and the position of the skull and the limb bones, which had been dislodged, but then redeposited in their original region, suggested that the deceased had been buried with the head towards the east.

The grave had been robbed long after the burial, after the complete decomposition of the body. The alluvial soil in the robber's pit indicates that the grave had been disturbed after the flood. The grave pit was dug in dry weather: its wall had collapsed in several spots, although its original form was perhaps also modified by the grave robbers *(fig. 7. 4)*.

On the top, the west to east axis measured 382 cm, its greatest width was 278 cm. The grave pit's axial length was 265 cm, its width measured 135–180 cm. Based on the apparently undamaged wall sections, the original grave had a length of *ca*. 210-215 cm and a width of *ca*. 115-120 cm. Depth of grave: 224 cm (+humus). Grave index: 1.4 (top), 1.7 (robber's pit, collapse), reconstructed grave index: 1.9. Orientation of the grave's longitudinal axis: N+76°. The post-cranial bones were also aligned in this direction.

According to Balázs Gusztáv Mende, the deceased was a 40-60-year-old woman *(maturus)* of medium stature. The skeletal remains were relatively well preserved (the age is an approximate estimation).

[39] The vessel fragments included a Rheinzabern *terra sigillata* fragment.

Grave goods

1. Fragment of a rectangular, slightly bent *iron buckle plate* with two rivet holes, one containing a broken rivet, lying on the grave floor in the grave's southwestern part *(fig. 7. 5)*.
2. *Iron nail* with rectangular-sectioned shank, found at a depth of 20 cm in the mixed level in the grave's northeastern part. Perhaps one of the coffin nails *(fig. 7. 6)*.
3. A curved *iron fragment*, perhaps the tang of a knife, found in the light grey level of soil mixed with humus, ashes and burnt daub fragments in the grave's northwestern part *(fig. 7. 7)*.
5. Blade fragment of a single-edged *iron knife (fig. 7. 8)*.
6. A larger *animal bone* fragment, found on the floor, beside the shorter northwest to southeast grave wall, probably part of the grave inventory *(fig. 7. 9)*.

Grave 257

The grave was first indicated by a large, irregular oval soil mark of sand mixed with humus on the hill's northern slope below 96 m. The grave pit's wall sloped down to a depth of 28 cm, from where it ran steeply to the grave floor. The western wall was wider at the head. The contours of the grave pit were outlined from 100 cm downward. When the soil was backfilled after the robbing, the soil on top became compact and sagged, and the depression only filled up naturally later. The grave robbers did not conceal the traces of their activity and did not heap the earth over the burial. The very compact dark brown-blackish alluvial soil was noted in a larger oval patch under the level mixed with humus in the robber's pit. This level lay 20 cm deeper in the grave's western part, where it was also quite compact, but mixed with sand *(fig. 32. 1)*.

The fragmented skull lay tilted to one side at a depth of 86 cm in the grave pit's southwestern corner. The right upper and lower leg bones and the lower leg bones and the foot remained *in situ*, the other bones lay scattered on the grave floor, in the region of the skull and the chest. Judging from the position of the *in situ* post-cranial bones, the deceased had been laid on the back with the head towards the north in a coffin.

The grave was looted well after the burial, after the total decomposition of the body, but the grave itself was only partially disturbed and plundered. The robbers dug their pit from the head region, where the compact clayey secondary fill was visible *(fig. 8. 1)*.

Small fragments of a Roman vessel and the fragment of a human skull were found between 2–5 cm, while secondarily redeposited slag and smaller fragments of Roman vessels came to light between 10–20 cm.

The axial length of the soil mark was 300 cm, its greatest width was 192 cm. The grave's depth was 106 cm (+humus), with the exception of the head region, which had been disturbed by the robber's pit. Axial length of grave floor: 220 cm, width: 85 cm (west), 60 cm (east). Grave index: 1.6 (top), 3 (grave floor). Orientation: N+88°.

According to Balázs Gusztáv Mende, the deceased was a mature/senior 50-70-year-old man of high stature. Traces of degenerative *osteoarithris* could be noted on the bones.

Grave goods (all in a secondary position)

1. Round-sectioned *bronze needle* with the eye at the rounded upper end, found among the ribs. Two pairs of two horizontal incisions run under the eye. The needle's shank is decorated with four similar incisions in the middle and two pairs of two similar incisions nearer to the tip. Length: 14.5 cm, diameter: 3 mm *(fig. 8. 2)*.
2. Fragment of a rectangular *iron buckle plate*, found at a depth of 5–6 cm in the northeastern part. One rivet hole is broken, the other still holds the dome-headed rivet *(fig. 8. 3)*.
3. Fragment of the tang (?) of an *iron knife*, found near the buckle plate *(fig. 8. 4)*.
4. Rectangular-sectioned *iron nail* with the head hammered flat, found at a depth of 55 cm in the grave's northeastern part *(fig. 8. 5)*.
5. Fragment of the shank of an *iron nail*, found near the former *(fig. 8. 6)*.
6. Rectangular-sectioned, round-headed *iron nail*. Length of shank: 3.7 cm *(fig. 8. 7)*.
7. Fragment of a small, round-sectioned *iron wire (fig. 8. 8)*.

Amorphous fragments of various iron artefacts were found scattered in the fill, at different depths.

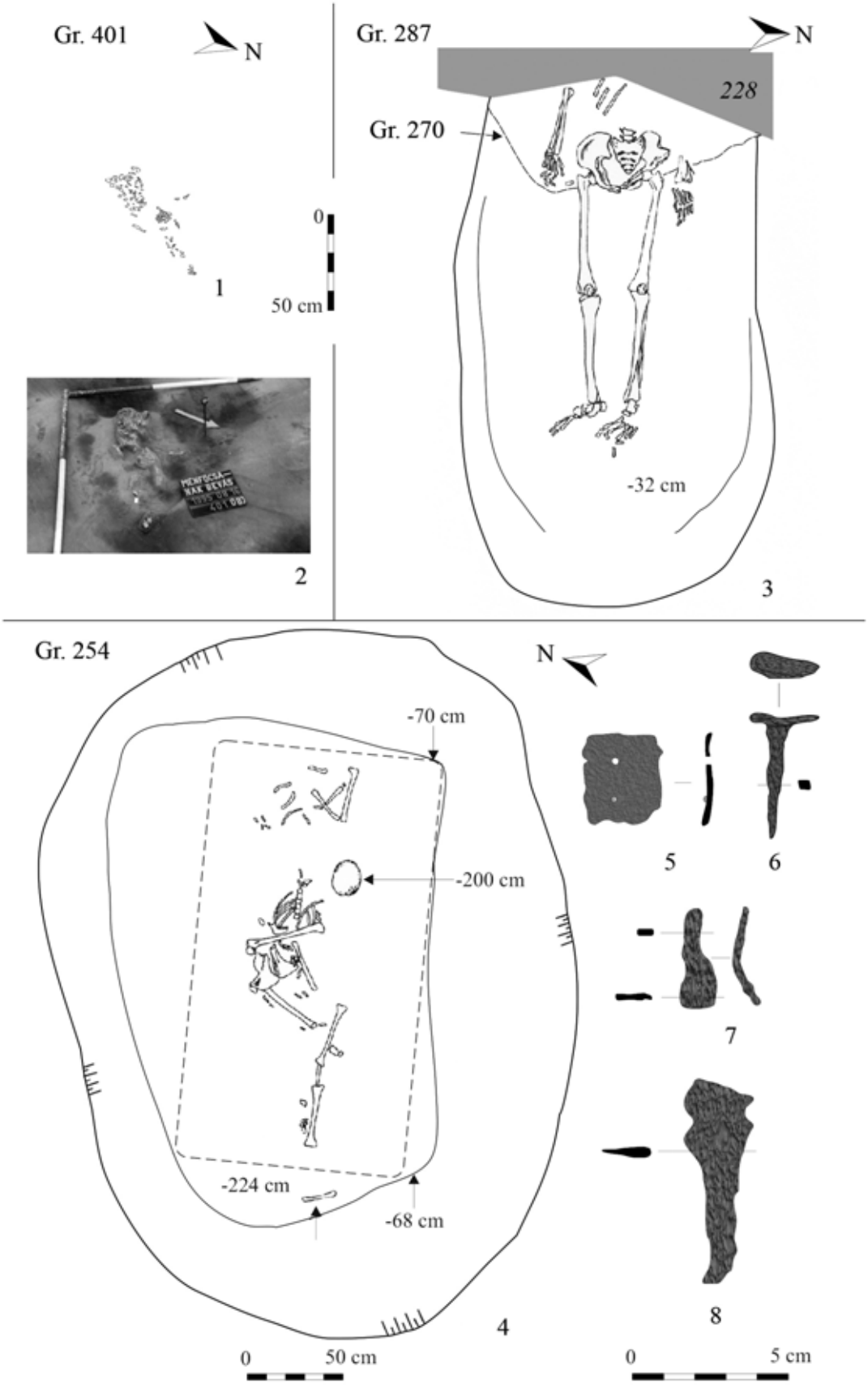


fig. 7. 1–2: Grave 401; 3: Grave 287, with the corner of Grave 270 underneath and the military trench (Feature 228) cutting the graves; 4–8: Grave 254

Grave 260

The robbed grave was first indicated by a pit-like dark soil mark aligned south–southwest to north–northeast below the 96 m line that could be barely distinguished from the surrounding area. The upper fill level was greyish-brown humus mixed with sand with a thickness of 20 cm in the middle and 16 cm at the edges, underneath which lay the dark brownish-black alluvial soil, rising some 4–5 cm higher in the middle of the grave. When the grave was robbed, this mixed soil was backfilled first and the grave's earlier mixed soil was heaped over it. The original sandy fill survived on the grave floor. The robber's pit was dug obliquely down to the irregularly-shaped grave floor. The western side resembled an irregular oblong, the short side was more curved.

The remains of two individuals were found in the disturbed light yellowish-greyish-brown level mixed with yellow sand and alluvial soil.

It seems most unlikely that the grave represented a double burial[40] because the disturbed grave's 165 cm long lower axial length assigns the grave to the cemetery's shorter graves, meaning that it was the grave pit of the child burial (Burial 260/A). The simultaneous robbing of several graves has been documented in other Langobard cemeteries too, for example at Schwechat, where Graves 26 and 27, two disturbed child burials, also contained the post-cranial bones of an adult man in a secondary position.[41]

The mixed alluvial soil in the fill of the robber's pits indicates that the two graves had been plundered after the flood. The flood level could not be observed on the wall of Grave 260, implying that the grave had been dug before the flood. Graves 260 and 229 had been looted simultaneously by several robbers, explaining how the earth and the bones from the adult burial of Grave 229 came to be deposited in the grave pit of Grave 260.[42] The post-cranial bones of the child burial were disarticulated, which is why some were found in a secondary position *(fig. 9. 11)*.

The axial length of the soil mark was 195 cm, its greatest width in the more regular western and eastern side was 105–110 cm, and 140 cm in the disturbed middle part. Axial length: 165 cm, width in the middle: 100 cm, depth: 115 cm (+humus). Grave index: 1.4 (top), 1.6 (grave floor).

Burial 260/A

Child bones were found in the southern part of the grave at depths of 88, 98 and 113 cm. The alignment of the skull could not be determined. The axis of the robbed grave was aligned N+70°. According to Balázs Gusztáv Mende, the remains came from the skull, the collarbone and the upper arm of an 18 (±3)-month-old infant *(infans I)*.

Burial 260/B

The skull with the *foramen magnum* upward was found at a depth of 75 cm in a secondary position in the disturbed grave's northern half. The skull came from the burial of Grave 229 (described above). A smaller skull fragment was found 40 cm to the south–south-east. An adult pubic bone and the fragment of the right pelvic bone were found at a depth of 80 cm in the grave's southern part. A few ribs were found near the grave pit's southern wall at a depth of 99 cm. Other human bone fragments lay scattered in the fill.

Grave goods

1. A small flint in the disturbed fill *(fig. 9. 12)*.

[40] For example, the simultaneous double burial of an adult and a child was noted in Grave 20 at Steinbrunn: *Mitscha-Märheim 1966* 106, Abb. 4.

[41] *Adler 1979* 11.

[42] As in the case of Grave 229 (see above).

fig. 8. 1–8: Grave 257

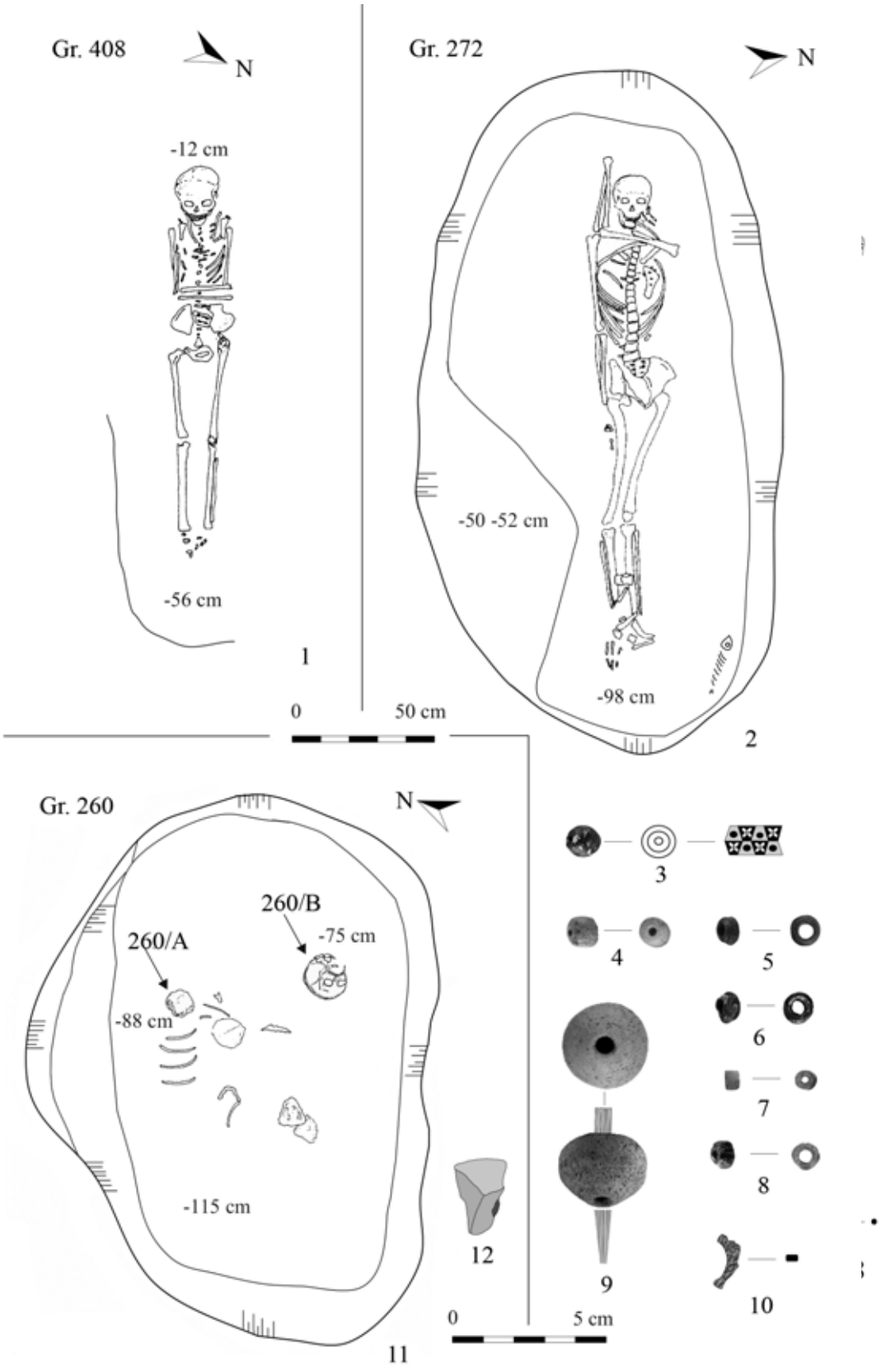


fig. 9. 1: Grave 408; 2–10: Grave 272; 11–12: Grave 260

Grave 262

The grave was first identified as a larger, irregularly shaped soil mark with a greyish-brown fill of humus mixed with yellow sand. It was west to east oriented. The grave itself first appeared at a depth of 30 cm as an irregular oblong; it was clear that it had been robbed. The grave pit narrowed into an irregular oblong form at 92 cm; its southern long wall became slightly curved owing to the robbing. The ledges of the grave were found at a depth of 202 cm on the northern side and at a depth of 193 cm (+humus) on the southern side; they were both slightly damaged by the robber's pit and some of the sand from above collapsed onto them.

A natural collapse of yellow sand was noted in the fill at a depth of 70 cm; an iron fragment and a broken Roman pot decorated with scoring were found by its edge. The next level, from 90 cm downward, was made up of greyish humus mixed with larger-grained sand, limestone lumps and smaller compacted sandstone lumps, which differed sharply regarding both is compactness and density from the yellow sandy natural subsoil. Several secondarily redeposited finds from the Roman occupation level lay in the upper levels, down to a depth of 120–140 cm.[43] No traces of alluvial soil were found either in the grave pit or in the robber's pit.

The deceased was interred in an extended position on the back, with the head towards the west. The right arm lay parallel to the body, the left forearm was slightly bent and rested on the pelvis. The right leg was drawn up when the grave was robbed, while the right lower leg lay on the coffin lid that had been drawn aside. Later, during the decomposition, the bones of the lower leg became detached from the thigh bone and sank some 10 cm deeper under the weight of the earth *(fig. 10. 1–2)*.[44]

The remains of a dog lying on its back with bent spine and twisted lower body (Dog A) were found in the middle of the grave pit's eastern half. The skull lay at a depth of 120 cm, its hind legs at 90 cm. The dog's body had been dumped back after the grave robbing. Traces of several older injuries could be noted: the nasal bone was broken, the left fore radial bone and the two metacarpals of the left hind leg were broken, the breaks had fused pathologically *(fig. 30. 3)*.

The remains of another large-bodied dog (Dog B) were found in the grave pit's southwestern part at a depth of 171 cm. The animal had been laid on its right side with the head towards the grave's middle and the face to the west, perpendicular to the grave's axial length. The healthy dog had a slightly larger build than the other one. None of the bones from either dog showed signs of butchering. The remains of dog B were found some 30 cm higher than the ledge. It seems likely that the dogs had originally been laid on the ledges.

The position and condition of the skeleton indicate that the grave had been robbed right after the burial. The grave was dug in dry weather and its robbing too took place under dry conditions because the walls collapsed on both occasions, creating sloping walls of varying steepness.

The soil mark's axial length was 342 cm, its greatest width was 297 cm. The axial length of the grave was 256 cm at the ledges, its width was 110 cm (west) and 120 cm (east), respectively. The ledges sloped down to the coffin, probably owing to the loose soil.

Wood remnants surviving as brownish, 2–12 cm thick stains were noted some 48–49 cm above the grave floor. The slightly irregular depression between the two ledges had an axial length of 232 cm and a width of 40 cm (west) and 50 cm (east), respectively.

The floor of the grave lay at a depth of 258 cm (west) and 224 cm (east), respectively, owing to the partly collapsed ledges. Axial length: 240 cm. Grave index: 1.2 (top), 2.2 (ledges), 5.1 (grave floor). Orientation: N+89°. Length of skeleton in the grave: 163 cm.

According to Balázs Gusztáv Mende, the deceased was a 40-50-year-old woman *(adultus/maturus)* of medium high stature. The bones were medium well preserved and stained brownish by the slightly wet sand.

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[43] Fragment of a brick-coloured Roman bowl with indrawn rim; native, hand-thrown vessel of the Roman Age; red-painted Roman vessel; thin-walled household pottery; animal bones; stone; iron slag.

[44] For a photo, see *Vaday 2008* 49.

Grave goods (all in secondary position, in the area above Dog A)

1. Two fragments of a single-edged *iron knife* (?). Width: 2–3 cm *(fig. 10. 3).*
2. Amorphous fragment of an opaque white *glass bead (fig. 10. 4).*
3. Small disc-headed *iron nail* with round-sectioned shank *(fig. 10. 5).*
4. Fragment of one of the two bars linking the rings of an *iron horse-bit*: both ends of the rectangular-sectioned bar are looped, set at 90 degrees to each other. Length: 6.9 cm *(fig. 10. 6).*
5. Fragment of an iron strap-end with a rivet through the intact, semi-circular end. Another fragmentary rivet survived beside the breakage. The two perforations were possibly also rivet holes *(fig. 10. 7).*
6. Dome-headed *iron nail* with rectangular shank *(fig. 10. 8).*
7. Fragment of a similar *iron nail*, the head is missing. Length: 5.3 cm *(fig. 10. 9).*
8. Fragment of a translucent, white, clear *glass*. Diameter: 7 × 8 mm, thickness: 1 mm.[45]

Grave 263

The grave was dug into the robber's pit of Grave 283 *(fig. 1. 2).* It was found after shovel-shining the area from which the soil had been mechanically stripped. The hillside was quite steep in this area: the northwestern part of the grave cut into the higher-lying sandy hill, while the southeastern part into the darker soil coloured by the flood, meaning that the grave had been dug after the flood *(fig. 30. 1)*.[46] There was no indication of a robber's pit.

The child was laid on the left side in a crouched position with the head towards the north–northwest. The skull was crushed, the fragments of the skull-cap had been slightly displaced by the machine *(fig. 4. 5).*

Orientation of the skeleton: N+154°. Length of skeleton (crouched): ca. 65 cm, length of skeleton (extended): ca. 72 cm.

According to Balázs Gusztáv Mende, the deceased was a 3-4-year-old child *(infans I).* The bones were poorly preserved.

The grave did not contain any grave goods.

Grave 270

The grave lying above 96 m was almost completely destroyed by a military trench (Feature 228)[47] and it also cut through a later burial, Grave 287.[48] Only the corner of the grave pit and its darker fill of humus mixed with sand differed on the floor of Grave 287.

A broken skull and a collarbone lay in the military trench, some 2.5 m south–southwest of the corner of Grave 287.[49] Although the skull of the woman interred in Grave 287 was also missing, the thick skull undoubtedly came from the male burial (Grave 270). Its findspot indicates that the deceased had been laid to rest with the head towards the south–southwest.

Even though no finds came to light from the grave corner, it seems unlikely that the grave had been robbed because the cemetery's shallower graves were not opened *(fig. 8. 3; 18. 2–3).*

Depth: 48 cm (+humus). Orientation, based on the surviving grave corner: N+46°.

According to Balázs Gusztáv Mende, the deceased was a male *(maturus/senior).*

Grave 272

The grave was first indicated by a slightly irregular, pale soil mark. There was a curved, triangular step extending some half a metre towards the grave's middle from the middle of the long wall at a depth of 50–52 cm. There were light patches of 1–1.5 cm thick brownish-grey humus on the step. The loose sand wall under the thin humus layer had collapsed either

[45] Probably Roman.

[46] The photo only shows the outlines of the grave.

[47] The depth of the military trench was 102 cm along this section.

[48] The digital plan of the excavation was made by Zoltán Herczeg of the Győr museum. In the documentation, the skull of Grave 270 is marked as 287/B on the plan.

[49] The two excavations were guarded by a single person at this time, who did not notice the unwanted guest among the 4–5 m high humus dumps, who took away the collarbone and the skull-cap.

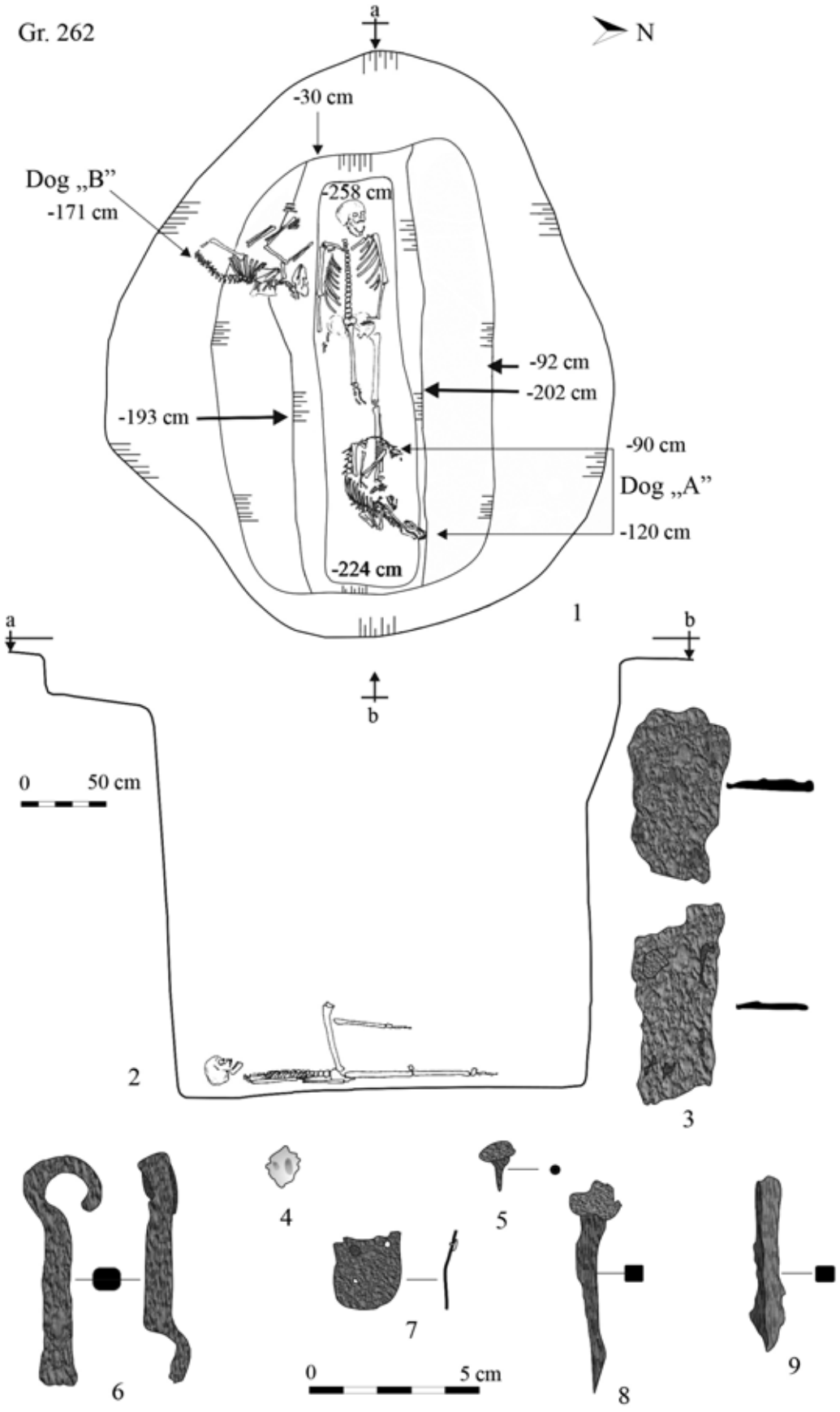

fig. 10. 1–9: Grave 262

during the burial or when the grave was robbed, and the humus from the Langobard period had been trodden into the sandy surface. The western wall was slightly sloping, the eastern side was steeper. The position of the skeleton enables the reconstruction of the original form of the grave pit.

The deceased was placed into the narrow coffin with the head toward the west–north-northwest; the narrowness of the coffin was suggested by the cramped position of the legs and the right arm. However, similarly to most other graves, stains left by the wooden coffin could not be observed in the sand. The hips and the legs turned slightly sideways, conforming to the direction in which the body was tugged and the right hand became lodged under the thigh.

The grave was robbed about three days after death had set in,[50] shortly after the funeral. The robbers removed the coffin lid and dragged out the deceased by her right hand to gain access to her valuables, and then placed the body back into the coffin. This is when the left hand became lodged under the forearm. The woman's necklace was either concealed by the folds of her dress or the robbers deemed it worthless.

Later, a smaller animal burrow disturbed the grave in the region of the head and the upper part of the chest, moving a few bones of the right hand to the left side of the skull, as well as the left shoulder blade and a few of the upper ribs *(fig. 9. 2)*.

A stone boulder as well as a Roman pottery fragment and a *tegula* fragment were recovered from the fill.

Axial length of the soil mark: 240 cm, greatest width: 125 cm. The axial length was 212 cm, the width at the collapsed section was 55 cm. Depth 100 cm (+humus) on north–northwestern side and 98 cm (+humus) on the south–south-eastern side. Grave index: 1.9 (top), 3.8 (grave floor). Orientation: N+107°. Length of skeleton from the skull-cap to the heel bones: 158–160 cm.

According to Balázs Gusztáv Mende, the deceased was a roughly 30-40-year-old woman *(adultus)* of high stature. The bones were well preserved.

Grave goods

1. Bead necklace on the left side of the chest. The surface of the beads is pitted, the glass has internal bubbles and smaller and larger amorphous inclusions.
   a. A larger, flattened globular, round-based millefiori *glass bead* decorated with irregular trapezoidal fields arranged in two rows, alternately filled with black dots on a reddish-brown base and white petals arranged in an X motif on a black base *(fig. 9. 3)*.
   b. Short cylindrical *glass bead*. The white opaque layers wound 9–10 times contain red, orange and black specks *(fig. 9. 4)*.
   c. Opaque red *glass bead* containing greyish-black specks. It was wound in a larger and two smaller rings *(fig. 9. 5)*.
   d. A smaller black *glass bead* containing greenish-blue, yellow and yellowish-grey amorphous specks *(fig. 9. 6)*.
   e. A short, opaque, orange cylindrical *glass bead (fig. 9. 7)*.
   f. A flattened globular, round-based, opaque, wound *glass bead*. The inner layer is orange. The light and dark blue as well as white irregular specks were formed during winding *(fig. 9. 8)*.
2. A yellowish-brown *spindle whorl* with pitted surface, found beside the right thigh bone, in the area of its upper third. The lower half is conical, the upper is cylindrical. The edge of the lower perforation is grooved. Diameter: 2.8 cm, height: 1.8 cm *(fig. 10. 9)*.
3. A complete *pike skeleton* was found in the grave's southeastern corner, at a depth of 84 cm.
4. Fragment of a curved *iron wire* with rectangular section *(fig. 9. 10)*.

[50] Depending on the external temperature, *rigor mortis* ceases after three days following the onset of death, with a few hours' variation.

Grave 278

The south–south-east to north–northwest oriented grave had a very pale soil mark. The grave was dug into a Roman ditch (Feature 256); a stone boulder, a probably Roman disc-headed iron nail with round-sectioned shank *(fig. 11. 17)* and tiny Roman pottery fragments came to light from the upper 5–10 cm of the fill.

The deceased was interred with the head towards the south–southwest. The chest bones and the arm bones were in the location of the chest and in a heap left of the skull at a depth of 10–12 cm, higher than the other skeletal remain. The leg bones and the left pelvic bone were found *in situ*. A rib lay across the left thigh bone.

The grave was robbed following a longer period after the burial. The robber's pit was dug above the deceased's upper body and the colour of its fill did not differ from that of the grave fill. The robber's pit had an irregular oval shape, widening towards the north–northeast *(fig. 11. 1)*.

Length: 225 cm, width at the head: 80 cm, width at the feet: 105 cm. Depth: 60 cm (+humus). Based on the undisturbed skeletal remains, the grave had been 170 cm long and 55 cm wide. Orientation: N+65°. Grave index 2.4 (top, disturbed), 3.1 (grave floor, assumed). The elderly man's measurable leg length was 80 cm.

According to Balázs Gusztáv Mende, the deceased was a 63-73-year-old mesocranial man *(senior)* with a large-medium stature. Pathological alterations with arithric deformations could be noted on the skeletal remains.

Grave goods

1. Three *flint stones*, found at a depth of 12 cm in the robber's pit *(fig. 11. 7–9)*.
2. Amorphous fragment of a larger *iron artefact*, and a smaller fragment of an *iron plate* on the left side of the pelvic bone *(fig. 11. 5–6)*.
3. Small oval *iron buckle* and the fragment of a similar buckle by the right thigh bone towards the skull *(fig. 11. 3–4)*.
4. Fragments of a single-sided *bone comb*. The fragmentary teeth have survived on one fragment. An iron rivet had secured the teethplate to the sideplate. The gaps between the teeth had been filed out from the reverse; traces of filing could be noted on another fragment too. This plate was attached to the sideplate by two iron rivets *(fig. 11. 2)*.
5. Fragment of a rectangular-sectioned *iron wire*, perhaps the shank of a longer nail *(fig. 11. 11)*.
6. Fragment of the round-sectioned *iron pin* mechanism of a brooch secondarily redeposited from the Roman ditch, found under the right thigh bone *(fig. 11. 10)*.
7. Small, lamellar *iron fragment*, found beside the previous artefact *(fig. 11. 12)*.
8. Double-edged *iron dagger*, found 10 cm from the left knee towards the grave wall. Length: 17.3 cm, length of blade: 13 cm, the tip is broken; width at the junction of the tang: 3 cm *(fig. 11. 13)*.
9. Mounts held together with iron rivets lay beside the dagger,[51] probably from the dagger's sheath.
   a. One trapezoidal *mount* has the narrower section folded back. There were four iron rivets on the upper part, while the fifth was used for attaching the bent-back section to upper part *(fig. 11. 14)*.
   b. Another *mount* is made up of two parts. The folded plate was riveted together at the narrower lower end. A third plate placed between the arms at a right-angle was attached to the bent-back arms with two rivets. There was another rivet near the edge of the damaged middle plate *(fig. 11. 15)*.
   c. A small *mount fragment* with a rivet *(fig. 11. 16)*.

Grave 282

The northeastern part of the grave was covered by the washed-down sand. Its light brown, irregular soil mark intersected an earlier house (Feature 250). The grave pit was outlined at a deeper depth and the robber's pit had also damaged the grave floor. The colour and texture of the fill of the robber's pit did not differ from the surrounding area of sandy soil mixed with humus, and it was not mixed with alluvial soil.

[51] Made of bronze or silver, judging from its greenish patina. The artefact has not been conserved or restored yet.

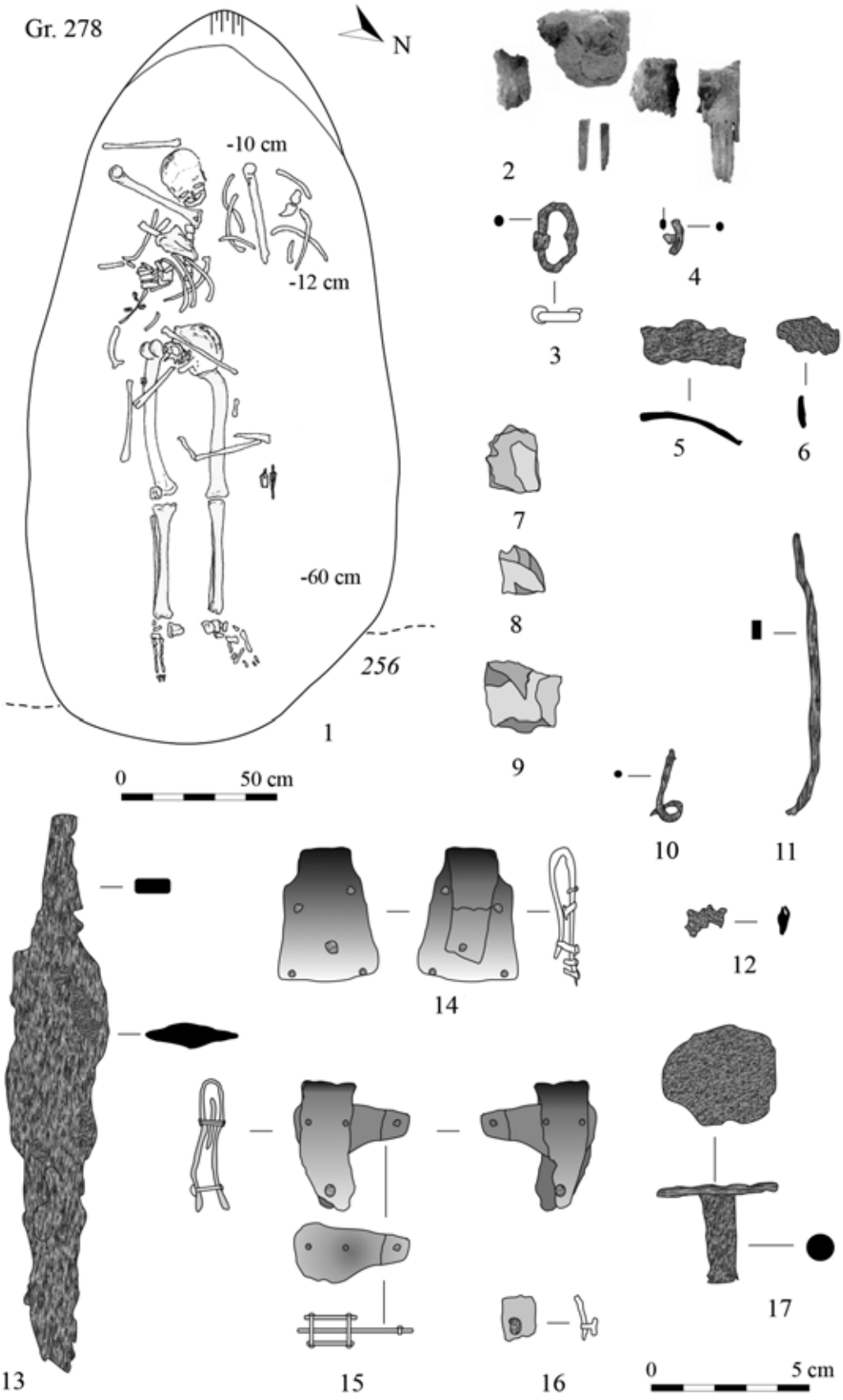

fig. 11. 1–17: Grave 278

The deceased was interred with the head to the south–southwest. The skull-cap was found 9 cm down from the shovel-shined level. The collarbones and vertebrae lay in the upper third of the grave's western part, at a depth of 30 cm. The other postcranial bones lay in the grave pit's northwestern third, on the grave floor. A few foot bones and the right shin bone perhaps lay *in situ* in the grave's southeastern part.

A longer time had elapsed between the funeral and the grave robbing. The grave robbing was indicated not only by the scattered bones, but also by the deformed grave pit *(fig. 12. 1)*.

A tortoise shell and a few smaller tortoise bones were found 10 cm lower.[52]

The grave pit's greatest length was 232 cm when first documented, its greatest width was 102 cm (SSW) and 120 cm (NNE), respectively. Axial length of grave floor: 210 cm, width: 60 cm (SSW) and 55 cm (NNE), depth 68 cm (+humus) in the south–southwest, 95 cm (+humus) in the north–northeast. Grave index: 2.1 (top), 3.6 (grave floor). Orientation of the grave pit: N+66°.

According to Balázs Gusztáv Mende, the skull and the postcranial bones indicate that the deceased was a 40-50-year-old man *(maturus)* of large-medium stature.

No finds were left in the grave after the robbery.

Grave 283

The grave lay on the hill's eastern slope, its floor was roughly in line with the flood level. It had an irregular oval soil mark. No traces of an alluvial soil level could be noted in the grave pit's wall and neither did the fill of the robber's pit contain any flood debris. Its northern part was cut by Grave 263, a child burial with a differing alignment. A fragment of the facial skeleton from Grave 263 was found at a depth of 40 cm.

The plundered and discarded skeletal remains lay deeper, over a 70 cm by 20 cm large area in the middle of the grave. The child was interred with the head towards the west–southwest. Only a few ribs, an upper arm bone and a thigh bone remained in the grave. [53]

The small heap of earth over the grave was eroded and washed away with time and the robbers dug their pit conforming to its changed form. The robber's pit appeared as a ditch-like cut from the south–southeast, some 125 cm from the grave pit's wall *(fig. 12. 2)*.

The grave's axial length was 200 cm on top, where its greatest width was 120 cm in the middle. The grave's uneven floor lay at a depth of 92–100 cm (+humus), and had an axial length of 180 cm, while its greatest width was 70 cm. Grave index: 1.6 (top), 2.6 (grave floor), orientation: N+79°.

According to Balázs Gusztáv Mende, the fragmentary bones indicated that the deceased was a 4-5-year-old child *(infans I)*.

No finds were recovered from the grave; the artefacts from the deeper grave had all been removed by the robbers.

Grave 285

The grave first appeared as a wet, large, irregular oval soil mark by the military trench on the southeastern edge of the southern slope. The trench cut through the grave's north–northeastern part. Its walls sloped, except for the south–southwest part where it was vertical owing to the cut of the trench. The floor was originally probably oval where the trench had not disturbed it.

The skull lay in the middle of the grave and thus the alignment of the burial could not be determined from the heap of bones. The skull lay higher and one of the pelvic bones was found at a depth of 20 cm at the edge of the trench. One striking feature was that the skeletal remains lay over a roughly 160 cm by 40 cm large area along the grave's midline, suggesting that the deceased had been interred in a very narrow coffin, or, less likely, that the width of

[52] The creature made its burrow in the looser grave soil for winter, see Bartosiewicz, this volume

[53] The half-excavated grave was disturbed by some unwanted guests over the weekend. The other broken bones were dumped beside the grave.

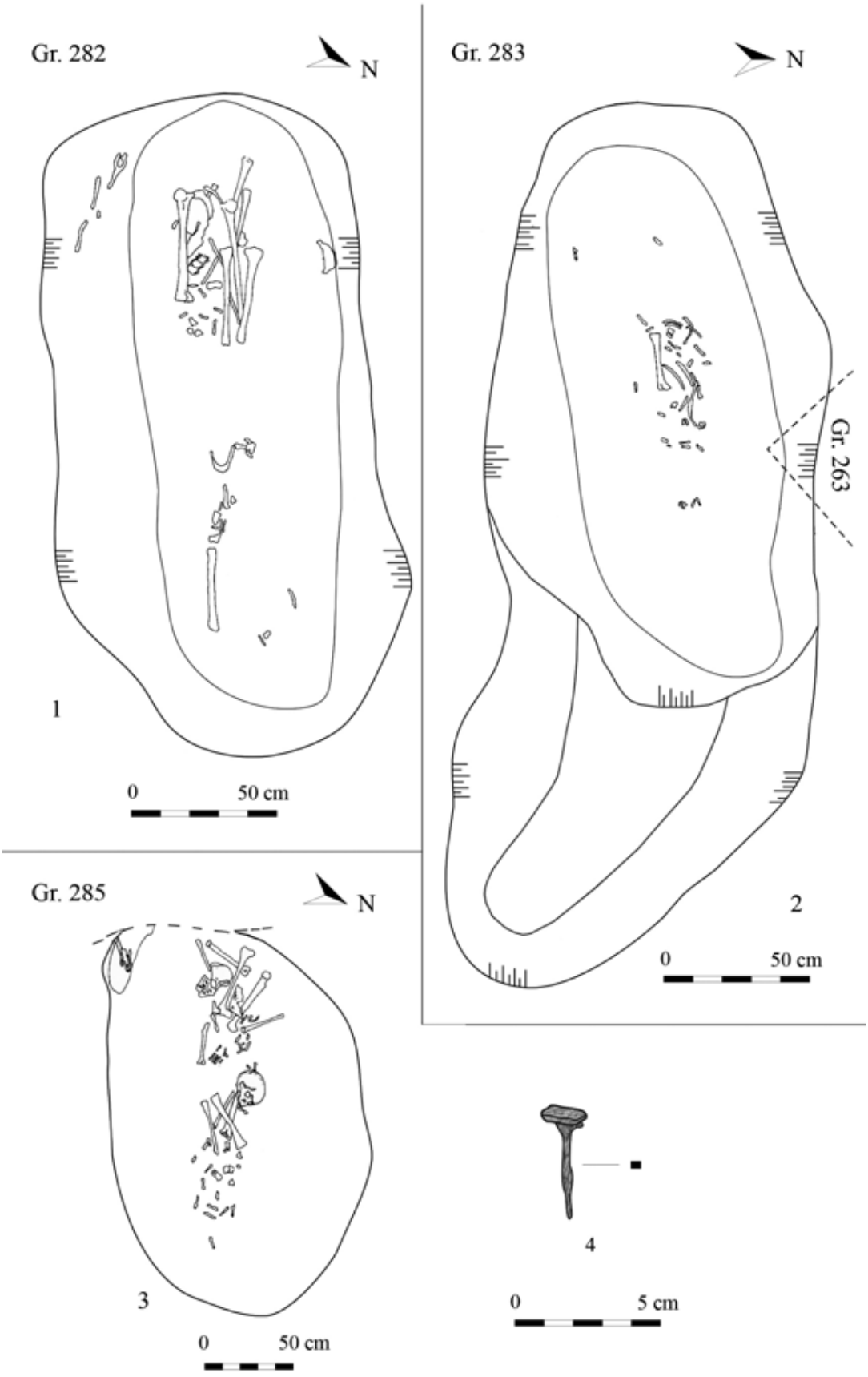

fig. 12. 1: Grave 282; 2: Grave 283; 3–4: Grave 285

40 cm was merely accidental. There were no stains indicating the one-time presence of wood in the grave.

The grave was looted a longer time after the funeral; the fill of the robber's pit did not differ from the grave's mixed sandy fill *(fig. 12. 3; 29. 3)*.

The grave's axial length was 205 cm, its width was 148 cm on top. The grave floor lay at a depth of 54 cm (+humus) by the trench and 64 cm (+humus) by the sloping wall. The axial length was 180 cm, the greatest width was 82 cm. Grave index: 1.4 (top), 2.2 (grave floor), orientation of the grave: N+62°.

According to Balázs Gusztáv Mende, the skull and the post-cranial bones indicated that the deceased was a 56-65-year-old man *(maturus)* of small-medium stature.

Grave goods

1. A disc-headed, rectangular-sectioned *iron nail*, found in the fill, probably one of the coffin nails *(fig. 12. 4)*.

Grave 287

A military trench (Feature 223) cut the grave in the head region. The grave was disturbed: the corner of Grave 270, an earlier burial, extended from the southwestern corner to the upper part of the right thigh bone and then turned left at right-angle under the pelvis *(fig. 17. 2–3)*.[54] Running diagonally, the military trench destroyed the upper section of the grave from the lower end of the left forearm to the right forearm.

The deceased was interred with the head towards the north. The three lowermost ribs on the right side and the other skeletal parts to the feet survived *in situ (fig. 7. 3)*.

The original grave, dug to a depth of 32 cm (+humus), was originally undisturbed. Length of grave (incomplete): 165 cm, width at the feet: 100 cm. Orientation: N+92°.

According to Balázs Gusztáv Mende, the deceased was a 40-50-year-old woman *(maturus)*. The bones were well preserved.

The shallow grave did not contain any grave goods.

Grave 289

Although the 96 m contour line runs across the grave *(fig. 1. 2)*, the grave had originally lain lower. The sand washed down from the hill after the sixth century covered the pale, indistinct soil mark of the grave in the north–northeast. Although the grave lay in the flood zone, there was no alluvial soil either in the fill of the grave or in that of the two robber's pits. The grave first appeared to be two pits cutting each other; the colour and hardness of their fill did not differ. Only during the excavation of the grave did it become clear that it was a plundered grave, which had cut through an earlier house (Feature 252). Farther down, the two robber's pits dug after the funeral could be clearly distinguished from the soil mark of the irregular oblong grave pit. The south–southwestern wall was steep, the north–northeastern wall was sloped.

The deceased had originally been interred on the back in an extended position, with the head to the south–southwest.

The grave was robbed twice. The first robber's pit was dug in the foot region, shortly after the funeral, before the decay of the ligaments *(fig. 31. 2)*. The body was dragged out from under the sand still partly covering the body by the left leg. This was indicated not only by the body's slightly diagonal position, but also by the position of the right leg bent at the knee and the fact that the lower leg bone lay obliquely and slightly higher *(fig. 31. 3)*. There were no stains suggesting the one-time presence of wood. However, the skeletal remains were found over an area measuring 170 cm by 50 cm at the time of the first grave robbing. The one-time presence of a plank or dug-out coffin can perhaps be assumed from the fact that the body had been pulled out following the removal of the coffin lid, and that this was when the right lower leg was placed on the coffin lid moved to one side.

[54] As in Grave 270.

The second robber's pit was dug in the region of the head *(fig. 31. 1)*. By this time, the body had fully decomposed. The deceased was disturbed from the pubis upward. The skull, the bones of the upper body and the pelvic bone were dumped in a heap in the head region. The robbers probably realised that the grave had already been plundered because they did not disturb the bones of the right arm and the left forearm. *(fig. 13. 1)*.

The grave's axial length was 235 cm, its greatest width was 120 cm in the south–southeastern part, 95 cm in the middle and 130 cm in the northeastern part. The grave floor lay at a depth of 215 cm (+humus). Length: 191 cm, width (south–southwest): 74 cm, width (north–northeast): 80 cm. Grave index: 2 (top), 2.5 (grave floor). Orientation of the grave: N+43°.

According to Balázs Gusztáv Mende, the deceased was a 40-60-year-old man *(maturus/senior)* of high stature. The robust bones survived in a good condition.

Grave goods

1. Fragment of a Roman *iron lock*, probably from the Roman house partly disturbed by the grave *(fig. 13. 2)*.
2. Several smaller, amorphous *iron fragments* were recovered from the fill; their association with the burial is dubious.

Grave 296

The grave lying below the 96 m line and a larger area to its southwest was covered with alluvial soil *(fig. 1. c)*. The child's grave with a greyish-brown fill was found underneath it, in the sand. The grave pit's walls sloped to the grave floor.

The child was interred in an extended position on the back, with the head towards the south–southwest. The child's thin skull was crushed. The burial was only disturbed by an animal burrow after the flood because flood debris could be noted in the burrow *(fig. 5. 4; 30. 2)*.

The grave's soil mark was 116 cm long and had a width of 84 cm at the head and 73 cm at the feet. Length of grave floor: 96 cm, width: 60 cm at the head and 55 cm at the feet. Depth: 50 cm (+humus). Grave index: 1.4 (top), 1.7 (grave floor). Orientation: N+68°.

According to Balázs Gusztáv Mende, the fragmentary skull indicated that the deceased was an 18±3-month-old child *(infans I)*.

Grave goods

1. Small *iron knife* with straight back and tang set centrally relative to the blade, broken in several pieces, in the right chest region. Remnants of wood were preserved on the tang. Length of tang: 2.7 cm, length of blade: 6.6 cm *(fig. 5. 5)*.
2. Oval *bronze buckle* with the tongue resting on the middle of the ring, where it thickened slightly. A 2–2.1 cm wide strap could be threaded through it *(fig. 5. 6)*.[55]
3. *Hand-thrown vessel* on the right side of the skull, tilted to one side with the mouth towards the skull. The brownish-black vessel had a black core and was poorly levigated with sand. The rounded rim is outturned, it has a ring base, the body is decorated with a pair of wavy incised lines running above and under the carination. Diameter of mouth: 9.2 cm, diameter of base: 7 cm, height: 7.6 cm *(fig. 5. 7)*.

Grave 297

The grave was in part dug into a Roman house (Feature 221).[56] It first appeared as several smaller soil marks with indistinct contours, and the fill of the house and the robber's pit could not be clearly distinguished. The latter was indicated by the deformation of the grave pit's wall and the position of the skeletal remains. The grave pit had an irregular shape at a lower

[55] *Vaday 2008* 50, middle photo.

[56] The following finds were redeposited in the grave fill from the house fill: body fragment of a brick-coloured bowl with red painting on the exterior and interior; base fragment of a brick-coloured, wheel-turned vessel; rim fragment of grey, wheel-turned pot.

depth too because the robber's pit had damaged its walls in several spots. No alluvial soil was found either in the grave, or in the robber's pit.

The deceased had probably been interred with the head westward. The skeletal remains dumped back into the grave covered a roughly 170 cm by 55–56 cm large area. The leg bones lay in the robber pit's eastern end.

The grave was plundered a long time after the funeral. It was clear that the robber's pit had been dug into the eroded heap of earth once covering the grave from the eastern end and that it had reached the grave's corner at a diagonal angle, destroying it *(fig. 13. 5)*.

Axial length of the grave with the robber's pit: 239 cm (top) and 209 cm (grave floor). Width of the robber's pit: ca. 100 cm (top) and 52 cm (grave floor). The grave had a depth of 110 cm (+humus) after clearing the grave down to a depth of 25 cm. The grave index could not be calculated. Orientation of the longitudinal axis: N+64°.

According to Balázs Gusztáv Mende, the deceased was a 51-64-year-old man *(maturus/senior)* of large-medium stature.

Grave goods

1. Oval iron buckle, found in a secondary position between the eastern grave wall and the mandible. The ring is oval in section, the tongue rests lightly on the ring *(fig. 13. 3)*.
2. Broken iron clamp. The broken straight section is 4 cm long and round in cross-section, and it bends at a right-angle. It was hammered flat from the bend to the pointed tip *(fig. 13. 4)*.

Grave 401

The child burial was found immediately under the ploughzone. The grave was not indicated by a soil mark; the smaller, irregular depressions filled with humus represented the deeper traces of ploughing *(fig. 7. 2)*. Agricultural activity had also disturbed the grave.

The upper body apparently lay on the right side, but in the absence of the legs, it could not be ascertained whether the body had been deposited in a crouched position. The small fragments of the crushed skull were scattered towards the south–southwest. The skeletal remains covered a 70 cm long area. Orientation of the longitudinal axis: N +33° *(fig. 7. 1)*.

According to Balázs Gusztáv Mende, the deceased was a 36±6-month-old child *(infans I)*.

The grave did not contain any finds.

Grave 408

The grave was marked by a few coarse-grained sandy soil marks after the two-day rain in the flood zone following the shovel-shining. The wall of the grave pit was only outlined faintly on the south–southwestern side. The remains of the upper body lay at a depth of 12 cm from the shovel-shined level, the feet at a depth of 56 cm. The reason for the difference between the two depths is that the hill slope had changed considerably since the sixth century. The sand washed down from the higher-lying part had formed a secondary layer overlying the feet at the foot of the slope and the only slightly greyer soil barely differed from the surrounding area. The animal burrows did not disturb the skeletal remains and secondarily redeposited blackish-brown alluvial soil could only be found in the burrows *(fig. 17. 1)*.[57]

The deceased was laid to rest in an extended position on the back, with the head towards the south–southwest. The forearms were crossed over the chest. The tight position of the legs, the drawn-up shoulders and the upper arms lying tightly beside the body suggested that the body had been wrapped in a shroud before deposition in the grave *(fig. 9. 1)*.

The grave was not too deep originally. Its width in the securely identifiable section was 48–50 cm. Orientation: N+53°. Length of skeleton in the grave: 122 cm.

According to Balázs Gusztáv Mende, the deceased was a 14-15-year-old adolescent *(infans II–iuvenilis)*. The bones were poorly preserved.

[57] The darker discolouration from the pelvis downward was caused by the water seeping into the ground after the rain. The grave was accidentally given the number 403 at the time it was photographed.

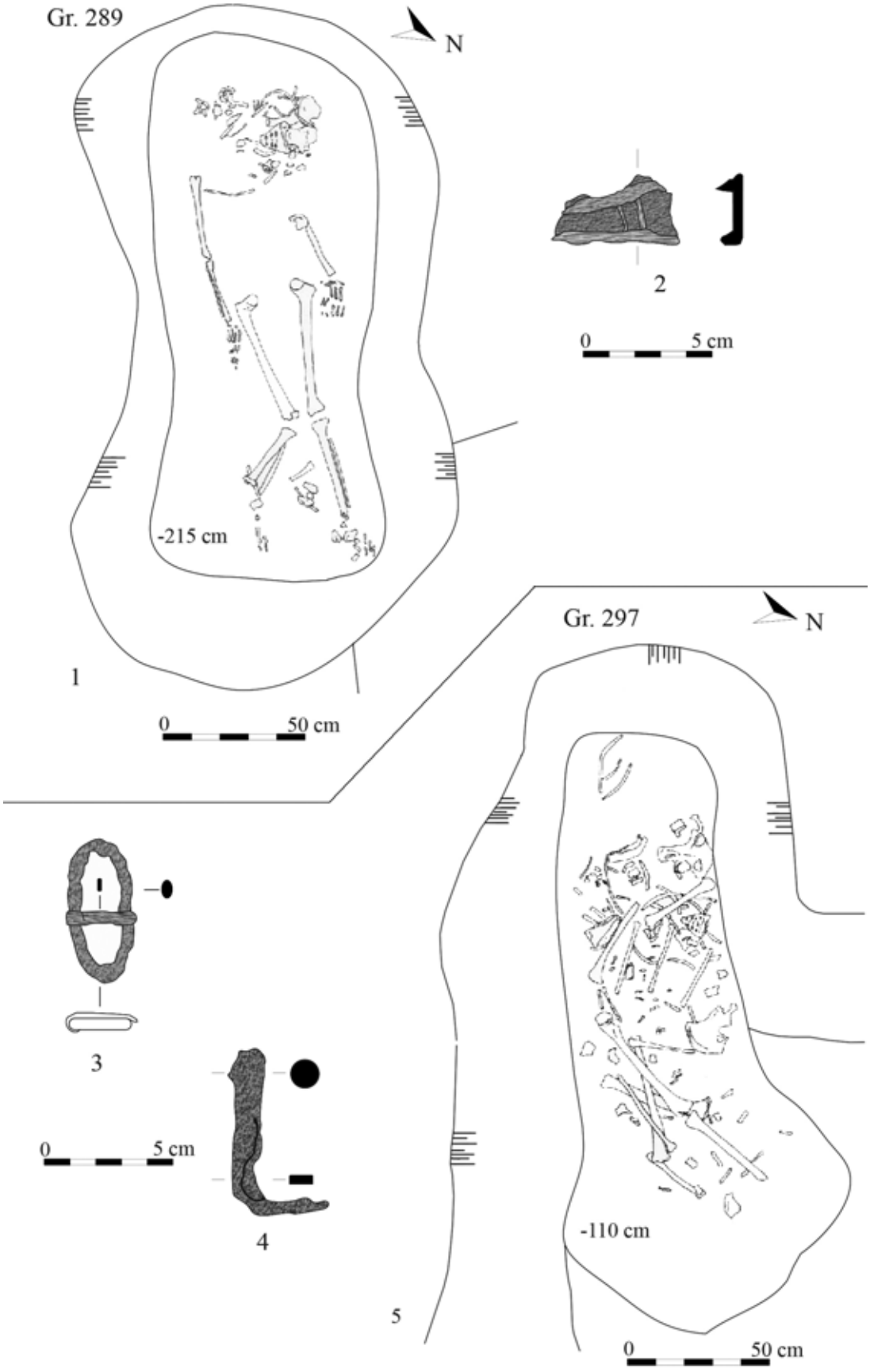

fig. 13. 1–2: Grave 289; 3–5: Grave 297

The grave did not contain any finds.

Grave 945[58]

Field diary: "Older woman, disturbed grave. It was indicated by a soil mark with black fill (depth: 58 cm+humus, orientation: SSW-NNE, 30 mils from N to W). During its clearing, we found animal bones at a depth of 10 cm and slightly lower. The feature cut through the Roman trench (in which there also lay animal bones). The pit narrowed on all sides down to a depth of 41 cm; there was a few centimetres' deeper oval pit section in the head region, in which we found a red, thick-walled, wheel-turned vessel (perhaps made by the Langobards). There were no bones or finds in this pit section. We found ribs on the left side of the lower third, and proceeding downward, we could identify the grave pit. We found the upper part of a body laid on the right side in a crouched position between 23 and 34 cm. The head lay higher, the pelvis and the legs had disappeared where the larger pit (i.e. the robber's pit) was dug. We did not find any grave goods."

The large feature initially believed to a robber's pit was a plundered grave which had been dug in the same location as the earlier, barely visible grave. This also confirms that the cemetery's shallower graves were not robbed.

Two animal bones and a vessel fragment appear on the grave plan (945/C).[59] According to Péter Tomka, the red, wheel-turned vessel with outturned rim, curved neck and rounded shoulder had "perhaps been made by the Langobards", although it is equally possible that it was a Roman vessel and that it had been redeposited in the grave's fill from the Roman ditch (Feature 965).[60]

Both burials lay in the flood zone. The soil mark with the black fill probably represented the alluvial soil because it was not observed deeper down either in Burial A or in Burial B, and thus both burials predate the flood. A longer time had elapsed between the two burials because the location of the earlier grave was barely visible on the ground *(fig. 16. 10)*.

Burial 945/A

The deceased was interred with the head towards the southwest. The skull of the deceased laid on the right side in a crouched position was found at a depth of 23 cm, while the ribs at a depth of 34 cm. The pelvis and the legs were probably destroyed when the other grave was dug. Surviving length of skeleton: 50 cm. Orientation: N+63°. There were no finds associated with the burial.

According to Balázs Gusztáv Mende, the deceased was an elderly individual *(maturus)*. The skull, the mandible and the incomplete, poorly preserved upper body as well as the SI value (+0.18) calculated from the skull's morphological traits indicate an indifferent sexual character. The deceased was ca. 171.92 cm tall, which corresponds to a high stature among men according to the Martin categories, and an extremely high stature among women.

Burial 945/B

The grave had a large, irregular, oblong soil mark. The sloping walls of the pit narrowed. It probably had an oval grave floor. Its northern and northeastern end was irregular.

No skeletal remains or other finds were recovered from the grave that, judging from its size, had been dug for an adult. The human bones thrown back into the robber's pit were probably destroyed by ploughing.

[58] Graves 945, 946, 962 and 968, lying under the humus dumps, were excavated by Péter Tomka. The humus dumps and the mixed ploughed layer were stripped away mechanically to the level where the graves were outlined. The anthropologist's assessment of the deceased's sex differs from the one appearing in the field documentation.

[59] These could no longer be found in the museum storeroom.

[60] Aside from the urns of the cremation burials, only one child burial contained grave pottery, while the other burials did not yield even pottery fragments.

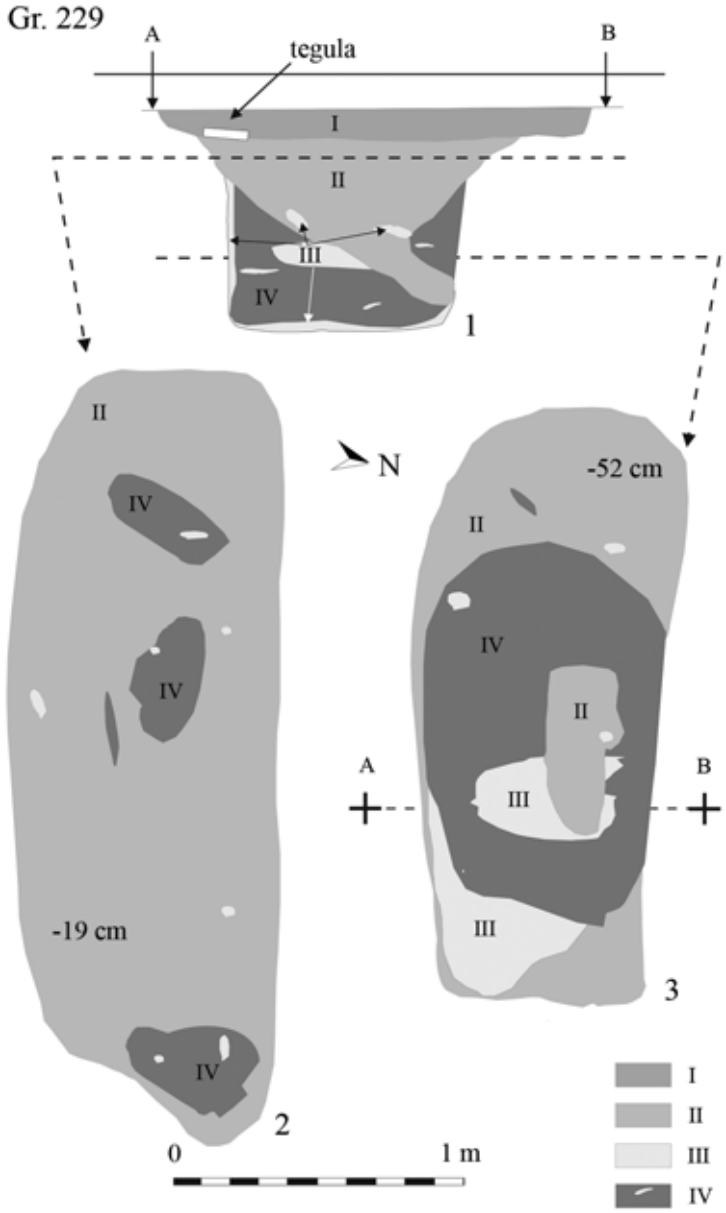

fig. 14. 1: S–N section of Grave 229; 2: top view at a depth of 19 cm; 3: top view at a depth of 52 cm. Key: I: plough zone; II: brownish-yellow, mixed sand; III: yellow mixed sand; IV: dark, brownish-black alluvial soil mixed with sand lenses

The soil mark had an axial length of 258 cm and a width of 135 cm and 102 cm, respectively. Length of grave floor: 220 cm, greatest width of grave floor in the middle: 80 cm. Grave index: 2.2 (top), 2.7 (grave floor). Total depth: 58 cm. Orientation of the axis: N+30°.[61]

[61] The orientation specified as N+° is based on the field documentation. In some cases, the mils recorded in the field diary differ, especially in the case of strongly disturbed graves. It is also uncertain whether the orientation specified in the field diary refers to the robber's pit or the deceased.

Grave 946

Field diary: "Male, disturbed. Depth 135 cm + humus, orientation: SSW–NNE, 30 mils. The skeletal remains were wholly mixed up in the relatively short but wide grave pit (the right thigh bone lay highest at 45 cm, the left thigh bone and shin bone obliquely towards the feet, the fragments of the crushed skull lay among the ribs, vertebrae, pelvic bone and shoulder blade in the head region: the front part of the facial skeleton with a part of the upper teeth, while there was no trace of the braincase and the lower mandible). The left foot and a few toes of the right foot were preserved *in situ*, the ankles, the facial bones and both bones of the left lower foot were more or less in their proper position (the right calf bone lay diagonally on them). The grave pit narrowed to a coffin-like form at a depth of 102 cm." [62]

The irregular oblong grave's sloping walls outlined a more regular oblong grave floor. The 188 cm long "coffin-like" feature with partly straight and partly sloping walls was noted at a depth of 102 cm. Its western end was damaged by the robber's pit. The corners were rectangular at the eastern end, in the foot region, where its width was 60 cm.

The deceased was interred with the head towards the south–southwest. The skeletal remains were found over a 190 cm by 65 cm large area, suggesting that they had been dumped back into the coffin. Only the bones of the left foot survived in anatomical order.

The grave was robbed after the complete decomposition of the body. The robber's pit was dug in the head region. It ran diagonally, damaging the grave pit's wall and the side of the coffin *(fig. 15. 1)*.

The grave had an axial length of 209 cm on top, and a width of 132 cm in the head region and of 123 cm in the foot region. The grave floor had an axial length of 199 cm and a width of 70 cm in the head region and of 82 cm in the foot region. Grave index: 1.6 (top), 2.6 (grave floor). Orientation of the "coffin" axis: N+62°.

According to Balázs Gusztáv Mende, the well-preserved bones and the facial skeleton fragments indicate that the deceased was an adult woman *(adultus)* with a stature of 167.27 cm.

Grave goods[63]

1. *Iron coffin clamp* with rectangular section from the fill. Both ends are bent at right-angles and have a pointed tip. Length: 4.6 cm, width: 0.8 cm, length of bent end: 2 cm *(fig. 15. 2)*.
2. Fragment of a similar *coffin clamp* beside a rib in the head region, among the disturbed bones. It is bent at a right-angle. Length: 4.2 cm, width: 1 cm, length of bent end: 2.2 cm *(fig. 15. 3)*.
3. According to the field diary and the grave plan, the *"disarticulate bones" of a pig* lay in the head region, on the left side of the upper third, outside the line of the "coffin" *(fig. 15. 4)*.

Grave 962

Field diary: "A roughly 6-year-old child. Depth 10 cm under the humus. Orientation W–E (16 mils). Laid on the back, extended. No grave goods."

The child was interred with the head towards the west, and lay slightly diagonally in the grave. The undisturbed child skeleton lay on its back in an extended position. The bones of the forearms, the hands, the feet and the smaller bones had perished *(fig. 15. 5)*.

The 151 cm long oval grave pit had a width of 60 cm in the middle, but was slightly narrower in the head region. The grave pit's side was vertical down to 10 cm, the two long walls and the wall at the feet was sloped. The grave floor was oval, with a length of 128 cm and a width of 46 cm in the middle. Grave index: 2.5 (top), 2.8 (grave floor). Orientation of the grave pit: N+98°; of the deceased: N+92°.

According to Balázs Gusztáv Mende, the deceased was a 5-6-year old child *(infans I)*.

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[62] The grave fill contained secondarily redeposited Bronze Age and Roman Age vessel fragments, among them the body fragment of a grey household vessel turned on a fast wheel.

[63] In the lack of conservation and restoration, the iron artefacts were in a worse condition when they were examined, drawn and photographed for the publication than when they were lifted from the grave.

Grave 968

Field diary: "Female, disturbed. Depth 108 cm + humus,[64] Orientation: W–E, 16 mils. She probably had a dug-out coffin – the floor of the grave pit was dished and the disturbed and *in situ* bones were in a 'cramped' position on the dished floor. We found the fragment of another skull on the level of the soil mark (perhaps from the neighboring burial, Grave 946). The skull was more or less in its proper position (although the lower mandible lay above and behind the skull, upside-down, and a rib extended to in front of the face), as were the upper arm bones (but the forearm bones were not: the bones of the right forearm lay outside the upper arm bone, partly parallel and partly sloping towards it, the bones of the left forearm lay cross-wise under the disturbed left pelvic bone and the sacrum). The ribs and the vertebrae were in disarray, we even found vertebrae by the thigh bones. The right pelvic bone was in its proper position, the left thigh bone was barely dislodged, while the right thigh bone lay across the left one, with the head pointing inward. The right shin bone remained *in situ*, the left shin bone was dislodged towards the head end, while the calf bone and the bones of the foot were in their proper position."[65]

The grave pit was oblong; its northern long wall was curved.

The woman was laid to rest in an extended position on the back, with the head towards the west. The robber's pit disturbed the chest and pelvic region, the right arm, the left forearm and the right thigh bone, and it dislodged the left thigh bone and the left shin bone. The other bones remained *in situ*, with the exception of the lower mandible. The tight position of the deceased too suggests interment in a coffin.

The scattered skeletal remains suggest that the grave had been robbed after the complete decomposition of the body. The field documentation would suggest that the robber's pit was dug vertically and that it had only slightly damaged the northern long wall *(fig. 16. 1)*.

Length: 192 cm, width at the head: 90 cm, greatest width at the curved section: 100 cm. Grave index: 2.1 (top). Orientation of the grave pit and the deceased: N+76°.

According to Balázs Gusztáv Mende, the deceased was an adult woman *(maturus)*. The well-preserved post-cranial bones and the broken skull indicate a very low stature of 148.47 cm.

Grave goods

Field diary: "Beads of a necklace on the right side of the disturbed chest, two beads found during clearing and the rest from the same area after the lifting of the bones. Seven beads: one white thick disc bead, two white iridescent globular beads with a yellowish shine, a yellow and a white flattened globular bead and two brown flattened globular beads."[66]

1. Bead necklace.
   a. A round-based, white, opaque globular *glass bead (fig. 16. 2)*.
   b. A similar short, white, cylindrical *glass bead (fig. 16. 3)*.
   c. A round-based, orange, flattened globular *glass bead (fig. 16. 4)*.
   d. A more irregular, red, flattened globular *glass bead (fig. 16. 5)*.
   e. A round-based, dark green flattened globular *glass bead (fig. 16. 6)*.
   f. End fragment of a segmented *glass bead* with gilding between two layers and the "neck" linking to the next segment *(fig. 16. 7)*.
2. Tang and blade fragment of a single-edged, straight-backed *iron knife*, lying on the inner side of the left thigh bone, along its middle section. Length of tang: 2.5 cm *(fig. 16. 8)*.[67]
3. Larger *iron fragment* under the place of the right thigh bone *(fig. 16. 9)*.

[64] Marked as 108+4 on the grave plan.

[65] The fill of the grave also contained secondarily redeposited body sherds from Middle Bronze Age vessels and the fragment of a Roman bowl decorated with red painted bands.

[66] Only six beads were found in the museum storeroom.

[67] As measured in the museum storeroom.

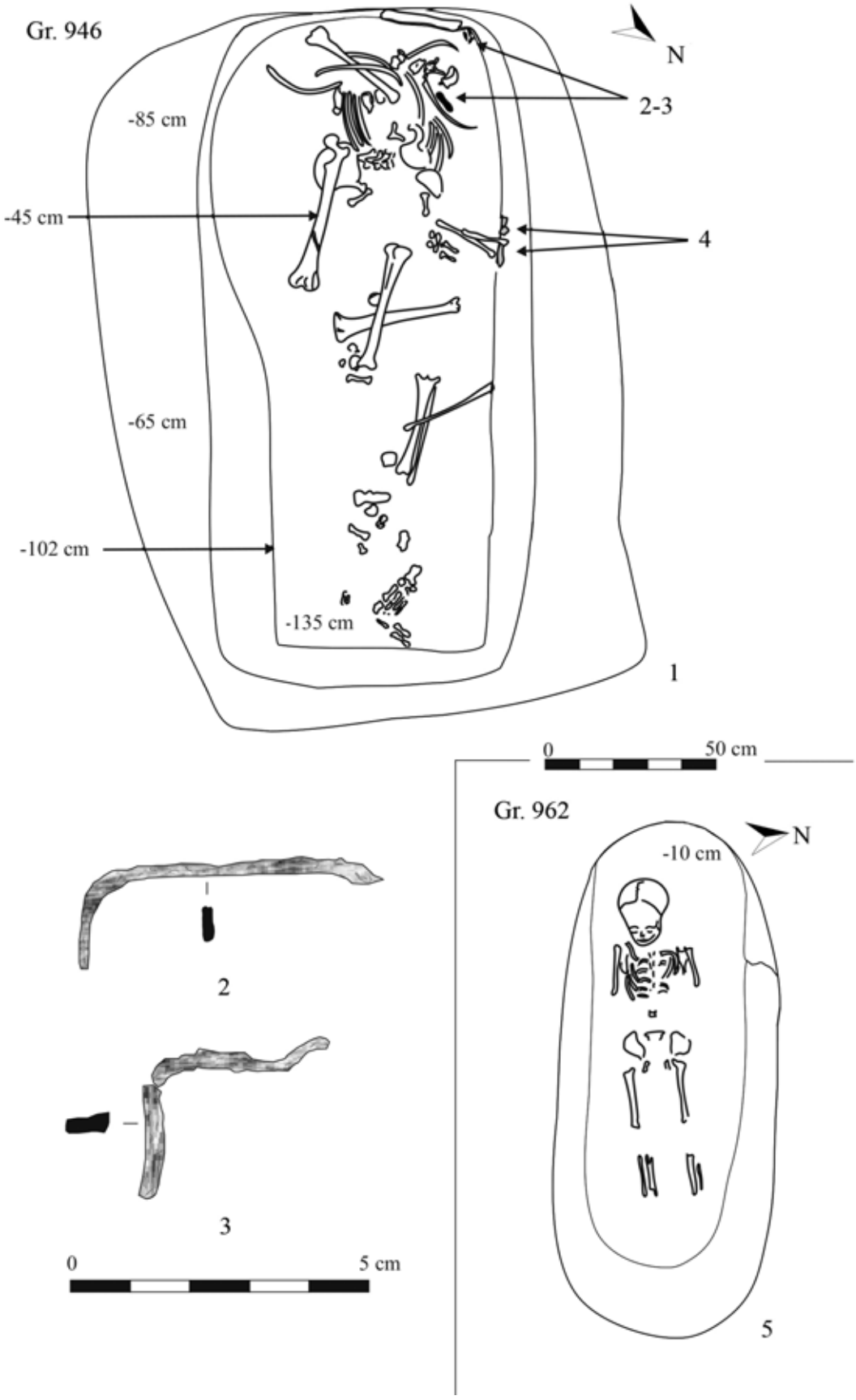


fig. 15. 1–4: Grave 946; 5: Grave 962

Cremation burials

Grave 222

The grave's soil mark was noted in the sand at the base of the hill's northwestern slope. Its outline was indistinct at a depth of 60 cm under the ploughzone. The urn's upper part was destroyed by ploughing, scattering the tiny fragments of the vessel, the charcoal from the pyre and small calcined bone fragments over an irregular area with a diameter of 35–40 cm. Ashes and smaller calcined bone fragments mixed with some charcoal lay at the bottom of the vessel. The vessel's 1–1.5 cm thick wall was noted in a soil mark with a diameter of 20 cm. The vessel was not buried immediately and the burning lasted longer in open air *(fig. 18. 1)*.

The black hand-thrown vessel was tempered with grit and lime lumps, it was fired in a reducing atmosphere and had a red core. The secondary traces of burning in its interior indicated that the human remains and the ashes were deposited in the vessel while they were still smouldering. The vessel broke into smaller fragments, its sides and base crumbled, in part owing to its firing in a reducing atmosphere and in part to the wetness of the soil.

A 15 cm by 6.5 cm large unfired adobe brick and the smaller fragment of a similar Celtic or early Roman brick was found on the north–northwestern part of the grave's soil mark when it was shovel-shined.

Grave 239

The cremation burial was found at the base of the hill's northern–northeastern slope, on the boundary of the ploughzone. It was destroyed by earlier ploughing. Its one-time location was indicated by smaller patches with a few pottery sherds, ashes and charcoal displaced by the plough. The grave pit could no longer be identified.

The poorly fired, hand-thrown, grey vessel tempered with lime and grit had a black core. It was broken into tiny pieces, which did not include rim or base fragments, or body sherds that could be refitted, and thus the vessel's form and size cannot be reconstructed. The ashes and charcoal found clinging to the inner side of a few fragments leave no doubt that the vessel had been used as an urn.

In addition to a few smaller vessel fragments, the mechanically removed soil also yielded an iron chain of one smaller and fifteen larger figure-of-eight-shaped links and a bronze ring to which rust from the iron chain had adhered. Diameter of ring: 2.4 cm, thickness of ring: 1 mm, width of ribbon: 4–5 mm *(fig. 18. 2–3)*.

Grave 261

The southern and southeastern, highest part of the hilltop was strongly eroded by ploughing. Plough marks of various lengths running parallel to one another in several directions were outlined by a greyish fill with humus in the sand *(fig. 18. 4)*. Ploughing had displaced vessel fragments from a Roman ditch.[68]

The cremation burial was indicated by a few scattered charcoal fragments and a small patch of ash lying west and northwest of the Roman ditch. Its eastern side was disturbed by an animal burrow with a darker fill. The grave's round soil mark was outlined rather faintly and with indistinct contours by the ditch's western side after shovel-shining at 97.43 m. The circular grave pit had a diameter of 48 cm. The grave survived to a depth of 15 cm under the ploughzone.

[68] Feature 256. Body fragments from grey and yellow wheel-turned and hand-thrown vessels, one decorated with brownish-red painting; rim fragments of grey, grit-tempered, wheel-turned, large storage jars; rim and neck fragment of a yellow, grit-tempered, hand-thrown pot whose interior was secondarily burnt to a dark red colour after breakage; rim and neck fragment of a yellow, wheel-turned bowl with polished exterior and interior; rim and neck fragment of a yellow, wheel-turned jug; rim and body fragment of a polished bowl; base fragment of a brownish-red, hand-thrown vessel tempered with grit, sand and mica; rim and neck fragment of a grey bowl decorated with dark grey painting and a radial pattern.

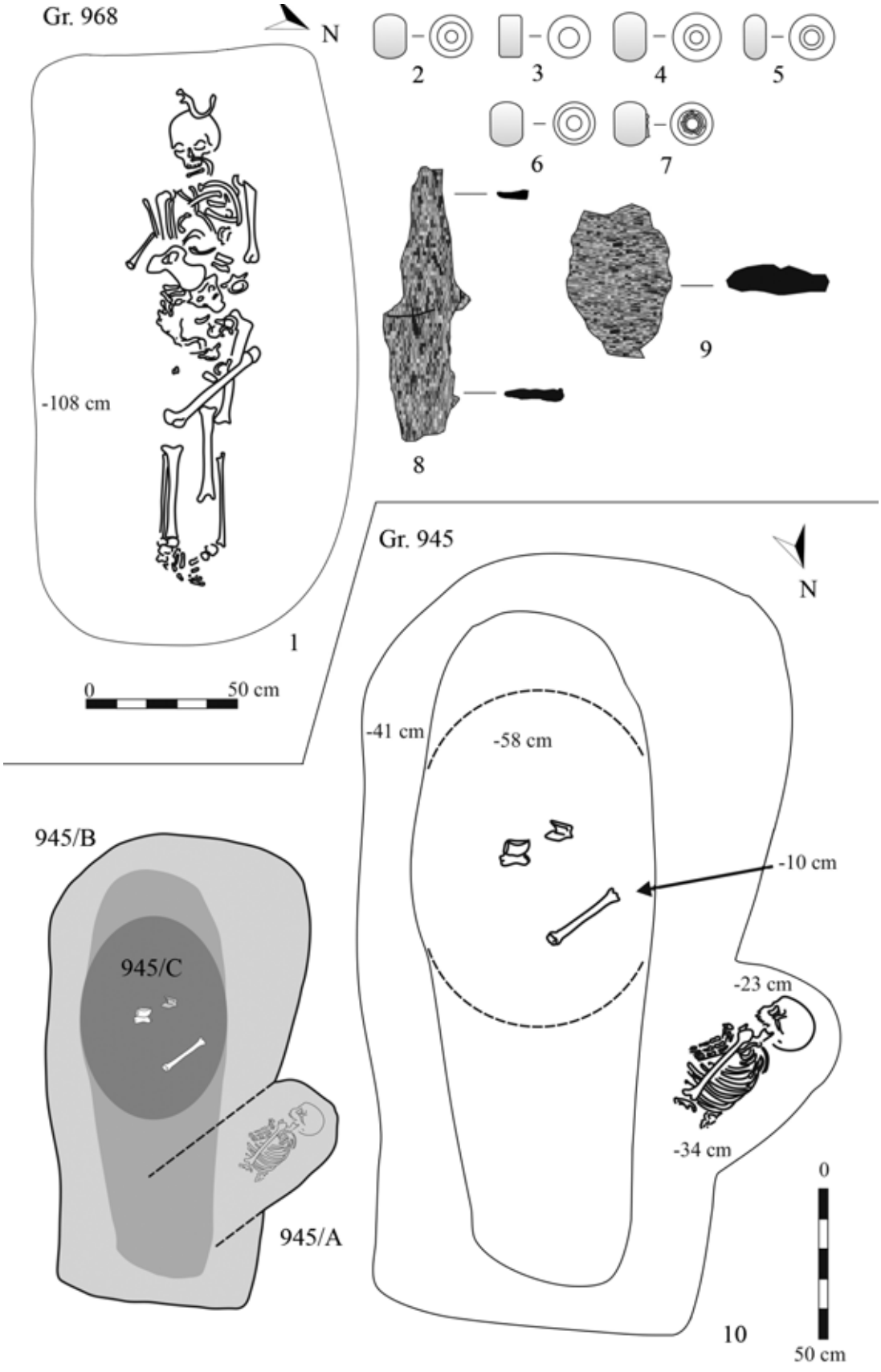
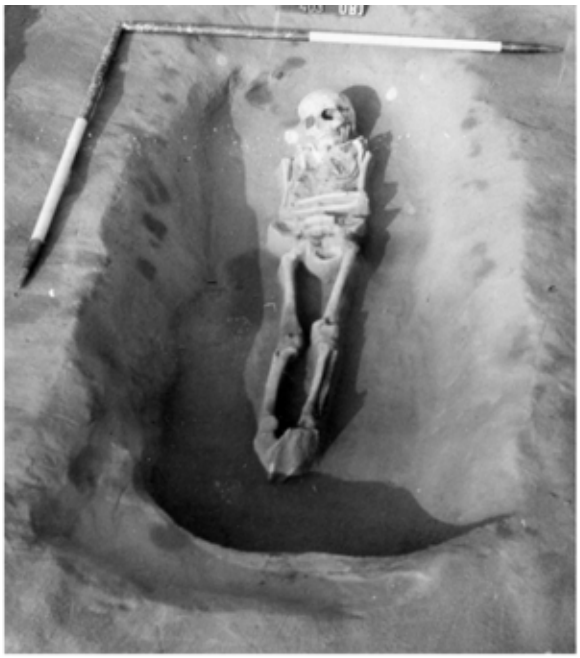


fig. 16. 1–9: Grave 968; 10: Burial 945/A and Burial 945/B



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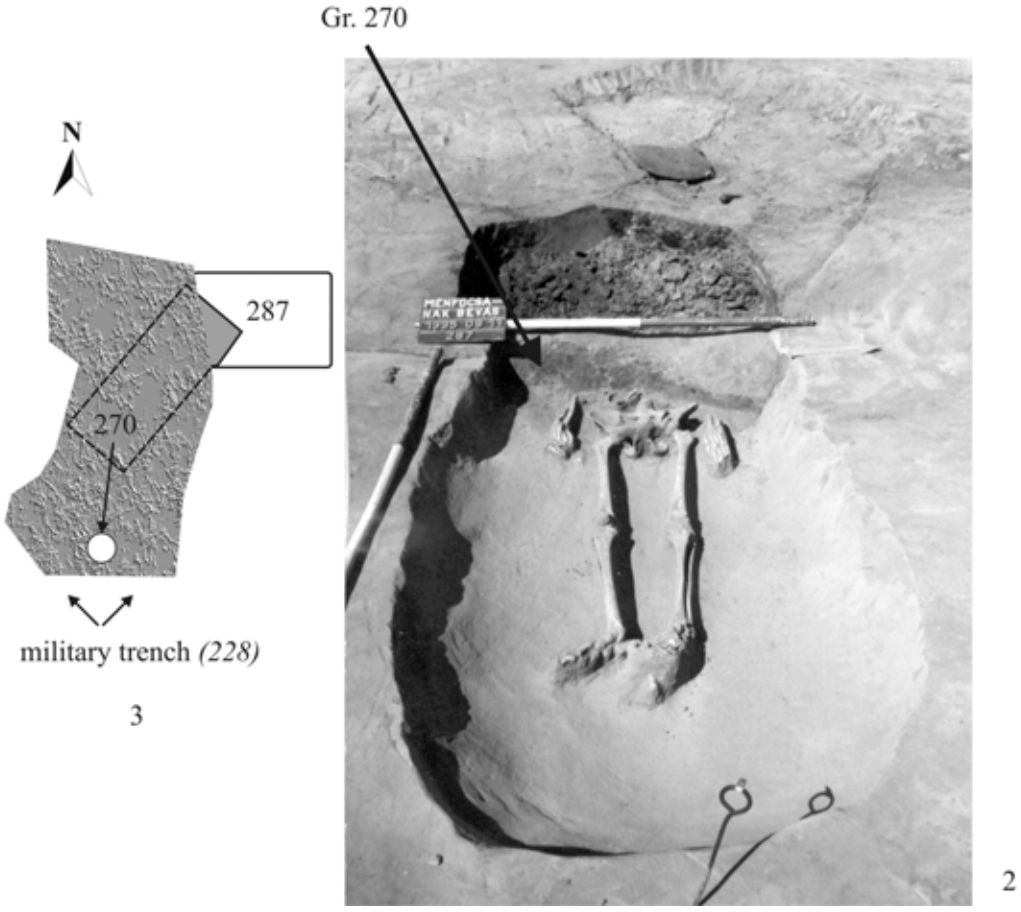

fig. 17. 1: Grave 408 on the hill slope; 2–3: Grave 287, disturbed by the military trench, and the corner of Grave 270, an earlier grave, outlined under the hand and the pelvic bone

The urn was dislodged from its original position by the plough, which also broke and overturned it. Its rim lay 5–6 cm under the shovel-shined level. Ash and tiny fragments of charcoal mixed with sand were found in its interior *(fig. 18. 4)*.

Only the rim and the rounded shoulder of the hand-thrown, grit-tempered vessel survived. The wall is 1 cm thick at the neckline and thins towards the rim and the belly. The blackish-grey vessel was fired in a reducing atmosphere and its core is layered: black-red-black-red. It became sooty both on the inner and outer side during firing *(fig. 18. 5)*.

Assessment

The Roman road network of Transdanubia remained in use during the Migration period and even later, during the Hungarian Conquest period,[69] and it is therefore hardly surprising that the archaeological legacy of the Langobards is often found by the decayed military and civilian buildings lying near these roads.

Remnants of a Roman road were also uncovered in 1993 during the excavations preceding the construction of Road 83, near the exit of Motorway M1, in the Szeles area. Only the foundation covered with gravel and small pebbles, and the deep drainage ditch survived of the Roman road. Wheel ruts with pebbles were identified in several spots.[70] The continuation of the road was uncovered south–southwest of this area. Two milestones were turned up during the mechanical stripping of the humus preceding the archaeological investigations in the area of the planned shopping centre. Another three milestones were found during the earth-moving operations, which were monitored, and a roughly 400 m long section of the Roman road's gravel layer was also identified. The road section with the milestones lay A BR(IGETIONE) XXXIII MP.[71]

The Langobard cemeteries found at Ménfőcsanak and Gyirmót both lie near this Roman road; however, no traces have yet been found of the settlements associated with these burial grounds.

The burial rite

Cremation graves

While cremation of the dead was the dominant funerary rite in the Lower Elba region, this was gradually replaced by inhumation. In Pannonia, however, some cemeteries contain a few cremation burials in addition to the overwhelming majority of inhumation graves. István Bóna uncovered ten inurned burials in the Kajdacs cemetery, which lay among the inhumation graves at distances conforming the usual distance between inhumation burials. In Bóna's opinion, the inurned burials indicated the presence of "Langobards newly arriving from the northwest" and of "a conservative community that had recently arrived from the Elba region".[72] Given that in contrast to cultivated areas, the shallow inurned burials had survived in the Kajdacs area, which had been covered with woodland since the Middle Ages, he concluded that biritual cemeteries had been much more common in Pannonia. Bóna compared the "probable uncertain inurned burials" at Tamási and Mohács to the similar

[69] *László 1942* 784; *Kovrig 1955* 38; *Bóna 1956* 198; *Sági 1960* 58–59. For a more recent discussion, see *Vaday 2013* note 544.

[70] Feature 1993/296 in the field report submitted to the Győr museum and the Archives of the Hungarian National Museum.

[71] *Szőnyi 1997* 97–98; cf. also *Szőnyi 1999* 83: "The section of the Savaria road uncovered during the construction of the road bypassing Csanak is merely a piece of topographic data to be included in site catalogues rather than evidence for a road that had once indeed existed."

[72] *Bóna 1993* 157: "Even so, Kajdacs-Homokbánya is one of the key sites of the later Langobard period (536–568)."

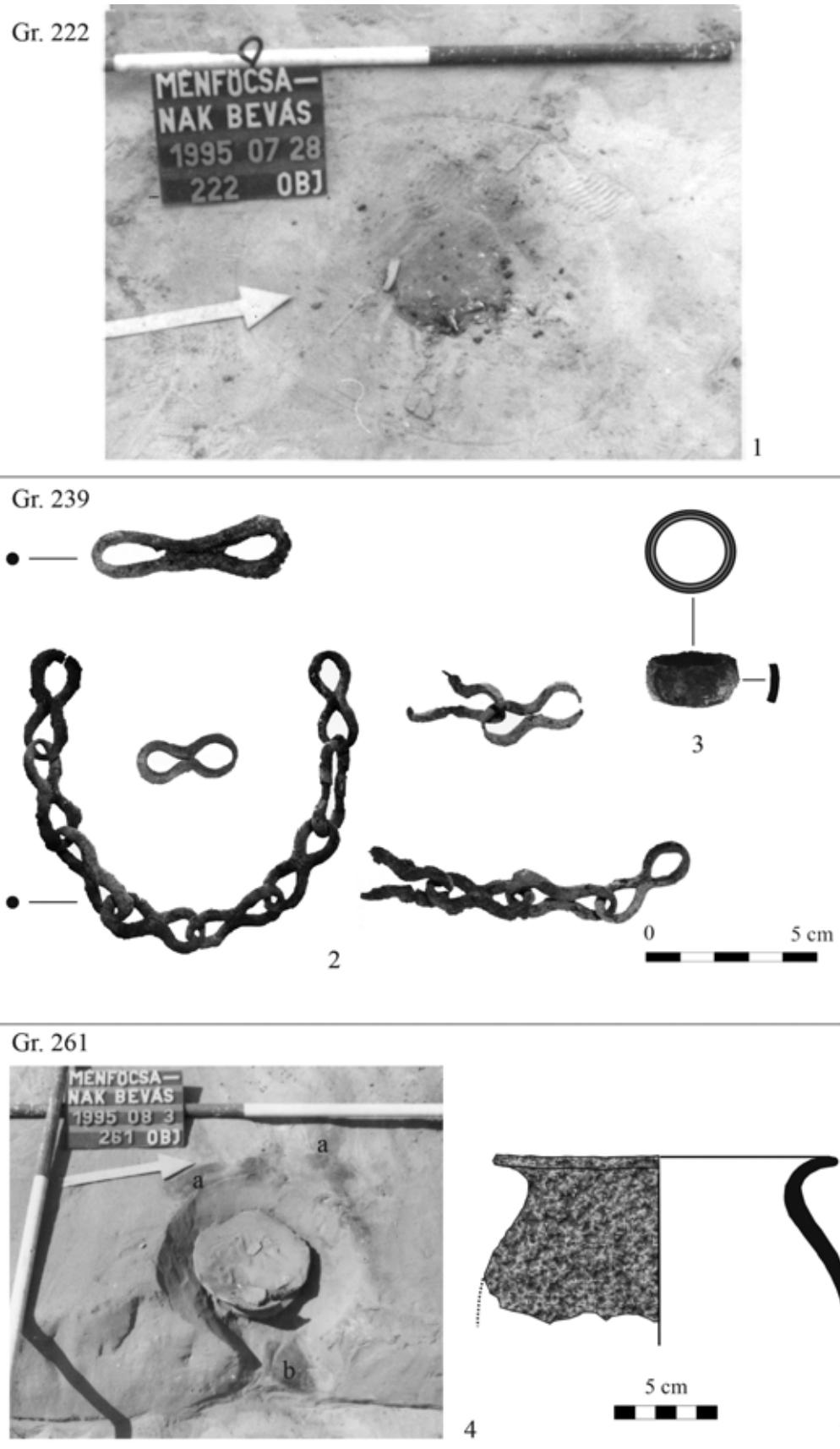

fig. 18. 1: Grave 222, a cremation burial; 2–3: the iron chain and bronze ring found near Grave 239; 4–5: Grave 261, a cremation burial, and its vessel

burials in Bohemia and Moravia.[73] However, it yet remains to be established whether the inurned burials can indeed be associated with Langobards or with another – non-Christian – population.

Transdanubia was characterised by a colourful ethnic patchwork owing to the *redemptiones* of the Roman Age and the presence of various population groups arriving in the wake of military events. Following the Roman province's abandonment, no military and civilian settlements and installations remained under Roman administration. Although the provincial population had also declined by the time of the Hunnic invasion, Transdanubia was not depopulated;[74] rather, its population was characterised by an even greater ethnic diversity. The practice of cremating the dead, known from some late Roman cemeteries, is also documented in the Hunnic period. It is possible that a part of the sixth-century shallow cremation burials can be linked to the surviving, ethnically heterogeneous population. This possibility should by all means be considered because several "provincial" servants' graves, which are much shallower than the Langobard burials, can be found in the Langobard and Langobard-period cemeteries.

In Hungary, the burial grounds at Gyirmót and Ménfőcsanak are among the northernmost biritual Langobard cemeteries. At the latter site, the ground was not burnt around the three cremation burials found scattered among the inhumation graves, providing incontestable evidence that the funerary pyre had not been raised over the grave pit. There are few cremation burials in the Pannonian cemeteries and there was no separate communal cremation place.[75] The cremation of the body was probably performed farther from the cemetery, in ad-hoc locations. This is also supported by the urn from Grave 222, whose interior bore patches of secondary burning caused by the still smouldering remains of the pyre and the deceased. The vessel was not buried immediately, the burning lasted longer in the open air until the urn was taken to the cemetery.

Grave form and grave size

The form and size of the graves and of the robber's pits were influenced by several factors. One of these was the soil of the cemetery area and the weather. Loose, sandy soil tends to collapse during dry spells, making the wall of deeper graves slope. In rainy weather, loose soil becomes more compact, and the walls of the grave tend to slope more steeply. The soil is most compact in winter, during the winter frosts, when the grave pit's walls can be vertical. The walls of shallow graves do not collapse or collapse but rarely, their form is more regular than the deeper graves of individuals with a higher social status.[76] Graves with ledges are typical forms.[77] Károly Sági suggested that the ledges were made with a view to the dangers of the collapsing walls.[78] This view was shared by István Bóna, who agreed that the ledges were made owing to the great depth of the graves.[79] Among the deepest graves at Ménfőcsanak, Graves 245 and 262 had a ledge, and a similar form can be assumed in the case of Grave 251. It remains uncertain whether Grave 254 also had a ledge owing to the damage caused by the robber's pit. In contrast, Grave 289 did not have a ledge, despite its great depth. A comparison

[73] *Bóna 1993* 121–122.

[74] In contrast to the views assuming rigid boundaries between periods without any continuity, László Barkóczi contended that a part of the Pannonian population had survived. András Mócsy and István Bóna disagreed with him, although András Mócsy changed his mind a few years later and argued for continuity. István Bóna spoke about a surviving provincial population even later, in his discussion of the Hegykő group.

[75] *Ustrina* have only been documented in the towns and larger settlements during the Roman Age.

[76] At Bezenye, the walls of Grave 73, an unplundered burial with a depth of 220 cm, similarly narrowed downward: *Bóna 2001* 192.

[77] E.g. Várpalota, Grave 25: *Bóna 1956* 190, Abb. 22; Mohács, Grave 3: *Kiss – Nemeskéri 1969,* 107, Abb. 4; Mödling, Grave 2: *Stadler 1979*, 34, Abb. 3; for the ledged graves found at Szólád see *Peters et al. 2014* 341–342.

[78] Vörs, Graves 19 and 20: *Sági 1963* 47–48 and figs 27 and 30.

[79] Rácalmás, Graves 7, 9, 15 and 16, Kápolnásnyék, Grave 2: *Bóna 1971* 233 (17).

of these graves indicates that the ledges in some grave pits were created intentionally and that the deepest graves include forms both with and without a ledge.

It has been noted in the case of some ledged graves that the deeper section of the pit between the ledges was covered with logs and planks laid cross-wise,[80] creating a sort of funerary structure, and that the coffin was lowered into the grave between the ledges.[81] The later use of ledge graves has been documented in Italy, as has the custom of covering a part of the grave with planks and logs.[82]

At Ménfőcsanak, the form of thirteen of the thirty inhumation burials[83] – which either lay directly under the ploughzone or were strongly disturbed – can no longer be determined. A comparison of the grave indices recorded at the level they were first noted *(fig. 19. 1)* and on the grave floor *(fig. 19. 2)* of the graves of differing depths reveals the differences between the form of the soil mark and the actual form of the grave.

The indices of the grave floor fall between 1.6 and 3.8. Graves with an index of 1–2 have a more or less square form, while the graves with a higher index gradually narrow and have an oblong, trapezoidal or oval form. The index values of the small child burials do not differ significantly from those of the adult burials.

Deposition

Most of the deceased in the Pannonian cemeteries, including Ménfőcsanak, were laid to rest in an extended position on the back. The body generally lay parallel to the grave walls.[84] Internment in a crouched position was more rare and was usually employed in the case of children[85] and servants, who were laid on their side with the legs drawn up. Grave 263 was the burial of a child laid on the left side. In Grave 242, the servant woman was laid on her back, but the position of the surviving left pelvic bone and the left thigh bone suggested that her legs had been slightly drawn up on the right side into a crouched position. The deceased in Burial 945/A was laid on the right side.[86] Deceased interred in a frog position were not found in the Ménfőcsanak cemetery.[87]

In the case of burials that were plundered shortly after the funeral, we must examine whether divergences from the regular, extended position of the arms and legs represent the original deposition or a secondary position owing to the disturbance by the robbers, as in the case of the left shin bone of the deceased in Grave 262 of the Ménfőcsanak cemetery.[88] The irregular position of the arms can often be attributed to grave robbing.[89] The placement of the deceased on the belly is a rare, deviant position, but it can sometimes also be explained by how the grave had been robbed.[90]

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[80] E.g. Vörs, Grave 21: *Ságі 1963* 70; Kádárta, Grave 7: *Bóna 1993* 122.

[81] E.g. Hegykő, Grave 18: *Bóna 1960* 236.

[82] E.g. Castel Trosino, Graves 12 and 77: *Mengarelli 1902* 20 (163), figs 17, 18.

[83] Graves 241, 242, 263, 270, 278, 285, 287, 297, 401, 408, 945/A, 945/B and 968.

[84] The deceased was laid diagonally in Grave 2, an unplundered burial, at Mohács. *Kiss – Nemeskéri 1969* 98, Abb. 3. 3.

[85] Graves 4–5, 9, 12–13 and 22 contained child burials with the deceased crouched on the right side. *Beninger – Mitscha-Märheim 1970* 20.

[86] E.g. Castel Trosino, Grave 22: *Mengarelli 1902* 86 (230), fig. 79; Kajdacs, Grave 30: *Bóna 1993* 123.

[87] As, for example, the servant buried in Grave 36 at Hegykő: *Bóna 1961* 131, note 4, with the literature on Grave 8 at Altesing quoted as a parallel. *Bóna 1998* Taf. 2. 4–5.

[88] In Grave 30 of the Schwechat cemetery, the left shin bone of the deceased lay higher because the grave was plundered immediately after the funeral. *Adler 1979* 12.

[89] For example, in Grave 65 at Pottenbrunn, the left hand of the deceased buried in a wooden chamber lay on the right shoulder. The mount-decorated sword-belt was left behind by the grave robbers, who took the sword from the grave that was looted shortly after the funeral. The sword had originally lain on the left side, under the arm or the hand, which was moved in order to remove the sword. Pottenbrunn Baustelle HL–AG Nordteil Parzelle 1637/1, Grab Verf. 65: *Neugebauer 2001* Pl. 9, Abb. 76. 1.

[90] Oberbierbaum (Gemeinde Maria-Ponsee) Grave 27: *Adler 1970* 143 and Abb. 4. The grave was 235 cm deep and it was robbed shortly after the funeral. The grave plan clearly reveals that the body was displaced during the grave's plundering and that it was found in a secondary position.

Dug-out and plank coffins often occur in the same cemetery.[91] Both types include more regular oblong forms and trapezoidal forms widening towards the head. Oblong and trapezoidal coffins jointed with nails or dowels occur south of the Danube. István Bóna claimed that these were first used in Pannonia and that one part of these coffins occurred in Danubian Germanic graves.[92] Károly Sági documented the use of oval shaped and sectioned coffins at Vörs.[93]

At Ménfőcsanak, wood remains survived in a better condition only in the graves which were continuously waterlogged.[94] Light brown stains left by wood could be occasionally observed in the Langobard graves. However, the position of the deceased and the method of how the grave was robbed indirectly suggest that some graves had contained coffins.

The coffin lid was sometimes attached with small iron clamps;[95] it seems likely that the rectangular-sectioned hammered iron clamps from Ménfőcsanak had served the same purpose. The two damaged iron clamps from Grave 946 could equally well originate from the lid or the coffin proper.

In Grave 254, a strongly disturbed burial, the skeletal remains of the woman were found over a 200 cm by 65 cm large area, suggesting that her bones had been dumped back into the coffin. An iron nail *(fig. 7. 6)* perhaps comes from the coffin lid. Although Grave 285 did not contain any wood remains either, the man's remains lay over a 160 cm by 40 cm large area, again suggesting that the bones had been thrown back into the coffin, whose lid had originally been secured with a rectangular-sectioned iron nail *(fig. 12. 4)*.

Although no wood remains were found in Grave 272, the tight position of the legs and of the right arm by the body implied a rather narrow coffin. The body's tight position could also be explained by a funerary shroud, although in this case, this option can be rejected because the grave robbers had pulled out the woman by her left arm, which would only have been necessary in the case of a coffin.

Wood remains were solely found above the deceased in Grave 262, and it is therefore impossible to determine whether the deceased had been interred in a coffin or whether planks had been laid across the ledges.

Péter Tomka assumed that Grave 968 had contained a dug-out coffin.

The deceased buried in Grave 5 at Vörs had been covered with a carpet.[96] It seems likely that individuals interred without a coffin were covered with, or sometimes wrapped in, a funerary shroud. At Ménfőcsanak, the shallow graves did not yield any evidence for the presence of coffins. The tight, cramped position of the body in Grave 408 suggests that it had been wrapped in a shroud *(fig. 9. 1; 17. 1)*.

Layout of the burial ground

The graves in Langobard cemeteries do not always form regular rows.[97] Four graves in the Mödling cemetery section investigated in 1977 formed a north to south row,[98] while three grave lay east of the regular row,[99] at uneven, different distances from the each other and the regular row.[100] The grave rows in the Erpersdorf burial ground formed two distinct groups, with the

[91] At Mödling, for example, three graves contained a rectangular plank coffin and one grave a dug-out coffin: see *Stadler 1979* 38. The dug-out coffin of Grave 6: *Stadler 1979* Abb. 3. At Schwechat, the deceased in Grave 28 had been deposited in a dug-out coffin that was wider at the head, while Grave 34 had a plank coffin: see *Adler 1979* 13, Taf 4, 3 and 17.

[92] *Bóna 1993* 123, with a list of the sites.

[93] *Sági 1963* 39–40, Grave 15: fig. 19/A; Grave 17: fig. 21/A–B; Grave 20: fig. 29; Grave 37: fig. 61.

[94] A Celtic grave and most of the wells were waterlogged during the excavations on Road 83.

[95] *Bóna 1993* 123.

[96] *Sági 1963* 265.

[97] For a discussion of cemetery layouts, see *Bóna 1988* 64–65; *Bierbauer 1993* 112–113, with the earlier literature.

[98] Grave 3, a child burial, and Grave 4, most likely another child burial, lay between Graves 1 and 2, both adult burials. The western head parts of the graves were in line and their axial orientation was more or less identical.

[99] Grave 6, the burial of a man laid to rest with his lance and sword, Grave 7, a girl's burial, and Grave 8, an empty burial.

[100] *Stadler 1979* 33, Plan 2.

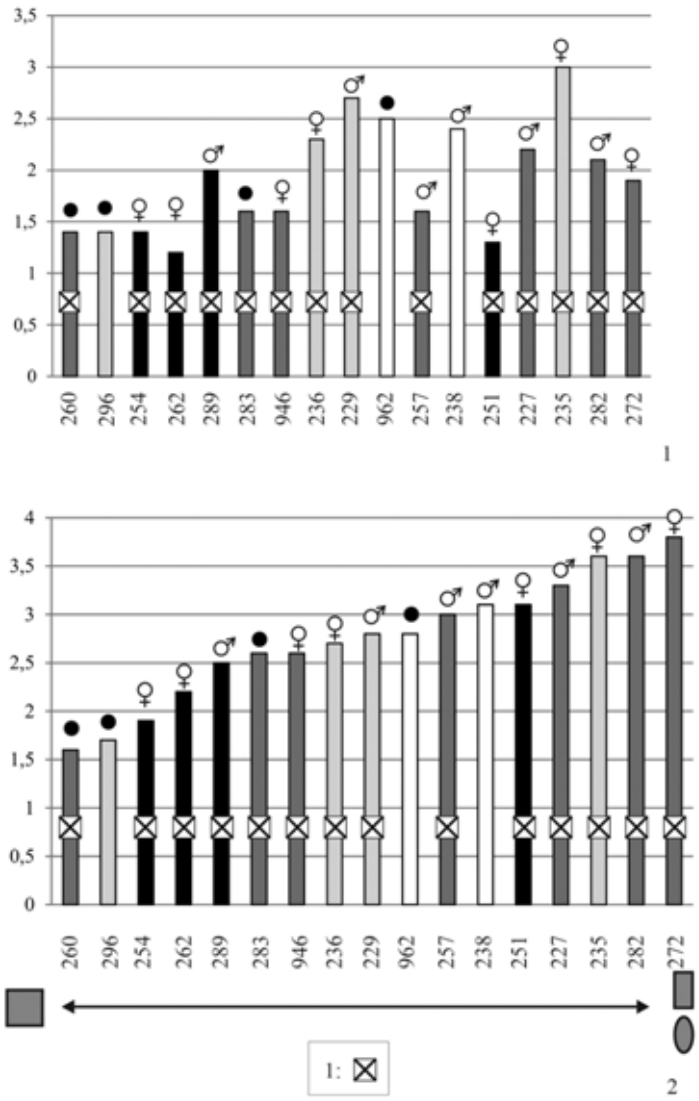

fig. 19. 1: Grave index (top); 2: Grave index (grave floor). Key: 1: plundered burial

axis of individual graves differing from each other and the shorter side in the head region was rarely aligned to the neighboring grave.[101] Of the two grave rows at Poysdorf, the western one was regular, while the graves in the eastern one were more sparsely and irregularly spaced.[102] The cemetery section uncovered at Nikitsch Kuzmich-Hof had four graves forming a north–northwest to south–southeast row, in which the graves had a more or less identical alignment and were spaced 2–3 m from each other,[103] while Grave 8 lay farther away, at a distance of 5.5 m from these. The other grave row lay west of the previous one, and the burials formed a curved row.[104] In addition to the four regular, west to east aligned grave rows at Steinbrunn, there were also grave groups lying southwest and southeast of these rows. The orientation and axis of three graves in the southwestern group was similar, while the fourth grave (Grave 20) had a different alignment. The grave row was aligned north–northeast to south–southwest.

[101] *Hampl 1965* Abb. 2 and Abb. 17.
[102] *Beninger 1966* Abb. 2.
[103] Graves 7, 6, 1 and 9.
[104] Graves 2 and 5 were spaced 2.5 m apart, Graves 4 and 3 lay some 6 m south–south-east of the former and had a slightly different axial alignment: *Beninger – Mitscha-Märheim 1970* Abb. 4.

The south–southeastern grave group was similar. Three graves had a west to east axis, of which two had a virtually identical axis and orientation. The fourth grave in this group again differed substantially in terms of its orientation from the other graves in the cemetery.[105]

The graves in the cemetery sections uncovered in County Fejér were arranged irregularly at distances of 4–6 m in a "chequerboard"-like arrangement.[106] At Šaratice, the cemetery's western part had south to north grave rows with relatively evenly spaced graves, while the later graves in the eastern part were more scattered and seemingly irregularly arranged.[107] At Vörs, the graves with differences in their orientation formed five south to north aligned grave rows, although there were no chronological differences between the rows and the graves did not form a chronological sequence.

Slightly irregular, west to east aligned grave rows were found at Gyirmót, and the graves at the cemetery's edges had an even more haphazard arrangement.[108]

Károly Sági argued that the graves of each family formed separate clusters in the kindred cemetery at Vörs and that similarly to the Šaratice cemetery, the empty areas were burial places reserved for the family's members.[109] However, it seems more likely that the outermost graves of neighboring families, whose burial areas were allotted at greater distances from each other when a burial ground was opened, gradually lay nearer to each other with the passing of time.[110]

Individual burial groups could be identified in cemeteries with a higher number of burials. At Hegykő, for example, there were two separate grave groups,[111] although the graves in this burial ground lay closer to each other.[112]

The differing cemetery layouts and the location of the graves were no doubt influenced by the terrain, while the orientation of the graves by the date of the funeral. At Ménfőcsanak, more graves could be dug on the hill's northern, more gentle slope than on the steeper side. The graves are rarely closely spaced, only in cases when the pile of earth over the earlier grave was still visible at the time of the funeral and if the terrain enabled this. It would appear that the hilltop was intentionally left out when the burial location was chosen because we did not find any inhumation burials there. Grave 261, an inurned cremation burial, lay at 97.5 m on the hill's highest point at the edge of the earlier ditch running along the modern military trench's western side. The urn's upper portion was destroyed by ploughing. It was not dug deeper than 40–50 cm originally. In contrast, even the shallowest inhumation burials were at least 60 cm deep, and thus we can exclude the possibility that any inhumation graves in this area had been completely destroyed by erosion and ploughing.

The inhumation burials of differing depth lay in two groups on the hill slope from the east and west, forming twelve north–northwest to south–southeast oriented rows *(fig. 20. 1. A–B)*.

[105] *Mitscha-Märheim 1966* figure on p. 106. There is no information on graves in the area destroyed by sand mining between the two latter grave groups.
[106] *Bóna 1971* 233 (17).
[107] *Staňa 1956* 27, Abb. 6; *Werner 1962* 111, Abb. 26.
[108] *Tomka 2005* 258, Abb. 3.
[109] *Sági 1963* 69.
[110] It might be instructive to examine the chronology of the grave groups relative to each other in burial grounds containing the burials of several families because this might shed light on whether there were one or more families living in the village and whether a new burial area lying farther from the others was allotted to the new leader and his family after the death of the previous leader.
[111] *Bóna 1961* 121; *Bóna 1998* 109, the latter without reference to the illustrations.
[112] *Bóna 1960* 233.

Grave row	Inhumation grave							Cremation grave	Σ1
	Adult				Child			?	
I	289	968, 282				296			4
II			235		260				2
II–III?	251								1
III		946	229						2
IV			236					222	2
V		272							1
VI		227	278, 945/B	238, 945/A			962		6
VII								261	1
VIII				270, 287	283		263		4
IX			285	242					2
X	262						401, 408	239	4
X–XI?	254								1
XI		257							1
XII		297	241						2
Σ2	**4**	**7**	**7**	**5**	**2**	**1**	**4**	**3**	**33**

Group A was made up of one cremation and seventeen inhumation burials, while Group B of thirteen inhumation and two cremation burials. The deceased were interred with the head to the west in twenty-seven inhumation burials, with various divergences depending on the time of the funeral.

In Graves 227 and 254, the deceased were laid to rest with the head towards the east, with a reverse orientation. The reverse deposition of the deceased is very rare in Langobard cemeteries.[113]

Group A (western grave group)

The woman wearing the belt adorned with silver mounts (Grave 251) was probably the family's highest-ranking member. The grave depth and the arrowhead confirm that she was a member of the warrior elite. Grave 289, a male burial, which lay beside the woman's grave, was one the cemetery's deepest burials, but since it was plundered twice, no articles signalling status survived in it.

The man with the comb interred in Grave 278 was a member of the armed retinue, as was the man buried in Grave 282 and, judging from the grave depths, the women in Graves 272, 946 and 968 were members of the family. Grave 296, a child burial, lay closest to Grave 282. Child graves were much shallower than adult burials and it seems likely that the child was a member of the family of the man interred in Grave 282. Another child burial (Grave 260) lay between the women in Graves 946 and 968, suggesting that the child had been the offspring of one of these women.

Graves 235 and 236 contained the burials of semi-free women. Judging from its size, Burial 945/B, which was wholly plundered, had probably contained an adult. The man with the comb interred in Grave 278 was laid to rest with a reverse orientation. The man in Grave 238 was buried in a shallow grave, as was the deceased in Burial 945/A, whose sex remains uncertain. The child buried in Grave 962, a burial on the northern edge of the group, was perhaps also a member of the group.

The social status of the deceased in Grave 222, a cremation burial, is uncertain.

The social status of the deceased based on the grave depths is as follows:

[113] A reverse orientation was only noted in Grave 26 at Schwechat: *Adler 1979* 32, Taf. 4. 1.

	Nobles		Free			↔	Semi-free			↔	Servants		
	♂	♀	♂	♀	?	?	♂	♀	?	?	♂	♀	?
A	289	251	227	272	260●	296●	229	235	945/B	962●	238	–	945/A
			282	946			278	236					
				968									

Group B (eastern grave group)

The ritual elements suggest that Grave 262, a deep ledged grave, contained the burial of the highest-ranking individual. The horse-bit left behind by the robbers indicates the one-time symbolic horse burial. The dogs buried with the noblewoman, interred with the head towards the west, are another reflection of the deceased's social status.

The woman resting in Grave 254, another deep grave, was probably related to her, although this woman was interred with a reverse orientation, with the head towards the east.

The man laid to rest in Grave 257, the woman in Grave 297 and the child in Grave 283 had probably all belonged to the class of freemen. All three were interred with the head towards the west, although with smaller divergences corresponding to the month of the funeral. The semi-free men buried in Graves 241 and 285 were also deposited with the head towards the south–southwest.

The servants representing the lowest-ranking social group were buried in shallow graves. The women in Graves 242 and 287 as well as the deceased of indeterminate sex in Grave 408 and the child in Grave 401 were deposited with the head towards the south–southwest or the west. The man interred in Grave 270, a burial slightly predating Grave 287, had a slightly differing orientation. The child in Grave 263, a shallow burial dug a long time after the plundering of Grave 283, was oriented to the north–northwest. The social status of the deceased of Graves 261 and 239 remains uncertain.

There was no separate child cemetery at Ménfőcsanak;[114] child burials occur in both groups. With the exception of sites with a rocky subsoil, children were always interred in shallower grave pits than the ones dug for adults, and therefore the graves of the elite's children do not fall into the range of the deepest graves, but into the next depth range. It is not mere chance that Graves 260 and 283, both deeper burials, were plundered, even if Grave 296, a deeper burial, escaped this fate because it was covered with the alluvial soil of the flood.

The social status of the deceased based on the grave depths of the inhumation burials is as follows:

	Nobles	Free		Semi-free	Servants		
	♀	♂	?	♂	♂	♀	?
B	254	257	283●	241	270	242	263●
	262	297		285		287	401●
							408●

The site's location suggests that the community which buried its dead in the cemetery was among the first to settle south of the Danube. A part of the older Langobard nobles and freemen died during their brief stay in Pannonia. Although there is no way of knowing how old they were when they arrived, a relative chronology can be set up on the basis of the presence or absence of alluvial soil in the fill of their graves and the robber's pits.

The 40-60-year-old tall, robust nobleman interred in Grave 289 of Group A was probably the leader of the *fara* settling in the area. His grave was robbed twice before the sixth-century flood. The 40-50-year-old man of large-medium tall stature buried in Grave 282 and the

[114] A separate burial area for children was only found at Hegykő and Rácalmás at the edge of the cemeteries. *Bóna 1993* 123.

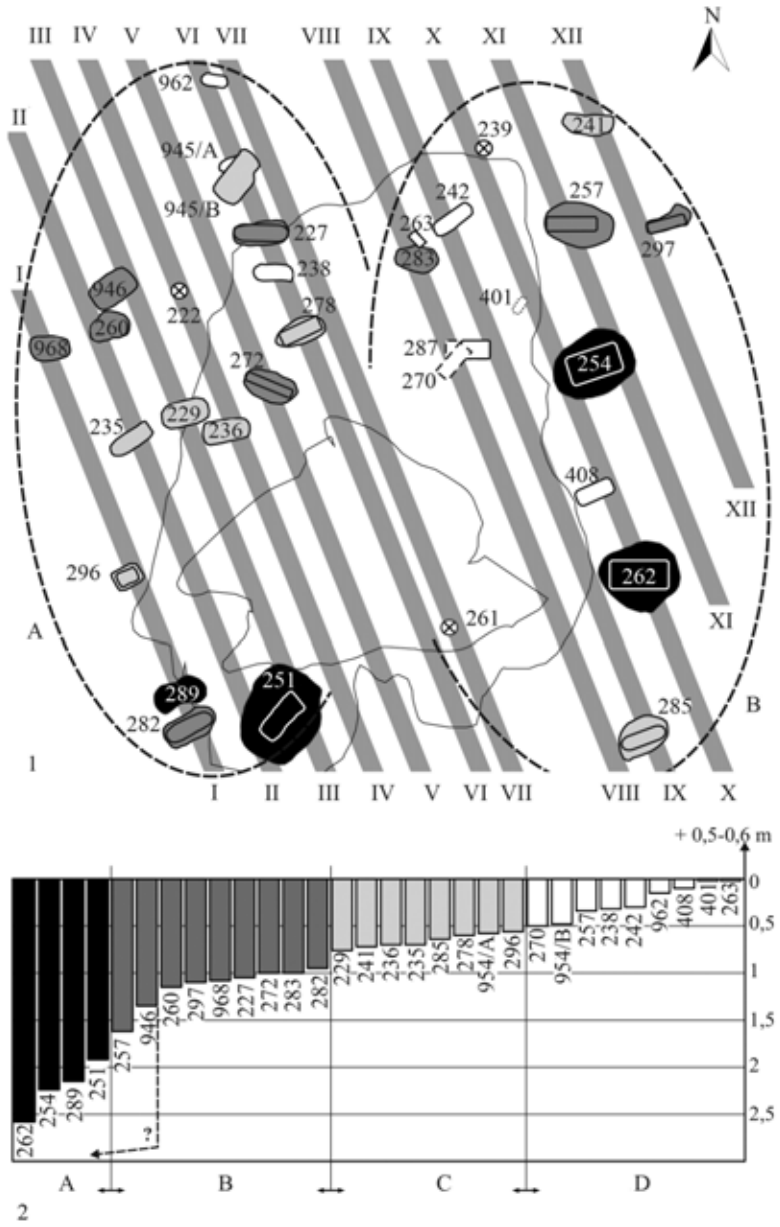

fig. 20. 1: Grave rows with burials at different depths in the western group (Group A) and the eastern group (Group B); 2: distribution of inhumation burials according to depth. A: nobles, B: freemen, C: semi-free, D: servants

35-55-year-old man interred in Grave 227 were members of his retinue of free warriors. Both graves were plundered before the flood.

Following the death of the nobleman, the group was headed by a new leader, who passed away later, in Italy. The graves of his household make up Group B.

(1) A 40-50-year-old noblewoman of large-medium stature laid to rest in Grave 262, whose grave was dug and plundered before the flood.

(2) A 40-60-year-old noblewoman of medium stature interred in Grave 254, whose grave was dug before the flood, but it was robbed after the flood.

The men buried in Graves 297 and 257 were members of the nobleman's armed retinue of free warriors.

(1) Grave 297, containing the burial of a 60-61-year-old man of large-medium stature, was robbed before the flood.
(2) The 50-70-year-old tall man interred in Grave 257 had died before the flood, but his grave was plundered after the flood.
(3) Grave 283 was dug and robbed before the flood.
(4) The child laid to rest in Grave 263 was among those who had died at the latest date. This grave was in part dug in the same location as Grave 283, another child burial. In view of the position of the two graves relative to each other, it seems likely that Grave 263 had been dug after the flood.

The time of the burial and of the robbing relative to the flood can also be determined for most of the semi-free and servants of non-Langobard origin in the two groups. None of the graves contradict the above.[115]

Grave goods

The articles deposited in graves include the food and drink placed in the grave for the journey to, and life in, the otherworld as well as items reflecting the deceased's rank and age.

Food was deposited in the graves irrespective of age and sex. Food offerings were not merely provisions for the journey to the otherworld, but – similarly to the practice of other peoples – a reflection of a widespread custom among the Langobards that the deceased is also present at the funerary feast and the dishes offered him or her were placed in the grave.

The presence or absence of animal bones was initially interpreted as indicating that meat dishes were only given to the wealthy.[116] However, considerably more graves could have contained boneless chunks of meat whose one-time presence would no longer be visible in the archaeological record by the time the grave was excavated. Food was placed in vessels before deposition in the grave.[117] Some cemeteries contained very few clay vessels. While some may have been taken by the robbers, we may also assume the use of wooden or bark vessels which, similarly to boneless meat, leave no traces in the archaeological record.

István Bóna explained food offerings with the pagan beliefs of the deceased[118] and he argued that the higher number of vessels in child burials was a reflection of the practice that conversion to Christianity usually took place in adulthood in several sects.[119] A less imaginative, but perhaps more obvious explanation would be that milk and other liquid foods for infants and small children could only be deposited in vessels, as in the case of the roughly one-year-old child buried in Grave 296.

At Ménfőcsanak, animal bones were only found in the graves of freemen *(fig. 21)*. Fragmented remains of indeterminate species were found in Graves 236 and 254. A complete pike skeleton lay in the south–southeastern corner of Grave 272, a woman's burial, an area left undisturbed by the robber's pit. Fish offerings generally occur in cemeteries lying near rivers.[120] A headless fish was found together with an egg and two pig bones in Grave 30, a male burial, at Vörs.[121] Pig meat had been placed in Grave 946, a female burial, at Ménfőcsanak.

[115] See below, in the section on the cemetery's relative chronology.
[116] *Bóna 1971* 233 (16).
[117] The vessel placed at the feet of the deceased buried with a sword in Grave 15 at Rácalmás contained an animal bone. *Bóna 1971* 234 (18) and fig. 10, bottom.
[118] *Bóna 1960* 236, in his discussion of Grave 26 at Hegykő.
[119] *Bóna 1971* 233 (17).
[120] Fish remains were found in the south–southeastern corner of the burial of a 50-70-year-old elderly man at Pottenbrunn (Grab Verf. 53): *Neugebauer 2001,* 286, Abb. 83; fish remains have been reported from Grave 19 at Großörner: *Müller 1980* 103–104.
[121] *Sági 1963* 59.

The laryngeal cartilage found in Grave 227, a male burial, comes from domestic fowl. Chicken remains have been reported from Erpersdorf (Grave 2),[122] Poysdorf (Grave 6),[123] Jutas (Grave 196), Groß-Pawlowitz (Graves 1 and 12), Neu Ruppersdorf (Graves 17 and 20), Schwechat (Graves 8 and 18) and Várpalota (Graves 4/b and 25).[124] Grave 251, a woman's burial, contained the neck of a domestic fowl as well as an egg.

Chicken bones accompanied by eggs were found in two burials at Rohrendorf.[125] Eggs were recovered from four graves at Neu Ruppersdorf,[126] from Grave 1 at Groß-Pawlowitz, from Grave 4 at Poysdorf and from Grave 1/194 at Šaratice. Graves 2, 6 and 8 at Schwechat contained a single egg, while Grave 11 yielded three eggs. Twenty-five burials of the Várpalota cemetery yielded eggs.[127] The eggs of domestic fowl, wild goose and wild duck were found at Tamási.[128] The custom of placing eggs in burials is known from Italy too.[129]

Károly Sági noted that the eggs placed in burials could be interpreted both as food offerings and as symbolic articles.[130] The three eggs painted reddish-brown found in the foot region of the coffin in Grave 10 at Vörs[131] seem to fall into the symbolic realm, while the egg in Grave 5 was more likely a food offering, together with the fowl found beside it,[132] as was the egg placed in Grave 31, a disturbed burial.[133]

István Bóna found it evident that a part of the sheep, cattle and fowl remains found in some of the Pannonian burials had a ritual role too.[134] However, the "sacrifices made to holy goats and their goat-headed god" as recorded in the *Dialogues* of Pope Gregory I can hardly be linked to the fowl remains in Pannonian graves based on the role of goats in Germanic mythology.[135] The food remains recovered from the burials shed some light on animal husbandry, hunting and the period's cuisine. The deer with a horse-bit found lying on the disturbed horse burial in Grave III at Mosonszentjános[136] calls for a separate interpretation.

Features and grave goods reflecting rank and social status (fig. 22)

Symbolic horse burials and dogs[137]

Horse burials served to mark the social status of the highest-ranking individuals.[138] The horse or horses were either placed in the same grave pit together with the man or were buried separately nearby.[139] Sometimes, only the harness or parts of the harness were laid in the grave. Bits have been found at Gyönk (Grave 6), Maria Ponsee (Grave 46) and Szentendre (Grave 34).[140] It is uncertain whether the grave found at Pilisvörösvár can be included among the graves with symbolic horse burials because its find circumstances are uncertain. In addition to the bit, a longsword with pommel, a lance and a shield reflect the rank of

[122] *Hampl 1965* 58.
[123] *Beninger 1966* 177.
[124] For an overview see *Werner 1962* 87, with the earlier literature.
[125] Graves 10 and 14: *Hampl 1965* 45–47.
[126] Graves 1, 2, 16 and 20: *Werner 1962* 148–149.
[127] *Werner 1962* 87, 150.
[128] *Bóna 1993* 113.
[129] For the Nocera Umbra cemetery; *Werner 1962* 87 and note 5.
[130] *Sági 1963* 77–78; *Bóna 1993* 123.
[131] *Sági 1963* 40.
[132] *Sági 1963* 78.
[133] *Sági 1963* 59–60. For eggs and other food offerings, *Werner 1962* 87 and note 5.
[134] *Bóna 1993* 132–133.
[135] Thunderclaps accompanied Thor/Donar's thunderbolts when Tanngrisnir and Tanngnjostr, the two goats pulling Thor/Donar's chariot, ground their teeth. The god ate them for supper every night and then resurrected them again in the morning from their bones.
[136] *Bóna 1993* 158–159.
[137] See also Bartosiewicz, this volume.
[138] For Langobard burials with harnessed and unharnessed horses, *Adler 1977* 27, note 28, with the earlier literature.
[139] *Bóna 1993* 124, quoting the parallels.
[140] *Bóna 1993* 124.

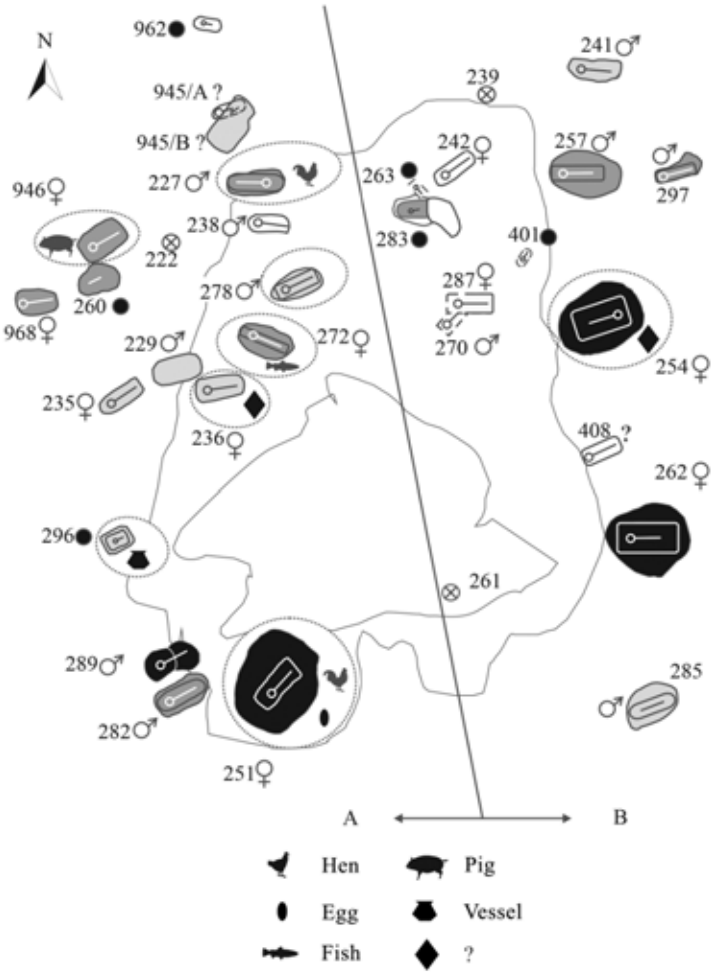

fig. 21. Food offerings

the deceased.[141] The survival of symbolic burials is indicated by the bit found at Nocera Umbra.[142] The burial of the high-ranking woman uncovered at Hauskirchen in 1967 (Grave 13) contained fragments of harness equipment in addition to the skeletal remains of her horses.[143] A child and a horse were laid to rest in Grave 15 at Rohrendorf,[144] and the grave also yielded a bit.[145] It is quite obvious that this artefact denoted social status, irrespective of the deceased's age and sex.

No horse burials were found at Ménfőcsanak. While Grave 262 did not contain any horse bones, the robbers left a broken bit in the grave. The symbolic horse burial in the grave of the woman interred in the cemetery's deepest grave is another indication that she had been a member of the elite. Her grave also contained two dog burials.

Dogs were often buried with their owners in the Migration period and the early Middle Ages, sometimes together with horses, and dog burials have also been found in separate horse burials both in cremation and biritual burial grounds.[146] The double horse burials of the fifth–

[141] *Bóna 1956* 194, 207, Pl. 47. 1–2, 5; *Sági 1960* 59, notes 53–54; *Bóna 1960,* note 3*; Werner 1962* 157.
[142] *Sági 1960* 59, note 55.
[143] *Adler 1966–70* 88.
[144] *Schmidt 1961* 139; *Hampl 1965* 47.
[145] *Hampl 1965* 47, Taf. III. 1.
[146] For the dog burials of the late Migration period and the early Middle Ages, see also *Prummel 1992* 137, 139, Pl. 5; *Gräslund 2004* 169, note 32.

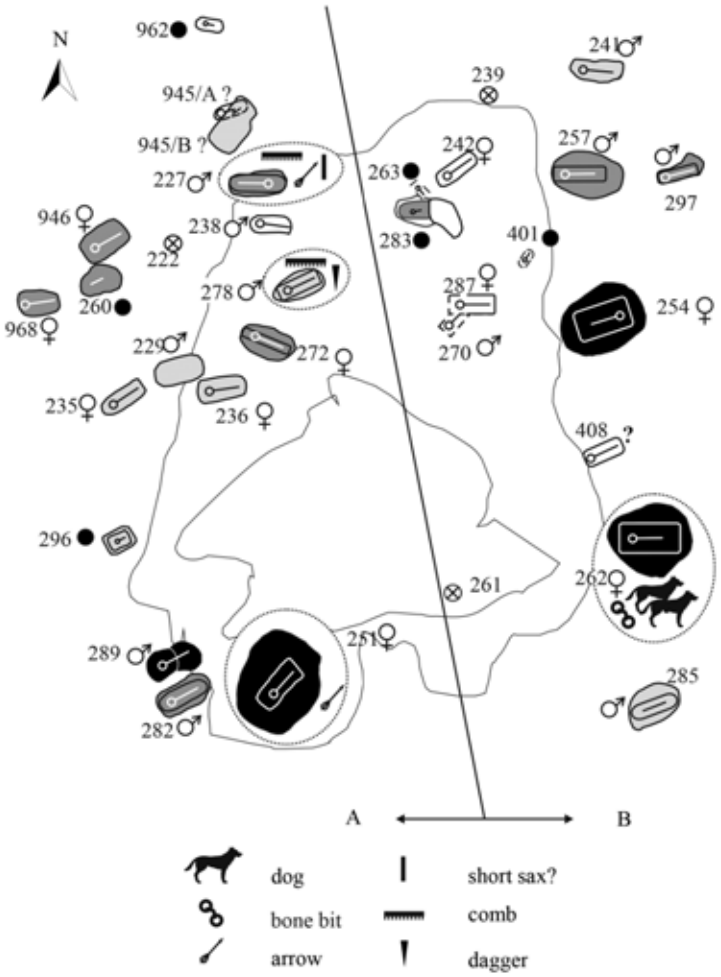

fig. 22. Grave goods reflecting the social status of the deceased

sixth centuries in the Middle Elba–Saale region sometimes also contained one or two dogs.[147] High-ranking individuals were often interred with several dogs. There were four dogs in the warrior grave with a rich array of weapons uncovered at Vallentuna near Stockholm[148] and in Grave 122 at Bratislava-Rusovce-Pieskový hon.[149] One of the graves excavated at Arninge in Täby contained eleven dogs. In addition to a horse, two large-bodied dogs were also interred in Povegliano in northern Italy.[150]

The dogs in the Vallentuna grave have different withers heights, suggesting that they had served their owners as guard dogs, hunting dogs or battle dogs.[151] The dogs examined by Wietske Prummel were predominantly hunting dogs, while the large-bodied ones were most likely used in battle.[152] Two "hunting dogs" lay curled up on each other by the feet of

[147] *Prummel 1992* examined 271 dog burials from 110 cemeteries, dating from between the fifth and eleventh centuries, and compared practices in England and Western and Central Europe as well as Northern Europe (Denmark, Sweden and Finland). She found that separate dog burials were far more common in the former than the latter, where dog burials were infrequent. Other animal burials (dog, horse, dog and horse) showed a similar frequency distribution, but there was a difference of scale between the two regions *(Prummel 1992* Pl. 4*)*.

[148] *Gräslund 2004* 168 and note 9, with further literature.

[149] *Schmidtová et al. 2009* fig. 3.

[150] *Riedel 1995* 59–65.

[151] *Vretemark 1989* 35–36.

[152] *Prummel 1992* 154–155.

the high-ranking man buried with a sword and lance in Grave 70 of the Hegykő cemetery.[153] István Bóna linked Grave 17, a dog burial, to the man interred with his weapons in Grave 4 of the Rácalmás cemetery. In his view, "the hunting dog buried in a separate grave nearby" indicated that someone, namely the individual in Grave 4, "had been an avid hunter".[154]

However, it seems less feasible that the 40-50-year-old woman interred in Grave 262 at Ménfőcsanak would have been an "avid hunter".

The dogs found in the graves of both sexes[155] can be seen as a distinctive element of the funerary rite, rather than as an indication of a favourite pastime or an occupation. It is not mere chance that dog burials are generally interpreted as an element of the burial rite reflecting the buried individual's social rank.[156]

The healed fractures of dog A with a withers height of 56.79 cm in Grave 262, and the 64.1 cm withers height of dog B in the same grave would suggest that both animals had been battle dogs. There were no injuries on the bones of either dog that would have caused death and thus it seems more likely that they had been stabbed to death or strangled[157] during the funeral ceremony.

According to Anne-Sofie Gräslund, animal burials indicating the rank of the deceased can also be interpreted from a religious perspective:[158] she cites the rune stone found at Böksta in Uppland, whose depictions include a deer or elk, predatory birds and dogs beside the mounted figure.[159] One interpretation of the depiction could be a simple hunting scene; another, that the stone portrays Odin riding his horse Sleipner, accompanied by his two wolf dogs (or wolves), Freke and Gere, and his two ravens, Hugin and Munin.[160]

Dog burials, usually regarded as an element of pagan rites,[161] were still part of the funerary customs in Italy,[162] and negative attitudes were only attached to them during the Christian period.[163]

Three horse burials in the Avar-period cemetery at Keszthely–Belváros excavated in 1960–1961[164] contained dogs whose withers height exceeded 60 cm.[165] Ilona Kovrig cited several arguments in support of her contention that separate burials of unharnessed horses and dogs were unusual in an Avar context and she also referred to the early medieval horse burials.[166] István Vörös described the three graves in question as being definitely Germanic in nature.[167] The three burials could not be linked to specific individuals interred in the burial ground. Grave 119, a female burial, and Graves 114 and 116, both child burials, in part overlay the horse burials, but the graves did not disturb the animal burials when they were dug. Some

[153] *Bóna 1963* 138–139, fig. 1; *Bóna 1998* Taf. 1. 1, 3; *Bóna – Horváth 2009* Abb. 27.
[154] *Bóna 1971* 233 (17).
[155] For an overview, *Müller 1980* 101–118. For example, dog and horse burials were found in Graves 43, 47 and 49 at Deersheim, and in Graves 6 and 20 at Großörner: *Müller 1980* 101–104. Dogs were deposited in most male and female graves at Lindholmøhje: *Ramskou 1966* 311; *Ramskou 1976* 107–108. Dogs with different withers height were found in the graves of both sexes in roughly one-half of the over fifty cremation burials uncovered at Tuna (Badelunda, Västmanland): *Nylén – Schönbäck 1994* 199; *Iregren 1994* 204.
[156] *Nedoma 2000* 216; *Gräslund 2004* 167.
[157] The dogs found in the yard of the primary school at Keszthely had several healed injuries. According to *Vörös 1999* 124, 126–127, the dogs had been strangled.
[158] *Gräslund 2004* 171.
[159] *Gräslund 2004* fig 4.
[160] *Ström 1985* 105; *Gräslund 2004* 169, 172.
[161] *Gräslund 2000* 86; *Gräslund 2004* 170 and note 33.
[162] *Müller 1980*: Grave 112, the burial of a man, a woman and a dog. Grave 42 at Nocera Umbra 42 contained the burial of a warrior and a curled-up dog: *Pasqui – Paribeni 1918* col. 241; *Bonomi Ponzi – von Hessen – Profumo 1997* 110–113, fig 26.
[163] *Gräslund 2004* 171, note 53, with the earlier literature.
[164] *Korvrig 1999* 103, horse burials 1–3, figs 11–14.
[165] *Vörös 1999* 123–124.
[166] *Kovrig 1999* 105, and note 6, with further references.
[167] *Vörös 1999* 121–151.

of the burials among the poorly outfitted graves[168] may have contained interments of servants with a non-Avar ethnic background; the lack of finds makes an ethnic attribution rather difficult. Although István Bóna repeatedly emphasised that the Langobards had migrated to Italy "with their entire people",[169] we cannot exclude the possibility that some had not departed from Pannonia.

Weapons

Weapons are frequent grave goods in Langobard cemeteries. At Ménfőcsanak, however, there were no swords, lances or shields in the burials of the highest-ranking individuals. Among the deepest burials, only Grave 289 contained the interment of a man, but this grave was plundered twice and nothing indicating the deceased's rank was left behind.

It is uncertain whether the larger knife with a 2.6–2.7 cm wide blade and an ornate scabbard from Grave 227 should be regarded as an implement or a smaller sax, a weapon. The 18–20 cm long single-edged combat knives with a 2.5–3.5 cm wide blade are generally designated as short saxes *(Kurzsax)*. Ursula Koch only regarded the 20–25 cm long pieces with a 2.8–3 cm wide blade as short saxes.[170] The U-shaped chape was known and used since the Roman Age and similar pieces have been reported from several sites along the route taken by the Langobards during their migration, for example from the burials uncovered at Velatice and Prostějov-Držovice.[171] A knife with a U-shaped silver chape was found in Grave H at Castel Trosino,[172] while Graves 87 and 124 of the same site yielded the metal bands of a scabbard with a U-shaped chape.[173]

The double-edged dagger with a metal scabbard found beside the man interred in Grave 278 was a weapon used in close combat.

Arrowheads were recovered from two burials of Group A: from the burial of the man laid to rest in Grave 227, one of the deeper burials, and from the burial of the woman interred in Grave 251, one of the cemetery's deepest graves.

The Langobards placed differing numbers of arrows in male burials. For example, a single arrowhead was found in Grave 42 at Tamási. Grave 75 at Hegykő, the burial of a man interred with his shield, sax and comb, contained two arrowheads, placed beside the right ankle. Two arrowheads, a shield and swords were deposited in Grave 7 at Kádárta, while a sax and two arrowheads in Graves 46 and 82 at Szentendre and in Grave 48 at Tamási. Grave 5 at Kajdacs likewise contained two arrowheads. Grave 61 at Hegykő, Grave 89 at Szentendre and Grave 41 at Tamási yielded three arrowheads, while Grave 31 of the latter cemetery had the three arrowheads in the burial of a warrior laid to rest with his lance and sax. Four arrowheads were placed in Grave A at Mohács-Falemezgyár and in Graves 40 and 53 at Tamási. The latter two graves also yielded a comb and Grave 53 also contained a sax. The next in the series is Grave 227 at Ménfőcsanak with its five arrowheads in the burial which also yielded a comb and a sax. Seven arrowheads were recovered from Grave 24 at Kajdacs and Grave 4 at Rácalmás, the burial of a man with a sword. The nine arrowheads in Grave 62 at Hegykő lay tightly beside each other, indirectly indicating that they had been deposited in a quiver. The highest number of arrowheads have so far been recovered from Graves 20 and 34 at Tamási, both of which yielded ten arrowheads and a sax.

Arrowheads are usually recovered from adult men's burials, two exceptions being the child burial *(infans I)* in Grave 14 at Tamási and Grave 251, a woman's burial, at Ménfőcsanak.

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[168] *Kovrig 1999* 104. She notes that Vilmos Lipp's earlier report mentions horse burials in connection with male and female burials, and that he presented horse harnesses, bits and stirrups. However *Kovrig 1999* and *Kiss 1992* 594–586 were both unable to make any sense of the data presented in *Lipp 1884* 17, 22–23. Similarly, there was no additional information about the horse burial salvaged in Deák Street in 1941.

[169] For a discussion of the exodus, see below.

[170] *Koch 1977* 106.

[171] *Tejral 2005* 179, Abb. 4. B.11, D.1.

[172] *Mengarelli 1902* 58 (202), fig. 43.

[173] *Mengarelli 1902* 112–113, fig. 120, 155 (299), 200.

The fragment of a chain mail found in a girl's burial (Grave 37) at Tamási is an unusual find in the sense that it cannot be linked to the deceased's sex.[174] Raimar Kory has argued that the mail fragments found in male burials were symbolic weapons.[175] However, this interpretation seems unlikely in the case of the mail fragments found in Langobard, Avar[176] and Gepidic[177] female and child burials. Dezső Csallány suggested that the Avar mail fragments may have been talismans or amulets.[178] The chain mail fragment found in Grave 37 at Tamási was interpreted as having been vested with a protective role[179] and a similar function has been ascribed to the Gepidic mail fragments.[180] Rainer Christlein too has argued that the lamellar mail fragments found in the graves of Alemannic noblewomen were deposited for a similar reason.[181]

The offensive and defensive weapons placed in the burials of women and children probably signalled their social status.[182] The location of these graves within a cemetery can provide clues as to which family the deceased should be assigned.

The two deepest burials of Group A, Graves 289 (male) and 251 (female), lay beside each other. The tall, 40-60-year-old man was probably the leader of the *fara*; his grave was robbed twice. In the case of Grave 251, the robbers left the silver belt mounts in the grave and the surviving broken arrowhead too indicates the deceased woman's high status. The two were probably members of the same family, although the exact relation between them can no longer be determined.

Arrowheads were produced individually by hammering; the size of the socket, made from sheet metal hammered flat and then folded, corresponded to the diameter of the wooden shaft. The shaft of the arrows with open socket sometimes broke upon impact and sinew or textile thread was therefore wound around it. There is no indication of riveting on the pieces from Ménfőcsanak. Owing to their individual manufacture, the sizes of arrowheads differ even within a type. The arrowheads from Grave 227 represent the variants of two main types:

Type	Blade				Socket		
	Form		Length	Width	Length	Diameter	
I/A	curved side	widens in the lower third	5.8 cm	2.4 cm	5 cm	1.2 cm	*fig. 2. 1*
I/B	curved side	widens in the middle	7.2 cm	2.6 cm	3.9 cm	1.1 cm	*fig. 2. 2*
			6.9 cm	2. 9 cm	4.6 cm	1.5 cm	*fig. 2. 3*
II/A	curved top, straight base	breaks at an obtuse angle in the middle	7.4 cm	2.8 cm	4.2 cm	1.4 cm	*fig. 2. 4*
II/B	curved top, straight base	breaks at an obtuse angle in the lower two-fifth	8.2 cm	2.5 cm	4.4 cm	1.4 cm	*fig. 2. 5*

The tip of the arrowhead shown in *fig. 2. 5* is tightly bent back to the blade. It had either hit some hard object or the smith had intentionally bent it back to blunt the tip so that it would not damage the fur of the intended prey animal. Arrowheads of this type were also suitable for bird hunting owing to their striking power.

The arrowhead from Grave 251 *(fig. 6. 8)* can be assigned to Type I/B. Its surviving length is 5.2 cm, the width of its blade is 2 cm.

Combs

Combs were utilitarian articles worn as costume accessories among the German tribes. However, according to Károly Sági, the bone combs recovered from both male and female

[174] *Bóna – Horváth 2009* 158.
[175] *Kory 2004* 394.
[176] *Vaday 2013* 247.
[177] *Kiss 2012* 145 and note 54, with further literature.
[178] *Csallány 1969–1971* 9–12.
[179] *Bóna – Horváth 2009* 145–146.
[180] *Kiss 2012* 146 and note 57, with further literature.
[181] *Christlein 1979* 73.
[182] *Vaday 2013* 247, for the interpretation of this custom among the Avars.

burials in Langobard cemeteries[183] were indicators of rank,[184] and István Bóna too argued that combs should not be seen merely as costume accessories, noting that they lay in various places within the burial: in or on the coffin, or beside it.[185] At Schwechat, the comb in Grave 23 lay by the left foot, while in Grave 28, it lay outside the coffin, also by the left foot.[186]

Combs were recovered from two burials of Group A at Ménfőcsanak: both were male burials whose upper body region had been disturbed *(fig. 22)*. The man in Grave 227 was interred with the head towards the west, in a reverse orientation; the one-sided comb decorated with dotted circles kept in a protective case was found under the pelvis, on the grave floor. Two fragments of a similar one-sided bone comb were found in the robber's pit above the right thigh bone that lay *in situ* in Grave 278. The comb's original location in the burial can no longer be determined: it may have been placed on the right side above the body, but it may equally well have lain under the right pelvic bone as in the other burial. Combs occur among the grave goods of Italian Langobard burials, reflecting the survival of the type.[187]

Grave goods indicating sex and age

Spindle whorls are frequently found among the grave goods of both inhumation and cremation burials from the Neolithic onward. In inhumation burials, spindle whorls were generally placed in the graves of adult women and older, sexually mature girls.

István Bóna classified the Langobard spindle whorls as utilitarian objects.[188] The spindle whorls kept in pouches can also be assigned here.[189]

The distaff was placed beside the deceased. The fibre to be spun was wound around one end of the wooden spindle, while the whorl was slipped over the other end. Women are often depicted with a distaff on antique vases and gravestones. The distaff and spindle of the Parcae symbolised that the goddesses spun the thread of life.

As a grave offering and an element of the burial rite, the distaff placed beside the deceased symbolised sexual maturity, the role of women in ensuring the survival of their people and their fertility. On Roman gravestones, the scroll held by men symbolised citizenship, while the women's distaff and the fruits held in the hand represented fertility.

At Ménfőcsanak, two graves contained spindle whorls. The one found in Grave 236 lay beside the left forearm of the 24-30-year-old woman, while the one in Grave 272 by the right thigh bone of the 30-40-year-old woman. The wooden distaff[190] had perished.

Coins

Settling near the Roman *limes* as well as Roman towns and villas, the Langobards often placed the Roman imperial coins found by them into the graves. Two late Roman *folles* found in the pouch of the man interred in Grave 227 probably originated from the Roman settlement or graves at Ménfőcsanak.[191]

Although the peoples neighbouring on the Roman Empire adopted the custom of placing an *obulus* in the grave, it seems unlikely that they also incorporated into their beliefs the associated myths of Charon and the Styx river.

The Langobards did not maintain close contacts with the Roman empire. Following their incursion into Pannonia in 166, they returned to their northern homeland. Their beliefs were hardly influenced by the perceptions of the netherworld of classical antiquity. Although the

[183] *Bóna 1971* 234 (18).
[184] *Sági 1963* notes 72, 74.
[185] *Bóna 1993* 123, 127.
[186] *Adler 1979* Taf. 1. 1, 4. 3.
[187] Castel Trosino, Grave 90: *Mengarelli 1902* 123, fig 146.
[188] *Bóna 1971* 234 (18).
[189] *Bóna 1993* 128.
[190] Distaffs made of bone and bronze terminating in a spindle whorl are known only since antiquity, while iron distaffs are first encountered in the late Roman burials of Pannonia.
[191] Roman coins have also been found in Avar-period graves. For a recent discussion, see *Vaday 2013* 239.

gold coins found in Langobard graves are sometimes described as *obuli*, in the light of the above it seems unlikely that they had been funerary *obuli*. Roman bronze coins had no market value in sixth-century Pannonia. The fines imposed on violators of the law were specified in *solidi*.[192] The Langobard and Byzantine *solidi* placed in the burials of high-ranking individuals signalled the wealth of the deceased and were deposited owing to their metal value.

Costume elements, tools and implements

The assessment of the finds from the Ménfőcsanak cemetery is greatly constrained by the fact that most graves were almost fully plundered. Not one single brooch, which would provide important clues for dating, goldsmithing techniques and cultural contacts was left in the cemetery.[193]

Silver, bronze and iron buckles have been recovered from adult male and female burials as well as child graves. The pieces preserved *in situ* indicate that they had been used to fasten the straps of pouches, belts and footwear. In the latter two cases, they were sometimes accompanied by strap-ends.

The robbers left the belt mount consisting of two smaller silver plates decorated with punching and engraving *(fig. 6. 5)*, the strap-end *(fig. 6. 6)* and a larger strap-end *(fig. 6. 7)* of the brooch-strap worn by the high-ranking woman interred in Grave 251. The belt worn by the man laid to rest in Grave 297, a plundered burial, was fastened with an oval iron buckle *(fig. 13. 3)*. The fragments of rectangular buckle plates were recovered from two robbed burials: Grave 254, a woman's burial *(fig. 7. 5)*, and Grave 257, a male burial *(fig. 8. 3)*. An iron strap-end with curved terminal was found in Grave 262, a looted female burial *(fig. 10. 7)*. A small intact and a broken oval iron buckle lay upward from the thigh bone in the undisturbed portion of Grave 278 *(fig. 11. 3–4)*. Smaller buckles and strap-ends of the footwear straps are rare finds in Langobard graves.[194] The robber's pit did not extend to the feet of the deceased in Grave 278; the two small buckles could only have been used for fastening the straps of the sandals if they had been placed beside the deceased.

A bronze buckle with slightly oval ring and iron tongue for a 2–2.1 cm wide belt was found in Grave 296, an unrobbed child burial *(fig. 5. 6)*.

Pouches occur in the graves of both freemen and semi-free men and women.[195] The man interred in Grave 227 wore his pouch on the right side of his back, and kept his comb *(fig. 2. 8)*, a Middle Bronze Age axe used as a flint stone *(fig. 3. 11)*, two Roman coins *(fig. 3. 7–8)*, a smaller knife *(fig. 3. 4)*, tweezers *(fig. 3. 5)* and a needle in it *(fig. 3. 6)*. A piece of textile adhering to the rusty iron ring found under the sheath of a larger knife was found *in situ* under the body, and it therefore seems unlikely that it came from the deceased's clothing. It seems more likely that it was part of the pouch. However, it is uncertain whether the ring came from the knife sheath or the pouch. Although the grave of the elderly man interred in Grave 278 was plundered, his comb *(fig. 11. 2)* and the three flint stones had probably been kept in a pouch *(fig. 11. 7–9)*.

The tweezers kept in the pouches can be assigned to two main types. The first is made up of simple pieces with gradually widening arms, which first appear in fourth–fifth-century Germanic graves. The Langobard pieces from Pannonia are generally assigned to the earlier sixth-century type.[196] The other type comprised pieces with narrow arms and a wide trapezoidal foot with in-turned nibs. This type has several variants. The lower, trapezoidal

[192] The minting of solidi was a royal monopoly and minting was punishable if performed without royal permission. *Edictum Rothari* 242: *Si quis sine iussionem regis aurum figuraverit aut moneta confinxerit, manus ei incidatur.*

[193] The round-sectioned iron wire from Grave 278, a looted male burial, was the fragment of the pin and spring mechanism of a Roman brooch.

[194] *Bóna 1993* 127, citing various examples.

[195] *Bóna 1971* 234 (18).

[196] *Bóna 1956* 215, in connection with the tweezers from Grave 1 at Bezenye. For additional analogous finds, see *Sági 1960* 58, Table XVII. 3, note 34.

section of the tweezers from Grave 19 at Bezenye is plain,[197] while the tweezers from Grave 227 at Ménfőcsanak flare gradually *(fig. 3. 5)*.

Sewing needles were likewise kept in pouches. The man interred in Grave 257 kept a bronze needle in his pouch *(fig. 8. 2)*, while the man laid to rest in Grave 227 an iron needle *(fig. 3. 6)*. The circular-sectioned piece of wire from the burial of the woman in Grave 235 perhaps came from a needle *(fig. 3. 17)*.

Iron knives were placed in burials irrespective of age and sex. Among the robbed burials, Grave 227, a male burial, yielded a single-edged, straight-backed knife with a 3.3 cm long tang aligning with the back of the blade *(fig. 3. 4)*. The broken knife from Grave 968, a female burial, had a 2.5 cm long tang set centrally relative to the blade *(fig. 16. 9)*, and the knife with 6.6 cm long blade and 2.7 cm long tang from Grave 296, a child burial disturbed by animal burrows, can be assigned to the same type. Grave 254, a plundered female burial, contained a broken single-edged knife *(fig. 7. 8)*, and two fragments of a similar knife blade remained in the burial of the woman interred in Grave 262 after it was looted *(fig. 10. 3)*. Only the tang of the knife survived in Grave 257, a man's robbed burial *(fig. 8. 4)*.

A rectangular-sectioned chisel was found in Grave 241, a plundered male burial. Its edge was hammered flat *(fig. 5. 3)*. The iron artefact bent at right-angle from Grave 297, recovered from the fill of the robbed male burial, was probably an implement of some sort *(fig. 13. 4)*.[198]

Jewellery

The beads found in Langobard women and girls' graves were either strung into necklaces or sewn onto the belt or pouch.[199] At Ménfőcsanak, the beads in Graves 236, 251, 272 and 968 lay in the neck and chest region *(fig. 4. 2; 6. 2–4; 9. 3–8; 16. 2–7)*. The original function of the bead fragment from Grave 262 can no longer be determined.

The five plundered graves yielded thirty-one glass beads and two amber beads. Two beads could not be assigned to a specific type.[200] The following types are represented among the glass beads:

Type	Variant	Form	236	251	272	968	No.
I	A	circular-based, flattened spherical	●●●●		●●	●●●●	10
	B	flattened spherical	●				1
II	A	short, cylindrical	●		●●	●	4
	B	long, cylindrical	●●				2
III		short, rectangular-based prism	●				1
IV		long, hexagonal-based prism	●	●			2
V		barrel-shaped	●				1
VI		rectangular-based polyhedral	●●●●	●			5
VII	A	segmented, wound from three parts			●●		2
	B	segmented, with gold foil between two layers				●	1
						Σ	**29**

Grave 236 yielded a smaller amber bead with flattened globular base *(fig. 4. 2l)* and a similar larger bead with an incised line encircling the body *(fig. 4. 2m)*.

The simple translucent or opaque white, green, gentian blue, orange, red and lilac beads were popular for a long time and are thus unsuitable for a closer dating. They were widespread and popular both in the Roman provinces and in the Barbarian lands, and they were strung in various combinations. The population groups fleeing the Hunnic advance from the last third of the fourth century brought several new bead types that had formerly only been worn by

[197] *Werner 1962* Taf. 65.

[198] It cannot have been a coffin clamp owing to its round-sectioned part.

[199] For beads see also *Bóna 1956* 213.

[200] The perished bead of Grave 968 and the broken bead from Grave 262 *(fig. 10. 4)*.

the first generation of Barbarians arriving from the east,[201] and were previously unknown in Transdanubia and the Hungarian Plain. The translucent pale green or greenish-white glass core, the *anima*, was monochrome, but was often cased in opaque glass of a different colour in the Sarmatian material of the Carpathian Basin. However, the cased beads from Ménfőcsanak differ considerably: their poor-quality, crumbling core with various inclusions is visible under the chipped thin brownish-red or black casing. During their manufacture, drops of opaque molten glass of various colours were applied to the hot, molten casing and then trailed in irregular patterns. These can be regarded as imitations of beads encrusted with dots, circles and other motifs calling for greater technical skills. Several variants of the beads wound in various forms were also widespread over a long period during the Roman Age among the Northern and Central European Germanic peoples as well as east of the Carpathians. The carelessly made, simpler pieces (Type VII/A) appeared later. A few beads of poorer workmanship have a pitted fabric owing to air bubbles and several errors made during winding.

The beads recovered from the Pannonian graves are an indication of trade relations, even if some probably came from looted Roman graves, except for the amber pieces, which tend to crack and break after a longer period of time.

Miscellaneous artefacts

Paul the Deacon relates that the custom among blood relatives was to erect a *pertica*, a pole, on the grave of those who had died far from their home or had been killed in battle or otherwise, upon the top of which they placed a dove carved from wood and turned the bird in the direction where their beloved had died.[202] However, the small bird-like figurine found in the robber's pit of Grave 251, a female burial *(fig. 6. 9)*, can hardly be linked to this custom, and neither can the almost intact bird-shaped rattle from the Langobard cemetery investigated at Gyirmót.[203]

The association between the iron chain with a bronze ring and Grave 239, a cremation burial, is dubious because the chain was found in the mechanically removed soil and because there were no traces of burning on it *(fig. 18. 2–3)*. Although similar pieces are known from Langobard graves,[204] they have been frequently found in Avar contexts too. Given that an Avar settlement and cemetery lie quite close to the Langobard burial ground, it is possible that this artefact had once been owned by an Avar.

The rectangular-sectioned iron nails and iron clamps were used for securing the coffin lid to the coffin.

It is no longer possible to determine what type of artefacts the poorly preserved, smaller iron fragments came from.

Urns

Three cremation burials yielded hand-thrown urns. Neither the form, nor the dimensions of the two vessels from Graves 222 and 239 could be determined, and only the upper portion of the urn from Grave 261 survived. The vessels from Graves 222 and 261 were fired in a reducing atmosphere, the urn from Grave 239 in an oxidising atmosphere. The vessels from Graves 222 and 239 were tempered with grit and lime lumps, the urn from Grave 261 with grit.

[201] E.g. small, segmented beads with gold foil between two layers, certain types of millefiori beads, beads with trailed decoration and encrusted beads.

[202] *Paulus Diaconus* IV. 34: *si quis enim in aliqua parte aut in bello aut quomodocumque extinctus fuisset, consanguinei eius intra sepulchra sua perticam figebant, in cuius summitate columbam ex ligno factam ponebant, quae illuc versa esset, ubi illorum dilectus obisset, scilicet ut sciri possit, in quam partem is qui defunctus fuerat quiesceret.*

[203] Péter Tomka kindly showed me this find, which no doubt originated from the Middle or Late Bronze Age settlement or one of the graves of the same periods and was then deposited in the Langobard burial.

[204] Castel Trosino, Grave 55: *Mengarelli 1902* 101, fig. 107.

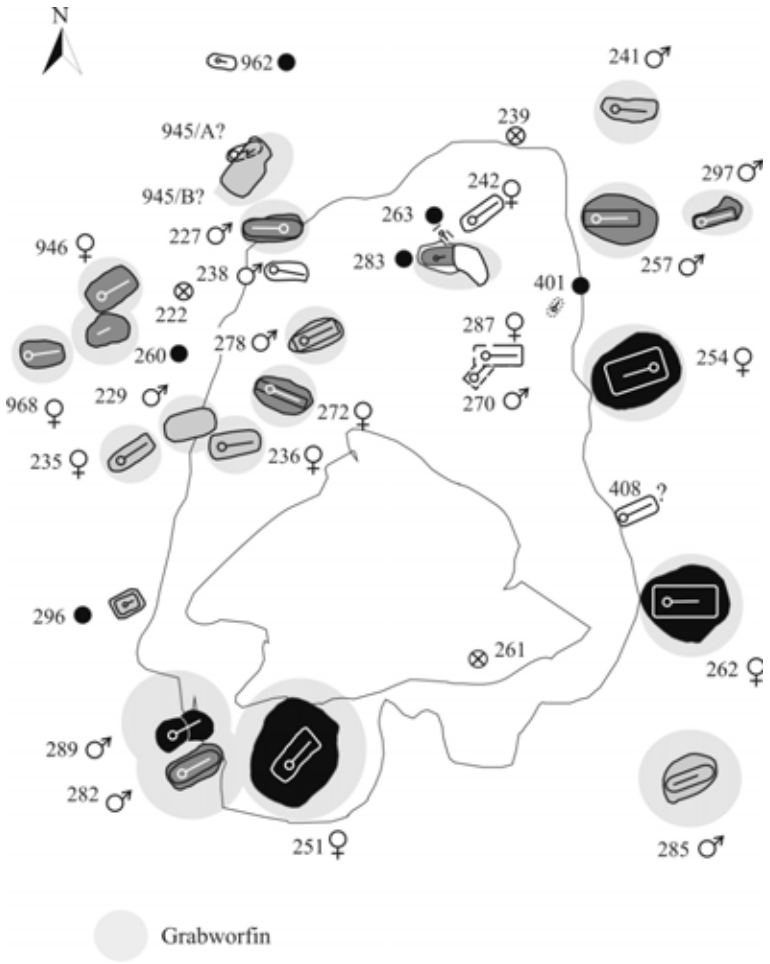


fig. 23. “Grabworfin”: plundered burials

Grave robbing (fig. 23)

Grave robbing was a common practice among the Langobards.[205] The robbers removed the valuable or still usable artefacts, and apparently had little fear of the dead because the deceased’s remains were simply dumped back into the grave pit, after which they covered up the traces of their activity by shovelling earth onto the grave. It is uncertain whether grave robbing was a punishable act already in the sixth century, or whether it was a later addition to the *Edictum Rothari*, issued in 643, which had a separate section on punishing *grabworfin*[206] and the disturbance of the dead. Despite this prohibition, even the grave of King Alboin was plundered and the robber boasted of his deed.[207] King Rothari’s grave was opened and robbed in secret during the night.[208]

[205] For grave robbery in Austria, *Adler 1970.*

[206] *Edictum Rothari* 15: *De grabworfin. Si quis sepulturam hominis mortui ruperit et corpus expoliaverit aut foris iactaverit, nongentos soledos sit culpavelis parentibus sepulti. Et si parentis proximi non fuerint, tunc gastaldius regis aut sculdhais requirat culpa ipsa et ad curte regis exegat.*

[207] *Paulus Diaconus* II. 28: *Fuit autem statura procerus et ad bella peragenda toto corpore coaptatus. Huius tumulum nostris in diebus Giselpert, qui dux Veronensium fuerat, aperiens, spatam eius et si quid in ornatu ipsius inventum fuerat abstulit. Qui se ob hanc causam vanitate solita apud indoctos homines Alboin vidisse iactabat.*

[208] *Paulus Diaconus* IV. 47: *Hic cum iuxta basilicam beati Iohannis baptistae fuisset humatus, post aliquantum tempus quidam, iniqua cupiditate succensus, eius sepulchrum noctu aperuit et quicquid in ornamentis eius corporis repperit abstulit.*

The grave robber's task was made considerably easier by the practice of marking the graves. The burials of the warrior elite[209] were marked by a lance thrust into the ground beside the grave,[210] of which the lancehead has sometime been found if it was thrust deeper. At Ménfőcsanak, the stone boulders found in a secondary position in Graves 227, 254, 272 and 278 had perhaps been used to prop up the lance or grave marker. It seems likely that all the graves had been marked in some manner and that the wooden markers differed from each other either regarding their carving, their painted ornament or perhaps by the articles draped over or hung from them, because the robbers knew exactly the rank of the deceased interred in the grave and whether it was worth robbing.

At Ménfőcsanak, only the shallow servant graves were left undisturbed; the burials of freemen were plundered, except for a child burial (Grave 296) at the foot of the hill that was covered with alluvial soil. Although the fill of the robber's pits rarely or barely differed from the grave's fill, the mode of how the grave was robbed and the direction from which the robber's pit was dug could generally be determined from the position of the skeletal remains *(fig. 24)*.[211]

If the grave was robbed one or two days after the funeral, the robbers positioned their pit exactly over the deceased and dug a larger pit in the case of deeper graves and a smaller one if the grave was shallower. Later, however, the robber's pits were only "accurate" if the pile of earth over the grave was less eroded. The wind-blown, rain-washed and deformed pile of earth covering the grave was generally opened with large pits and, on a few occasions, the pit was dug from a direction differing from the grave's orientation.

The graves of two women were plundered immediately after the funeral. Every valuable article was removed from Grave 262, the burial of a high-ranking noblewoman interred in the cemetery's deepest grave. The robbers did not even bother with putting back the coffin's lid. In the case of Grave 272, the robbers dug their pit in the head region and pulled out the woman's body from the coffin by the left hand. Her bead necklace was either covered by the folds of her dress or was deemed worthless by the robbers, who only left her spindle in the grave.

Grave 289, a man's burial, and Grave 236, a woman's burial, were robbed twice: first, after the funeral, and then later, after the bodies had totally decomposed. The mode of the robbery was identical: the body was pulled out of the coffin by the feet and the valuable articles were removed. Everything was removed from the two graves when they were first plundered. At the time of the second robbing, the robber's pit was dug in the head region; however, after the robbers realised that they had been preceded by others, they heaped the disturbed bones around the skull in the man's grave. The first robbers took away the woman's belt, while the second looting affected the entire burial, although the robbers only disturbed the bones of the chest region when the grave was backfilled. The robbers left the worthless iron buckle and the spindle whorl in the grave, and neither did they bother with gathering the few scattered glass beads.

In addition to the adult burials, two child burials (Graves 260 and 283) had also been plundered.

It has already been noted in the description of the graves that the post-cranial bones, broken skull and skull-cap of an adult found in Grave 260, a child burial with a small grave pit, probably originated from Grave 229, a robbed burial. The simultaneous looting of the two burials was also indicated by the presence of alluvial soil in the fill of the disturbed area. Grave 968, the robbed burial of an elderly woman, lay by the northern side of Grave 260, while the plundered burial of an adult woman (Grave 946) by its western side. Péter Tomka suggested that the fragment of "another skull" found in the shovel-shined level of Grave 968

[209] This was a custom practiced also by the ancient Hungarians of the Conquest period – *Kovács 1970* – and by the Avars, *Vaday 2013* 248, note 302.

[210] *Bóna 1993* 148, in connection with the Hegykő graves.

[211] For details, see the description of the graves.

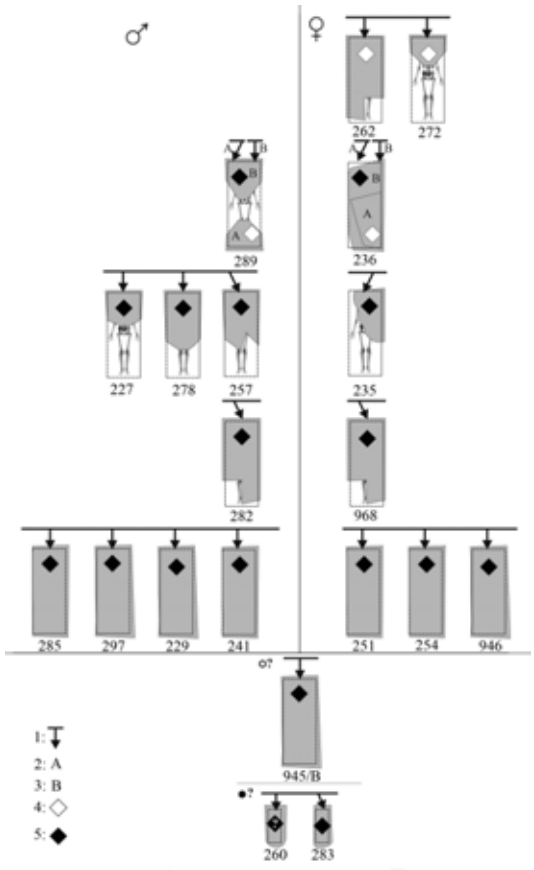


fig. 24. Looting methods. 1: Direction of the robber's pit; 2: first looting; 3: second looting; 4: articulated body; 5: disarticulated body

perhaps came from Grave 946, the neighbouring burial. However, Balázs Gusztáv Mende noted that the two fragments did not come from the same skull.[212]

The mound of Grave 257 was not restored; the upper part of the robber's pit was back-filled naturally.

Season of burial based on orientation

Although there are no written sources describing the Langobard funeral ceremony, it cannot have differed much from the general practice of late antiquity. The deceased's body was laid out in the house, mourned and a funerary feast was held. We did not find any fireplaces in the area of the graves, suggesting that the funerary feast was held in the settlement. The grave pit was dug and the funeral itself was performed one or two days after death.[213] The coffin or the deceased wrapped in a funeral shroud was taken to cemetery either by the family members on their shoulder, on a horse or perhaps a cart. There is nothing in the literary sources about when funerals were held during the day. In his discussion of the Aspersdorf and Schwechat burials, Horst Adler suggested that the funerals may have taken place after sunrise.[214] The deceased

[212] The skull could not be associated with any of the other burials and it remained uncertain whether it came from an earlier feature or from a shallower and wholly perished Langobard grave.

[213] Graves 236, 272 and 289 were plundered immediately after the passing of the *rigor mortis*, on the night of the funeral.

[214] *Adler 1970* 18; *Adler 1977,* 16.

in Langobard cemeteries were, with a few exceptions, interred with the head towards the west and thus we cannot exclude the possibility that funerals were conducted at sundown.

Károly Sági argued that the time of the funeral could be determined from the pollen analyses of soil samples taken from the grave;[215] however, the pollens of earlier months could easily be deposited in the soil depending on the weather and might even be misleading in the case of graves plundered a longer time after the funeral.

At sites with looser soil such as Ménfőcsanak, the form of the grave pit can also offer some clues if it has not been damaged by later robber's pits. Grave pits with vertical walls could only have been dug in rainy and frosty weather in the sandy soil, while grave pits tend to have sloping walls during drier spells.

The grave's orientation can provide an indication of the funeral ceremony's season or month because the grave pit may have been dug according to the shadow cast by the lance or staff thrust into the ground.[216] In the northern hemisphere, the Sun seemingly rises and sets within a range of 80° between the summer and winter solstice *(fig. 25. 1)*.[217] The beginning of the astronomical summer and winter coincides exactly with the onset of summer and winter in Transdanubia, although the weather itself changes about a month earlier.

The season of burial could not be determined in the case of Graves 222, 239 and 262, the three cremation burials. The distribution of the graves according to season based on orientation is as follows:

Spring	Summer	Autumn	Winter
227, 229, 236, 238, 241, 254, 257, 262, 272, 283, 287, 962, 968	263	401, 945/B	235, 242, 251, 260, 270, 278, 282, 285, 289, 296, 297, 408, 945/A, 946

The relative chronology of the burials

The Langobards occupied Transdanubia for barely more than four decades. The articles left in the burials after they were plundered can be dated to a much longer period of time and thus the finds are unsuitable for determining the relative chronology of the graves.

The chronological relation between the burials is unambiguous in the case of superimposed burials,[218] while the condition of the skeletal remains enables the determination of whether the grave was robbed immediately after the funeral, after the passing of the *rigor mortis* or somewhat later, after the onset of the decomposition of the chest and abdominal region, or even later, after the complete decomposition of the body. The same holds true for the graves that were plundered twice. Another important clue is that in the case of the burials lying in the flood zone, the time of the funeral and the robbing of the grave relative to the flood can be determined from the presence or absence of alluvial soil *(fig. 26)*.

With the exception of the shallow graves, the relative chronology of the graves can be outlined based on the presence of the above features and their comparison. The chronology of a few burials lying above the flood zone, on the hilltop above 96 m, the date of the funeral or the robbing relative to the flood could not be established *(fig. 27. A–D)*. Four graves definitely contained burials predating the flood *(fig. 27. E)*, one grave was plundered shortly after the

[215] *Sági 1960* 58, note 9; *Sági 1963* 69.

[216] Smaller divergences can be ascribed to the fact that the grave-diggers did not work exactly at sunrise or sunset. The alignment of the grave was probably also less accurate on cloudy, overcast days.

[217] With a few days' difference owing to the differing number of months in the Gregorian calendar and the leap-years. The summer solstice on June 20 and 21 marks the onset of the astronomical summer, while the winter solstice between December 20 and 22 the onset of the astronomical winter.

[218] Grave 287, partly cutting Grave 270, was dug after a longer period of time following the burial in the latter. Grave 283 was plundered a longer time after the funeral, and Grave 263, which cut it, was dug quite some time after the former was looted. Finally, Burial 945/B was dug following a longer interval after Burial 945/A, and a longer period of time elapsed before the former was robbed.

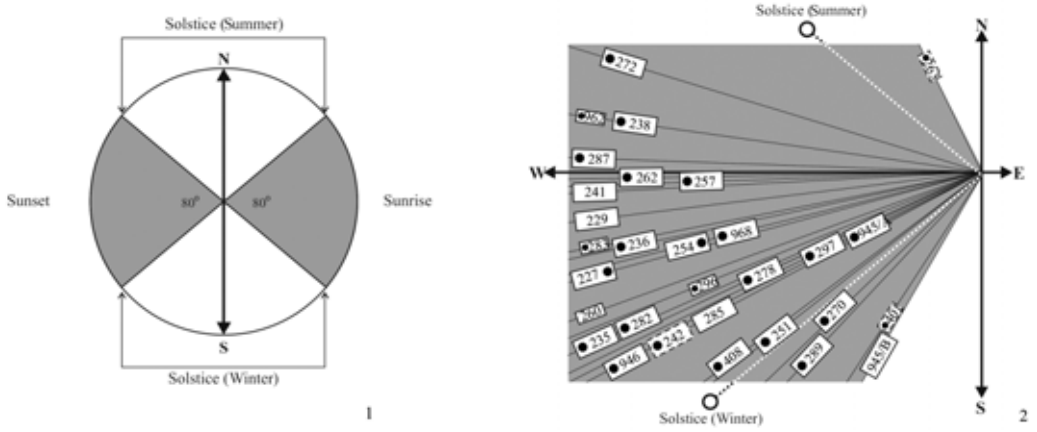


fig. 25. 1: Sunrise and sunset, summer and winter solstice in the northern hemisphere; 2: orientation of the burials according to seasons

funeral, but before the flood *(fig. 27. F)*, while two graves were robbed immediately after the funeral and then disturbed again after a longer period of time, but still before the flood *(fig. 27. G)*.

Nine graves were robbed following a longer interval after the funeral, but before the flood *(fig. 28. A*). One grave was robbed a longer time after the funeral, and then another grave was dug that partly cut it, the latter after the flood *(fig. 28. B)*. Another grave was similarly cut by a later grave, which was plundered after a longer period of time, after the flood *(fig. 28. C)*. In two cases, the funeral took place before the flood, but the two graves were robbed simultaneously after the flood *(fig. 28. D)*. Two graves were disturbed a long time after the funeral, with the floodwaters inundating the site between the two events. One of the graves filled up naturally after its plundering *(fig. 28. E–F).*

Exodus and the robbing of the graves

István Bóna dated the plundering of the burial grounds to the time of the two exoduses:[219] in his view, the cemeteries north of the Danube were robbed in the 550s,[220] while the burial grounds south of the river in spring 568, when the Langobards departed from Pannonia, and when the cemeteries of the Hegykő group, the Szentendre type and the Vörs–Kajdacs type were abandoned.

On the testimony of the written sources, the Hungarian Plain came under the rule of the Avar Khaganate after the Gepids were defeated, and the Avars' growing political and military power undoubtedly played a role in Alboin's decision to again enter into alliance with Bayan.[221] In early April, the Langobards migrated to Italy with their wives and entire people, leaving Pannonia to their "Avar friends".[222] To which Marius, bishop of Aventicum,

[219] *Bóna 1993* 125; *Bóna – Horváth 2009* 183–184.

[220] According to *Vida 2008* 78, the cemeteries of the northern Danubian group, known mostly from the Moravian Basin, were opened around 480 and were abandoned around 560/580.

[221] For the treaty for the war against the Gepids, see *Paulus Diaconus* I. 27*: Alboin vero cum Avaribus, qui primum Hunni, postea de regis proprii nomine Avares appellati sunt, foedus perpetuum iniit.*

[222] *Paulus Diaconus* II. 7: *Tunc Alboin sedes proprias, hoc est Pannoniam,* ***amicis suis Hunnis*** *contribuit, eo scilicet ordine, ut, si quo tempore Langobardis necesse esset reverti, sua rursus arva repeterent.* ***Igitur Langobardi, relicta Pannonia, cum uxoribus et natis omnique supellectili Italiam properant possessuri****. Habitaverunt autem in Pannonia annis quadraginta duobus. De qua egressi sunt mense aprili, per indictionem primam, alio die post sanctum Pascha, cuius festivitas eo anno iuxta calculi rationem ipsis kalendis aprilis fuit,*

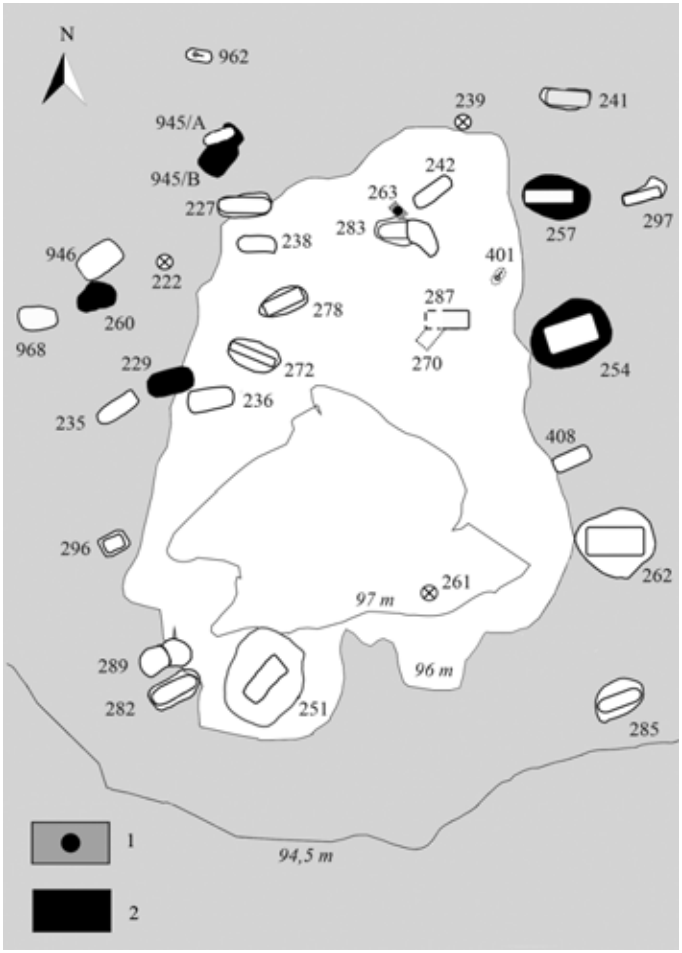


fig. 26. Area inundated by the sixth-century flood. Key: 1: Graves dug after the flood; 2: alluvial soil in the robber's pit

added that they left "after burning their homeland".[223] In István Bóna's words, "they set fire to their houses, they plundered their graves, leaving nothing of value behind".[224] Similarly to other scholars, István Bóna linked the plundering of the graves to the exodus, even though there is nothing in the sources to support this contention.

Károly Sági noted that the Vörs cemetery was probably robbed after the abandonment of the settlement because "the settlement's occupants would hardly have tolerated the ravaging of the burials of their beloved".[225] He believed that the graves had been plundered by the servants and he excluded the possibility that the culprits had been Avars because thirteen graves had been carefully backfilled.

The attractive exodus/*grabworfin* theory is contradicted by the many richly furnished, unplundered graves in Pannonia. Horst Adler quite reasonably raised the question of why were not all the graves robbed at the time of the exodus.[226]

It is quite obvious from the relative chronology of the burials that the grave plunderings performed at various times in the Ménfőcsanak cemetery cannot be automatically dated to the

cum iam a Domini incarnatione anni quingenti sexaginta octo essent evoluti. II. 8: *Igitur cum rex Alboin cum omni suo exercitu vulgique promiscui multitudine ad extremos Italiae fines pervenisset".* [Emphasis added.]

[223] *Marius Aventicensis* Chronicon: *Anno III cons. Iustini iun. Aug., ind. u. Hoc anuo Albuenus rex Langobardorum cum omni exercitu reliquens atque incendens Pannoniam, suam patriam, cum mulieribus vel omni proprio suo, ut fera Italiam occupavit.*

[224] *Bóna 1993* 111.

[225] *Sági 1963* 68.

[226] *Adler 1970* 141–142.

time of the exodus; moreover, neither do Marius Aventicensis' remarks, *reliquens atque incendens* and *omni proprio suo* confirm that the graves had been plundered at the time of the exodus.

While the robbing of the graves immediately after the funeral can certainly be attributed to the Langobards, it seems unlikely that the robbers had been the deceased's close relatives. It is possible that the graves had been rifled by the servants, but it is equally feasible that the culprits were the occupants of a nearby farmstead. Given the proximity of Gyirmót and Ménfőcsanak, a kind of mutual robbing also seems feasible. Transdanubia passed into the possession of the Avars after the Langobards' departure, who are known to have robbed their own graves as well as the burials of earlier populations.[227] Owing to the proximity of the Avar settlement and cemetery at Ménfőcsanak, we cannot exclude the possibility that some graves had been looted by the Avars. However, only the grave robbings performed after the flood can be ascribed to the Avars, even if not all. One of these is Grave 257, whose grave pit was dug before the flood, while the burial was plundered after a longer period of time and the robber's pit filled up naturally.

The age, sex and stature of the deceased

In many publications, the age and sex of the deceased are often conflated,[228] without a distinction between the adult/child and male/female/indeterminate categories.

The distribution of the deceased according to age and sex is as follows:

Sex	Age	Grave	Σ1	Σ1	Σ3
♂	*adultus*	241	**1**	**11**	**23**
	adultus/matures	238	**1**		
	matures	227, 282, 285	**3**		
	maturus/senior	257, 270, 289, 297	**4**		
	senior	229, 278	**2**		
♀	*adultus*	236, 251, 272	**3**	**10**	
	adultus, later period	946	**1**		
	adultus/matures	262	**1**		
	matures	235, 242, 254, 287, 968	**5**		
?	*matures*	945/A	**1**	**1**	
	"grave pit suggesting an *adult"*	945/B	**1**	**1**	
?	*infans I*	263, 260, 296, 401, 283, 962	**6**	**6**	**7**
?	*infans II*	408	**1**	**1**	

Owing to the small size of the population, relative frequencies should be seen as distorted figures. The highest number of burials falls into the adult category (eleven men, ten women and two indeterminate burials). The proportion of men and women is roughly equal. Of the six child burials, Graves 260, 296 and 401 were the burials of 1-3-year-old children, Grave 263 of a 3-4-year-old child, Graves 283 and 962 of 4-6-year-old children, while Grave 408 of a 14-15-year-old adolescent.

In the lack of an overall population figure, we cannot draw any conclusions regarding the mortality rate. The small Pannonian cemeteries have only been partially excavated and thus they are unsuitable for comparisons.

[227] The Avars of the Hungarian Plain plundered Sarmatian burials, their peers in Pannonia looted Roman graves as shown by some of their grave goods.

[228] E.g. in the case of the Vörs cemetery – *Ságі 1963* 67 – despite the fact that the two categories were distinguished as early as 1902 by Raniero Mengarelli in his publication of the Castel Trosino cemetery.

[229] A small population, whose assessment by necessity provides distorted results.

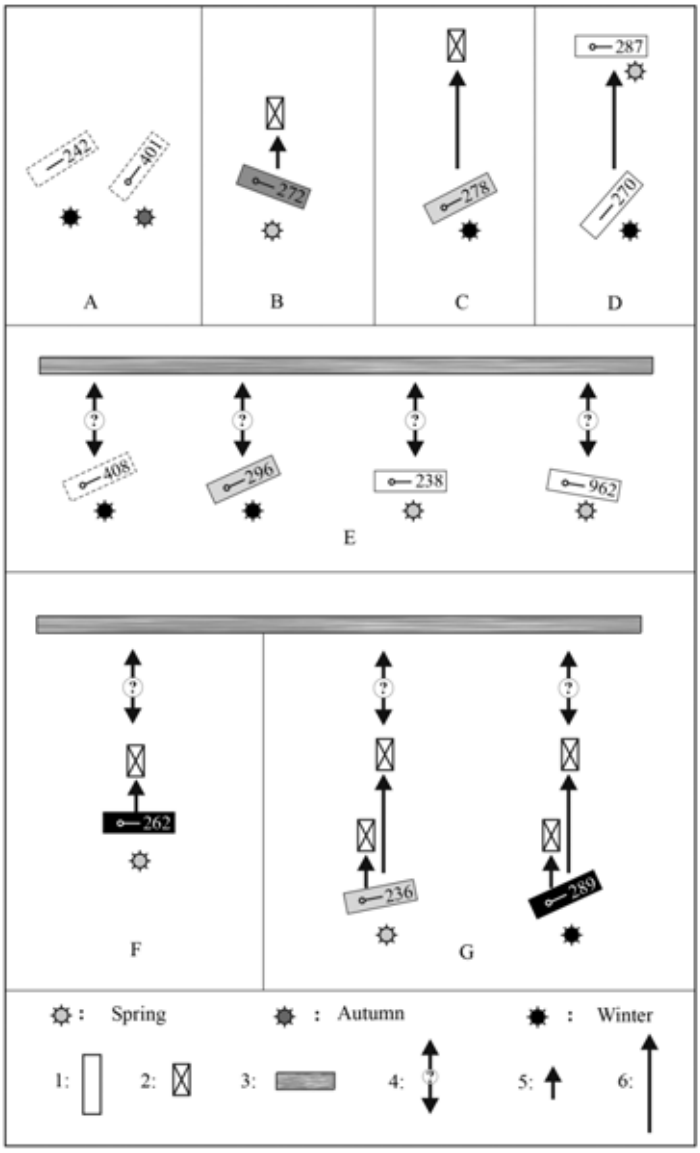


fig. 27. A–G: Relative chronology of the burials. Key: 1: grave; 2: looting; 3: flood level; 4: uncertain interval of time; 5: short interval of time; 6: longer interval of time

The season of death based on the orientation of the graves is as follows:

Months	Spring	Summer	Autumn	Winter
Σ	13	1	2	14
%[228]	43	3	7	47

Figure 25. 2 reveals that mortality increased from mid-December. Fewer people died with the onset of spring and the mortality rate decreased later in the year. No more than two funerals were held in summer and autumn.

Conclusion

Ménfőcsanak lies on the fringes of the so-called Hegykő group. The almost completely excavated Hegykő cemetery contained eighty-one graves. There were considerably fewer

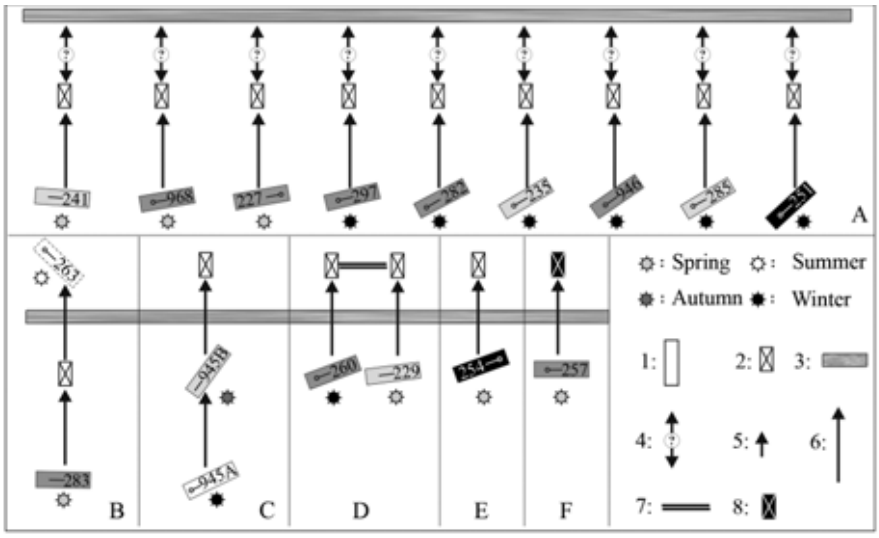


fig. 28. A–F: Relative chronology of the burials. Key: 1: grave; 2: looting; 3: flood level; 4: uncertain interval of time; 5: short interval of time; 6: longer interval of time, 7: contemporaneous; 8: incomplete backfilling

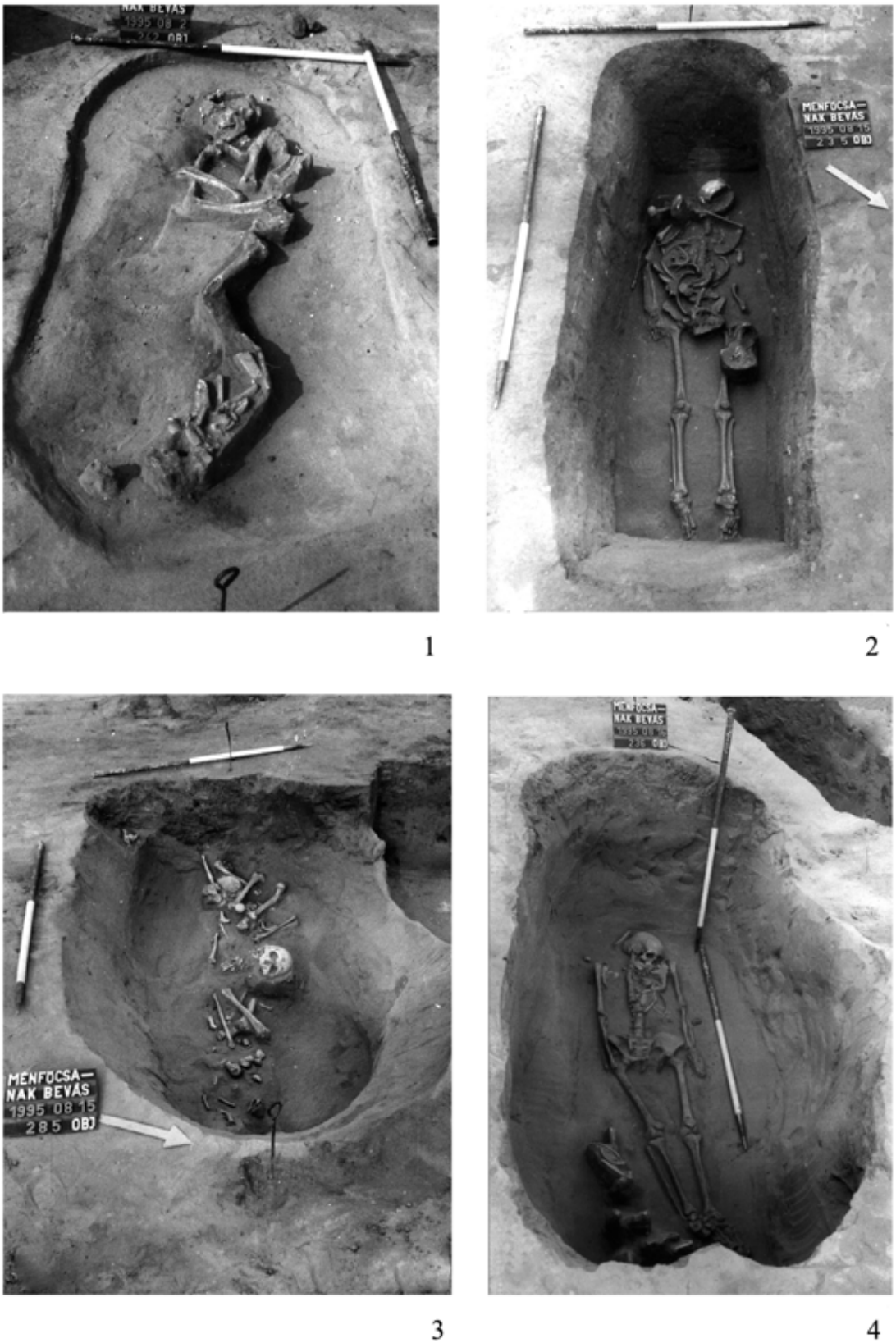
graves at Ménfőcsanak. While the layout of the biritual cemetery, its funerary rites, the articles placed in the graves and the proportion of different social groups as well as the finds generally typical for the period indicate that the burial ground can be linked to the Langobards, it cannot be assigned to the Hegykő group in view of the many divergences.

The number of servants coming from the ranks of the mixed local population and the vanquished Danubian Germans was much lower than that of Langobard nobles and freemen,[230] a proportion also reflected in the Ménfőcsanak cemetery.

According to István Bóna, Langobard cemeteries generally covered a 50 meter by 80–100 meter large area. The Ménfőcsanak burial ground is much smaller, roughly about one-fifth of the average burial sites. Its extent was undoubtedly influenced by the site's topography because the deeper area covered by marshland and periodically by water was unsuitable for burial.

István Bóna estimated the population of a *fara* and the use-life of a cemetery from the layout of average-sized cemeteries and the number of graves.[231] Using his estimates, the Ménfőcsanak cemetery can be regarded as the burial ground of a *fara* made up of some 30-50 individuals used for roughly 25-30 years. However, the relative chronology of the cemetery and the presence of two grave groups would suggest that the burial ground was in use for at least a decade longer. Following the Langobards' departure to Italy, the area was occupied by the Avars,[232] whose settlement and cemetery was found near the Langobard burial site. Despite the proximity between them, there is no indication whatsoever in the archaeologicalv record that any of the Langobard nobles or freemen had remained here and lived under Avar overlordship.[233]

[230] *Bóna 1993* 131.
[231] *Bóna 1993* 130, with a list of the cemeteries and the number of graves.
[232] Grave 18, an Avar burial, was dug into Grave 23, a Langobard burial, at Gyirmót: *Tomka 2005* 248–249.
[233] *Werner 1962*. For the refutation of the "Várpalota culture" theory, *Bóna 1993* 118, with the earlier literature.



1 2

3 4

fig. 29. 1: Grave 242; 2: Grave 235; 3: Grave 285; 4: Grave 236

1

2

3

fig. 30. 1: Grave 263; 2: Grave 296; 3: Grave 262, excavation of dog “A”

fig. 31. 1: The upper body disturbed during the second looting of Grave 289, a twice-plundered burial; 2: the first robber's pit; 3: the right lower leg, bent at the knee after the looting, redeposited at a higher level

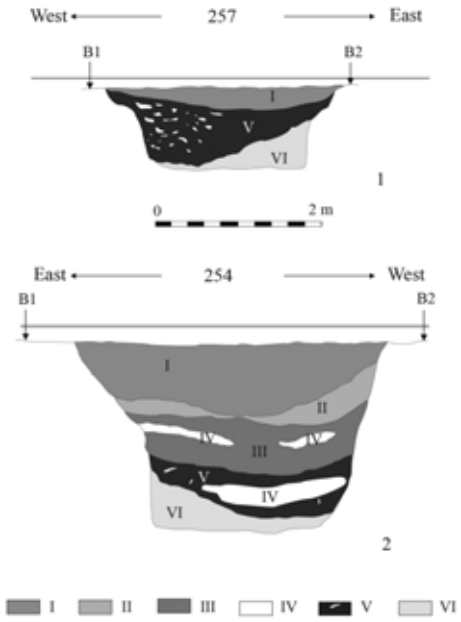


fig. 32. 1: Section of Grave 257; 2: section of Grave 254. Key: I: sand mixed with greyish humus; II: light grey mixed level with ash and burnt daub; III: light brown level mixed with sand in some spots; IV: yellow sand; V. alluvial soil with sand lenses; VI: yellow sand

WRITTEN SOURCES

Edictus Rothari — In: F. Bluhme – A. Boretius (ed.): Leges IV [Leges Langobardorum]. Monumenta Germaniae Historica: Leges. Hannoverae 1868, 3–90. Nachdruck 1984.

Marius Aventicensis — Marii episcopi Aventicensis: Chronicon. Ed. W. Arndt. Lipsiae 1878. Marii episcopi Aventicensis Chronica. In: Th. Mommsen (ed.): Chronica minora saec. IV. V. VI. VII. (II). Monumenta Germaniae Historica: Auctores antiquissimi. Berolini 1894, 225–241. Nachdruck 1981.

Paulus Diaconus — Historia Langobardorum. In: L. Bethmann – G. Waitz (ed.): Monumenta Germaniae Historica: Scriptores rerum Langobardicarum et Italicarum saec. VI–IX. Hannover 1878, 12–219. Nachdruck 1988.

REFERENCES

Adler 1966–70 — H. Adler: Hauskirchen. FÖ 9 (1966/70) 87–89.

Adler 1970 — H. Adler: Zur Ausplünderung langobardischer Gräberfelder in Österreich. MAGW 100 (1970) 138–147.

Adler 1977 — H. Adler: Das langobardische Gräberfeld von Aspersdorf. FÖ 16 (1977) 7–70.

Adler 1979 — H. Adler: H. Neue langobardische Gräber aus Schwechat. FÖ 18 (1979) [1980] 9–40.

Beninger – Mitscha-Märheim 1970 — E. Beninger – H. Mitscha-Märheim: Das langobardische Gräberfeld von Nikitsch, Burgenland. Wissenschaftliche Arbeiten aus dem Burgenland, Heft 43. Kulturwissenschaften, Heft 16. Eisenstadt 1970, 3–45.

Beninger 1966 — E. Beninger: Der Langobardenfriedhof von Poysdorf, NÖ. ArchA 40 (1966) 167–187.

Bierbrauer 1993 — V. Bierbrauer: Die Landnahme der Langobarden in Italien aus archäologischer Sicht, in: M. Müller-Wille – R. Schneider (Hrsg.): Ausgewählte Probleme europäischer Landnahmen des Früh- und Hochmittelalters. Methodische Grundlagendiskussion im Grenzbereich zwischen Archäologie und Geschichte, Teil I. Sigmaringen 1993, 103–172.

Bóna – Horváth 2009 — I. Bóna – J. B. Horváth: Langobardische Gräberfelder in West-Ungarn. Monumenta Germanorum Archeologica Hungariae 6. Monumenta Langobardica. Budapest 2009.

Bóna 1956 — I. Bóna: Die Langobarden in Ungarn. Die Gräberfelder von Várpalota und Bezenye. ActaArchHung 7 (1956) 183–244.

Bóna 1960 — I. Bóna: VI. századi germán temető Hegykőn I (Germanisches Gräberfeld aus dem 6. Jh. in Hegykő I). SSz 14 (1960) 233–241.

Bóna 1961 — I. Bóna: VI. századi germán temető Hegykőn II (Germanisches Gräberfeld aus dem 6. Jh. in Hegykő II). SSz 15 (1961) 131–140.

Bóna 1963 — I. Bóna: VI. századi germán temető Hegykőn, Befejező közlemény (Germanisches Gräberfeld aus dem 6. Jahrhundert in Hegykő, Zusammenfassung). SSz 17 (1963) 136–144.

Bóna 1971 — I. Bóna: A népvándorlás kora Fejér megyében (Die Zeit der Völkerwanderung von Komitat Fejér), in: J. Fitz. – J. Makkay (eds.): Fejér megye története I. Fejér megye története az őskortól a honfoglalásig 5. Székesfehérvár 1971, 221–314.

Bóna 1988 — I. Bóna: Die Langobarden in Pannonien, in: R. Bush (Hrsg.): Die Langobarden von der Unterelbe nach Italien. Veröffentlichungen des Hamburger Museums für Archäologie und die Geschichte Hamburgs 54. Hamburg 1988, 63–74, 256–286.

Bóna 1993 — I. Bóna: A langobardok története és régészeti emlékei [The History and Archaeological Heritage of the Langobards], in: I. Bóna – J. Cseh – M. Nagy. – P. Tomka – Á. Tóth: Hunok–gepidák–langobardok. MŐK 6. Szeged 1993, 102–162.

Bóna 1998 I. Bóna: Das langobardenzeitliche Gräberfeld von Hegykő, Komitat Győr–Sopron, in: P. Anreiter – L. Bartosiewitz – E. Jerem – W. Meid (eds): Man and the Animal World. Studies in Archaeozoology, Archaeology, Anthropology and Paleolinguistics in memoriam Sándor Bökönyi. Budapest 1998, 109–120.

Bóna 2001 I. Bóna: Befejező ásatás a bezenyei langobard temetőben. 1964 (Schlussgrabung im langobardischen Friedhof von Bezenye. 1964). Arrabona 39 (2001) 189–212.

Bonomi Ponzi – von Hessen – Profumo 1997 L. Bonomi Ponzi – O. von Hessen. – M. C. Profumo: Catalogo, in: Umbria Longobarda. La necropoli di Nocera Umbra nel centenario della scoperta. Roma 1997, 177–128.

Christlein 1979 R. Christlein: Die Alamannen: Archäologie eines lebendigen Volkes. Stuttgart 19792.

Csallány 1969–1971 D. Csallány: Avar kori páncélok a Kárpát-medencében 1 (Die Panzer der Awarenzeit im Karpatenbecken). JAMÉ 12–14 (1969–1971) [1972] 7–44.

Egry et al. I. Egry – E. Szőnyi – P. Tomka – A. Vaday: Ménfőcsanak, Bevásárló-központ 1995 [Ménfőcsanak – Einkaufzentrum 1995]. RégFüz 49 (1997) 72–73.

Gräslund 2000 A-S. Gräslund: The conversion of Scandinavia – a sudden event or gradual process?, in: A. Pluskowski (ed.): Early Medieval Religion. Archaeological Review from Cambridge 17/2 (2000) 83–98.

Gräslund 2004 A-S. Gräslund: Dogs in graves – a question of symbolism?, in: B. Santillo Frizell (ed.): PECUS. Man and animal in antiquity. Proceedings of the conference at the Swedish Institute in Rome, September 9–12, 2002. Rome 2004, 167–176.

Hampl 1965 F. Hampl: Die langobardischen Gräberfelder von Rohrendorf und Erpersdorf, NÖ. ArchA 37 (1965) 40–78.

Iregren 1994 E. Iregren: Kremationer från Tuna, Badelunda i Västmanland samt en jämförelse med andra brandgravfält i Mälardalen, in: Nylén – Schönbäck 1994 202–211.

Kiss – Nemeskéri 1964 A. Kiss – J. Nemeskéri: Das langobardische Gräberfeld von Mohács (A mohácsi langobard temető). JPMÉ 1964 [1965] 95–127.

Kiss 1999 G. Kiss: A Keszthely-városi avar kori temető kutatásának kezdetei (Die Anfänge der Erforschung des awarenzeitlichen Gräberfeldes der Stadt Keszthely). ZalaiMúz 9 (1999) 77–98.

Kiss 2012 P. A. Kiss: „Nem a hadnak sokasága…" Megjegyzések a Tiszavidéki gepida fegyveres réteg összetételéhez („Nicht nur die Menge der Armee" Bemerkungen zur Zusammensetzung der bewaffneten Gesellschaft von Gepiden im Theissgebiet), in: A. Kiss P. – F. Piti – Gy. Szabados (eds): A VII. Medievisztikai PhD-konferencia (Szeged, 2011. június 1–3.) előadásai. Középkortörténeti tanulmányok 7. Szeged 2012, 135–163.

Koch 1977 U. Koch: Das Reihengräberfeld bei Schretzheim. Germanische Denkmäler der Völkerwanderungszeit 2. Ser. A. Band 13. Berlin 1977.

Kory 2004 R. W. Kory: Schuppen- und Lamellenpanzer, in: H. Beck – D. Geuenich – H. Steuer (Hrsg.): Reallexikon der Germanischen Altertumskunde Band 27. Berlin – New York 2004, 375–403.

Kovács 1970 L. Kovács: A honfoglaló magyarok lándzsái és lándzsástemetkezésük (Die Lanzen der landnehmenden Ungarn und ihre Lanzenbestattung). Alba Regia 11 (1970) 81–108.

Kovrig 1955 I. Kovrig: Adatok az avar megszállás kérdéséhez [Some Data Concerning the Question of the Avarian Occupation]. ArchÉrt 82 (1955) 30–44.

Kovrig 1999 I. Kovrig: A Keszthely–belvárosi avar kori temető feltárásának folytatása [Proceeding of the Excavation of the Avar Cemetery from Keszthely, Downtown]. ZalaiMúz 9 (1999) 99–119.

László 1942 Gy. László: Budapest a népvándorlás korában [Budapest in the Migration Period], in: K. Szendy (ed.): Budapest története I. Budapest 1942, 781–818.

Lipp 1884 V. Lipp: A keszthelyi sírmezők [The Burial Fields from Keszthely]. Budapest 1884.

Mengarelli 1902 R. Mengarelli: La necropoli barbarica di Castel Trosino presso Ascoli Piceno. Monumenti Antichi della Reale Accademia dei Lincei 12. Roma 1902.

Mitscha-Märheim 1966 H. Mitscha-Märheim: Das langobardische Gräberfeld von Steinbrunn und die völkerwanderungszeitliche Besiedlung des Ortsgebietes, in: A. J. Ohrenberger (Hrsg.): Festschrift für Alphons A. Barb zum fünfundsechszigsten Geburtstag am 15. April 1966. Wissenschaftliche Arbeiten aus dem Burgenland Heft 35. Eisenstadt 1966, 102–114.

Müller 1980 H. H. Müller: Zur Kenntnis der Haustiere der Völkerwanderungszeit im Mittelelbe-Saale-Gebiet. Zeitschrift für Archäologie 14 (1980) 99–119, 145–172.

Nagy 1999 I. Nagy: Geographic data to the archaeology of wells unearthed at Ménfőcsanak in 1995. Antaeus 24 (1997–1998 [1999]) 311–319, 716–720.

Nedoma 2000 R. Nedoma: Hund und Hundegräber §2 Altertumskundliches, in: H. Beck – D. Geuenich – H. Steuer (Hrsg.): Reallexikon der Germanischen Altertumskunde Band 15. Berlin – New York 2000, 212–232.

Neugebauer 2001 J. W. Neugebauer: Rettungsgrabungen im Unteren Traisental in den Jahren 2000 und 2001. 16. Vorbericht über die Aktivitäten der Abteilung für Bodendenkmale des Bundesdenkmalamtes im Raum St. Pölten – Traismauer. FÖ 40 (2001) [2002] 191–294.

Nylén – Schönbäck 1994 E. Nylén – B. Schönbäck (eds): Tuna i Badelunda. Guld, kvinnor, båtar 2. Västerås kulturnämds skriftserie 30. Västerås 1994.

Pasqui – Paribeni 1918 A. Pasqui – R. Paribeni: Necropoli barbarica di Nocera Umbra. Monumenti Antichi della Reale Accademia dei Lincei 25 (1918) 138–352.

Peters et al. 2014 D. Peters – C. Knipper – U. von Freeden – W. Müller – A. Maurer – K. W. Alt – T. Vida: Schmelztiegel Balaton? Zum Verhältnis „langobardischer" Einwanderergruppen und (vor-) langobardenzeitlicher romanischer Bevölkerung am Balaton – Szólád und Keszthely-Fenékpuszta zwischen Archäologie und Isotopie, in: O. Heinrich-Tamáska – P. Straub (Hrsg.): Mensch, Siedlung und Landschaft im Wechsel der Jahrtausende am Balaton. Castellum Pannonicum Pelsonense 4. Budapest – Leipzig – Keszthely – Rahden 2014, 337–360.

Prummel 1992 W. Prummel: Early medieval dog burials among the Germanic tribes. Helinium 32 (1992) 132–194.

Ramskou 1966 T. Ramskou: Vikingetid, in: M. Rud (ed.): Jeg ser på oldsager. København 1966, 277–319.

Ramskou 1976 T. Ramskou: Lindholm Høje, Gravpladsen. Nordiske Fortidsminder Serie B Bind 2. København 1976.

Riedel 1995 A. Riedel: Le inumazioni di animali della necropoli longobarda di Povegliano, Vr. (Tierbestattungen in langobardischen Gräberfeld von Povegliano, Vr). Annali dei Musei Civici di Rovereto 11 (1995) 53–98.

Sági 1960 K. Sági: A vörsi langobard temető (Das langobardische Gräberfeld in Vörs). ArchÉrt 87 (1960) 52–60.

Sági 1963 K. Sági: A vörsi langobard temető újabb ásatási eredményei (Neue Ergebnisse der Ausgrabungen auf dem langobardischen Gräberfeld von Vörs). VMMK 1 (1963) 39–80.

Schmidt 1961 B. Schmidt: Die späte Völkerwanderungszeit in Mitteldeutschland. Veröffentlichungen des Landesmuseums für Vorgeschichte in Halle Band 18. Halle 1961.

Schmidtová et al. 2009 J. Schmidtová – A. Šefčáková – M. Thurzo – J. Brůžek – D. Castex – M. Ruttkay: Lombards on the Middle Danube: a new Migration Period cemetery in Bratislava-Rusovce, Slovakia. Antiquity 83/319 (2009), (http://antiquity.ac.uk/projgall/sefcakova/).

Stadler 1979 P. Stadler: Das langobardische Gräberfeld von Mödling, NÖ. ArchA 63 (1979) 31–47.

Staňa 1956 Č. Staňa: Nové nálezy na pohřebišti z doby stěhováni národů v Šaraticích na Moravě. AR 8 (1956) 26–32, 141.

Ström 1985 F. Ström: Nordisk hedendom. Tro och sed i förkristen tid. Stockholm 1985.

Szőnyi 1997 E. Szőnyi: Adatok a Brigetio–Savaria út nyomvonalához (Data on the Trace of the Route between Brigetio and Savaria). Arrabona 35/1–2 (1997) 97–108.

Szőnyi 1999 E. T. Szőnyi: Római kori útadatok Győr megyében (Römerzeitliche Straßenangaben im Komitat Győr). Arrabona 37 (1999) 1–2. 83–98.

Tejral 2005 J. Tejral: Zur Unterscheidung des vorlangobardischen und elbgermanisch-langobardischen Nachlasses, in: W. Pohl – P. Erhardt (Hrsg.): Die Langobarden. Herrschaft und Identität. Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse, Denkschriften Band 329. Forschungen zur Geschichte des Mittelalters Band 9. Wien 2005, 103–200.

Tomka 2005 P. Tomka: Langobardenforschung in Nordwestungarn, in: W. Pohl – P. Erhardt (Hrsg.): Die Langobarden. Herrschaft und Identität. Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse, Denkschriften Band 329. Forschungen zur Geschichte des Mittelalters Band 9. Wien 2005, 247–264.

Uzsoki 1968 A. Uzsoki: Ménfőcsanak. ArchÉrt 95 (1968) 128.

Uzsoki 1969 A. Uzsoki: Ménfőcsanak. ArchÉrt 96 (1969) 253.

Uzsoki 1969a A. Uzsoki: Die Siedlungsgeschichte der La Tène B–C Periode des Komitats Győr-Sopron. MFMÉ (1969) 2. 69–82.

Uzsoki 1970 A. Uzsoki: Előzetes jelentés a ménfőcsanaki kelta temető ásatásáról (Rapport Préliminaire sur les Fouilles de la Nécropole celte de Ménfőcsanak). Arrabona 12 (1970) 17–57.

Uzsoki 1970a A. Uzsoki: A ménfőcsanaki kelta pajzs rekonstrukciós kísérlete (Essai de reconstitution du bouclier celtique de Ménfőcsanak). ArchÉrt 97 (1970) 97–108.

Uzsoki 1970b A. Uzsoki: Ménfőcsanak. ArchÉrt 97 (1970) 307.

Uzsoki 1987 A. Uzsoki: Ménfőcsanak, in: T. Kovács – É. F. Petres – M. Szabó (eds): Corpus of Celtic finds in Hungary. Transdanubia I. Budapest 1987, 11–61.

Vaday 2008 A. Vaday: A ménfőcsanaki langobard temető/Longobardské pohrebisko v obci Ménfőcsanak/Das langobardische Gräberfeld von Ménfőcsanak, in: A. Molnár – A. Nagy – P. Tomka (eds): Jöttek – mentek. Langobardok és avarok a Kisalföldön. Győr 2008, 46–54.

Vaday 2013 A. Vaday: Pécs története az avar kortól a magyar államalapításig (The History of Pécs from the Avar Period until the Foundation of the Hungarian State), in: J. Vonyó – Zs. Visy (eds): Pécs Története I. Pécs 2013, 233–265, 287–298, 352–357.

Vida 2008 T. Vida: Die Langobarden in Pannonien, in: M. Hegewitsch (Hrsg.): Die Langobarden. Das Ende der Völkerwanderung. Katalog zur Ausstellung im Rheinischen Landesmuseum Bonn. Darmstadt 2008, 73–89.

Vörös 1999 I. Vörös: Germán ló-kutya kettős sírok Keszthely avar kori temetőjében (Germanische Pfrede-Hunde-Doppelgräber im awarenzeitlichen Gräberfeld von Keszthely). ZalaiMúz 9 (1999) 121–151.

Vretemark 1989 M. Vretemark: Djuroffer för en storman – en osteologisk analys, in: L. Sjösvärd (ed.): HaukR – en rinker från Vallentuna: arkeologisk undersökning av fornlämning 27, Rickeby, Vallentuna sn, Uppland. Rapport – Riksantikvarieämbetet och Statens historiska museer. Undersökningsverksamheten 1989/2. Stockholm 1989, 34–40.

Werner 1962 J. Werner: Die Langobarden in Pannonien. Beiträge zur Kenntnis der langobardischen Bodenfunde vor 568. Bayerische Akademie der Wissenschaften philosophisch-historische Klasse Abhandlungen NF Heft 55. München 1962.

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BALÁZS GUSZTÁV MENDE

BRIEF OVERVIEW OF THE MIGRATION PERIOD POPULATION FROM MÉNFŐCSANAK

Keywords: paleoanthropology, tall stature population, Migration period

This study presents the anthropological data of the skeletal remains uncovered at the Migration period cemetery of Ménfőcsanak-Bevásárlóközpont. Although the bulk of the data used in the brief evaluation was collected during the excavation of the site, the material of some burials was added to the analysis subsequently.

The skeletons are relatively well preserved, although the missing portions of the skeletons have posed difficulties in determining the age at death[1] and the morphological sex.[2] The dimorphism coefficient (SI) referring to sex values is a good indication of the sexual character in the case of both sexes. In the adult age group, we could measure at least one of the long bones needed for body height calculation,[3] and the main metric and morphological characteristics[4] of the skull could be measured in four cases for both sexes (for the data of individual burials, see *Appendix*).

There are two features that influence the demographic characteristics of the population: (1) the low number of skeletal remains of children, especially of the Infans II age group, and the lack of the remains of the 0-1 and 6-14 years age groups; (2) although the sex ratio is well balanced, the most fertile, 20-35 years age group of females is lacking. It is also unusual that older age groups are predominantly represented by men instead of women.[5]

Despite the small sample, we could perform a morphometric analysis of eight skulls.[6] The most dominant skull component of the population is the mesocranic, while the brachycranic skull component was not represented. The population has a predominantly Europid character, although Mongoloid traits (torus mandibularis, sulcus praenasalis, paddle-shaped incisor) could be identified on the skeletal remains from Grave 262.

Based on the calculated body height values, men were dominated by the tall medium-tall, while women by the tall-very tall category. The body height of 181 cm for the female interred in Grave 251 can be considered a uniquely high value even among the Germanic populations of the Migration period.[7]

There were no macroscopic signs of battle injuries or of significant traumas, and no signs of systemic diseases could be observed on the bones. The practice of artificial skull deformation can perhaps be assumed in the case of the man from Grave 945, although the poorly preserved bone remains and the possibility of the post-mortem deformation of the skull call for caution, and this assumption therefore remains unproven.

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[1] *Nemeskéri – Harsányi – Acsádi 1960; Miles 1963; Stoukal – Hanáková 1978; Ferembach – Schwidetzky – Stloukal 1979; Ubelaker 1984.*

[2] *Éry – Kralovánszky – Nemeskéri 1963.*

[3] *Sjøvold 1990.*

[4] *Martin – Saller 1957.*

[5] The overall picture of the demographic situation presented here can be modified by the data gained from cremation burials.

[6] *Alekseev – Debec 1964.*

[7] *Éry 1998.*

Age group		Males	Females	Indeterminate	Total
Neonatus	0–1 years	–	–	–	–
Infans I	1–3 years	–	–	3	**3**
	4–7 years	–	–	4	**4**
Infans II	8–11 years	–	–	–	–
	12–14 years	–	–	–	–
Juvenis	15–22 years	–	–	1	**1**
Adultus	23–39 years	–	4	–	**4**
Adultus–Maturus		1	1	–	**2**
Maturus	40–59 years	5	5	–	**10**
Maturus–Senilis		3	–	–	**3**
Senilis	60–x years	2	–	–	**2**
23–x		1	–	–	**1**
Total		**12**	**10**	**8**	**30**

Table 1. Distribution of the population by sex and age

Appendix. The most important anthropological data of the individual graves.

Grave 123 2-3-year-old child *(infans I)*

Grave 227 35-55-year-old *(maturus)* male, SI: +1.14 (7), stature (calculated): 176.2 cm, Pathological alterations: block vertebra L.II-V

Grave 235 45-56-year-old *(maturus)* female, SI: -0.45 (9), stature (calculated): 155.1 cm, Pathological alterations: bilateral buildup of the pubic skins (traces of birth?)

Grave 236 24-30-year-old *(adultus)* female, SI: -1.22 (9), stature (calculated): 155.1 cm

Grave 238 35-45-year-old *(adultus-maturus)* male, SI: +1.36 (22), stature (calculated): 164.8 cm

Grave 241 23-x-year-old *(estimate)* male

Grave 242 40-60-year-old *(maturus, estimate)* female (?)

Grave 251 19-28-year-old *(adultus)* female, SI: -1.00 (16), stature (calculated): 181 cm (!)

Grave 254 40-60-year-old *(maturus)* female, SI: -0.71 (14), stature (calculated): 165 cm, Anatomical variations: ossa Wormiana, bathrocrania

Grave 257 50-70-year-old *(maturus-senilis)* male, SI: +1.09 (22), stature (calculated): 179.7 cm; anatomical variations: lumbalisatio, atrophy of the alveoli of the mandibles

Grave 260 Remains of two individuals:

(1) 60-70-year-old *(senilis, estimated)* male

(2) 18 +/-3-month-old child *(infans I)*

Grave 262 40-50-year-old *(adultus-maturus)* female, SI: -0.9 (20), stature (calculated): 159.1 cm, Nordoid base type skull with Mongoloid cranial details; anatomical variations: torus mandibularis, os epiptericum l. univ., paddle-shaped incisor

Grave 263 3-4-year-old child *(infans I)*

Grave 272 30-40-year-old *(adultus)* female, SI: -0.92 (14), stature (calculated): 174.2 cm; pathological alterations: bilateral buildup of the pubic skins (traces of childbirth?)

Grave 278 63-73-year-old *(senilis)* male, SI: +0.73 (19), stature (calculated): 166.1 cm, Pathological alterations: complete alveolar atrophy of the mandibles

Grave Martin No.	**238**	**257**	**278**	**285**
1	170	181	172	201
5	94	105	96	–
8	131	142	135	146
9	93	98	95	106
10	115	120	118	122
11	120	121	125	137
12	–	114	109	119
17	126	140	127	–
20	106	117	112	118
23	495	512	503	(550)
40	94	104	–	–
43	101	107	101	112
44	96	101	95	101
45	–	126	134	140
46	94	96	99	(96)
47	109	–	–	–
48	71	68	(60)	72
51	41	44	41	45
52	33	33	33	32
54	24	26	27	23
55	56	–	52	58
60	57	–	–	58
61	63	–	–	63
62	–	–	–	39
63	44	–	–	–
65	109	–	(132)	–
66	196	–	–	–
68	75	–	–	–
69	33	–	–	–
70	57	–	(54)	–
71	27	29	–	–
72	84	–	–	94
75	52	–	62	–
75/1	32	–	–	–
79	140	–	122	–
38	1271	1482	1309	1623
8:1	77.1	78.5	78.5	72.6
17:1	74.1	77.3	73.8	–
20:1	63.4	64.6	65.1	58.7
17:8	96.2	98.6	94.1	–
20:8	80.9	82.4	83.0	80.8
9:8	71.0	69.0	70.4	72.6
47:45	–	–	–	–
48:45	–	54.0	(44.8)	51.4
52:51	80.5	75.0	80.5	71.1
54:55	42.9	–	51.9	39.7
61:60	110.5	–	–	108.6
63:62	–	–	–	–
Norma verticalis	ovoid	pentagonoid	ovoid	ov-pentagonoid
Norma occipitalis	house-shaped	house-shaped	house-shaped	house-shaped
Glabella	2	4	3–4	5
Prot. occip. ext.	1	2–3	1	3
Fossa canina	4	3	2	4
Spina nasalis ant.	4	5	4	4
Alv. prognathia	2	–	–	–

Table 2. Individual metric and morphological data of the skulls: males

Grave Martin No.	251	254	262	272
1	185	191	182	175
5	93	–	102	94
8	140	136	135	134
9	95	99	96	95
10	117	116	111	110
11	–	–	123	122
12	(115)	110	111	103
17	130	(140)	138	132
20	112	–	117	112
23	525	–	(520)	506
40	–	–	98	(89)
43	103	–	107	109
44	–	–	100	101
45	131	–	130	130
46	–	–	102	98
47	123	–	118	110
48	75	–	72	68
51	44	–	42	41
52	36	–	35	34
54	25	–	25	28
55	57	–	52	44
60	58	–	59	54
61	59	–	65	60
62	43	–	42	42
63	38	–	45	41
65	117	115	116	98
66	85	100	100	73
68	78	82	81	76
69	34	19	28	34
70	64	66	67	60
71	33	36	37	30
72		–	85	87
75	–	–	76	65
75/1	–	–	19	22
79	120	111	123	115
38	1337	1379	1350	1295
8:1	75.7	71.2	74.2	76.6
17:1	70.3	73.3	75.8	75.4
20:1	60.5	–	64.3	64.0
17:8	92.9	103.0	102.2	98.5
20:8	80.0	–	88.7	83.6
9:8	67.9	72.8	76.8	70.9
47:45	93.9	–	90.8	84.6
48:45	57.3	–	55.4	52.3
52:51	87.8	–	83.3	82.9
54:55	43.9	–	48.1	63.6
61:60	101.7	–	110.1	111.1
63:62	90.5	–	107.1	97.6
Norma verticalis	ov.-pentagonoid	ov.-ellipsoid	ovoid	pentagonoid
Norma occipitalis	house-shaped	house-shaped	tent-shaped	house-shaped
Glabella	2–3	3	2	2
Prot. occip. ext.	1	1	1–2	1
Fossa canina	–	–	2	4–5
Spina nasalis ant.	4	–	41	3–4
Alv. prognathia	2	–	2	3

Table 3. Individual metric and morphological data of the skulls: females

Grave 282 40-50-year *(maturus)* male, SI: +0.70 (8), stature (calculated): 169 cm

Grave 283 4-5-year-old child *(infans I)* (F: 203 mm; T: 151 mm)

Grave 285 56-65-year-old *(maturus)* male, SI: +1.25 (10), stature (calculated): 159.1 cm; pathological alterations: condylus occipitalis bipartita

Grave 287 Remains of two individuals:

(1) post-cranial skeletal elements of a 40-50-year-old *(maturus)* female

(2) post-cranial skeletal elements and mandible fragment of a senile age group male

Grave 289 40-60-year-old *(maturus-senilis)* male, SI: +0.6 (5), stature (calculated): 171.3 cm

Grave 296 18 +/- 3-month-old child *(infans I)* (H: 110 mm, F: 141 mm, T: 102 mm)

Grave 297 51-64-year-old *(maturus-senilis)* male, SI: +1.07 (14), stature (calculated): 169.1 cm

Grave 401 2.5-3.5-year-old child (*infans I,* estimate)

Grave 408 14-15-year-old adolescent *(juvenilis)*

Grave 945 40-60-year-old *(maturus)* male, SI: +0.18 (11), stature (calculated): 171.9 cm

Grave 946 35-40-year-old *(adultus)* female, SI: -1.00 (7), stature (calculated): 167.3 cm

Grave 96 2.5-year-old child (*infans I,* estimate)

Grave 968 50-55-year-old *(maturus)* female, stature (calculated): 148.5 cm; + calotte of a young female (?)

REFERENCES

Alekseev – Debec 1964 V. P. Alekseev – G. F. Debec: Krainometriâ. Moskva 1964.

Éry – Kralovánszky – Nemeskéri 1963 K. Éry – A. Kralovánszky – J. Nemeskéri: Történeti népességek rekonstrukciójának reprezetációja (A representative reconstruction of historic population). AnthrKözl 7 (1963) 41–90.

Éry 1998 K. Éry: Length of limb bones and stature in ancient populations in the Carpatian basin. Humanbiologia Budapestiensis 26. Budapest 1998.

Ferembach – Schwidetzky – Stloukal 1979 D. Ferembach – I. Schwidetzky – M. Stloukal: Empfehlungen für die Alters- und Geschlechtsdiagnose am Skelett. Homo 30/2 (1979) 1–32.

Martin – Saller 1957 R. Martin – K. Saller: Lehrbuch der Anthropologie. Stuttgart 1957.

Miles 1963 E. A. W. Miles: The dentition in the assesment of individual age in skeletal material, in: D. R. Brothwell (ed.): Dental Anthropology Symposy, Soc. Study Human Biology 5. London 1963, 191–209.

Nemeskéri – Harsányi – Acsádi 1960 J. Nemeskéri – L. Harsányi – Gy. Acsádi: Methoden zur Diagnose des Lebensalters von Skelettfunden. Anthropologischer Anzeiger 24 (1960) 71–88.

Stloukal – Hanáková 1978 M. Stloukál – H. Hanáková: Die Lange der Längsknochen altslawischer Bevölkerungen unter besonderer Berücksichtigung von Wachstumsfragen. Homo 29 (1978) 53–69.

Sjøvold 1990 T. Sjovold: Estimation of stature from long bones utilizing the line of organic correlation. Journal of Human Evolution 5 (1990) 431–447.

Ubelaker 1984 D. H. Ubelaker: Human Skeletal Remains. London 1984.

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LÁSZLÓ BARTOSIEWICZ

ANIMAL REMAINS FROM THE LANGOBARD CEMETERY OF MÉNFŐCSANAK

Keywords: archaeozoology, dog burial, food remains, Migration Period, Langobards, Transdanubia

Extensive rescue excavations preceded the construction of a shopping mall in the satellite settlement of Ménfőcsanak, southwest of the city of Győr in northwestern Hungary. Work directed by Andrea Vaday of the Archaeological Institute of the Hungarian Academy of Sciences brought to light graves from a Migration Period cemetery. Many of these burials were disturbed either by contemporaneous or subsequent robbing, something also reflected in some of the animal remains. The animal bone assemblage recovered during rescue excavations from the cemetery at this site, Ménfőcsanak-Bevásárlóközpont, was attributed to Germanic Langobards (also known as Langobardi or Lombards) who originated in the area of northern Silesia and formed part of the tribal confederation of Suevi. The Langobards played no mentionable role in bringing down the Roman Empire. Migrating south as late as the sixth century, they filled a power vacuum in the Carpathian Basin left by the Hunnic Empire prior to their settlement in Northern Italy after AD 568. In the absence of large, permanent settlements, information concerning animal keeping by the Langobards of the Migration Period and Early Middle Ages largely originates from sacrificial animals and meat offerings recovered from burials.[1]

Only a few features contained animal remains in verified stratigraphic positions, including a total of six graves. These structured deposits were considered burials based on the presence of human skeletons, within this context the finds may have a ritual character.

Complete animals interred into graves as part of the mortuary ritual are not only important due to the relative paucity of relevant biometric data from settlements. When burials contain complete animal skeletons, they are well suited for detailed morphometric and pathological studies.[2] In addition to providing biological context (age, sex, phenotype), well-preserved skeletons contribute complementary information to the taphonomic history of a cemetery.

Material

Sporadically occurring mammalian bones were found in heavily disturbed Graves 219 (a female burial), 236, and 254. Since they originate from robbed graves and other mixed contexts, their chronological position cannot be verified. Animal remains relevant to the culture historical interpretation of the cemetery came to light from the following features:

Grave 227:
This inhumation burial of an adult man contained what looked like "two small bone spirals" of 7–8 mm in diameter (*fig. 1*) at the time of excavation. These peculiar artefacts could be identified as fragments of an ossified cartilaginous avian trachea, possibly originating from goose (Anser sp.).[3] Such remains sometimes found in excavated materials belong to the *syrinx* (or tracheal bulla) of birds in the order of Anseriform birds. The "bulba ossea" at the

[1] *Bökönyi 1974* 77.
[2] *Bartosiewicz 2002*.
[3] Erika Gál's personal communication.

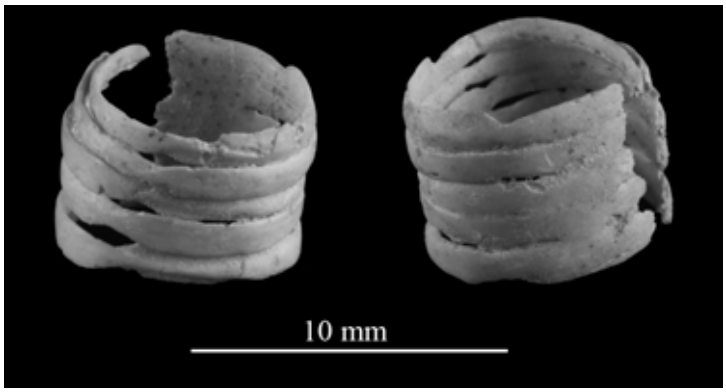

fig. 1. Right and left lateral aspects of the ossified cartilaginous bird trachea from Grave 227

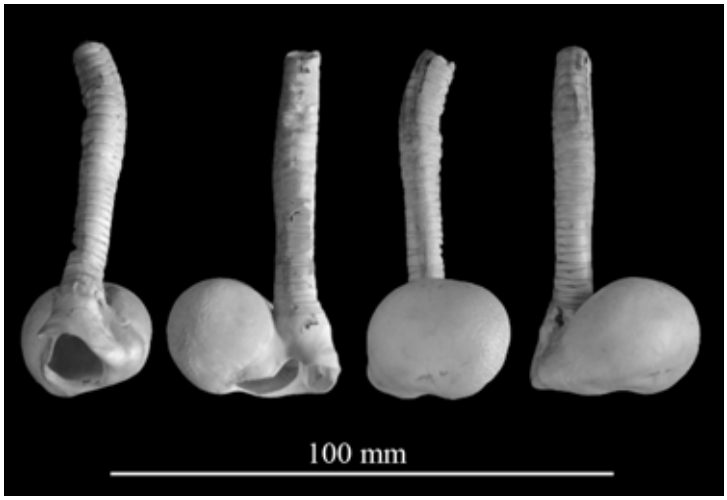

fig. 2. Four aspects (anterior, right lateral, posterior, left lateral) of the complete syrinx from a present-day duck illustrating the location of tracheal rings

lower part of the male *syrinx* is peculiar in being swollen[4] serving as a resonating voicebox. The complete organ is shown is *fig. 2* with ossified tracheal rings in place. The bulla itself, however, is unlikely to survive in archaeological deposits due to its poorly ossified thin wall. These curious bird remains are difficult to interpret in the absence of pertinent bones (skull base or cervical vertebrae. But they certainly did not end up in the burial by accident.

Grave 251:
This southernmost inhumation grave in the cemetery belonged to a young adult (19-20 years old) woman. In addition to the disarticulated long bones from a young domestic hen (*Gallus domesticus* L. 1758) fragments of egg shell were found in the chest area of the deceased. A small fragment of an ossified cartilaginous avian trachea possibly belonged to a larger species. While the bird remains could not be analyzed in taxonomic detail, the presence of eggshell is unambiguous proof of a spring funeral.

[4] *Garrod 1875.*

fig. 3. The skeleton of a large adult male Dog (A) found above the woman's corpse in Grave 262

Grave 262:
The extended skeleton of an adult (40-50 years old) woman lay in this grave with her right leg slightly contracted. The burial yielded the complete skeletons of two mature dogs (*Canis familiaris* L. 1758). Dog A was found above the corpse, thrown on its back facing east in a disfigured position (*fig. 3*). The carcass of dog B was placed on a bank on one side of the grave, above the woman's right shoulder.

Grave 272:
This inhumation of an adult (30-40 years old) female contained several parts of a pike (*Esox lucius* L. 1758) skeleton (supraoccipital, vomer, two fragments of a right dentale, angulare, quadratum fragment, four precaudal and two caudal vertebrae; *fig. 4*), as well as several small, non-identifiable fragments from the cranium and the zonoskeleton. They were put left of the woman's feet, some 10 cm above the feature's bottom. The near complete recovery of this pike skeleton is the result of meticulous hand-collection, since fish bones of lamellar structure are extremely sensitive to size-related taphonomic loss.[5] Some of the missing fragments may have been eroded by the sandy soil.

Grave 282:
This burial was located in the south of the cemetery, in the proximity of the grave labelled Feature 251. Remains of a pond tortoise (*Emys orbicularis* L. 1758) found in this burial came to light from right above the skull in this inhumation. Although carapace fragments of the tortoise shell are the most obvious remains of this animal, thanks to the extremely careful hand-collection[6] several smaller parts of the skeleton were recovered, including the skull (with

[5] *Takács 1988.*
[6] *Bartosiewicz 1983.*

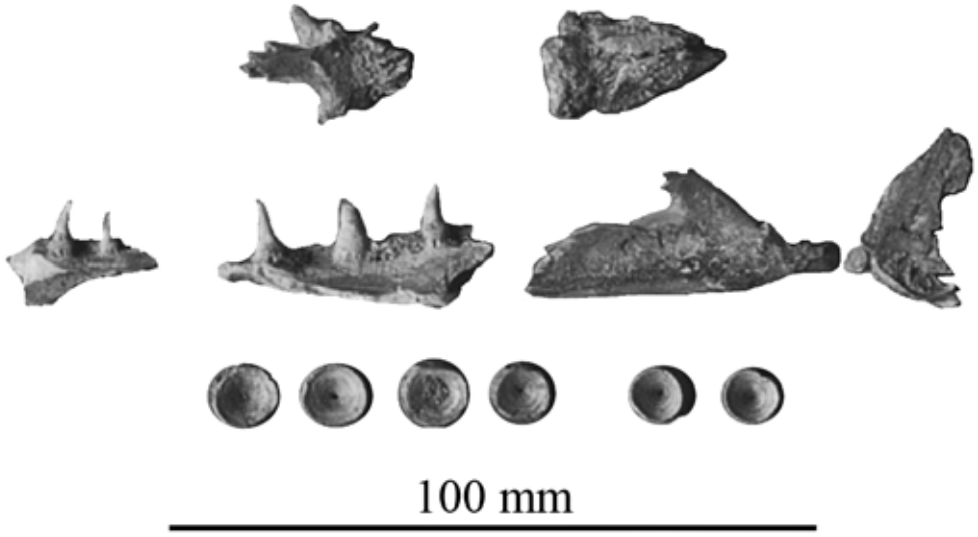

fig. 4. Identifiable remains of the pike recovered from Feature 272

the right mandible), the pairs of scapulae, humeri, the pelvis and the right tibia, indicative of a complete animal.

Grave 946:
The inhumation grave of this male contained the fragment of a pig (*Sus domesticus* Erxl. 1777) humerus. The robust distal half of the bone survived.

Discussion

The variety of animals represented in this cemetery bear different types of zoological and culture historical information. Dog remains offer the most complex picture of Langobard attitudes toward animals. Eggshell fragments and pike remains embody possible seasonal aspects of the burial rite.[7] Other animal remains carry little information beyond their sheer presence. Archaeozoological finds from the Ménfőcsanak-Bevásárlóközpont cemetery will be discussed in the decreasing order of information content.

Dog typology
Although by the Roman Period there seems to be an emergence of dog breeding within the empire, it is not entirely appropriate to speak of *bona fide* dog breeds in Migration Period cultures whose dog keeping practices are largely undocumented. Never-the-less, the typological character of the two complete dog skeletons found is worth dicussing.

The skulls of both dogs recovered from Grave 262 were rather gracile *(Appendix, Table 1).* Their extremity bones are also indicative of long-legged, but relatively lightly built animals *(Appendix, Table 2).* Dog A was a healthy, large, adult male. Dog B, a smaller female of the same type, shows signs of several healed fractures. Its broken left nasal bone healed in an oblique position, and the left front leg was deformed by a small but poorly healed trauma to be discussed separately.

[7] *Pike-Tay et al. 2004.*

In *fig. 5,* cranial measurements (see *Appendix, Table 1* for detail) from five dogs from Germanic contexts in Hungary were plotted within the range of ± standard deviations around the standardized mean value of a sample of 15 to 22 Sarmatian rural dogs.[8] Skull measurements are sorted by the average of cranial measurements (standard score = 0) taken on Sarmatian rural dogs. Most measurements of the Germanic dogs exceeded the Sarmatian mean value in the graph, i. e. they are larger on average: the occipital region of the Ménfőcsanak specimens, shown on the top of the list in *fig. 5*), is particularly well-developed especially in the case of the male (A). While, however, the principal cranial widths in the Hegykő and Keszthely specimens are near or above the Sarmatian average, the facial skulls of the two Langobard dogs from Ménfőcsanak under discussion here look distinctly narrower even than the average of Sarmatian dogs (bottom of the graph in *fig. 5*).

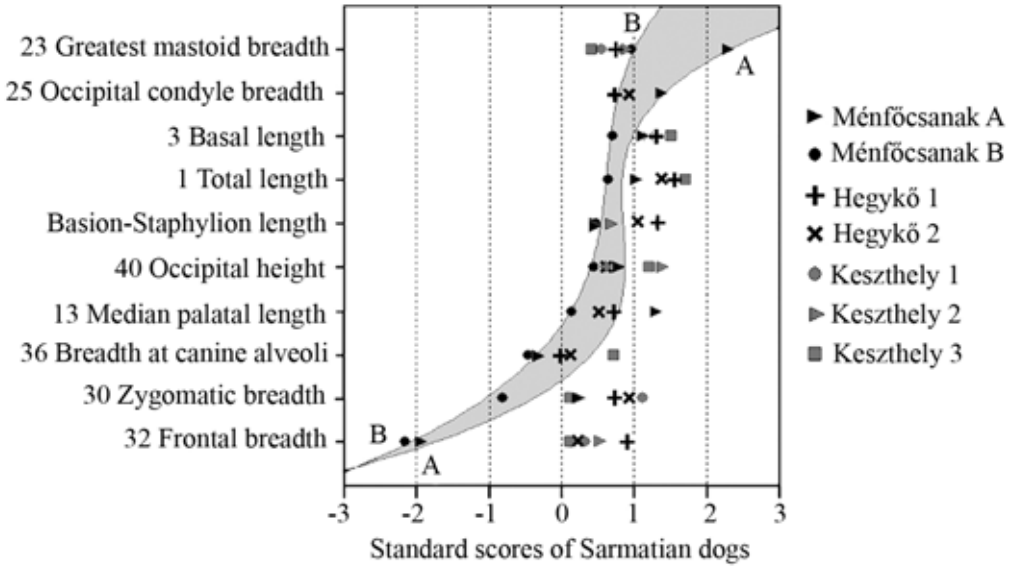

fig. 5. Cranial dimensions of the Ménfőcsanak dogs (connected with trend lines) and other Migration Period skulls, expressed as standard scores of a Sarmatian sample

Since long bones are completely preserved in many animal burials, withers heights can be estimated on the basis of several skeletal elements using coefficients calculated from the skeletal proportions of modern individuals of known withers heights.[9] The greatest lengths of all long bones in Dog A resulted in withers height estimates between 620.8–651.2 mm (mean = 641.0 mm). The withers height of Dog B was estimated to between 534.8–600.2 mm (mean = 567.9 mm) on the basis of intact long bones *(Appendix, Table 2).*

In *fig. 6*, the mean withers height estimates of the two Langobard dogs from Ménfőcsanak and the three Keszthely individuals published by Vörös[10] were plotted against two major Roman Period assemblages.[11] One of these was the values estimated for Sarmatian dogs from the Barbaricum (southeastern Hungary),[12] the other originated from the Pannonian urban

[8] Numbers vary depending on the preservation of measurements, but Sarmatian dogs seemed closest both chronologically and in the sense that they represented pastoral communities, comparable to those of the Migration Period; *Bartosiewicz 2000.*

[9] *Koudelka 1884.*

[10] *Vörös 1999* 126.

[11] *Bartosiewicz 2009.*

[12] *Bartosiewicz 1996.*

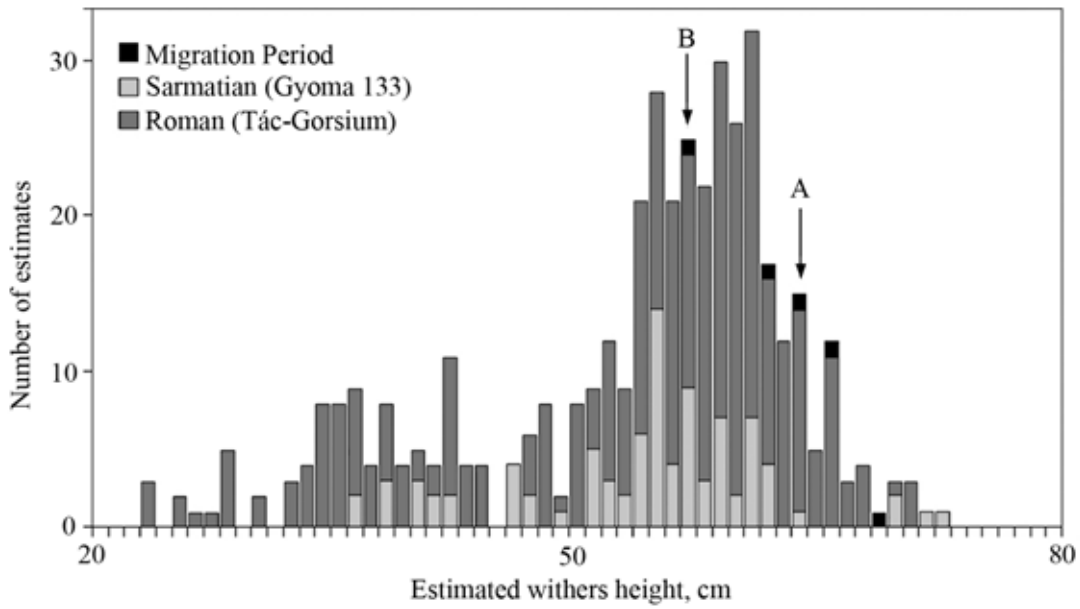

fig. 6. The position of withers height estimates for Germanic dogs within the size distributions of Roman Period dogs from urban Gorsium (Pannonia) and rural Gyoma 133 (Barbaricum)

settlement of Tác-Gorsium.[13] The histogram confirms the remarkably broad size distribution, well known from other Roman provinces.[14] Extremely small dogs are absent at the Sarmatian rural settlement of Gyoma 133. Migration Period dogs in *fig. 6* that include individuals A and B from the Ménfőcsanak cemetery and those from Keszthely are large medium size and large by these standards. The dogs found in the Ménfőcsanak and Keszthely burials are indubitably taller than average. Although somewhat smaller, the error margins of the estimated withers height of Dog A from Ménfőcsanak are similar to the range of six males Prummel studied from the horse burial in Oosterbreintum.[15] Withers height estimates from this latter site ranged between 620–690 mm, exceeding the stature range of modern-day Alsatians (600–650 mm). This rather large size made Prummel conclude that such dogs may have been used as fighting hounds of some sort.[16] While confronting dogs of this size can indeed be a risky enterprise, there are numerous ways of incorporating these animals into particular cultures, including considerations of self-representation and status.

Finally, the "stoutness" of forearm bones (radius specifically) was compared to those of dogs known from Tác-Gorsium and Roman Period Germania in *fig. 7.* The resulting graph does not reveal any remarkable feature of the two Ménfőcsanak Langobard dogs, they occupy a firm position as being of average robusticity expected on the basis of their withers height. They do not deviate at all from the main trend indicated on the basis of known modern breeds and wolves, showing no extreme morphometric modifications such as short-legged or otherwise robust breeds. Even in comparison with settlement assemblages, a size and shape difference between Roman Period urban vs. rural dogs was also observed by Joris Peters in Roman Period Germany.[17]

[13] *Bökönyi 1984*.
[14] *Peters 1997* 517, Abb. 2.
[15] *Prummel 1989* 85. With its estimated withers height of 621–651 mm, Dog A at Ménfőcsanak fell within the overlap between these two.
[16] *Prummel 1992* 132–194.
[17] *Peters 1997* 517, Abb. 2.

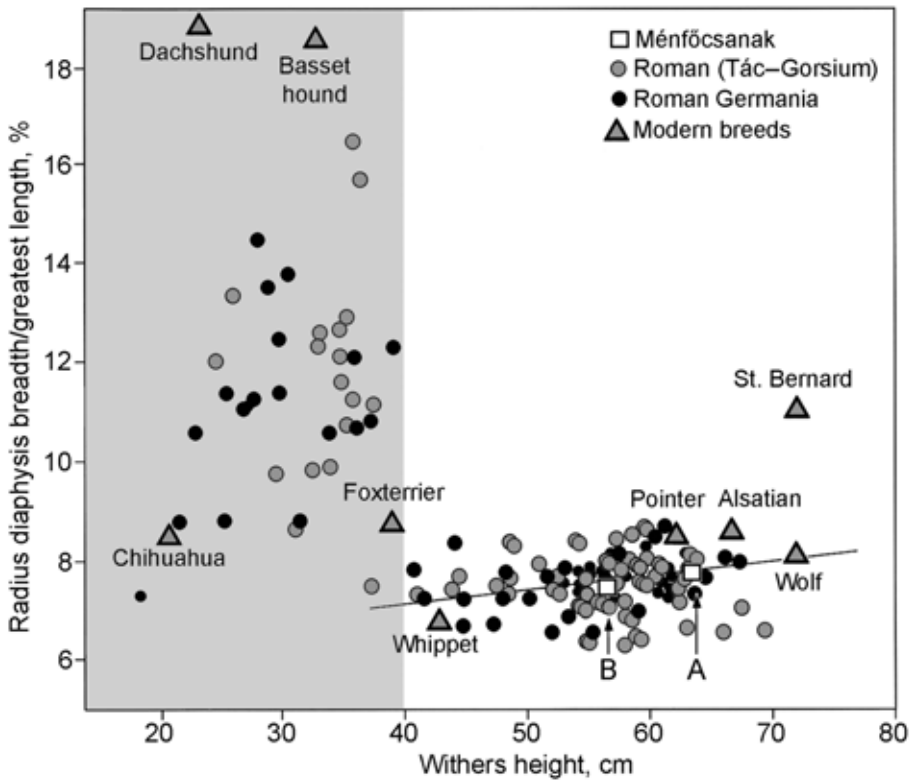

fig. 7. Front leg proportions of Langobard (Ménfőcsanak) and Roman Period dogs relative to modern dog breeds

Pathology

Although the two dogs had most probably been killed simultaneously for the purposes of the ritual, no symptoms of perimortem trauma could be identified on the bones, although the position of Dog A, the large male foud on top of the burial (c.f. *fig. 3*) is conspicuous. On the other hand, the skeleton of Dog B (the female found on the bank in Grave 262 in a primary position) showed healed fractures. Head injuries in dogs, such as the broken and healed left nasal bone of this bitch, occur commonly and may be regarded a sign of mistreatment in animals living in close proximity to humans. Facial fractures have been described at the Roman provincial town of Tác-Gorsium and numerous other sites from a variety of archaeological periods.[18] The occurrence of such healed injuries on the left side of the head (as in the case of the Ménfőcsanak B dog) is consistent with the hypothesis of blows being delivered by right-handed by humans confronting the animal face-to-face.

Aside from the head injury, a minor but heavily infected fracture distorted the left elbow joint in the same animal (B). First, the diaphyis of the left ulna had been snapped in the proximal (upper) third in a relatively minor accident. In modern veterinary medicine such small fractures have a good prognosis,[19] as the stronger radius acts as a natural splint when not involved in the injury itself.[20] In the Ménfőcsanak dog massive symptoms of a compound fracture[21] developed being indicative of complications resulting from an infection. The healed ulna had formed a massive callus that fused involving the diaphysis of the radius. In a

[18] *Bökönyi 1984* 111; *Bartosiewicz 2013* 76, fig. 54.
[19] *Tamás 1987* 301.
[20] *Bartosiewicz 2013* 48, fig. 31.
[21] *Baker – Brothwell 1980* 85.

proximal direction, the entire elbow joint became chronically inflamed: both forearm bones, as well as the distal end of the humerus have been deformed by exostoses (*fig. 8*).

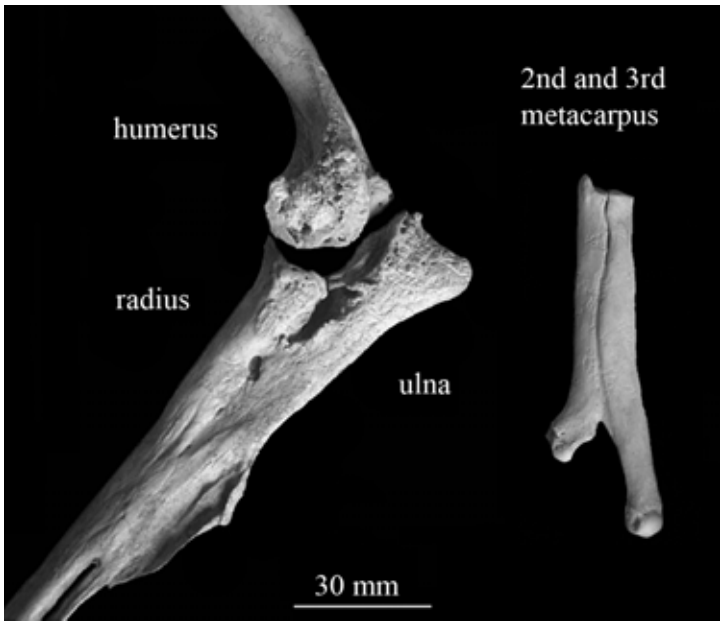

fig. 8. Elbow joint from Dog B showing exostoses resulting from the compound fracture of the ulna. Left: lateral aspect, right: fused metacarpals, anterior aspect

In addition to this primary locus of chronic inflammation, a fusion developed between the 2nd and 3rd metacarpal bones in the same front leg. While the surfaces of these latter bones look smooth and healthy, they show what is known as Sudeck's Atrophy (Reflex Sympathetic Dystrophy Syndrome) in human medicine. This may occur following long bone fractures or joint sprains and is thought to be caused by a dysfunction of the sympathetic nervous system, which is involved in the regulation of blood supply to the affected part. Due to chronic pain the patient may be reluctant to move the injured part. This leads to muscle wastage and a vicious cycle where stiffness and pain exacerbate each other. If the condition persists there may be adverse changes to the condition of the underlying bone. In the advanced, III stage of this condition, soft tissues in the unused limb become permanently contracted.[22] Meanwhile a thickening of the trabecular system in the affected area may lead to the fusion between bones. This type of atrophy is the consequence of painful inflammation and the concomitant lack of active locomotion in the affected limb. Given the functional significance of the front limbs in carrying approximately two thirds of the animal's live weight and orienting its gait, the Ménfőcsanak female dog (B) must have had a very noticeable limp.[23]

Cultural implications of dog burials

Multiple dog burials commonly occur in Germanic ritual contexts. Aside from inhumation graves, horse burials may also contain dog skeletons.[24] Andrea Vaday, the excavator, has provided a detailed review of Migration Period and Early Medieval dog burials from northern and western Europe.[25] From the viewpoint of cultural interpretation, it must be mentioned

[22] *Poór 1989* 220–240, 235.

[23] The distal end of the right ulna also displayed a healed fracture in the large dog recovered from Burial 2 at Keszthely. This trauma caused some dislocation and affected the radius as well: *Vörös 1999* 124.

[24] *Vörös 1999* 127–128.

[25] See *Prummel 1992* 137, 139, Table 5; *Gräslund 2004* 169, footnote 32.

that, although the Keszthely dogs in Hungary are of great importance in reconstructing the physiognomy of dogs from the Migration Period, they were not found in a context related to humans but horses.[26] These burials, therefore, are more comparable to the horse and dog graves reported from Oosterbeintum in the Netherlands.[27]

Largely contemporaneous dog burials from Transdanubia in western Hungary include the Langobard inhumation grave of a warrior with two dogs placed near his feet in Grave 70 at Hegykő identified by Sándor Bökönyi.[28] Although burying dogs along the dead was abandoned with the onset of Christianity across Europe, the arrangement of dogs in this apparently high-status grave is reminiscent of the use of dogs as attributes on Gothic sarcophagi, on which dogs are frequently depicted even if not buried in their physical reality.[29] A widely spread interpretation of dogs in medieval effigy sculptures suggests that they fulfilled an apotropaic function, protecting the deceased. Could they be seen as a Christian re-interpretation of suggested roles for dogs found in pre-Christian funerary contexts? This is a question worth considering in future interpretations.

Aside from the fact that the two largish dogs from Ménfőcsanak-Bevásárlóközpont were of average skeletal proportions, the fact that they were buried alongside an elderly woman, possibly of 40–50 years of age, makes them a rather unlikely parallel to robust guard dogs, even if we do not know the actual relationship (ownerhisp? attribute? apotropaic sacrifice?) between this person and the dogs buried alongside her.

It may be presumed that the two relatively large dogs were enterred with the woman to accompany her on her last, long journey. It is not possible to reconstruct the personal relationship between the dogs and the deceased, but it was possibly less sentimental than one might think in post 19th-century "Victorian" terms. On the other hand, although no horse bones were buried in Grave 262, the presence of horse bit fragments in the ruthlessly robbed grave are indicative of a lady of prestigious social standing – whose grave was worth robbing almost overnight after the burial.[30]

The Ménfőcsanak dogs represent the upper size range of "medium size" dogs,[31] they are, thus, similar to the dogs found in the Germanic horse burials at Keszthely.

It seems that the role of lap dogs and other small forms as "real" pets was more important in urban contexts, while populations moving with their animals relied largely on the use of medium size dogs. Hence, size in itself is of little help in unambiguously identifying the two Langobard dogs from Ménfőcsanak as pets.

The mythology of pastoral peoples have often involved dogs.[32] Historically, their image has ranged from detested servant to high status companion.[33] In the absence of written records, however, it is difficult to identify the position of individual dog burials within this broad continuum.

Negative attitudes are reflected by pre-Christian Avar Period finds of putatively dissected dogs[34] as well as a 11th-century human/dog burial from rural Visegrád-Várkert, Hungary. This latter was interpreted as a "witch burial" outside the consecrated Catholic cemetery since it contained the mutilated body of an elderly woman interred in the company of no fewer than six dogs.[35] In Stradów, Poland, a dog burial was found in association with a 12th-century child's grave.[36] In another burial from Grzybów (also Poland), a 14th-century

[26] *Vörös 1999.*
[27] *Prummel 1989.* A stallion and six large male dogs were buried here.
[28] *Bökönyi 1974* 326.
[29] *Bartosiewicz 2011.*
[30] Andrea Vaday's personal communication.
[31] *Bökönyi 1984* 66, Group No. 4.
[32] *Juhász 1981* 146.
[33] *Bartosiewicz 1998* 65–78, fig. 1.
[34] *Bálint 1971.*
[35] *Vörös 1991* 184.
[36] *Rogozinska-Goszczynska 1964* 349.

human embryo was interred with at least three dogs.[37] All these finds came to light outside consecrated cemeteries, since church law forbade the interment of criminals, unbaptized children as well as animals there.[38] It would be hard to determine, however, whether such dogs are indicative of surviving pre-Christian rituals or a sign of religious excommunication.

A more positive interpretation of the Ménfőcsanak burial is possible, given the careful arrangement of both the human and at least one of the dogs in Feature 262. Even if the woman was not necessarily the owner of these animals, they may have been added to the burial as guardians or symbols of status. In her recent review of dog burials, Anne-Sofie Gräslund also cites the positive symbolism attached to the presence of dogs in early medieval burials.[39]

Food remains

Although some animal remains in this cemetery occur in the form of ordinary grave goods, it must be remembered that, until today, food has also had symbolic meaning. Meals included in the grave may have served as simple media, tools in magic activities or as parts of more complex religious rituals. Food was presumably added to the grave goods in dishes.[40] Some of these may have been made of perishable materials rather than ceramics which makes the interpretation of "solitary" edible animal parts rather difficult.

The meaning of eggshell fragments in burials remains ambiguous. These finds may equally be of dietary and purely symbolic significance.[41] When found along with hen bones, they are more readily interpreted as food remains.[42] The fragments of egg shell and disarticulated long bones from a young domestic hen found in Feature 251 may thus be considered food remains, which does not exclude their possible meaning as symbols of fertility or accessories of a spring mortuary ritual.

Fish remains tend to be rarely recovered among grave goods even in carefully excavated burials. In the absence of direct zoological parallels, the cultural interpretation of pike remains from Ménfőcsanak is potentially complex. Pike remains in the undisturbed south-southeastern corner of Grave 272 may also be considered part of a meal. Although an intact dentale could have been used for estimating the length of this fish, this possibility is limited in the case of the fragments found at Ménfőcsanak. Given the strong correlations between skeletal measurements in pike[43] and the distance between the teeth of this individual, its length may be visually estimated between 55–60 cm. This impressive carnivorous fish has attained special cognitive value in many cultures. Its strung vertebrae are among the rare worked pieces of fish bone known from Hungary.[44] Pike was also among the most important fish species used in medieval heraldic art.[45] Perhaps it is not an accident that the usually underrepresented class of vertebrates, fish, occurs in the form of a rather large specimen of the powerful pike[46] at Ménfőcsanak, although remains of small Cyprinid fish have been found at the site of Vörs (Grave 30) and Szólád in Hungary.[47] Rarely occurring fish remains were also recovered from Grave 53 at Pottenbrunn and Grave 19 in Großörner.[48]

[37] *Garbacz 1992* 218.
[38] *Zawadzka-Antosik 1973* 369.
[39] *Gräslund 2004* 169.
[40] Evidence is available e. g. at Rácalmás, Grave 15, Andrea's Vaday's personal communication.
[41] *Sági 1963* 77–78.
[42] *Sági 1963* 78.
[43] *Bartosiewicz 1990.*
[44] *Takács – Bartosiewicz 1989.*
[45] *Khin 1957; Zolnay 1975.*
[46] *Bartosiewicz 1995.*
[47] *Sági 1964*; Szólád: preliminary identification by the author.
[48] For details see: Andrea Vaday, in this volume.

Taphonomic considerations

According to Andrea Vaday, Langobard burials were frequently victim of near immediate contemporaneous robbing. From a taphonomic point of view, this must be considered a special form of post-depositional "bioturbation" by *Homo sapiens*, motivated by socio-economic reasons. In the case of Ménfőcsanak-Bevásárlóközpont, the disfigured position of Dog A in Grave 262 is indicative of the complete body being tossed aside from the way of the intruders.[49] The fact that the fresh carcass withstood this degree of intrusion offers evidence that the robbers acted prior to the decay of soft tissue that still held the bones together.

The additional taphonomic significance of the two complete dog skeletons in Grave 262 is that, although the grave was robbed, neither of them were directly disturbed. The body of Dog A especially may have been in the way of, but not was not dispersed by the contemporaneous robbers, who must have been targeting special spots within the inhumation shortly after the funeral had taken place. This may have been the occasion when the right leg of the deceased woman was also twisted into the aforementioned contracted position.

While the dog skeletons in Feature 262 were well preserved in spite of coeval intrusion in the form of robbery, both the remains of domestic hen (Feature 251) and pike (Feature 272) suffered some degree of post-depositional loss that limited their zoological reconstruction.

The Langobard cemetery at Ménfőcsanak, however, also offered an example of potential "taphonomic gain", that is, animal intrusion that probably had very little to do with contemporary ritual considerations. The case in question is the skeleton of a pond tortoise found in Feature 282. Although there is always a possibility that certain peoples placed tortoises in burials, in the absence of clear cultural modifications such as cut marks or burning, these remains may be considered a natural deposit. This complete skeleton was found above the skull of the deceased. Pond tortoises tend to burrow for hibernation at the beginning of winter,[50] especially in mud or loose soil[51] such as the disturbed area at the head of the robbed Feature 282. Grave pits, when left open even for short times e.g. overnight, may often operate as natural traps. Therefore stratigraphy, animal behaviour and ritual considerations must be carefully weighed in the interpretation of such animal remains.[52]

Seasonality

Egg remains in Feature 251, as well as the pike remains in Feature 272, offer a seasonal dating as spring burials. There is evidently great probability that hens' egg laying peaked in the spring during the Migration Period, strongly suggesting a seasonal date.

The seasonality of the pike skeleton is less reliable, since the vertebrae whose growth rings might provide some information on the season of death have been badly eroded. It is worth mentioning, however, that pike is the first fish species to spawn in natural waters in Hungary, during February or March. During this time, these fish move closer to the riverbank in the proximity of Ménfőcsanak, where they are more likely to be caught, than during the rest of the year.[53]

These zoological finds suggest therefore spring burials for Features 251 and 252, not surprising in light of the usually greater mortality that follows the winter months of stress and metabolic deprivation in non-industrialized societies in temperate climates.

[49] Andrea Vaday's personal communication.

[50] *van Wijngaarden-Bakker 1996*.

[51] The other possibility, tortoises falling into the open grave pit prior to the actual burial and being enterred alive along with the deceased, looks less likely in this case.

[52] *Bartosiewicz – Kovács – Farkas 2013*.

[53] The probabilistic nature of this statement must be emphasized, pike could be caught under the ice as much as in puddles after summer floods; *Bartosiewicz – Hertelendi – Figler 1994*.

It is not possible to establish whether the tortoise that ended up in Feature 282 took advantage of the loose soil structure of the original, freshly made grave or of the secondary disturbance by robbers. In any case, the activity that produced optimal circumstances for hibernation for this tortoise must have taken place shortly before the winter. This seasonal estimate, however, cannot be directly linked with the actual burial rite or general mortuary behavior by this particular Langobard group.

Conclusions

Animal remains, found in primary positions in four graves from the Langobard cemetery at Ménfőcsanak in northwestern Hungary, revealed various aspects of the archaeozoological study of grave goods.

Two complete dog skeletons (Feature 262) from rather large, lightly built individuals have lent themselves to detailed analyses of both morphometry and mortuary behavior. These adult dogs, a male and a lame female, accompanied a woman, who may or may not have been their master. Their position, at least, did not suggest an explicitly negative role for these animals in the burial.

Rare fish remains from Feature 272 originated from pike and were interpreted as food remains. Similarly, hen remains and eggshell fragments in Feature 251 may have been part of a meal. Both types of animal remains, however, were briefly reviewed within a ritual context, and have been interpreted as evidence of spring burials.

A tortoise that ended up in Feature 282 was considered irrelevant from a cultural point of view. The preservation of its remains, as well as the taphonomic status of other bones was of help in drafting the cemetery's history, with special regard to coeval robbing.

While animal remains of the Ménfőcsanak cemetery provided us with only a limited view of animal exploitation by the Langobards, they reflect several important aspects of archaeozoological problems encountered in the reconstruction of mortuary behavior.

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REFERENCES

Baker – Brothwell 1980 J. R. Baker – D. Brothwell: Animal diseases in archaeology. London 1980.

Bálint 1971 Cs. Bálint: A kutya a X–XII. századi magyar hitvilágban (Le rôle du chien dans les croyances religieuses chez les Hongrois du X^{e}–XII^{e} siècles). MFMÉ (1971) 295–315.

Bartosiewicz 1983 L. Bartosiewicz: A régészeti feltárás finomításának lehetőségei [Possibilities in the refinement of archaeological recovery]. RégFüz Ser. 2 (1983) 37–54.

Bartosiewicz 1990 L. Bartosiewicz: Osteometrical studies on the skeleton of pike (*Esox lucius* L. 1758). Aquacultura Hungarica 6 (1990) 25–34.

Bartosiewicz 1995 L. Bartosiewicz: Pike (*Esox lucius* L. 1758) bones from a Turkish Period military fort in Hungary. Paper delivered at the 5th Meeting of the ICAZ Fish Remains Working Group, Madrid (Cantoblanco), Spain 1995.

Bartosiewicz 1996 L. Bartosiewicz: Animal exploitation at the Sarmatian site of Gyoma 133, in: S. Bökönyi (ed.): Cultural and Landscape changes in South-East Hungary. Budapest 1996, 365–446.

Bartosiewicz 1998 L. Bartosiewicz: Attitudes to pets in the ethnolinguistic record, in: P. Anreiter – L. Bartosiewicz – E. Jerem – W. Meid (eds): Man and the Animal World: Studies in memoriam Sándor Bökönyi. Budapest 1998, 65–78.

Bartosiewicz 2000 L. Bartosiewicz: Metric variability in Roman period dogs in Pannonia provincia and the Barbaricum, Hungary, in: S. J. Crockford (ed.): Dogs through time: an archaeological perspective. BAR IS 889. Oxford 2000, 181–192.

Bartosiewicz 2002 L. Bartosiewicz: Palaeopathology: similarities and differences between animals and humans. AnthrKözl 43 (2002) 29–37.

Bartosiewicz 2009 L. Bartosiewicz: A comparison between Roman Period and Langobard Dogs from Western Hungary, in: Sz. Bíró (ed.): Ex officina… Studia in honorem Dénes Gabler. Győr 2009, 29–41.

Bartosiewicz 2011 L. Bartosiewicz: "Stone Dead": Dogs in a Medieval Sacral Space, in: A. Pluskowski (ed.): The Ritual Killing and Burial of Animals: European Perspectives. Oxford 2011, 220–229.

Bartosiewicz 2013 L. Bartosiewicz: Shuffling nags, Lame ducks. The archaeology of animal disease. Oxford 2013.

Bartosiewicz – Hertelendi – Figler 1994 L. Bartosiewicz – E. Hertelendi – A. Figler: Seasonal dating of hand-collected fish remains from a prehistoric settlement in Hungary, in: W. Van Neer (ed.): Fish exploitation in the past. Koninklijk Museum voor Midden-Afrika, Annalen 274 (1994) 107–114.

Bartosiewicz – Kovács – Farkas 2013 L. Bartosiewicz – Zs. E. Kovács – B. Farkas: Pass the skeleton key… animals in an Early Copper Age inhumation burial from Pusztataskony–Ledence I, Hungary, in: E. Starnini (ed.): Unconformist Archaeology. Papers in honour of Paolo Biagi. BAR IS 2528. Oxford 2013, 77–88.

Bökönyi 1974 S. Bökönyi: History of Domestic Animals in Central and Eastern Europe. Budapest 1974.

Bökönyi 1984 S. Bökönyi: Animal husbandry and hunting in Tác-Gorsium. The vertebrate fauna of a Roman town in Pannonia. Budapest 1984.

von den Driesch 1976 A. von den Driesch: Guide to the measurement of animal bones from archaeological sites. Bulletin of the Peabody Museum of Natural History 1. Cambridge, Massachusetts 1976.

Garbacz 1992 K. Garbacz: "Pochówek" zwierzeco-ludzki odkryty na wielokulturowym stanowisku (Nr 1 w Gryzbowie, Gm. Staszów, Woj. Tarnobrzeg. SprawArch 44 (1992) 217–237.

Garrod 1875 A. H. Garrod: On the form of the lower larynx in certain species of ducks. Proceeding of the Zoological Society of London (1875) 151–156.

Gräslund 2004 A. S. Gräslund: Dogs in graves a question of symbolism?, in: B. Santillo Fitzell (ed.): Man and Animal in Antiquity. Rome 2004, 167–176.

Juhász 1981 P. Juhász: A totemizmus csökevényei a magyar és a bolgár hitvilágban: a kutyával és farkassal kapcsolatos hiedelmek (The rudiments of totemism in Hungarian and Bulgarian mythology: beliefs related to dog and wolf), in: Ch. Dobrev – P. Juhász – P. Mijatev (eds): Tanulmányok a bolgár-magyar kapcsolatok köréből. Budapest 1981, 145–175.

Khin 1957 A. Khin: A magyar vizák története [The history of sturgeons in Hungary]. Mezőgazdasági Múzeum Füzetei 2. Budapest 1957.

Koudelka 1884 F. Koudelka: Das Verhältnis der Ossa longa zur Skeletthöhe bei Säugertieren. Verhandlungen der Naturforschenden Gesellschaft in Basel 24, Brünn 1884.

Peters 1997 J. Peters: Der Hund in der Antike aus archäozoologischer Sicht. Anthropozoologica 25–26 (1997) 511–523.

Pike-Tay et al. 2004 A. Pike-Tay – L. Bartosiewicz – E. Gál – A. Whittle: Body-part representation and seasonality: sheep/goat, bird and fish remains from early Neolithic Ecsegfalva 23, SE Hungary. Journal of Taphonomy 2/4 (2004) 221–246.

Poór 1989 Gy. Poór: Csontbetegségek [Bone diseases], in: B. Gömör – G. Bálint (eds): Reumatológia. Budapest 1989.

Prummel 1989 W. Prummel: Het paardegraf en de hondegraven van Oosterbeintum (Fr.) [The horse tomb and the dog grave at Oosterbeintum (Fr.)]. Paleo-Aktueel 1 (1989) 85–88.

Prummel 1992 W. Prummel: Early medieval dog burials among the Germanic Tribes. Helinium 32 (1992) 1–2. 132–194.

Rogozinska-Goszczynska 1964 R. Rogozinska-Goszczynska: Sprawozdania z badan na stanowisku Stradów III, pow. Kazimierza Wielka, za late 1959–1962 [Reports of the tests excavations on the Stradów in area III of Casimir the Great, 1959–1962]. SprawArch 16 (1964) 345–354.

Ságі 1964 K. Ságі: Das langobardische Gräberfeld von Vörs. ActaArchHung 16 (1964) 359–408.

Takács 1988 I. Takács: Collecting biological finds from the well of a medieval village, in: M. Járó – L. Költő (eds): Archaeometrical research in Hungary. Budapest 1988, 275–282.

Takács – Bartosiewicz 1989 I. Takács – L. Bartosiewicz: Modified fish bones from Hungary. Paper delivered at the 5th Meeting of the ICAZ Fish Remains Working Group, Stora Kornö, Sweden 1989.

Tamás 1987 L. Tamás (ed.): Állatorvosi sebészet 2 [Veterinary surgery 2]. Budapest 1987.

Vörös 1991 I. Vörös: Kutyaáldozatok és kutyatemetkezések a középkori Magyarországon II (Dog sacrifices and dog burials in medieval Hungary). FolArch 42 (1991) 179–196.

Vörös 1999 I. Vörös: Germán ló-kutya kettős sírok Keszthely avar kori temetőjében (Germanische Pferde-Hunde Doppelgräber im awarenzeitlichen Gräberfeld von Keszthely). ZalaiMúz 9 (1999) 121–128.

van Wijngaarden-Bakker 1996 L. H. van Wijngaarden-Bakker: A new find of a European pond tortoise, *Emys orbicularis* (L.) from the Netherlands: Osteology and taphonomy. IJO 6 (1996) 443–453.

Zawadzka-Antosik 1973 B. Zawadzka-Antosik: Pochówki dzieci w naczyniach glinianych [Burials of children in clay pots]. Wiadomości Archeologiczne 38 (1973) 365–371.

Zolnay 1975 L. Zolnay: Ünnep és hétköznap a középkori Budán [Feast and daily life in medieval Buda]. Budapest 1975.

APPENDIX

Measurements		Ménfőcsanak	
		A, male	B, female
1 Total skull length	A–P	207.5	202.0
3 Basal length	B–P	187.0	182.0
40 Occipital height	B–A	53.5	51.0
- Basion-Staphylion length	B–St	82.0	82.0
13 Median palatal length	St–P	108.0	99.5
36 Breadth at canine alveoli	C–C	38.5	38.0
30 Zygomatic breadth	Zyg–Zyg	111.0	104.0
32 Frontal breadth	Ect–Ect	51.0	50.0
29 Breadth of the brain case	Eu–Eu	66.0	59.0
23 Greatest mastoid breadth	Ot–Ot	73.0	68.0
- Breadth of the condylus occipitalis	Cond.	44.3	41.0

Table 1. Cranial measurements (mm)[54] of the Ménfőcsanak dogs

Dog A, male		GL	BP	DP	SD	Sd	BD	DD	WH cm
scapula	sin.	158.0	86.5	-	-	28.2	36.4	25.1	-
	dex.	160.2	87.2	-	-	29.5	36.5	24.5	-
humerus	sin.	193.3	38.0	46.0	15.5	17.0	38.5	35.0	
	dex.	193.1	37.8	45.8	15.5	16.9	38.4	34.7	65.1
radius	sin.	196.1	21.5	14.0	15.5	8.5	28.0	15.5	
	dex.	195.7	22.5	15.5	16.0	8.5	28.0	15.7	63.1
ulna	sin.	240.1	-	-	-	-	-	-	
	dex.	239.9	-	-	-	-	-	-	64.1
femur	sin.	211.4	41.5	27.5	14.0	15.0	38.0	40.5	
	dex.	211.2	41.0	27.0	14.1	14.9	38.0	40.2	63.6
tibia	sin.	218.9	37.2	43.0	14.5	14.5	26.0	20.0	
	dex.	218.5	37.1	42.8	14.3	14.5	25.7	19.8	63.9
Mean WH		**63.7**							
Dog B, female		**GL**	**BP**	**DP**	**SD**	**Sd**	**BD**	**DD**	**WH cm**
scapula	sin.	141.1	78.3	-	-	26.5	31.4	21.2	-
	dex.	145.7	78.4	-	-	25.8	32.2	20.6	-
humerus	sin.	178.0	28.0	41.5	12.5	13.0	32.0	26.5	
	dex.	178.2	29.1	41.7	12.6	13.2	33*	26*	60.0
radius	sin.	176.6	20.2	15.0	13.5	7.0	25.5	16.0	
	dex.	176.2	20*	16*	13.4	6.9	26.0	16.0	56.8
ulna	sin.	200.2	-	-	-	-	-	-	
	dex.	200.4	-	-	-	-	-	-	53.5
femur	sin.	188.3	39.5	21.0	13.0	13.0	30.5	34.0	
	dex.	188.7	39.0	23.1	12.5	13.2	33.3	35.0	56.8
tibia	sin.	190.1	35.2	39.0	13.0	11.9	33.8	18.0	
	dex.	189.9	35.0	38.7	12.9	12.0	34.0	17.6	55.5
Mean WH		**56.5**							

* Estimate–epiphyses deformed by exostoses

Table 2. Long bone measurements (mm)[55] and withers heights (WH, cm) of the Ménfőcsanak dogs

[54] Code numbers, terminology and abbreviations after *von den Driesch 1976* 42–43.
[55] *von den Driesch 1976* 75–87.

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ÁDÁM BOLLÓK

THE ARCHAEOLOGY OF THE BYZANTINE STATE – A NON-SPECIALIST'S APPROACH

Keywords: Archaeology, Byzantine state, early medieval steppe peoples, Late Antiquity, Byzantine Transitional Period, middle Byzantine Period

In 2008, the Archaeological Institute of the Hungarian Academy of Sciences (since reorganised as Institute of Archaeology, Research Center for the Humanities, Hungarian Academy of Sciences) launched a research project, "Byzantium in Central and Eastern Europe: Archaeological and Art Historical Research", under the direction of Csanád Bálint.[1] The main goal of this project was the examination of the Byzantine elements in the material culture of the pastoralist population groups (often simply and mistakenly, labelled nomadic peoples) of the Carpathian Basin, namely the Avars and the ancient Hungarians, and of the Eastern European steppe (such as the various Ogur tribes, the Khazars and the Bulgars) during the sixth to tenth centuries. Obviously, research in this field could look back on well-established traditions. While earlier studies principally turned towards the east, and in particular towards the steppe,[2] it was realised in the late 1980s and the early 1990s that in addition to their strong political ties to the late antique and early medieval Mediterranean powers, as clearly recorded in the written sources, the peoples of the Carpathian Basin and of the Eastern European steppe were also bound to the Mediterranean, and especially to Byzantium, by a myriad of cultural strands, which left an indelible imprint on the material culture of the steppean peoples. The shift in research perspective can be decidedly linked to Falko Daim's study appearing in 1990, in which he demonstrated that some of the griffin depictions appearing on a group of late Avar (eighth-century) belt mounts had been inspired by late antique-Byzantine models,[3] and to Csanád Bálint's studies published in 1992 and 1993, offering the first comprehensive analysis of the many cultural links with Byzantium as reflected by the assemblages of the Carpathian Basin and Eastern Europe during the early and middle Avar period (last third of the sixth century and the first two thirds of the seventh century).[4] At roughly the same time, Károly Mesterházy undertook the examination of the Balkanic and Byzantine cultural contacts of several artefact types appearing in the tenth–eleventh century material of the Carpathian Basin.[5] The two and a half decades since the publication of these seminal studies have seen a proliferation of articles on the Mediterranean connections of various jewellery types, costume accessories and ceramic wares. A comprehensive monograph on the objects of Byzantine origin in the early and middle Avar period of the Carpathian Basin has been

[1] The first version of this study was prepared as part of the research project funded by OTKA Grant No. NK 72636; in its current form, it is part of the author's research on early Byzantine burials, enabled by a post-doctoral grant from the Hungarian Academy of Sciences and a grant from the *Römisch-Germanisches Zentralmuseum* in Mainz. The goal of this brief overview is to present a few select dimensions of archaeological research on the territory of the former Byzantine Empire. I make no pretence at completeness or even at offering a comprehensive picture.

[2] Csanád Bálint coined the term "Orient preference" (*Orientpreferenz* in the German original) for this approach: *Bálint 2007.*

[3] *Daim 1990.*

[4] *Bálint 1992*; *Bálint 1993.* Both works are also available in Hungarian: *Bálint 1995.*

[5] *Mesterházy 1990–1991*; *Mesterházy 1993.* For their significance, see *Bollók 2010.*

assembled,[6] alongside a new assessment of the Nagyszentmiklós Treasure[7] and the analysis of Byzantine type belt ornaments of the eighth century,[8] together with a fresh look at the various elements in the eighth-century ornamental vocabulary of the Carpathian Basin with a view to the comparative Mediterranean material.[9] We now also have a much better idea of the specific Mediterranean object types which, while having excellent counterparts in the late antique material culture of the central and eastern Mediterranean, can nonetheless be more plausibly linked to the local Romanised population of Pannonia after the collapse of the Roman rule, without any need for invoking "Byzantine trade" during the early Avar period, as well as to gift exchanges between elites, looting, or the re-settlement of population groups to the Carpathian Basin from the Balkans for explaining their appearance in the "north".[10]

The above brief overview will perhaps suffice to convincingly demonstrate that the studies conducted as part of the research project were based on well-grounded previous analyses. Still, a series of difficulties were encountered, which received little attention in earlier research, the perhaps most salient among these, which determined the research potentials to the greatest extent, being the precise definition of what exactly could or should be construed as "Byzantine". This was all the more vital because any examination of the relations between Byzantium and the "northern nomads"[11] and of the cultural interactions between them can essentially be studied through minor objects (the so-called "small finds"). Understandably enough, this segment of the material culture is rarely in the focus of archaeological research on the territory of the former Byzantine Empire,[12] even if there has been a definite upswing of interest in this subject, at least compared to earlier decades.[13] The local copies of certain forms and the appearance of several local and regional variants too complicated the separation of "genuine Byzantine products" and "local copies" (however these terms are defined). In order to better understand the interaction in their one-time context, it therefore seemed prudent to briefly review the archaeological research on the territory of the one-time empire from a much broader perspective than the earlier approach of searching for parallels to the "Byzantine type" artefacts found on the empire's peripheries.[14] While the overview offered in the present study focuses on a few select aspects of the archaeological research on the former, often dynamically changing territory of the Byzantine state, its basic line of inquiry (and, by

[6] *Garam 2001.* The study does not include the Byzantine coin finds because these were treated in a separate volume: *Somogyi 1997.* For more recent finds, see *Somogyi 2007–2008*; *Somogyi 2008*; *Somogyi 2014*. Tivadar Vida's DSc thesis, currently in preparation, demonstrates the Mediterranean-Byzantine affinities of additional artefact types, which were not discussed in the quoted works. Two new PhD theses (by Adrienn Blay and Levente Samu) have been devoted to a new assessment of female jewellery and belts of the Byzantine type dating from the sixth–seventh centuries.

[7] *Bálint 2004*; *Bálint 2011.*

[8] *Daim 2000*; *Daim et al. 2010.*

[9] Regarding the late Avar period, see *Szőke 2001*; *Szenthe 2013*; *Bollók 2015a*. For the Mediterranean connections of the ornamental vocabulary of the tenth-century material, see *Bollók 2015b.*

[10] *Vida 2008; Vida 2009.*

[11] The term "northern nomads" is here used to denote the pastoralist stockbreeding peoples living along the Balkanic and Eastern European borders of Byzantium. This distinction is important because several nomadic (Bedouin) peoples could be found along the empire's Near Eastern and North African borders too.

[12] Interest in the "minor objects" of the "Byzantine" period can be principally noted among the scholars engaged in the study of the "Barbarian" groups living along or farther from the empire's borders, cf. my remarks in *Bollók 2010,* and it is hardly mere chance that comprehensive overviews focusing on larger territorial units were written by archaeologists working in these regions; *Garam 2001*; *Drauschke 2011.* In a certain sense, Italian and, for that matter, Bulgarian archaeologists work on the boundary of two traditions and interest in minor objects is greater than in the research of the eastern Mediterranean, e.g., *Baldini-Lippolis 1999*; *Grigorov 2007.* In the eastern Mediterranean, the study of minor objects is, somewhat understandably, usually part of the general assessment of the finds recovered from settlements and burials, and only in exceptional cases is the focus principally on these finds. Research in this field by scholars from the continental tradition will no dobut result in major advances, cf. *Eger 2012* and his forthcoming second volume on the sixth–seventh centuries.

[13] See the studies published in *Daim – Drauschke 2010* and *Böhlendorf-Arslan – Ricci 2012*.

[14] A similar overview of the archaeology of the Byzantine world has been written by another "outsider": *Woloszyn 2006.*

necessity, its overall focus) will often be at variance with the perspective of the professionals actually conducting the excavations across the empire's territory. The survey presented here is, at the same time, related to another research project commanding the interest of scholars more directly engaged in the study of the empire's core territories. I am currently involved in a larger project on the assessment of the burials of the early Byzantine (late antique) period, whose main goal is a survey of certain select aspects of the fourth- to eighth-century mortuary practices in the eastern Roman lands based on the archaeological material and the relevant literary sources.[15] A survey of this type also offers the unique opportunity of identifying and interpreting the "influences" on the peripheries in the wake of Byzantine missionary activity. Regardless of whether one is dealing with "Byzantine type" small finds or Byzantine burial customs, it seems prudent to begin the analysis by addressing the question of what type of information can be expected from the archaeological investigations in the former lands of the Byzantine Empire.

Byzantium, the Byzantine state and archaeology

When Russian-born Georgij Aleksandrovič Ostrogorskij, better known as Georg(e) Ostrogorsky (1902–1976) in the Byzantine scholarship of the western world, chose the title *History of the Byzantine State* (*Geschichte des byzantinischen Staates*) for his ground-breaking book, he had two main considerations in mind. The first, that his work would focus on political history and that readers would find little on Byzantine culture in a broader sense. Second, that the very expression "Byzantine state" expressed the author's awareness[16] that the various phenomena lumped together under the adjective Byzantine – whether Byzantine history, Byzantine literature, Byzantine music, Byzantine art, or Byzantine law – were cemented, particularly in the early Byzantine period, by the political formation that came to be known as Byzantium, i.e. the Byzantine state, in modern historiography.[17] This could hardly be otherwise in the case of a multi-ethnic state woven of many strands of diverse traditions whose population spoke a myriad of tongues and whose territory incorporated lands with widely differing geographic and climatic conditions. It is not mere chance that, for a long time, the Byzantine elite anchored its political self-identity to the territory of the empire rather than to a common culture shared by majority of the empire's population.[18]

However, this is not the single legitimate approach: if the adjective "Byzantine" is defined as cultural rather than political – as has been done by Robert Taft in his study of Byzantine liturgy[19] – one could cite many persuasive arguments against using the label "Byzantine" for various phenomena before the eighth or, even more, before the ninth century, or at least for the highly restricted use of the label. The springboard of the latter approach is the postulate, valid from the middle Byzantine period at the latest, that as the Empire's capital, Constantinople was the primary cultural centre whose development ultimately determined the cultural orientation and development of all the lands under her political authority. Between the fourth and the seventh centuries (and, in some respects, during the eighth and ninth centuries too), when Antioch, Alexandria and, in some respects, Jerusalem too were at least on par with (and on occasion even eclipsed) Constantinople as traditional cultural centres, this was by

[15] The first preliminary findings of the project were published in the following studies, *Bollók 2013; Bollók 2014; Bollók in print a*; *Bollók in print b*.

[16] "*Das ethnische heterogene Kaiserreich wurde durch den römischen Staatsgedanken zusammengehalten* [...]" *Ostrogorsky 1965* 1–2.

[17] For the concepts of the Roman, i.e. Byzantine, state and the terms used in the description of this state in its own narratives sources as well as for its cultural implications, see *Lounghis 1997*.

[18] *Stouraitis 2014*.

[19] In R. Taft's usage, "Byzantine" liturgy denotes the liturgy born in the Orthodox Patriarchy of Constantinople, whence it spread across the empire, which he distinguished from the different liturgical practices in the provinces of the early Byzantine state: *Taft 1992* 16–27.

no means the case. Even if the categorical separation of Byzantium as a political formation (state) from Byzantine culture cannot be absolutised, it still seems to me that following the fall of the Byzantine state, Byzantine culture faded from the tapestry of living cultures, from which it is now evoked by the practitioners of various disciplines.[20]

It follows from the above that when speaking of Byzantine archaeological studies, the issue can be best approached from the perspective of the Byzantine state or Byzantine culture. The term "Byzantine culture", as a historical phenomenon, is itself badly in need of a precise definition when applied in archaeological research and would call for an in-depth study before using the adjective "Byzantine" as a defining concept. Thus, when attempting to identify the origins of certain elements in the material culture,[21] or of a specific artefact type or a class of objects, i.e. of whether they are genuine Byzantine products or "merely" Byzantinising articles, the most obvious starting point is whether it was made on the territory of the Byzantine state (much in the same way as the Byzantine elite, constructing an identity based on its perception of Romanness, viewed its state and political rule as being essentially tied to territoriality[22]). At the same time, this calls for the brief discussion of three major problems, without which it would be impossible to review the main trends in the archaeology of the Byzantine state.

The first of these is geographical. During its many centuries-long existence, the territory of the Byzantine state varied considerably,[23] which often hampered archaeological and art historical research because in order to claim that a relic, monument or site is "Byzantine", it must be determined whether or not that particular place was part of the Byzantine Empire during the period in question. The consistent application of this principle can be instrumental in avoiding one of the long-time pitfalls in research, which lumped a series of works under the label "Byzantine" that had indeed been made under Byzantine cultural influence, but beyond the empire's borders for serving the non-Byzantine needs or goals of non-Byzantine customers. Suffice it here to quote two examples (even though the cited cases rather highlight the difficulties in art historical research, scholars often face a similar situation when addressing various issues of material culture in a broader sense).

(1) For a long time, scholars of Byzantine art included the early eighth-century mosaics of the Great Mosque of Damascus in their discussion of the period's Byzantine art, despite the fact that they had been commissioned by the Umayyad caliph Walīd I (r. 705–715). They were guided by two considerations. One was objective: the mosaics continued the sixth–seventh-century Byzantine traditions both technically and in their style as well as their imagery. The second was more subjective, namely to fill the gaps in the eighth century, a period extremely poor in artistic and archaeological relics. This would explain why the mosaics of the Great Mosque occupied a prominent place in comprehensive surveys of both Byzantine and Islamic art.[24] Only in the past few decades has this approach been discarded – principally in the wake of Oleg Grabar's work[25] – and currently the visual vocabulary drawing from Byzantine forms

[20] This also implies that the Orthodox cultures ensuring the "survival" of Byzantine culture – usually termed "*Byzance après Byzance*", using N. Iorga's *bon mot* – should, in my view, be separated by a clearly-drawn boundary from genuine Byzantine culture.

[21] What is meant here is the majority of artefact types that account for the bulk of the archaeological material (jewellery, costume accessories, tools and the like) whose cultural attribution often runs into difficulties, rather than genuine artistic creations. For a discussion of the problems raised by the very concept of "material culture" and its usefulness for Byzantine art-historical research, see *Cameron 2011*; *Cameron 2013*; *James 2013*.

[22] *Stouraitis 2014*.

[23] For a discussion from a medieval Byzantine perspective, see *Koder 1984*. The territorial and administrative changes of the Byzantine Empire between the fourth and fifteenth centuries are illustrated with maps accompanied by brief description in *Haldon 2005*.

[24] The single exceptions are the comprehensive overviews published during the past two decades, e.g. *Cormack 2000*; *Mathews 1998*.

[25] *Grabar 1959; Grabar 1973*. The roots of and the difficulties inherent in European art historical research is discussed by *Rabbat 1993*.

and the Muslim message stressed by Walīd I have both been firmly set in their deserved place in the contextual interpretation of the Great Mosque.[26]

(2) The other example too comes from the empire's frontier region, in this case the western one, and while it dates from the late period of the empire's existence, it nonetheless shares numerous similarities with the former. In the comprehensive works and, often, in specialised studies too, medieval Serbian churches and monasteries were for a long time usually included under the heading of Byzantine art owing to their architectural form and their interior decoration (principally their frescoes). While this was to some extent justified in view of the buildings' architectural and artistic associations, and they could be seen as part of the Byzantine commonwealth[27] and Byzantine culture in the broader sense, this approach actually constrains a proper assessment that would enable the separation of these Byzantinising works from Byzantine art proper and the assessment of these relics in their genuine one-time historical and cultural context, namely the perception of the visual idiom – whether medieval Serbian or Nemanjid – in its appropriate profundity.

The other fundamental difficulty encountered in the archaeology of the Byzantine state is one of chronology and concerns the chronological extent of the Byzantine state. While the state itself practically ceased to exist after the fall of Constantinople in 1453 (even if the Ottomans only occupied Morea and Trebizond in 1460 and 1461, respectively), pinpointing the beginning of Byzantium is not as simple as it might seem. The main problem here is that while the political formation we now call Byzantium became wholly independent as a state incorporating the eastern half of the Roman Empire in 395, its rulers and its elite continued to style themselves as "Romans" and their empire as "Roman" until the fall of the state in the fifteenth century;[28] in other words, their political identity remained "Roman", even if the notion of "Romanness" hardly remained unchanged during the centuries.[29] It is hardly mere chance that many scholars call the state East Roman Empire until 476, the year the empire's western half fell. According to one of the most widely accepted and for a long time dominant view, Byzantine history began in the 320s–330s, when Constantine the Great (r. 306–337) re-founded his city of residence that later became the capital on the site of antique Byzantion (*Kōnstantinoupolis* or Constantinople), an event which promoted the shift of the Roman state's centre to the east more emphatically than ever before, and when he made Christianity an accepted religion (from 312 onward), which proved decisive in the Christianisation of the Roman Empire. This view is reflected in the works of George Ostrogorsky[30] and Cyril Mango[31] as well as Peter Schreiner's earlier studies,[32] and Gyula Moravcsik too shared this view (although he also justifiably reckoned with an independent Byzantium from 395),[33] as did Warren Treadgold (although he begins his account of Byzantine history from 284, the year of Diocletian's reforms).[34] The other prominent view is that Byzantium's true beginning should be dated from the fall of the Roman Empire's former western half at the earliest,[35] and from the onset of the major social and spiritual changes in the eastern Roman region,[36] that is, roughly from the 500s or, better still, from the reign of Justinian I.[37] The latter scholars contend that the late antique history of the East Roman lands, or at least of one part of it,

[26] *Flood 2001.*
[27] For this concept, see *Obolenksy 1971.*
[28] *Lounghis 1997.*
[29] For the different layers of Byzantine identity, see *Koder 2011.* For the debates on Byzantine identity and for one proposal on its definition, as well as an overview of the changing meaning of "Romanness" during the medieval period, see *Stouraitis 2014.*
[30] *Ostrogorsky 1965* 1.
[31] *Mango 1980* 1. This period was chosen as the beginning of the handbook he had edited: *Mango 2002.*
[32] *Schreiner 1994* 3–4, 7–9.
[33] *Moravcsik 1976* 133–134.
[34] *Treadgold 1997.*
[35] *Shepard 2008* 26.
[36] *Meier 2003.*
[37] *Schreiner 1994* 3–4, 7–9.

should be treated as a separate period (*"Byzance avant Byzance"*,[38] *"praebyzantinische Periode"*), and that we can only speak of Byzantium proper from Justinian's age, while the transition from late antiquity to medieval Byzantium should be conceptualised as a process with several phases.[39] Others still hold that the term Byzantium[40] should more appropriately be used from the profound transformations of the seventh century onward, roughly from the reign of the Emperor Heraclius[41] or even later, from the 700s.[42]

The brief presentation of these chronological uncertainties – although well known – was not a self-indulgent exercise because it highlights one of the greatest difficulties in the archaeology of the Byzantine state: the strong historical determinateness of the discipline, one consequence of which is deference to chronological frameworks hinging on historical interpretations. It also illustrates another point, namely the problems surrounding the emergence of an independent discipline: in order for a discipline to become independent, it must be able to clearly define the chronological and spatial extent of its subject. Currently, it would appear that many scholars engaged in the pursuit of "Byzantine archaeology" feel little need for drawing the theoretical or practical boundaries of their chosen field (even if, as we have seen, researchers of Byzantine history are highly preoccupied with this issue) – in fact, the initial attempts in this field came from scholars studying the late antique archaeology of the Mediterranean. The undeniably most explicit view has been put forward by Luke Lavan, founder of the conference and book series *Late Antique Archaeology*, who in the opening study to the first volume in the series has persuasively argued, invoking both historical and archaeological arguments, that the third to seventh centuries should be regarded as a continuation of antiquity in the archaeological sense too[43] and, as a result, archaeological research covering this period must be distinguished from medieval and Byzantine studies.[44] This, then, was the first explicit attempt to determine the lower chronological boundary of "Byzantine archaeology" using archaeological arguments drawn from the discipline's own arsenal and through arguments based on the actual findings – even if it was negative in its approach, by specifying what is not part of "Byzantine archaeology". This periodisation proposal, coming as it did expressly from archaeology, is all the more noteworthy (even if it does conform to the chronological framework used by some historians) because the creation of chronological systems adjusted to the nature of a specific class of objects and the associated perspective is not unusual in other disciplines either: for example, research on Egyptian papyri defines the *terminus a quo* of the Byzantine period as 284 or even the 450s,[45] while most numismatists regard the beginning of Anastasios' reign (491–518)[46] as marking the period's start.

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[38] *Taft 1992* 22*; Haldon 2002*.

[39] For a model incorporating a series of "transitional periods", see *Meier 2012* 187–253. (For a detailed overview of the different chronological schemes, see his "catalogue" on pp. 187–196.)

[40] G. Greatrex addressed one important aspect of this dilemma in a recent handbook on Byzantine history: "To attempt to pinpoint the precise moment of the foundation of this state [i.e. Byzantium] is an impossible task: when, for instance, Constantine I dedicated the new city of Constantinople in 330, he ruled the entire Roman empire, East and West. Although the empire was partitioned among his sons upon his death, it was reunited again briefly in 350 and 392 before being partitioned once more in 395. That division, between the sons of Theodosius I, turned out to be final: in 476 the western Roman emperor, Romulus Augustulus, was overthrown and not replaced. It was also during the fifth century that the eastern Roman empire started to develop independently, evolving its own institutions, rituals, and style of government. Whether one would wish to label the empire at this early stage 'Byzantine' rather than 'Roman' is doubtful, however, given the extent of continuity with the earlier Roman empire." *Greatrex 2008* 232.

[41] *Lilie 2003* 18; *Whittow 1996* 96–97. This choice was applauded even by the volume's otherwise rather critical reviewer: *Kaegi 1999* 537. The same date was chosen by the editor of the monumental volumes devoted to the Byzantine economy, cf. *Laiou 2002*.

[42] Suffice it here to quote a recent collection of studies on Byzantium: *Stephenson 2010*.

[43] This periodisation was proposed much earlier in historiography, see *Cameron – Ward-Perkins – Whitby 2000*.

[44] *Lavan 2003* vii–xvi.

[45] *Hickey 2008* 116.

[46] *Georganteli 2008* 161.

As we have seen, there is nothing new in the separation of the late antique period along these principles;[47] at the most, a late awareness of the problem itself in archaeology might come as a surprise. Whilst the treatment of late antiquity as an independent historical period began in the early twentieth century,[48] the true upswing in the period's research began in the 1970s. The first outlines of the current picture of this period in Anglo-Saxon scholarship were without doubt drawn in the first edition of Peter Brown's *The World of Late Antiquity, from Marcus Aurelius to Muhammad* in 1971,[49] which enjoys unbroken popularity,[50] untarnished by the barely audible critical voices.[51] This image of late antiquity remains vivid and influential in the theoretical writings on late antique archaeology and the contention that the period preceding the "great catastrophe" of the seventh century should be treated separately and detached from Byzantine history was in part inspired by this image.[52]

It is also obvious that the slowly unfurling debate is in part strongly theoretical and that Lavan's interpretation is but one of the many potential approaches for defining the place and role of archaeology in Byzantine studies. It would be tempting to bridge the difficulties by simply reviewing the different perspectives and to remark that the label attached to these has little bearing on the essence of the results. As a matter of fact, mainstream Byzantine research appears to have adopted this stance: a closer look at the conferences, journals and compendiums of studies reveals that most accept papers and articles dealing with the period from the fourth century. Still, we should remain aware of the fact that the lack of a firm theoretical grounding of "Byzantine archaeology" as a discipline has severe and repeatedly encountered practical consequences. Archaeologists working in the eastern provinces of the late Roman state divided the period between 300 and 640 into an early, a middle, a late and a final Byzantine phase – the same roughly 350-year-long period falls into the early Byzantine period in the classical periodisation of Byzantine history.[53] The situation is even more confounding if we want to reconcile these schemes with the chronology used by ceramic specialist working in the Aegean and the Adriatic, according to whom the early Byzantine period covers the seventh to ninth centuries and the middle Byzantine period the ninth to twelfth centuries.[54] Joanita Vroom's periodisation has found followers in Anatolia too[55] – in practice, this means that on an excavation in central Anatolia or Cyprus, in the Emperor Justinian's empire, the early Byzantine period has barely begun in the sixth-century levels, while archaeologists are already deep into the late Byzantine period when going through the sixth-century levels of a dig lying a few hundred kilometres farther to the east. This, I hope, provides an eloquent illustration of why scholars engaged in the archaeology of the Byzantine state should make efforts to create a uniform conceptual and chronological framework, which would bring an end to the alarmingly pervasive chronological incertitude.[56]

The most convenient solution would be to sift through the Byzantine literary sources for finding a Byzantine self-definition that would provide clear directions for both historical and

[47] There is no general consensus on the date marking the end of late antiquity; the latest date was proposed by the editors of the period's comprehensive overview published in the 1990s, who suggested that the period be extended up to around 800: *Bowersock – Brown – Grabar 1999.*

[48] For the origins of the concept and the historical context, see *Elsner 2002*; *Liebeschuetz 2004.*

[49] *Brown 1971.*

[50] See the comments to *Brown 1997.*

[51] *Torp 1997; Liebeschuetz 2003;* for less a convincing view, see *Treadgold 1994.*

[52] The first theoreticians of this image of late antiquity (P. Brown, Av. Cameron) had no qualms about writing on the late antique history of Byzantium; however, this problem was addressed by the next generation of scholarship, see *Whittow 1996.*

[53] The difficulties in this periodisation are highlighted by *Holum 2003* 352.

[54] *Vroom 2005.*

[55] It has been adopted by J. Haldon's team for the Princeton Avkat project, see *Haldon – Elton – Newhard 2009* 7.

[56] The solution proposed by J. Magness for bridging this confusion, namely to use a terminology based on centuries instead of "early" or "late" periods, could, at the most, be of aid during archaeological work – however, the same problem would be encountered when integrating the findings into the framework set up by historical studies. *Magness 2003* 346.

archaeological research.[57] However, we should be aware that as far as a periodisation created by archaeological studies for its own purpose is concerned, the material culture of an empire the size of Byzantium – characterised by a colourful cultural tapestry – can hardly be studied in the same way as classical pre- and protohistoric cultures, which are exclusively or chiefly known from the imprints of their material culture surviving in the archaeological record, enabling more clear-cut periodisation schemes and the associated theoretical groundwork. The application of this method would soon lead to the fragmentation of the lands belonging to the Byzantine state into smaller units, into independent or related "archaeological cultures" and cultural groups – and to the disintegration of the framework clearly set up by the historical sources.[58] The other possible option would be the use of the archaeology of the uniform Roman Empire – however, in contrast to Byzantium, Rome did not immediately begin her life as an empire, and thus the problems surrounding her beginnings are of an entirely different nature.[59]

The archaeology of the Byzantine state should perhaps follow the same path as chosen by the Byzantine elite after finding a way out of the great crisis during the seventh–ninth centuries for defining the wellheads of medieval Byzantine culture and, ultimately, of its own cultural roots. Whether reading the literary sources[60] or looking at the artistic relics, the self-image of the medieval Byzantine elite is clearly outlined: they did not merely regard themselves as Romans, but as subjects of the Christian Roman Empire with Constantinople at its centre. One of the very first figural mosaics, set above the south-western entrance in the Hagia Sophia, the empire's ecclesiastic heart, emblematically expresses certain key elements of Byzantine identity under the Macedonian Dynasty, when the crisis was finally resolved. An enthroned Virgin Mary with the Infant in her lap is in the centre of composition: on her left stands Constantine the Great with Constantinople, on her right, Justinian I holding a model of the Hagia Sophia. This is how medieval Byzantine elites of Constantinople[61] perceived the first centuries of the Christian Roman Empire, of late antique Byzantium. This unity made it impossible for the authors of new historical overviews to omit the period from Constantine the Great onward, even if the fourth to seventh centuries are treated separately, as a *Byzance avant Byzance*, as the late antique period of the Byzantine state.[62]

Following the discussion of the geographic and the chronological difficulties (the "Byzantine" components), let us move on to the third moot point: archaeology. There have been major changes in this discipline since the first comprehensive surveys of Byzantine archaeology. The discipline, known for long to historians and philologists from Ormonde Maddock Dalton's authoritative work, *Byzantine Art and Archaeology*,[63] has successfully moved beyond the two basic approaches of the early twentieth century: the chiefly art historical assessment of the still extant built relics or the architectural remains brought to light during excavation and of the various artistic objects which made their way into various museum collections, which can be essentially regarded as stray finds from an archaeological perspective. For a long time, one major, virtually insurmountable obstacle was that the finds from the Byzantine levels uncovered during the large-scale excavations in the former Byzantine lands, most of which focused on a prehistoric period or on a period of classical antiquity, were regarded as by-products at best, and as a late contamination at worst, to be

[57] For an attempt to create a periodisation based on the Byzantine sources, see *Koder 1991–1992.*

[58] Even if this framework, as embodied by the empire, did promote the uniformisation of material culture, cf. *Mundell Mango 2003.*

[59] Neither is an affinity for theoretical issues too obvious in Roman archaeology. The difference between a theoretical and a practical approach, and their often mutually exclusive nature, is briefly surveyed by *Lavan 2003* viii–ix. For the renewed debate on the origins of Rome and the proposed archaeological arguments which, so to speak, are hardly impeccable, see *Carandini 2007*; for a more realistic perspective, see *Holloway 2000.*

[60] See, for example, the editing principles of Photios' *Myriobiblon* and of the compilation movement during Constantine VII's age: *Mendels 1986*; *Németh 2010.*

[61] For different regional and local perepectives and perceptions, see *Stouraitis 2014* 194–196.

[62] As, for example, by *Haldon 2002*.

[63] *Dalton 1911.*

removed without the need for a meticulous documentation. The building remains that escaped this sorry fate were left to the tender care of the practitioners of Christian archaeology, a discipline likewise mired in an identity crisis,[64] understandably focusing on sacral buildings (mostly churches), while any assessment of profane buildings was essentially left to historians who had a strong measure of interest in the remnants of material culture.[65]

The 1970s witnessed a series of gradual changes. The most important among these was the preparation of the first comprehensive textbook of late antique Mediterranean fine decorated wares,[66] which was not simply a major advance compared to the pottery sequences based on the ceramic inventory of a particular site,[67] but provided clear guidance to the "late" material for scholars specialising in other archaeological periods and less familiar with the archaeological record of the late antique period.[68]

Obviously, this did not bring an immediate solution to all problems – moreover, few large-scale excavations focusing expressly on the Byzantine period were launched at the time (some of these being the Saraçhane in Istanbul,[69] Kourion on Cyprus[70] and Caričin Grad/Justiniana Prima in former Yugoslavia[71]). At the same time, what was earlier a serious drawback, namely that most of the excavations where Byzantine relics were unearthed were conducted on prehistoric or antique sites, had gradually become a definite advantage. Related disciplines such as archaeozoology, archaeobotany and physical anthropology, the indispensable tools of the trade in the assessment of prehistoric and antique sites, gradually became the assistants of archaeologists working with the Byzantine levels too (see below). As a result, the methodological resources used by archaeological research on Byzantium includes not only these disciplines, but the wide range of archaeometric and dating methods (dendrochronology, radiocarbon, thermoluminescence) alongside numismatics, epigraphy, sigillography and papyrology, which accompanied these studies from the very beginning.[72] Still, archaeological research, while thematically significantly enlarged, still had to come to grips with the (re)definition of its place, its role, its potentials and its limitations in Byzantine studies. This seems an especially gruelling task for a discipline which lacked a separate identity, despite having been practiced since long.[73] The difficulties of self-definition are quite understandable. The lands once controlled during various periods of the Byzantine state's existence are currently part of some two dozen modern countries (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, France, Greece, Italy, Kosovo, Macedonia, Malta, Montenegro, Romania, Russia, Serbia and Spain in Europe; Israel, Jordan, Lebanon, Syria and Turkey in the Near East; Algeria, Egypt, Libya, Morocco and Tunisia in North Africa), in which the archaeological infrastructure is of varying quality (in part owing to the available funds); moreover, the image of Byzantium, equated with orthodoxy, differs widely. In the

[64] *Seeliger 1985.* As noted by one of the most renowned scholars of the field, "*[...] es gibt beinahe so viele Christliche Archäologien wie Christliche Archäologen [...]*". *Deichmann 1983* 1.

[65] *Mango 1986*; see also the results of the project conducted by the British Institute at Ankara: *Foss 1985; Foss 1996.*

[66] *Hayes 1972*.

[67] Thus, for Corinth: *Waagè 1933*, and Athens: *Robinson 1959; Perlzweig 1961.*

[68] The "demands" were concisely formulated from the perspective of an archaeologist specialising in prehistory: *Rupp 1986.*

[69] While the excavation itself was conducted between 1964 and 1969, the finds were published at a considerably later date: *Harrison 1986; Hayes 1992*.

[70] Following the first small campaign in 1934, the site's large-scale investigation was conducted in 1956, 1959 and, finally, between 1974 and 1979; however, the site report only appeared after the excavator's death: *Megaw 2007.*

[71] *Duval – Popović 1984; Bavant – Kondić – Spieser 1990*; *Caillet et al. 2010*; *Bavant – Ivanisevič 2003*; recently: *Bavant 2007*; *Ivanisevič 2010.*

[72] The integration of these disciplines into Byzantine studies is illustrated by the very fact that they are covered in separate studies, separate from archaeology, in the comprehensive volume, the *Oxford Handbook of Byzantine Studies*: *Jeffreys – Haldon – Cormack 2008*.

[73] The lack of an independent identity in Byzantine archaeology and its atheoretical nature is persuasively illustrated by *Rautman 1990.*

Euroatlantic region, where Byzantine studies have enjoyed a growing popularity since the middle decades of the twentieth century, the structure of various disciplines conforming to their particular historical development had evolved since long by the time the express need for "Byzantine archaeology" arose. Accordingly, research that would have been assigned to the field of "Byzantine archaeology" was pursued as "Biblical archaeology" or "Christian archaeology" in the Holy Land;[74] excavations in the classical cities surviving into the late antique period were part of "classical archaeology" (while the study of the churches and monasteries in these cities and their broader district befell to "Christian archaeology"); the study of the Coptic relics in the Nile Valley was initially pursued as part of "Egyptology" and "Coptology", and often continues to be pursued as such. In regions blessed with a more fortuitous history and conditions, where the infrastructure of a local archaeological heritage management system has been created and funded by sufficient means, a major portion of the finds belonging to the competence of "Byzantine archaeology" is brought to light in the course of salvage and rescue excavations, whence they are taken to storerooms – these excavations are often led by individuals who have little interest in writing up this material.

In the light of the above, there is definitely some truth to the claims that "Byzantine archaeology", and especially an archaeology dealing with medieval Byzantium, does simply not exist.[75] A discipline without clearly defined temporal and spatial boundaries, without its own publication forum or a sufficiently extensive network of independent higher education and research institutions[76] can hardly be deemed as fully fledged. Instead of "Byzantine archaeology", we can often at best speak of archaeological investigations conducted on Byzantine sites. It is, perhaps, not an exaggeration to contend that scholars finding themselves involved with the archaeology of the Byzantine state frequently become acquainted with the cultural legacy of Byzantium as an "excavation side product". Not infrequently, scholars expressly specialising in the heritage of medieval Byzantium working within the institutional network of the western world can only raise grants for research projects covering several periods in order to ensure their access to the finds of their research period.[77]

Obviously, the above should not be taken to imply that archaeological research on the Byzantine state has been unable to produce major advances, shedding new light on the accepted century-long image of Byzantium, often through the analysis of the literary sources, or by revising earlier findings. It is also understandable why new advances have sometimes remained unknown to scholars engaged in the research of other aspects and dimensions of Byzantine history and culture. The situation is perhaps best illustrated by a recent monograph on the Byzantine city in the sixth century, whose author, a historian, had to gather the necessary information for her book from the excavation reports on the investigations conducted in the period's cities[78] – in the lack of the necessary training in this field, this was not always

[74] See, for example, the activities of the *Studium Biblicum Franciscanum* in Jerusalem, which has conducted excavations on several Byzantine sites. See also *Kuhnen 1987* IX.

[75] As M. Whittow remarked, "Medieval Byzantine archaeology hardly exists. What is available has largely been obtained as a spin-off from the excavations of classical sites. Much of the basic work has yet to be done, especially in the countryside, where fundamental questions including 'How large was the Byzantine population?', 'How wealthy?', 'Where did they live and how were they employed?', cannot really be answered. Turkey in particular represents a huge untapped field for medieval archaeology." *Whittow 1996* 14.

[76] Let me quote M. Rautman: "[...] Byzantinists within most North American universities are scattered into such disparate departmental niches as classical, Oriental languages, medieval or Near Eastern studies, history, theology, anthropology, geography, and architectural or art history." *Rautman 1990* 142. This eclectic state of affairs is also true for the scatter of archaeologists engaged in research on Byzantine sites, and the situation is hardly better regarding the library system. In most European countries – with whose library systems the present author is familiar with – the volumes reporting on Byzantine sites and the journals hosting articles of this type can only be gathered from the special collections of various disciplines (Byzantine studies, classical archaeology, early medieval archaeology, Christian archaeology, classical philology, Near Eastern studies, Egyptology, theology, art history, physical anthropology/biology, etc.).

[77] I am grateful to Archibald W. Dunn (Institute of Archaeology and Antiquity; The University of Birmingham) for pointing this out to me.

[78] *Saradi 2006.*

flawless.[79] Until recently, few archaeologists have produced comprehensive surveys of the new findings in their field that would come useful for historians and philologists,[80] even if historical surveys do their best to incorporate and evaluate the archaeological record.[81] There seems to be little chance for remedying these deficiencies at present. This brief survey can undertake no more than to highlight some of the more significant trends in the advances made in this field of research. Like every selection, it will be strongly subjective, but it is my hope that this will not obscure the major directions in the progress of research.

Advances in the archaeological research of the Byzantine state

One of the main reasons of why we are more familiar with the archaeological heritage of the late antique period of the Byzantine state (corresponding to the early Byzantine period in the classical periodisation) is that the archaeological exploration of most Byzantine sites usually begins as the side product of the excavation of a prehistoric or antique settlement and, under lucky circumstances, unfolds into an independent research project. There is another sad aspect: the earlier the excavation of a site was begun, the greater the damage done to the Byzantine levels regarded as relatively late. At the time of the early excavations, it was not regarded as an unprofessional practice to quickly dig through the levels post-dating the antique occupation. During the early Austrian excavations at Ephesus begun in 1895 (and still in progress today), the director of the fieldwork in the early twentieth century repeatedly recorded in the field diary that the late antique-Byzantine levels were simply dumped aside by the excavation workers without much ado and, more importantly, without the necessary documentation, so that the Greek and Roman levels would be reached as swiftly as possible; to which he added, "*Problem gelöst!*".[82] Little wonder, then, that the first reports on the American excavations at Sparta in 1892 and 1893, and the British excavations undertaken by the British School at Athens in 1906 mention but a few "late" wall remains and coins,[83] and that the Byzantine relics fared little better during the first decades of the German investigations at Pergamum.[84] The loss of information during this early period of research can at best be roughly estimated from a comparison with the findings of modern excavations on the same site.[85]

Parallel to the Greek and Anatolian excavations begun in the last decades of the nineteenth century, there was a growing interest in several antique and late antique Egyptian sites. In this case too, the focus was on Egyptian civilisation, a source of endless fascination during the period, and by extension, on ancient ruins – the high quantities of textiles preserved in late antique graves and the papyri brought to light on settlements and in their broader area soon kindled

[79] See L. Lavan's review with the necessary connections: *Lavan 2009.*

[80] For a broad survey of the results of archaeological research on the early Byzantine period within the scope of a journal article, see *Sodini 1993*. The Late Antique Archaeology series edited by L. Lavan includes many comprehensive overviews in this respect, although with a focus on the late antique period in view of its chosen field.

[81] I shall here mention but a few influential historical synthesis published during the past ten to fifteen years that integrated the findings of archaeological research, even if the scope of these volumes was not always restricted to the Eastern Mediterranean or Byzantium alone: *McCormick 2001*; *Wickham 2005*; *Curta 2006*; *Brubaker – Haldon 2011.*

[82] S. Ladstätter: Versorgung und Infrastruktur von Ephesos in byzantinischer Zeit. Presentation at the *Hinter den Mauern und auf dem offenen Land: Neue Forschungen zum Leben im Byzantinischen Reich* conference held in Mainz on June 4, 2010.

[83] *Bosanquet et al. 1905–1906*; *Dawkins et al. 1906–1907*; *Dawkins et al. 1907–1908*; *Dawkins et al. 1908–1909*; *Dawkins et al. 1909–1910*. Still, it must be borne in mind that a brief, six-page long report on the site's Byzantine pottery was published as early as 1911, one of the first to offer a glimpse of this class of finds: *Dawkins – Droop 1910–1911.*

[84] For a recent overview of the Byzantine remains uncovered at Pergamum, see *Otten 2010.*

[85] For Sparta, see *Waywell et al. 1993; Waywell – Wilkes 1994*; *Waywell et al. 1995*; *Waywell – Wilkens 1997*; *Waywell – Wilkens* 1999.

collectors' interest in later periods too.[86] Soon after his arrival to Egypt, the French Gaston Maspero secured the support of the Egyptian authorities and could launch his excavations of the late antique Christian relics of Egypt in 1881. One of the most promising sites was Akhmim/Panopolis, where investigations commenced from 1884;[87] the work begun by the French "archaeologist" was continued by the Swiss Robert Forrer.[88] Vladimir G. Bok [Bock], a Russian by birth, too conducted his own research in Akhmim – as well as on sites of the Fayum oasis, the Sohag monastery and the Bagawat necropolis – first during his 1888–1889 journey to Egypt and then again in 1897.[89] In 1888, roughly at the time of Vladimir Bok's first visit, the British William M. Flinders Petrie began his excavations at Hawara, where in addition to the pharaonic finds, he uncovered a series of later, Graeco-Roman and late antique relics.[90] The year 1891 saw the famous or, better said, infamous investigations by Édouard Naville of the buildings of a late antique necropolis in Heracleopolis Magna (modern Ahnas); by mistakenly identifying the carvings of the funerary buildings as church carvings, he became to no little extent responsible for the wholly misleading image of Coptic art drawn by successive generations of scholarship.[91] A few years after Naville's activities in Ahnas, the systematic "excavation" of another site, Antinoë/Antinoopolis, was begun from 1895 by the French Albert Gayet.[92] Simultaneously with the excavations at Antinoë, in late 1896, Bernard P. Grenfell and Arthur S. Hunt began their search for papyrus finds in antique Oxyrhynkhos (modern Bahnasa) and made the city into one of the major papyrus sites of late antique Egypt.[93] While ensuring that European collections were enriched with valuable finds and that these finds would be properly assessed and reported, the investigations mentioned here (alongside several similar early expeditions) also resulted in the destruction of immensely valuable relics of late antique Egypt and, even more importantly, of the one-time contexts, which are indispensable to any archaeological study. The German excavations in Qarārah[94] and the American investigations in Bagawat,[95] whose directors were more aware of the importance of find contexts (although far from the desired extent) than the "excavators" of the late nineteenth century, took place in the 1900s to 1910s, a few years after the devastation of several major late antique sites (although it must be borne in mind that these excavations were conducted on sites that were at the time viewed as being peripheral compared to the antique poleis). The 1900s also saw the excavations led by Émile Chassinat, Jean Clédat and Charles Palanque, then by Jean Maspero at Bawit,[96] and James E. Quibell's investigation at Saqqara,[97] the archaeological exploration of two outstandingly important monastic centres of late antique Egypt, even if the assessment of the uncovered relics was still heavily influenced by Edouard Naville's intrinsically flawed hypothesis.

Following this heroic age of archaeology, there were several excavations already during the pre-World War 2 period where the relics of the post-classical levels were considered

[86] For earlier research and their background, see *Müller 2005*; a vivid description – from a perspective focusing on Antinoë – can be found in *Calament 2005* 85–93.

[87] *Maspero 1893*; *Kuhlmann 1983* 50–52.

[88] *Forrer 1891a*; *Forrer 1891b*; *Forrer 1893; Forrer 1895.*

[89] For Vladimir Georgievič Bok and his research, see *Kakovkin 1994*; his posthumously published work: *de Bock 1901.*

[90] The region's finds from that period and W. Flinders Petrie's research are reviewed by *Uytterhoeven 2009.*

[91] *Naville 1894;* the successive phases in research are evoked by *Török 2005.*

[92] For A. Gayet's work and its detailed documentation, see *Calament 2005* (with indications of many of the problems surrounding the modern evaluation of old and ill-conducted explorations).

[93] For an overview of research, see the chapters on the history of research in *Bowman et al. 2007*; a brief chronological review of earlier studies with the basic literature can be found in *Krumeich 2003* 9–10.

[94] For the most detailed contemporaneous report, see *Ranke 1926*; outstanding among the later assessments of the damaged find material with an overview of the earlier literature: *Nauerth 1996; Nauerth 2006*.

[95] For a useful overview on the work at this site, although with a focus on the surviving buildings and frescoes, see *Cipriano 2008*. The preliminary reports on the find material excavated by American scholars offered but a tantalising glimpse, see *Hauser 1932*. The modern assessment of the find material was only begun recently, see *Kajitani 2006*.

[96] For a review of the literature on earlier research, see *Rutschowscaya 1995.*

[97] *Quibell 1908*; *Quibell 1909; Quibell 1912.*

"worthy" of study, even if the standards were well below what would be deemed desirable today. These sites played a prominent role in the initial identification of the late antique-Byzantine material legacy. It is not mere chance that most of these early excavations were conducted by Americans. Thus, for example, the findings of the American excavations begun in Corinth in 1896 were published, even if half a century later, in the 1940s–1950s, but still well ahead of the other investigations conducted during the same period: these included the Byzantine pottery,[98] the remains of a glass workshop,[99] the small finds from a Byzantine cemetery and the city,[100] and the remains of medieval buildings.[101] These finds remained the single comparative assemblages for a very long time for the material from other excavations. The American investigation of the Athenian agora, launched thirty-five years after Corinth, set admirable standards at the time. Even though the assessment of the finds was not much faster,[102] the first volumes that also covered the late antique-Byzantine finds appeared a few decades after the start of the excavations.[103] However, the harm done by the archaeological investigations preceding the American excavations could not be undone.[104]

Roughly at the same time, in the 1930s, investigations were begun in the Near East, the geographically opposite region of the one-time East Roman/Byzantine Empire. The period's scholarship could now become acquainted with the findings of the excavations at Antioch (modern Antakya) conducted by a joint American-French team between 1932 and 1939,[105] and at Beit She'an (ancient Skythopolis) in 1921–1923,[106] of the British-American excavations at Gerasa (modern Jarash) in 1928–1931 and 1933–1934,[107] and of the American-French research at Dura Europos (which only had an indirect association with Byzantium),[108] which provided the much-needed comparative material for the archaeologists working in the Near Eastern lands of the empire. Very often, this early interest was principally directed towards the built monuments.

The picture would be incomplete without briefly mentioning another significant current of research, which expressly focused on the study of Byzantine antiquities. It can hardly come as a surprise that in the early years of the twentieth century, research on the Byzantine monuments of Ottoman Istanbul was begun by the Russian Archaeological Institute established by Tsarist Russia.[109] In the later 1920s, a British team received permission to conduct excavations in the Hippodrome,[110] while the first systematic archaeological investigation of city's churches

[98] *Morgan 1942*.

[99] *Davidson 1940*.

[100] *Davidson 1952*.

[101] *Scranton 1957;* for a bibliography of the Byzantine remains uncovered during later excavations, see *Bouras 1981* 618, notes 32–33.

[102] Even though F. O. Waagè had discussed the Roman and Byzantine pottery brought to light in the preliminary report published in 1933, see *Waagè 1933*, the coin finds from the campaigns conducted between 1931 and 1949 were only written up in 1954: *Thompson 1954*.

[103] Following the volumes on the coin finds and the Roman ceramic material (note 102), a summary on the late antique history of the agora was finally published: *Frantz 1988*, which incorporated the findings of the author's earlier studies, such as *Frantz 1965*. Publications on the relics of medieval Athens began to appear from the 1970s: *Frantz 1971*.

[104] For a concise survey of the results of the excavations focusing on the classical periods up to the 1970s, see *Travlos 1971*.

[105] *Elderkin – Campbell – G. Downey 1934*; *Stillwell 1938*; *Stillwell 1941*; *Waagè 1948*; *Waagè 1952*; *Lassus 1970*. See also *Morey 1938*; *Stillwell 1961* 47–57; *Downey 1961*. The post-excavation evaluation of the excavations' results complemented by current archaeological survey is about to be published by a German-American team led by Gunnar Brands (Halle).

[106] *Fitzgerald 1931*; *Fitzgerald 1939*.

[107] *Kraeling 1938*.

[108] *Baur – Rostovtzeff 1929*; *Baur – Rostovtzeff 1931*; *Baur – Rostovtzeff – Bellinger 1932*; *Baur – Rostovtzeff – Bellinger 1933*; *Rostovtzeff 1934; Rostovtzeff 1936*; *Rostovtzeff et al. 1939*; *Rostovtzeff et al. 1944*; *Toll 1946; Rostovtzeff et al. 1952*.

[109] An annual report on the institute's activities appeared until 1914 in the volumes of the journal *Vizantijskij Vremennik*.

[110] *Casson et al. 1928*; *Casson et al. 1929*. Archaeological research in the Hippodrome, beginning with the earliest investigations, has been described by *Bardill 2010*. For a detailed summary of the Hippodrome's history, its excavations and monuments, see also the other essays published in the latter collection: *Pitarakis 2010*.

began from the 1930s under the aegis of the American Byzantine Institute and the Walker Trust (the Hagia Sophia,[111] and the churches of Kōnstantinos Lips, the Pantokratōr and the Khōra monasteries). The first large-scale archaeological exploration in the Great Palace of the Byzantine emperors was also undertaken by the Walker Trust and St. Andrew's University.[112]

The extensive excavations were continued after World War 2 at Ephesos (modern Efeş),[113] Pergamum (modern Bergama), Athens, Corinth, Carthage,[114] Jerusalem,[115] Khersonēsos,[116] Apamea (ancient Apameia)[117] and Samos,[118] but concluded at Hama.[119] New investigations were begun at Salamis (Cyprus),[120] Sardis (ancient Sardeis)[121] and Hieropolis (modern Pamukkale)[122] in the 1950s, at Aphrodisias,[123] Anemurium,[124] Pella[125] and Alexandria[126] in the 1960s, at Caesarea Maritima[127] in the 1970s, at Amorion (modern Hisarköy),[128] Sagalassos,[129] Eleutherna[130] and Sepphōris[131] in the 1980s, at Elaiussa Sebastē[132] in the 1990s and at Hippos/Sussita[133] in the 2000s. In addition to the archaeological exploration of urban

[111] *Whittemore 1933*; *Whittemore 1936*; *Whittemore 1942*; *Whittemore 1952*.

[112] *Brett – Macaulay – Stevenson 1947*; the investigation of the palace was only resumed after World War 2: *Rice 1958*. The study of the mosaics was later undertaken by an Austrian-Turkish team: *Jobst – Vetters 1992*; *Jobst – Kastler – Scheibelreiter 1999*.

[113] For a bibliography of the research conducted in Ephesus up to 1985, see *Oster 1987*; from 1995, the Ephesus bibliography of the previous year appeared in *Mitteilungen zur Christlichen Archäologie*. For an overview of the most recent results, see *Daim – Drauschke 2010* vol. 2. 493–744.

[114] See below, note 167.

[115] *Hamilton 1944*.

[116] For the early Byzantine town, see *Ajbabin 2010*; for an overview of the medieval Byzantine period with further literature, see *Romančuk 2005*; for a history of research, see *Yashaeva 2011a*; for the most significant finds, see *Yashaeva 2011b*.

[117] The investigations begun in 1925 were interrupted by World War 2 and then resumed from 1965. *Napoleon-Lemaire – Balty 1969*; *Callu 1979; Vanderhoeven 1989*; *Dulière 1968*; *Balty 1969a; Dulière 1974*; *Balty 1969b*; *Balty – Balty 1972*; *Balty 1984*.

[118] The first excavations were conducted before World War 1; the investigations were continued in the interwar period and after World War 2. However, the publication of the Byzantine and other relics was only begun from the 1970s: *Tölle-Kastenbein 1974*; *Martini – Steckner 1993*; *Kienast 1996*; *Jantzen 2004*.

[119] The findings of the excavations were published after a long delay: *Ploug 1985*; *Christiansen – Ploug – Thomsen 1986*; *Pentz 1997*; *Riis – Poulsen 1957*; *Ploug – Hammershaimb –Olelenburg 1969; Lund 1995*.

[120] *Oziol – Pouilloux 1969*; *Chavene 1975; Oziol 1977*; *Diederichs 1980*; *Argoud – Callot – Helly 1980*; *Pouilloux – Callot – Marcillet-Jaubert 1987*; *Rouy 1998*; *Callot 2004*.

[121] *Bates 1976; Foss 1976; Waldebaum 1993*; *Crawford 1990*.

[122] For an overview, see *d'Andria 2003*; *Arhur 2006*.

[123] The French investigations in 1904–1905 and 1913, and the Italian expedition in 1937 were followed by the still ongoing American excavations from 1961. *Erim 1967*; *Cormack 1981*; *Nesbitt 1983*; *Roueché 1989*; *Campbell 1991*; *Campbell 1996*; *Smith 1999*; *Ratté 2000*; *Cormack 1990*.

[124] *Russel 1976*; *Williams 1977*; *Russell 1982*; *Russell 1986*; *Russell 1987*; *Russell 1989*; *Williams 1989*; *Campbell 1998*; *Russell 1999*.

[125] *Smith 1973*; *McNicoll – Smith – Hennessy 1982*; *Smith – Day 1989*; *McNicoll et al. 1992*.

[126] The Polish excavations were launched in 1959, with the most important campaigns conducted in the 1960s: *Rodziewicz 1976*; *Borkowski 1981*; *Rodziewicz 1984; Kiss 1989*; *Kołątaj 1992*; *Kiss 2002; Tkaczow 2010*; *Rodziewicz 2007*; for an overview of the excavations from the nineteenth century onward, see *Tkaczow 1993*.

[127] For a brief discussion of the main results, see *Holum et al. 1988*; the literature on the earlier excavations can be found in *Van 1992*; *Hohlfelder 1992*.

[128] For a list of the voluminous and continuously expanding bibliography of the excavations, see *Lightfoot – Ivison 2012* xiii–xvii.

[129] For the preliminary results, see *Waelkens 1993; Waelkens–Poblome 1993; Waelkens–Poblome 1995; Waelkens–Poblome 1997; Waelkens–Loots 2000*; the final reports were published in the volumes of the SEMA series: *Poblome 1999; Degeest 2000; De Cupere 2001; Vanhaverbeke – Waelkens 2003; Vermoere 2004; Köse 2006*.

[130] *Themelis 2000*; *Themelis 2004*; *Bourbou 2004*; *Yangaki 2005*.

[131] *Strange 1992*; *Strange 2003*; *Netzer – Weiss 1995*; *Talgom – Weiss 2004*.

[132] *Schneider 1999*; *Schneider 2003*; *Schneider 2010*; the most important results are summarised in a booklet written for the broader audience: *Schneider 2008*.

[133] A bibliography of the excavation reports for individual seasons and of all the studies on the sites can be found in *Segal 2013*. With the exception of the more recent years, the volumes containing the excavation reports published after each season can be freely downloaded from http://hippos.haifa.ac.il/index.php/publications [01.11.2015].

sites, there was a growing interest in the fortifications ensuring the defence of the empire's temporally shifting borders[134] – even so, we are still lacking a comprehensive survey of these architectural installations.[135] The study of rural settlements was neglected for a long time or was inadequate at best, given that most of the excavations conducted on rural sites were salvage operations, the result being that the image of "rural" Byzantium was, and largely still is, essentially based on the evidence from provincial towns, while comparatively little is known about genuine rural environments.[136] Contributing to this state of affairs was the over-representedness of late antique and Near Eastern settlements among the archaeologically investigated Byzantine settlements, where the distinction between a city or town and a 160 hectares large settlement with public buildings described as a village in the written sources (such as Androna [modern al-Andarīn]) is not always as obvious as it might seem.[137] The late antique/Byzantine settlements of the Near East are not the single obstacle to untangling the exact relation between city, town, village and other settlement types: suffice it here to mention the sixth–seventh-century hilltop strongholds (*Höhensiedlungen*) of the central Balkans[138] and a part of the middle Byzantine Cappadocian settlements.[139]

The great breakthrough in the archaeological investigation of Byzantine sites can be understood against the backdrop of the extensive excavations launched after World War 2 and the shifting dynamics of historical studies. The growing interest in late antiquity stimulated archaeological research, while the large-scale excavations of the later twentieth century enabled and downright called for the systematic appraisal of the pottery, the most abundant category of finds among the enormous quantities of artefacts brought to light each year. There was a definite upswing in the evaluation of the ceramic finds from earlier excavation seasons from the 1970s on sites which had an adequately precise field documentation of the stratigraphic contexts and could engage a pottery specialist. The change within the course of a few years was striking: when John Hayes published his authoritative *Late Roman Pottery*, written in 1968–1969, still used as a textbook today, there were no more than handful of available sites such as Athens, Corinth, Abu Mena[140] and Antioch in the lands of the East Roman state,[141] and thus he could mostly rely on the major museum collections and excavation reports publishing no more than a few fragments when constructing his classification. In contrast, the pottery from a series of well-documented excavations was published by the 1980s (Sidi Khrebish,[142]

[134] See the archaeological exploration of the forts in the Lower Danube region, the *Limes Arabicus* project and the research on the defence of the empire's North African borders. *Parker 2006*; *Pringle 1981*; *Freeman – Kennedy 1986*. For a comprehensive discussion of the Muslim-Byzantine border forts in eastern Anatolia after the seventh century Muslim conquest, see *Eger 2011.*

[135] *Lawrence 1983*; *Foss – Wienfeld 1986*.

[136] For a comprehensive survey of research on rural settlements, see *Lefort – Morrisson – Sodini 2005*; for an overview of the investigations in Anatolia (excavations both on urban settlements and genuine rural sites), see *Vorderstrasse – Roodenberg 2009.*

[137] For the problem of Androna/al-Andarīn, see M. Mundell Mango's remarks in her studies cited in note 173.

[138] *Milinković 2007*, as well as one of the best known examples: *Milinković 2010.*

[139] The settlement described and analysed by *Ousterhout 2011.*

[140] The first excavations at this site were conducted between 1905 and 1907 under the direction of C. Maria Kaufmann, later followed by additional campaigns (E. Breccia: 1926–1927; F. W. Deichmann, A. von Gerkan: 1936; J. B. Ward Perkins: 1942); however, the investigations that proved suitable for a more comprehensive assessment based on ceramic sequences commenced after World War 2. Hayes drew extensively from these results. For the first six preliminary reports, see *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 19 (1963)–22 (1967). For a brief review of the results of the excavations at Abu Mena with abundant literature, see *Grossmann 2002* 401–412.

[141] *Hayes 1972* 1–2.

[142] *Kenrick 1977*; *Riley 1979.*

Kellia,[143] Alexandria,[144] Antinoë/Antinoopolis,[145] Caesarea Maritima,[146] Samos,[147] Carthage,[148] the Port Miou shipwreck[149]), which enabled Hayes to briefly supplement his earlier work.[150] The first publications, covering large ceramic series, usually strove to classify the material, and thus these volumes included both the fine wares appearing in trade circulation and the locally made cooking and storage vessels.[151] The typological and chronological frameworks as well as the studies on workshops and the distribution of different wares gave rise to studies on trans-Mediterranean trade, and today, the works on late antique trade would fill a library.[152] The other result of the first major surveys is similarly quite striking: the appearance of the relatively well-datable fine wares on almost every late antique/Byzantine site meant that the third- to seventh-century remains uncovered during the excavation of a growing number of sites could be accurately dated, often to within a decade. Thus, the specialists working on more recently undertaken excavation projects began to use these pottery fragments as the primary chronological anchors. This practice, however, had a serious drawback: the practice of using accurately datable import wares for dating occupation levels meant that locally produced pottery was often neglected.[153] Thus, when the trade in North African and Near Eastern amphorae and fine wares declined in the seventh century and some types disappeared altogether, many Byzantine-controlled regions (especially in Anatolia and the Aegean) remained without adequate chronological anchors. In Italy, where the literary sources offer a fairly good picture of the seventh–ninth-century settlement network, this "merely" meant that the period's settlements could not be properly studied archaeologically,[154] while in the eastern Mediterranean it projected a false image of the complete collapse of the late antique settlement network in the seventh century. The lack of written sources,[155] or, more precisely, their special nature,[156] and the drastic decline of Byzantine monetary circulation in the seventh century[157] both contributed to this false image, as did the disappearance of the above-described import ceramic wares from the Anatolian and Aegean sites, and the mechanic application of the chronological systems used in the former regions to the latter. The finds from most major excavations were either dated according to Hayes' ceramic chronology created in the late 1960s that was later slightly modified based on the findings of the subsequent large-scale excavations,[158] or by the ceramic sequences for Carthage and various Near Eastern sites set up several decades ago. The most obvious solution for resolving this dating problem would be the dating of locally made wares from Anatolian excavations based on stratigraphic contexts, in

[143] *Egloff* 1977.
[144] *Rodziewicz 1976*.
[145] *Guerrini 1974*.
[146] *Riley 1975*; the assessment of the ceramic finds from the excavations in the 1970s were eventually published in 1986: *Levine – Netzer 1986*.
[147] *Isler 1969*.
[148] *Hayes 1976; Hayes 1978*.
[149] *Deneauve 1972*.
[150] *Hayes 1980*.
[151] Shidi Kherbish: *Riley 1979*; *Kenrick 1985*; *Bailey 1985*; for Carthage, see *Fulford – Peacock 1984*.
[152] For a general introduction, see *Peacock – Williams 1986*; for a summary of the findings for the western Mediterranean, see *Reynolds 1995*; for overviews of the eastern region, see *Abadie-Reynal 1989*; *Pieri 2012*; for the trade of individual eastern regions, see the studies in *Kingsley – Decker 2001*.
[153] See the assessment of the ceramic finds from Perge: *Atik 1995*. For a general discussion of the problem, see *Jackson 2007* 19–29.
[154] *Christie 1989*. For the distribution of African Red Slipped Ware, principally used for dating, in sixth–seventh century Italy, see *Tortorella 1998*.
[155] *Lilie 1993*.
[156] *Cameron 1992*.
[157] *Hendy 1985* 643; for the optical illusions in archaeology, see *Gregory 1984* 272–273.
[158] Despite the undeniable merits of Hayes' system, the author's caveat in the Preface must still be borne in mind: "It must be stressed at this point that the conclusions presented in this volume are of provisional nature, and will no doubt require modifications as more evidence of a precise nature becomes available." *Hayes 1972* 2. He repeated this warning in a later work: *Hayes 1998* 9: "[...] a book [LRP], which seems to be quoted more and more as it gets more and more out of date."

other words, the adoption of chronological schemes based on ceramic sequences elaborated for a particular site.[159] The other remedy can be expected from meticulous field observations recording the appearance of certain pottery forms in seventh- to ninth-century trade.[160] The combined use of these two methods enabled the identification of a series of settlements on which the survival of the Anatolian population during the seventh to ninth centuries could be documented, in both urban[161] and rural environments.[162]

Scholarship on this initial period of medieval Byzantine history (or, as many prefer to call it, the Byzantine Dark Age or the Transition period) can thus expect major contributions from archaeology. At the same time, it is telling – and again highlights the unstructured nature of "Byzantine archaeology" as an independent discipline – that the preconditions to identifying the seventh- to ninth-century Byzantine material were there for at least the past two decades. The ceramic sequence from Cyprus, the springboard for the advances made in the past years, was published in 1972,[163] while the stratigraphic contexts of the "Dark Age" pottery from Istanbul, which was indispensible for determining the chronological position of Constantinopolitan White Ware I, was published over two decades ago.[164] It is also telling that the excavations at Amorion were only begun as late as 1987, given that the few literary references to the site made it obvious well before the onset of the archaeological investigations that the remains of one of the most significant urban centres of the Byzantine "Dark Ages" lie under modern Hisarköy.[165] While there are few sites as important as Amorion, several monasteries that were quite certainly occupied during the eighth and ninth centuries are mentioned in the literary sources. This again underlines the point that no matter how great the advances in the archaeological research of late antique/Byzantine sites since the 1970s, a uniform research strategy organised along a set of questions focusing on Byzantium is still largely lacking.[166]

This should not be taken to imply that the past few decades have not seen major progress in the investigation of Byzantine sites. The main tendency, a growing interest in late antiquity that has promoted the assessment of the finds from this period, could be strongly felt in the 1980s and 1990s. Today, most major sites have their own series, or even several series (Alexandria, Caesarea Maritima, Dēmētrias, Sergiopolis/Resafa, Samos, and the "top" cities such as Ephesos, Sagalassos and Carthage[167]), but the reports on smaller excavations (such as forts) are often similarly published in several volumes (Iatrus/Krivina,[168] Nicopolis ad

[159] Sadly, hardly enough local ceramic sequences are currently available. The few exceptions include *Williams 1989* and *Degeest 2000*. An interest in locally made cooking wares and storage jars is less perceptible on the sites in the eastern Mediterranean, as is immediately apparent from the choice of themes in the studies in the first couple of volumes of the conference series *Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Gurt i Esparraguera – Buxeda i Garrigós – Cau Ontiveros 2005; Bonifay – Treglia 2007; Menchelli et al. 2010; Poulou-Papadimitriou – Nodarou – Kilikoglou 2014*.

[160] One good illustration is a case study by *Armstrong 2009*. For dating with Constantinopolitan White Ware I, see *Vroom 2008*; *Vroom 2011*.

[161] *Vionis – Poblome – Waelkens 2009*.

[162] *Armstrong 2006; Vroom 2006*.

[163] *Catling 1972*.

[164] *Hayes 1992*.

[165] For the research agenda of the new project, see *Harrison 1994*; for Amorium in the seventh–ninth centuries, see *Ivison 2007*; *Lightfoot 2007*.

[166] The need for formulating research agendas was perceived several decades ago: *Rosser 1979*.

[167] In addition to the series detailing the work by Michigan University (eight volumes), the British excavations (four volumes), the German investigations (three volumes), Swedish research (two volumes) and the Austrian contribution (one volume), there are at least ten other books published independently of these series. For the background to the large-scale investigations begun in the 1970s, see *Frend 1996* 313–317.

[168] In addition to the many published articles, the final reports on the excavations can be found in the following volumes: *Dimova – Döhle – Gomolka 1979*; *Böttger – Döhle – Gomolka-Fuchs 1982*; *Wendel – Angelova – Gomolka-Fuchs 1986*; *Böttger – Bülow – Schieferdecker 1991*; *Bartosiewicz – von Bülow – Böttger 1995*; *von Bülow – Böttger – Conrad 2007*.

Istrum,[169] En Boqeq,[170] Mamphis[171]). In the later 1980s, the new research projects or continued excavations on some sites were expressly motivated by interest in its late antique/Byzantine history (Amorion, Nikopolis ad Istrum, Bouthrōtios/Butrint,[172] Androna[173]).

It is quite obvious from the above brief list of sites that most excavations were conducted in the Near East, as a result of which the eastern lands of the Byzantine Empire are currently the archaeologically best known late antique/Byzantine regions. Contributing to this state of affairs beside the general political and cultural development of the region's countries was the region's strategic value in post-World War 2 foreign politics and the cultural "colonisation" in its wake as well as the cultural contacts of the wealthy Western states going back to Mandate times, the continued maintenance of various cultural institutions in these countries and the new excavations stimulated by the interest in the high civilisations of antiquity and the origins of the Neolithic (and, very often, the Byzantine ruins covering the sites selected for investigation[174]). The situation differs from one country to the next. In Jordan, a relatively open country, almost every single major late antique site has been archaeologically investigated (often quite extensively), as shown by the excavations conducted on urban, rural and church sites alike (Gerasa,[175] Petra,[176] Pella/Tabaqat Fahl,[177] Umm al-Jimal,[178] Umm al-Rasas,[179] Deir ᶜAin ᶜAbata,[180] Dzarih,[181] etc.), while in neighbouring Syria, the land of the so-called "dead cities", no more than a single genuine excavation has been conducted (Dehes[182]), despite the fact that scholarship knew of well over seven hundred sites already in the 1950s.[183] This is all the more surprising, given that several late antique cities (Dura Europos, Resafa, Ras al-Bassit,[184] Androna and the Hauran settlements[185]), fortresses[186] and ecclesiastic centres[187] were investigated in the country. Moreover, most of these sites were not overlain by a modern settlement, a difficulty that poses virtually insurmountable obstacles to research, as shown by the excavations on the largest late antique site in neighbouring Lebanon, which was practically made possible by the need for rebuilding the greater part of Beirut after the clashes of the civil war ended in 1990.[188]

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[169] *Poulter 1995*; *Poulter 1999*; *Poulter 2007.*

[170] *Gichon 1993; Fischer – Gichon – Tal 2000.*

[171] *Negev 1988.*

[172] *Hodges – Bowden – Lako 2004; Bowden – Hodges – Lako 2002*; *Hodges 2008*; *Bowden – Hodges 2011; Hansen – Hodges – Leppard 2013.*

[173] For recent results, see *Strube 2010*; *Strube 2015; Mundell Mango 2010; Mundell Mango 2011a.*

[174] The Christian monastery discovered at Tell Bi'a in Syria while reconnoitring from ancient Mesopotamian sites serves to illustrate this point: *Kalla 1999; Kalla 2004;* another example is represented by Yumuktepe in Anatolia and the Byzantine remains on the prehistoric tell settlement: *Caneva – Köroğlu 2010.*

[175] *Kraeling 1938*; *Zayadine 1986*; *Zayadine 1989*; *Uscatescu 1996*; for a more recent summary, see *Kennedy 2007.*

[176] *Stucky et al. 1996*; *Schmid 2000; Kolb 2000*; *Keller 2006; Grawehr 2006*; *Grawehr 2010*; *Fiema et al. 2001*; *Frösén – Arjava – Lehtinen 2002*; *Arjava – Buchholz – Gagos 2007*; *Fiema – Frösén 2008*; *Bikai 2003.*

[177] See note 125 above.

[178] *de Vires 1998.*

[179] *Piccirillo – Alliata 1994.*

[180] *Politis 2010.*

[181] *Villeneuve 2011.*

[182] *Sodini et al. 1980*; *Biscop 1997.*

[183] *Tchalenko 1953–1958.* The topographic work conducted since employed the classical field survey method: *Peña – Castellana – Fernández 1987; Peña – Castellana – Fernández 1990*; *Peña – Castellana – Fernández 1999*; *Peña – Castellana – Fernández 2003.* New advances were made as a result of the French investigations in the 1980s, see the works cited in the previous note and *Tate 1992.* For the new monograph on Serğilla, one of the best preserved of the so-called "dead cities", see *Tate et al. 2013.*

[184] *Mills – Beaudry 2007* 745–754.

[185] For an overview of investigations in the Hauran region, see *Dentzer 1985.*

[186] *Lauffray 1983; Lauffray 1991.*

[187] *Sodini 1995*; *Kazanski 2003; Canivet – Canivet 1987.*

[188] *Butcher – Thorpe 1997; Reynolds 2003.* See also the preliminary reports published in the journal *Aram 13–14 (2001–2002).*

Israeli archaeology is undeniably the most advanced in the Near East. One hardly negligible reason is that the growing interest in the origins of Christianity led to the onset of investigations as early as the nineteenth century,[189] and several archaeologists particularly receptive to late antiquity worked here during the British Mandate.[190] The deservedly renowned excavations at Nessana took place during these years, – although the findings of the Colt expedition were only published several decades later.[191] Even though research on early Christianity in the region became more intense again from the 1970s in consequence of the well-known political events, the immense corpus of finds from the past forty years has greatly enriched our knowledge of this period.[192] The accumulation of this pre-eminently significant archaeological material – both in terms of its sheer volume and its quality – can be attributed to the fact that in contrast to the other modern states lying on the territory of the one-time East Roman Empire, foreign expeditions and local archaeologists partake in the research of late antique and Byzantine remains to the same extent. This tendency is amply illustrated by the fact that aside from the salvage excavations preceding local construction projects, the major urban excavations were and are in part (e.g. in Caesarea Maritima and Sepphōris) or wholly (Beit She'an, Tiberias, the Negev settlements) conducted as local initiatives. Mention must be made of the preparation and publication of several volumes of the archaeological topography project, which now cover a major portion of the country's territory.[193] Research in Jerusalem, the capital, is similarly dynamic within the framework of urban archaeology,[194] while investigations in the Negev not only include the archaeological exploration of six larger settlements (Elusa,[195] Nessana, Oboda,[196] Sobata/Shivta,[197] Mamphis, Rehovot[198]), but also the reconstruction of the late antique agricultural system,[199] estimates of population sizes in various cities[200] and the interaction between nomads and sedentary populations[201] from the data gathered during intensive field surveys and the associated sounding excavations. Quite uniquely, underwater archaeology evolved into a separate research direction in the region, leading to the discovery and exploration of a series of late antique harbours as well as the identification of shipwrecks.[202] As a result of the annually growing number of rescue excavations and archaeological field surveys, at least 2930 Byzantine sites were recorded by 1998.[203]

A similar proportion of investigations by foreign expeditions and local scholars is rare in the other countries which now lie on the one-time territory of the Byzantine Empire. A similar tendency can be noted in Italy and in the Balkanic countries – although it must be borne in mind that foreign expeditions were not as frequent after World War 2 as in the eastern Mediterranean; however, the archaeological infrastructure maintained by the state was generally much better.[204] Even so, there can be no denial of the fact that most of the best-

[189] For the roots of the archaeology of Christianity, see *Deichmann 1983* 14–45; *Frend 1996*.

[190] In addition to the reports of the Beit She'an excavations (see note 106), see the volumes of the *Quarterly of the Departement of Antiquities in Palestine* series from between 1932 and 1950, which provide a fairly good picture of the British Mandate period.

[191] *Colt 1962*; *Casson – Hettich 1950*; *Kraemer 1958*.

[192] For a brief but comprehensive overview of archaeological explorations in late antique/Byzantine Palestine, see *Parker 1999*.

[193] Individual volumes were published as part of the series *The Archaeological Survey of Israel*.

[194] For an overview of the Byzantine period of Jerusalem, see *Piccirillo 2007*; *Schick 2007*.

[195] *Negev 1989*.

[196] *Negev 1997*.

[197] *Segal 1983*.

[198] *Tsafrir 1988*.

[199] *Evenari – Shanan – Tadmor 1982*.

[200] *Hirschfeld 2003*.

[201] *Rosen – Avni 1993*.

[202] The most significant advances are summarised with further bibliography by *Kingsley 2004*.

[203] *Dauphin 1998* 51.

[204] The main directions of the archaeological investigations conducted in the Balkans and their social and political context in medieval archaeology is discussed by *Takács 2006*.

known late antique/Byzantine sites were (also) excavated by Western European or American research teams: these include Butrint, Byllis,[205] Dyrrakhion/Durrës,[206] Athens, Corinth, Isthmia,[207] Nikopolis ad Istrum, Stobi[208] and Iatrus/Krivina. Generally speaking, independent excavations by local specialists were most often conducted in Bulgaria and Greece. These were characterised by the relatively small size of the investigated area (usually as part of a salvage excavation) and that the briefer or longer excavation reports were published in the national language, which time and again prevented their reaching a wider academic audience. Sites such as the two Thēbai in Thessaly[209] (the late antique city, modern Nea Ankhialos,[210] and medieval Thēbai[211]), Argos[212] and Amphipolis,[213] and even major cities like Thessalonikē[214] illustrate that if the findings of these excavations are not summarised by a local specialist or a scholar working in a larger European or North American institution, or by a Western scholar with an interest in the region, these have comparatively little chance of finding their way into the academic mainstream. This is hardly surprising because, very often, little useful information is available about settlements investigated through small-scale rescue excavations. To quote the example of Thēbai: in 1982, Ch. Bouras noted that even though some 106 excavations had been conducted on the territory of medieval Thēbai and in its broader area, the picture of the Byzantine city afforded by these investigations remained rather sketchy.[215] A propitious salvage excavation can, at the same time, yield unexpected novel results, as illustrated by the discovery of the first Slavic cremation cemetery in the Peloponnesus.[216]

The difficulties encountered in urban archaeology are obviously not restricted to the archaeological exploration of Byzantine sites alone – however, in the lack of research projects expressly focusing on Byzantine remains, new information about most of the period's settlements can only be expected from these salvage excavations. In the case of dynamically growing cities, the salvage excavations conducted in the historical city centre often bring to light a previously unknown wealth of crucial new information. Investigations of this type have considerably changed our perception of Rome's Byzantine period, which was earlier by and large based on the information contained in the literary sources[217] and of our image of Naples, the southern Italian centre,[218] and we have every reason to hope that the salvage excavations in Athens during the past decade will yield similar results.[219] The most obvious example is Constantinople, the former Byzantine capital, where, following the earlier, relatively small-scale investigations[220] and the systematic research on the city walls and the

[205] The information available on late antique Byllis is summarised (with further literature) by *Ceka – Muçaj 2005.*

[206] *Gutteridge 2003*; *Hoti et al. 2008*; *Bowes 2006*.

[207] *Gregory – Kardulias 1990*; *Gregory 1993a; Gregory 1993b*; *Kardulias 2005*; *Rife 2012*.

[208] No more than a handful of brief excavation reports appeared in the 1970s in *American Journal of Archaeology* and *Journal of Field Archaeology*; the most important late antique relics have been analysed in unpublished doctoral theses: *Snively 1979*; *Kolarik 1981*; *Hermans 1987.* A single volume of the Stobi series has been published so far: *Anderson-Stojanović 1992*.

[209] For a brief description of the two settlements, see *Koder – Hild 1976.*

[210] *Karagiorgou 2001.*

[211] *Louvi-Kizi 2003.*

[212] *Oikononou-Laniado 2003.*

[213] *Dunn 1999.*

[214] For a summary, see *Antonaras 2015.*

[215] *Bouras 1981* 622–625.

[216] *Vida – Völling 2000.*

[217] For a survey of Byzantine Rome based on the written sources, see *Bavant 1979*; for an archaeological perspective in the light of new excavations, see *Arena et al. 2001.*

[218] *Arthur 2002.*

[219] Currently, the information comes from a catalogue accompanying an exhibition of the finds: *Parlama 2000.*

[220] In addition to the archaeological investigation of the Hippodrome (note 110), the Saraçhane (note 69) and the Great Palace (note 112), mention must be made of the excavation of the Myreleaion: *Striker 1981*; the Hagia Eirene: *Peschlow 1977*; *Peschlow 1977–78*; the Kalenderhane: *Striker – Kuban 2007* and the Hagia Euphemia: *Naumann – Belting 1966*. An overview of the research conducted until the 1970s (coupled with an analysis of the documentary evidence from various periods) from a topographic perspective can be found in *Müller-*

aqueduct channels,[221] the salvage excavations preceding the construction of the underground from 2004 brought to light the remnants of the city's commercial harbour between the fifth and tenth centuries (the so-called Theodosian harbour) where, amongst other, the remains of thirty-four Byzantine ships were also found.[222] Another significant result of the underground construction was that extensive, coin-dated occupation levels of the medieval centuries were uncovered over larger areas in addition to the Saraçhane excavation.[223]

The virtually endless stream of publications precipitated by the growing intensity of archaeological investigations during the past decades and the new surge of interest in Byzantine levels has by now added new hues to and refined the picture earlier based solely on the literary sources – and they have also afforded glimpses into previously unknown or little known dimensions of the Byzantine world. The practically unbroken survival of the eastern half of the late Roman Empire (disregarding now the majority of the Balkanic provinces that gradually turned into an economic and cultural backwater from the third century onward[224]), the sixth–seventh-century transformations[225] and, finally, the territory's irrevocable loss to Byzantium can now be traced with a previously unimaginable clarity in the wake of the large-scale urban excavations. We now also have a better understanding of the role of climatic changes in the dynamic flourishing of the late antique world and the dramatic transformation of the sixth to eighth centuries.[226]

A number of comprehensive surveys, mainly based on the archaeological record, have been published on several late antique/Byzantine provinces, some expressly well researched,[227] some less well-known regions.[228] The advances made in the mapping of late antique trade networks have become an attractive control material for historians[229] analysing the literary sources,[230] while the material relics unearthed during the excavations have provided a wealth of new information on bathhouses, inns, taverns, medical implements, agrarian life and crafts as well as on realia,[231] formerly little known or known only from the descriptions contained in the literary sources.[232] The papyri and ostraca brought to light during the archaeological investigations have enabled the better identification of the names and manufacturing centres of the amphora types, previously known mainly from scattered literary references.[233] Studies on trade networks and the functional analysis of pottery forms[234] have much to contribute to inquiries into diet and provisioning in general, which can only partially be answered

Wiener 1977. Concurrently, the systematic re-assessment of earlier excavations and their finds is in progress, as illustrated by the few random examples cited here: *Bardill 1997; Bardill 1999; Bardill 2004*; *Dark 2004b.*

[221] Major new results came from the investigation of the town walls of Constantinople and of the aqueduct channels ensuring the city's water supply: *Crow – Ricci 1997*; *Asutay-Effenberger 2007*; *Crow – Bayliss 2004*; *Crow – Bardill – Bayliss 2008*.

[222] Information about the preliminary findings is currently only available from exhibition catalogues: *Kocabaş* 2008; *Kızıltan – Baran Çelik 2013*. A replica of one of the uncovered ships was also built: *Bockius 2010.*

[223] I am grateful to Marlia Mundell Mango (Institute of Archaeology, Oxford) for this information.

[224] In contrast to the flourishing urban life in Asia Minor and the Near East, the evidence from the northern Balkans paints a rather bleak picture. *Popović 1979*; *Curta 2001* 121–150; *Milinković 2007.* For a different perspective, see *Dunn 2004* and *Dunn 2007.*

[225] *Mundell Mango 2011b.*

[226] *Izdebski 2011*; *Izdebski 2013.*

[227] For Palestine, see *Dauphin 1998*; for Byzantine Italy, see *Zanini 1998*; for the Peloponnesus, see *Avraméa 1997.*

[228] *Bowden 2003*; *Veikou 2012*; *Spanu 1998*. Unfortunately, E. Nallbani's PhD thesis, on which her forthcoming book is based, remains unpublished: *Nallbani 2002*. Other PhD theses on Italy are hoped to be published in the near future *Metaxas 2009*; *Vizcaíno Sánchez 2007.*

[229] *Kislinger 1999.*

[230] *Magoulias 1971a*.

[231] For an analysis of the so-called realia in Byzantine epistolography, see *Karpozelos 1984*; *Karpozelos 1995*.

[232] *Magoulias 1971b; Magoulias 1976*; *Magoulias 1964*; *Magoulia*s *1990.*

[233] *Mayerson 1992*.

[234] *Vroom 2009*; and in a much broader context: *Vroom 2007.*

from the textual evidence,[235] as do archaeobotanical and archaeozoological studies.[236] It is hardly irrelevant that while the literary sources preserve a particular moment in time, the archaeological record provides sufficient information for the analysis of long-term trends on a particular site,[237] as well as for regional and interregional comparisons. Despite the somewhat uneven nature of research in this field, advances have been made in clarifying the minor details of housing conditions determining the quality of everyday life,[238] which are rarely depicted in the written sources.[239] It would appear that this is the very area in which archaeology can boast the most impressive results,[240] which have quite visibly captured the attention of historians studying this period.

Curiously enough, textile studies, which shed copious light on the period's costume, have not been incorporated into research on late antique/Byzantine daily life to the same extent.[241] One reason for this might be that most of the textiles recovered from archaeological contexts originate from the late antique burials "excavated" (or, better said, looted) in Egypt in the late nineteenth and early twentieth century.[242] These fragments soon became dispersed in the major collections of Europe and the United States, and the findings of their examination became more widely known from the brief texts in the catalogues to collections and exhibitions,[243] with few costume elements receiving separate treatment.[244] However, even if the few grave assemblages preserved in their former unity cannot be regarded as wholly authentic despite Albert Gayet's claims,[245] several burials are now known from the Near East, including Egypt, in which the costumes of the deceased were fully preserved.[246] Speaking of burials, one particularly prominent tendency is that while studies on late antique and Byzantine cities, rural settlement and on settlements patterns in general represent an extremely many-facetted and dynamic direction in archaeological research, burials, the other main component of the archaeological record, and the mortuary practices they reflect appear to have captivated the interest of archaeologists to a much lesser extent. As a result, only the reports on burials uncovered during excavations focusing on other periods or during salvage excavations are available, while comprehensive surveys and analyses are few and far between.[247]

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[235] *Koder 1993; Koder 1995; Kislinger 1986–1987.*

[236] *Kroll 2010.*

[237] *LaBianca 1990.*

[238] There are several comprehensive surveys of the early Byzantine period (principally focusing on elite residences for obvious reasons): *Sodini 1995*; *Sodini 1997*; *Baldini-Lippolis 2001; Ellis 2004*; *Ellis 2006*; a useful bibliography can be found in *Putzesy 2007*; the essays in *Lavan – Özgenel – Sarantis 2007* too offer a comprehensive picture. The eighth- to fifteenth-century material is covered by *Sodini 2004;* for the late antique residential buildings of Palestine, see *Hirschfeld 1995*; for conditions in medieval Greece, see *Bouras 1982–1983*; *Sigalos 2004*; for medieval Pergamon, see *Rheidt 1990*; *Rheidt 1991.*

[239] The rather meagre written sources of the medieval period are treated by *Schreiner 1997.*

[240] *Rautman 2006.*

[241] This is best illustrated by a recent study on Byzantine costume between the eighth and twelfth centuries, which predominantly relied on the information in the written sources and various depictions: *Ball 2005.* This is quite understandable, given that Egyptian textile finds only provide indirect information for this period and that the examination and assessment of archaeological textiles from Anatolia and Greece has barely begun (one welcome exception being the textile remains from Amorion). A sensational find sheds light on the current state of research: *Dawson 2003.* Occasionally, finds from the peripheries can provide interesting information: *E. Nagy et al. 2010.*

[242] For a brief summary of the earliest "research", see *Müller 2005.*

[243] For a concise review of research, see *Thomas 2007.*

[244] See, for example, textile headwear in late antiquity: *Linscheid 2011.*

[245] See, e.g., the tombs of "Leukyone", "Myrithis", "Thais", "Serapion" and the "Byzantine Lady": *Gayet 1904*; *Gayet 1901*; *Gayet 1902a; Gayet 1902b.* For an overview of A. Gayet's activities, see *Calament 2005*; the new assessment of a number of long-known assemblages yielded surprising results: *Calament-Demerger 2000*; *Calament – Eichmann – Vendries 2012*; *Bénazeth 2006*; *Lintz – Coudert 2013.*

[246] *Minutoli 2008*; *Czaja-Szewczak 2005*; as well as the important collection of essays in *Schrenk 2006.*

[247] As far as I know, a concise overview is only available for Greece: *Laskaris 2000* (even if its usefulness is limited); the catalogues of the burials uncovered in Jordan and Malta tend to concentrate on the analysis of grave forms, in part owing to the extensive looting and disturbances suffered by these burials, see *Waterhause*

Although available for a few cemeteries only,[248] the physical anthropological and bioarchaeological studies too allow a glimpse into daily life – even if to a limited extent only owing to the low number of analyses; even so, the findings have enabled estimates of life expectancies of the Byzantine populations and the examination of pathologies leaving traces on the skeleton.[249] The research project initiated for the interdisciplinary analysis of the burials from St. Stephen's monastery in Jerusalem must certainly be mentioned in this respect: the published findings have not only confirmed the presence of monks arriving from Europe, which was suggested by the literary sources,[250] but have also yielded evidence for the harshly ascetic prayer customs practiced by the monks.[251] When speaking of Near Eastern monasticism, mention must be made of the prominent role played by archaeological research during the past decades in reconstructing the life of communities known from the seemingly rather anecdotal narratives in the written sources.[252] These studies have also contributed to a better understanding of the infrastructure available to pilgrims making the journey to the Holy Land, previously mostly known from contemporary descriptions.[253]

Naturally, this should not be taken to imply that we have reassuring answers to even the main questions. We know appallingly little about the initial period (the so-called Transition period) of medieval Byzantium, and neither do we have an adequate knowledge and understanding of the archaeological (economic, urban, demographic) background to the empire's medieval "golden age" in the tenth and eleventh centuries. The very fact that a volume covering the seventh–fourteenth-century ceramic corpus[254] resembling Hayes' *Late Roman Pottery* was published over thirty years later reveals much about the general state of archaeological research on medieval Byzantium. Although, as far as I know, a statistical compilation on the intensity of archaeological research on various periods in Byzantine history resembling the one published by Treadgold in 1990[255] has not been put together since, the overall impression is that a dynamic balance comparable to the one in historical and philological studies since the 1990s (namely a greater focus on late Byzantine themes) can barely be felt in archaeology. This can in part be attributed to the shrinking of the empire's territory in the thirteenth to fifteenth centuries (to modern western Turkey and the Greek lands) and to the palpable attitude of archaeologists working in modern nation states who tend to concentrate on the ancestors of the modern populations in these late centuries of the Middle Ages in the empire's former Balkanic and the Anatolian lands, and to treat the uncovered relics more than once as the archaeological legacy of these peoples. It is hardly surprising, then, that most late Byzantine materials are studied in modern Greece, while in Asia Minor, research turned towards the fortifications in the regions temporarily remaining under Byzantine control after the Seljuk and Ottoman conquests.[256]

1998; *Buhagiar 1986*. The catalogue of the late antique and medieval Egyptian burial grounds expressly focuses on Christian graveyards and covers a much broader period than the Byzantine period (up to the fourteenth century), but it also offers a brief description of the sites: *Tudor 2011*. The volume on the carvings of the late antique Egyptian funerary buildings follows an entirely different set of critera: *Thomas 2000*. For a discussion of another select group of material, the burials uncovered in the churches and monasteries of Palestine, see *Goldfus 1997*. For a conciese overview of late antique burials in Palestine, see *Kuhnen 1990* 345–351. The assessment of the late antique burials of the province of Scythia stands much closer to the traditional archaeological approach, although with a heavy focus on physical anthropology: *Soficaru 2011*. The works cited in notes 227–228 too cover the burials of a particular region. There are few works among the publications treating the many hundreds of burials as exhaustively as *Rife 2012* does for thirty graves.

[248] The findings of a few sites are briefly summarised by *Kolling et al. 2010*; and see also the exemplary work done by *Rife 2012*.

[249] For a regional comparison, see *Bourbou 2003*; *Bourbou 2004*; *Bourbou 2009*; *Nagar – Sonntag 2008*.

[250] *Ullinger 2002*.

[251] *Driscoll – Sheridan 2000*.

[252] *Patrich 1995*; *Dahari 2000*; *Buschhausen 1995*; *Kasser 1972*; *Dumas – Guillamont 1969*; *Henein – Wuttmann 2000*; *Kasser 1983, 1994, 1999, 2003*; *Dunand 2007*; *Dunand et al. 1992; Dunand et al. 2005*.

[253] *Hirschfeld 1990*; *Hirschfeld 1992*.

[254] *Böhlendorf-Arslan 2004*.

[255] *Treadgold 1990*.

[256] See the fortifications listed by C. Foss, cited in note 65.

This is one of the reasons that there are few as thoroughly investigated late Byzantine sites as Pergamum, the Byzantine settlement surviving after the shrinking of the late antique polis.[257]

In the light of these advances – even though many excavations and publications were omitted from the above survey due to limitations of space – we can be quite confident that the archaeological investigation of Byzantine sites will in the near future fill in the gaps of the current, often very sketchy picture that was essentially drawn from the analyses of literary sources with a wealth of new information and finer details, and provide answers to a series of questions which cannot be resolved through other, far less dynamically growing corpuses of material. In addition to archaeological investigations during which Byzantine occupation levels are incidentally also uncovered, this calls for excavations focusing expressly on Byzantine issues (such as in Amorion) and intensive surveys (such as the Avkat Project led by John Haldon and Archibald Dunn's research in the Amphipolis area). Even more important is that the specialists working in different regions create a uniform research strategy whereby the findings of the excavations conducted on different sites can be coordinated and thereby take the first tentative steps towards further regional syntheses.[258] It is also clear that in most cases, it will be – luckily, we may add – impossible to conduct research focusing on a single period: the nature of the sites in the region and of the current research agendas both counteract any tendency in this direction. The results of the field surveys associated with the excavations in the Hesban area in the 1970s clearly showed that, very often, investigations covering several periods are truly suitable for a sufficiently in-depth assessment of the Byzantine period of a region's settlement history.[259] One prerequisite to adequately grounded regional syntheses is that in addition to the field surveys concentrating on the empire's rural settlements,[260] there should be interest in the "late" levels on prehistoric and ancient sites whose importance equals that of Troy/Ilion, which survived as a small town during Byzantium's medieval period,[261] and the rural settlement at Boğazköy/Hattusa.[262] In the case of these sites, major advances can only be expected from the publication of the previously unearthed remains and research projects focusing on the Byzantine relics too.

Finally, let me quote a renowned Byzantinist, who in one of his studies contemplated the question on how dark the "Dark Ages" really were.[263] Reviewing the evidence in his own chosen field of research confirmed the "darkness" of the period. To which we may add that the period in question was doubly dark: research has to grapple not only with the disappearance of the written sources, but also with the disappearance of clay oil lamps, the most widespread lighting device in late antiquity – at least, if one were to believe the literary sources.[264] The excavations at Amorion, the driving force of research on the Byzantine "Dark Ages" have, in this respect at least, become a source of light. The countless ceramic types brought to light during the excavations included also clay oil lamps from the middle Byzantine period, providing incontestable proof for the medieval survival of these late antique lighting devices on some settlements.[265] Seeing the dynamic progress made in the research of Byzantine sites briefly surveyed in the foregoing, we can be quite confident that the light generated by archaeological excavations will illuminate many similar, previously dark corners. In order to achieve this, archaeological research should not merely be a series of new excavations – what we also need is the meticulous assessment of the unearthed artefacts with the necessary attention to detail and to their broader context.

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[257] *Rheidt 1990*; *Rheidt 1991*.

[258] The lack of such a research strategy has already been pointed out by *Mundell Mango 2006*.

[259] See the already published volumes of the *Hesban Final Publications Series* (The Institute of Archaeology, Andrews University).

[260] Anatolian surveys focusing on the late antique rural regions have been called to life owing to the growing interest in this theme during the past two decades: *Mathews 2001*; *Elton 2003*; *Elton 2004*; *Vandeput 2007; Vandeput – Köse 2008*.

[261] For a summary of research history, see *Böhlendorf-Arslan 2004* 182–184.

[262] *Neve 1991*; *Böhlendor-Arslan 2012*.

[263] *Lilie 1993*.

[264] *Mango 1982*.

[265] *Lightfoot 2003*.

REFERENCES

Abadie-Reynal 1989 C. Abadie-Reynal: Céramique et commerce dans la bassin égéen du IV^e^ au VII^e^ siècle, in: Hommes et richnesses dans l'Empire byzantin I. Paris 1989, 143–159.

Ajbabin 2010 A. Ajbabin: Das frühbyzantinische Chersonesos/Cherson, in: *Daim – Drauschke 2010* vol. 2/1. 397–423.

Anderson-Stojanović 1992 V. R. Anderson-Stojanović: Stobi: the Hellenistic and Roman pottery. Princeton 1992.

d'Andria 2003 F. d'Andria: Hieropolis in Phyrgien (Pamukkale). Ein archäologischer Führer. İstanbul 2003.

Antonaras 2015 A. Ch. Antonaras: Artisanal Production in Ancient and Byzantine Thessaloniki. Archaeological, Literary and Epigraphic Evidence. Mainz 2015.

Argoud – Callot – Helly 1980 G. Argoud – O. Callot – B. Helly: Une résidence byzantine, l'«Huilerie». Salamin de Chypre 11. Paris 1980.

Arjava – Buchholz – Gagos 2007 A. Arjava – M. Buchholz – T. Gagos (eds): The Petra Papyri. vols. 1–3. Amman 2007.

Armstrong 2006 P. Armstrong: Rural settlement in Lycia in the eighth century: new evidence, in: K. Dürtlük – B. Varkivanç – T. Kahya – J. de Courtils – M. Doğan Alparslan – R. Boyraz (eds): The III^rd^ International Symposium on Lycia, 7–10 November 2005, Antalya. Antalya 2006, 19–30.

Armstrong 2009 P. Armstrong: Trade in the East Mediterranean in the 8^th^ century, in: M. Mundell Mango (ed.): Byzantine Trade, 4th–12th Centuries. Farnham 2009, 157–178.

Arena et al. 2001 M. S. Arena – P. Delogu – L. Paroli – M. Ricci – L. Saguì – L. Vendittelli (eds): Roma dell'antichità al medioevo: archaeologia e storia. Roma – Milano 2001.

Arthur 2002 P. Arthur: Naples: From Roman Town to City-State. Archaeological Monographs of the British School at Rome 12. London 2002.

Arthur 2006 P. Arhur: Byzantine and Turkish Hieropolis (Pamukkale). An Archaeological Guide. İstanbul 2006.

Asutay-Effenberger 2007 N. Asutay-Effenberger: Die Landmauer von Konstantinopel-Istanbule: historisch-topographische und baugeschichtliche Untersuchungen. Millennium Studien 18. Berlin 2007.

Atik 2007 N. Atik: Die Keramik aus den Südthermen von Perge. IstMitt Beiheft 40. Tübingen 1995.

Avraméa 1997 A. Avraméa: Le Péloponnèse du IV^e^ au VIII^e^ siècle. Changements et persistances. Byzantina Sorbonensia 15. Paris 1997.

Bagnall 2007 R. S. Bagnall (ed.): Egypt in the Byzantine World, 300–700. Cambridge 2007.

Baldini-Lippolis 1999 I. Baldini-Lipollis: L'oreficiera nell'Imperio di Constantinopoli tra IV e VII secolo. Bari 1999.

Baldini-Lippolis 2001 I. Baldini-Lippolis: La domus tardoantica: forme e rappresentazioni dello spazio domestico nelle citta del Mediterraneo. Bologna 2001.

Bálint 1992 Cs. Bálint: Kontakte zwischen Iran, Byzanz und der Steppe. Das Grab von Üč Tepe (Sowj. Azerbajdžan) und der beschlagverzierte Gürtel im 6. und 7. Jahrhundert, in: F. Daim (Hrsg.): Awarenforschungen. vol. 1. ArchA Beiheft. Wien 1992, 309–496.

Bálint 1993 Cs. Bálint: Probleme der archäologischen Forschung zur awarischen Landnahme, in: M. Müller-Wille – R. Schneider (Hrsg.): Ausgewählte Probleme europäischer Landnahmen des Früh- und Hochmittelalters. vol. 1. Vorträge und Forschungen 41. Sigmaringen 1993, 195–273.

Bálint 1995 Cs. Bálint: A koraavarok, Kelet és Bizánc. Régészeti tanulmányok. [Early Avars, the East and Byzantium. Archaeological Studies] MŐK 7. Szeged 1995.

Bálint 2004 Cs. Bálint: A nagyszentmiklósi kincs. Régészeti tanulmányok (Der Schatz von Nagyszentmiklós). VAH 16a. Budapest 2004.

Bálint 2007 Cs. Bálint*:* On "Orient-preference" in archaeological research on the Avars, proto-Bulgarians and conquering Hungarians, in: *Henning 2007* 545–567.

Bálint 2011 Cs. Bálint: Der Schatz von Nagyszentmiklós. Archäologische Studien. VAH 16b. Budapest 2011.

Ball 2005 J. L. Ball: Byzantine Dress. Representations of Secular Dress in Eighth- to Twelfth-Century Painting. New York 2005.

Balty 1969a J. Balty: La grande mosaïque de chasse du triclinos. Fouilles d'Apamée de Syrie. Miscellanea Fasc 2. Bruxelles 1969.

Balty 1969b J. Balty (éd.): Apamée de Syrie. Bilan des recherches archéologiques 1965–1968. Fouilles d'Apamée de Syrie. Miscellanea Fasc. 6. Bruxelles 1969.

Balty 1984 J. Balty (éd.): Apamée de Syrie. Bilan des recherches archéologiques 1973–1979. Fouilles d'Apamée de Syrie. Miscellanea Fasc 13. Bruxelles 1984.

Balty – Balty 1972 J. Balty – J. Ch. Balty (éd.): Apamée de Syrie. Bilan des recherches archéologiques 1969–1971. Fouilles d'Apamée de Syrie. Miscellanea Fasc 7. Bruxelles 1972.

Bardill 1997 J. Bardill: The Palace of Lausus and Nearby Monuments in Constantinople: A Topographical Study. AJA 101 (1997) 67–95.

Bardill 1999 J. Bardill: The Golden Gate in Constantinople: A Triumphal Arch of Theodosius I. AJA 103 (1999) 671–696.

Bardill 2004 J. Bardill: Brickstamps of Constantinople. vols. 1–2. Oxford Monographs on Classical Archaeology. Oxford 2004.

Bardill 2010 J. Bardill: Archaeologists and Excavations in the Hippodrom, in: *Pitarakis 2010* 83–90.

Bates 1976 G. E. Bates: Byzantine Coins. AES 1. Cambridge, Mass. 1976.

Bartosiewicz – van Bülow – Böttger 1995 L. Bartosiewicz – G. van Bülow – B. Böttger: Studien zur Geschichte des Kastells Iatrus. Forschungsstand 1989. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. V. Berlin 1995.

Baur – Rostovtzeff 1929 C. Baur – M. Rostovtzeff (eds): The Excavations at Dura Europos: Preliminary Report of the First Season of Work. New Haven 1929.

Baur – Rostovtzeff 1931 C. Baur – M. Rostovtzeff (eds): The Excavations at Dura Europos: Preliminary Report of the Second Season of Work. New Haven 1931.

Baur – Rostovtzeff – Bellinger 1932 C. Baur – M. Rostovtzeff – A. R. Bellinger (eds): The Excavations at Dura Europos: Preliminary Report of the Third Season of Work. New Haven 1932.

Baur – Rostovtzeff – Bellinger 1933 C. Baur – M. Rostovtzeff – A. R. Bellinger (eds): The Excavations at Dura Europos: Preliminary Report of the Fourth Season of Work. New Haven 1933.

Bavant 1979 B. Bavant: Le duché byzantin de Rome. Origine, durée et extension géographique. Mélanges de l'École française de Rome - Antiquité 91 (1979) 41–88.

Bavant 2007 B. Bavant: Caričin Grad and the Changes in the Nature of Urbanism in the Central Balkans in the Sixth Century, in: A. Poulter (ed.): The Transition to Late Antiquity, on the Danube and Beyond. Proceedings of the British Academy 141. London – Oxford 2007, 337–374.

Bavant – Kondić – Spieser 1990 B. Bavant – V. Kondić – J.-M. Spieser: Caričin Grad II: Le quartier sud-ouest de la Ville Haute. CEFR 75/2. Belgrade – Rome 1990.

Bavant – Ivanisevič 2003 B. Bavant – V. Ivanisevič: Iustiniana Prima – Caričin Grad. Belgrad 2003.

Bailey 1985 D. M. Bailey: The Lamps: Excavations at Sidi Khrebish, Benghazzi (Berenice). vol. III. 2. Supplements to Libya Antiqua V. III. 2. Tripoli 1985.

Bénazeth 2006 D. Bénazeth: From Thais to Thaias: Reconsidering Her Burial in Antinoopolis (Egypt), in: *Schrenk 2006* 69–83.

Bikai 2003 P. M. Bikai: Petra in Jordan: Byzantine Churches and Scrolls, in: *Clark – Matthews 2003* 115–130.

Biscop 1997 J.-L. Biscop: Deir Délès monastère d'Antiochène: étude architecturale. BAH 148. Beyrouth 1997.

de Bock 1901 W. de Bock: Matériaux pour servir à l'archéologie de l'Égypte chrétienne. Saint-Pétersbourg 1901.

Bockuis 2010 R. Bockius: Zur Modellrekonstruktion einer byzantinischen Dromone (chelandion) des 10./11. Jahrhunderts im Forschungsbereich Antike Schiffart, RGZM Mainz, in: *Daim – Drauschke 2010* vol. 1. 451–477.

Bollók 2010 Á. Bollók: Byzantine Jewellery of the Hungarian Conquest Period: A View from the Balkans, in: Ch. Entwistle – N. Adams (eds): 'Intelligible Beauty'. Recent Research on Byzantine Jewellery. British Museum Research Publications 178 (2010) 173–185.

Bollók 2013 Á. Bollók: Apotropaion and Burial in Early Byzantium: Some Preliminary Considerations, in: E. Juhász (Hrsg.): Byzanz und das Abendland: Begegnungen zwischen Ost und West. Budapest 2013, 227–241.

Bollók 2014 Á. Bollók: Bellerophon and Crucifixion? A brief note on late antique circular box brooches from Pannonia, in: O. Heinrich-Tamáska – P. Straub (eds): Menschen, Siedlung und Landschaft im Wechsel der Jahrtausende am Balaton. Castrum Pannonicum Pelsonense 4. Budapest – Leipzig – Keszthely – Rahden, Westf. 2014, 259–279.

Bollók 2015a Á. Bollók: Byzantium on the Theiss. Of Byzantine Diplomacy, the Emperor's Image and the Avars. Convivium: Exchange and Interaction in the Arts of Medieval Europe, Byzantium, and the Mediterranean 2/1 (2015) 166–181.

Bollók 2015b Á. Bollók: Ornamentika a 10. századi Kárpát-medencében. Formatörténeti tanulmányok a magyar honfoglalás kori díszítőművészethez (The ornamental vocabulary of the tenth century in the Carpathian Basin. Form-historical studies in the decorative arts of the Hungarian Conquest period). Budapest 2015.

Bollók in print a Á. Bollók: "After Caričin Grad". Remarks on the Byzantine material culture of the Byzantine "Dark Ages" I. The Tigani/Mani cemetery, in: V. Ivaničevic – I. Bugarski (eds): Caričin Grad – The Centenary. Caričin Grad IV L'École français de Roma. (in print).

Bollók in print b Á. Bollók: A „kereszt-phylaktērion" és a mellkereszttel való temetkezés szokásának háttere a késő ókori Kelet-Mediterráneumban és a Kárpát-medencében (The "Phylactery of the Cross" and the Mortuary Practice of Burying the Dead with Pectoral Crosses in the Late Antique Eastern Mediterranean and the Carpathian Basin), in: T. Csécs – M. Takács (eds): Beatus homo qui invenit sapientiam. Ünnepi kötet Tomka Péter 75. születésnapjára. Győr (in print).

Bonifay – Treglia 2007 M. Bonifay – J-C. Treglia (eds): LRCW2 Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and archaeometry. BAR IS 1662. Oxford 2007.

Borkowski 1981 Z. Borkowski: Inscription des factions à Alexandrie. Alexandrie 2. Warsawa 1981.

Borrut et al. 2011 A. Borrut – M. Debié – A. Papaconstantinou – D. Pieri – J.-P. Sodini (eds): Le Proche-Orient de Justinien aux Abbassides. Peuplement et dynamiques spatiales. Bibliothèque de l'Antiquité Tardive 19. Turnhout 2011.

Bosanquet et al. 1905–1906 R. C. Bosanquet – A. J. B. Wace – G. Dickins – R. M. Dawkins – H. J. W. Tillyard – R. Traquair: Laconia II: Excavations at Sparta. ABSA 12 (1905–1906) 277–479.

Bouras 1981 Ch. Bouras: City and Village: Urban Design and Architecture. JÖB 31/2 (1981) 611–653.

Bouras 1982–1983 Ch. Bouras: Houses in Byzantium. Δελτίον της Χριστιανικής Αρχαιολογικής Εταιρείας IV/11. (1982–83) 1–26.

Bourbou 2003 C. Bourbou: Health Patterns of Proto-Byzantine Populations (6th–7th centuries AD) in South Greece: the Case of Eleutherna (Crete) and Messene (Peloponnese). IJO 13 (2003) 303–313.

Bourbou 2004 C. Bourbou: The People of Early Byzantine Eleutherna and Messene (6th–7th centuries AD): A Bioarchaeological Approach. Athens 2004.

Bourbou 2009 C. Bourbou: To Live and Die in a Turbulent Era. Bioarchaeological Analysis of the Early Byzantine (6th–7th centuries AD) Population from Sourtara Galaniou Kozanis (Northern Greece). DOP 63 (2009) 221–234.

Bowersock – Brown – Grabar 1999 G. W. Bowersock – P. Brown – O. Grabar (eds): Late Antiquity: A Guide to the Postclassical World. Cambridge, Mass. 1999.

Bowden 2003 W. Bowden: Epirus Vetus. The Archaeology of a Late Antique Province. London 2003.

Bowden – Hodges – Lako 2002 W. Bowden – R. Hodges – K. Lako: Roman and late-antique Butrint excavation and survey 2000–2001. JRA 15 (2002) 199–230.

Bowden – Hodges 2011 W. Bowden – R. Hodges: Butrint 3: Excavation at the Triconch Palace. Oxford 2011.

Bowman et al. 2007 A. K. Bowman – R. A. Coles – N. Gonis – D. Obbink – P. J. Parsons (eds): Oxyrhynchus. A City and Its Texts. Graeco-Roman Memories 93. London 2007.

Böhlendorf-Arslan 2004 B. Böhlendorf-Arslan: Glasierte byzantinische Keramik aus der Türkei 1–3. Istanbul 2004.

Böhlendor-Arslan 2012 B. Böhlendor-Arslan: Das bewegliche Inventar eines mittelbyzantinischen Dorfes: Kleinfunde aus Boğazköy, in: *Böhelndorf-Arslan–Ricci 2012* 352–368.

Böhlendrof-Arslan – Ricci 2012 B. Böhlendorf-Arslan – A. Ricci (eds): Byzantine Small Finds in Archaeological Contexts. Byzas 15. İstanbul 2012.

Böttger – Döhle – Gomolka-Fuchs 1982 B. Böttger – B. Döhle – G. Gomolka-Fuchs: Ergebnisse der Ausgrabungen 1966–1973. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. 2. Berlin 1982.

Böttger – Bülow – Schieferdecker 1991 B. Böttger – G. von Bülow – D. Schieferdecker (Hrsg): Ergebnisse der Ausgrabungen 1975–1981. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. IV. Berlin 1991.

Bowes 2006 K. Bowes: The Durrës amphiteatre: Archaeology and memory, in: L. Bejko – R. Hodges (eds): New directions in Albanian archaeology. Studies presented to Muzafer Korkuti. Tirana 2006, 242–256.

Brett – Macaulay – Stevenson 1947 G. Brett – W. J. Macaulay – R. B. K. Stevenson (eds): The Great Palace of the Byzantine Emperors. Oxford 1947.

Brown 1971 P. Brown: The World of Late Antiquity, from Marcus Aurelius to Muhammad. London 1971.

Brown 1997 P. Brown: The World of Late Antiquity Revisited. With comments by G. W. Bowersock, Av. Cameron, E. A. Clark, A. Dihle, G. Fowden, P. Heather, Ph. Rousseau, A. Rousselle, H. Torp and I. Wood. Symbolea Oslenses 72 (1997) 5–90.

Brubaker – Haldon 2011 L. Brubaker – J. Haldon: Byzantium in the Iconoclast Era, ca. 680–850: A History. Cambridge 2011.

Buhagiar 1986 M. Buhagiar: Late Roman and Byzantine Catacombs and Related Burial Places in the Maltese Islands. BAR IS 302. Oxford 1986.

Buschhausen 1995 H. Buschhausen (Hrsg.): Der Lebeskreis der Kopten. Wien 1995.

Butcher – Thorpe 1997 K. Butcher – R. Thorpe: A note on excavations in central Beirut, 1994–1996. JRA 10 (1997) 290–306.

Bülow – Böttger – Conrad 2007 G. van Bülow – B. Böttger – Sv. Conrad: Ergebnisse und Ausgrabungen 1992–2000. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. VI. Mainz 2007.

Caillet et al. 2010 J.-P. Caillet – N. Duval – M. Jěremić – V. Popović: Caričin Grad 3: L'acropole et ses monuments (cathédrales, baptistère et bâtiments annexes). CEFR 75/3. Belgrade – Roma 2010.

Calament 2005 Fl. Calament: La révélation d'Antinoé par Albert Gayet. Histoire, archéologie, muséographie. vols. 1–2. Bibliothèque d'Études Coptes 18. Le Caire 2005.

Calament-Demerger 2000 Fl. Calament-Demerger: Autourdu mobilier funéraire de Myrithis au Musée de l'Homme, in: A. Boud'hors (éd.): Études Coptes VI. Cahiers de la Bibliothèque Copte 11. Paris – Louvain 2000, 29–36.

Calament – Eichmann – Vendries 2012 Fl. Calament – R. Eichmann – Ch. Vendries: Le luth dans l'Égypte byzantine. La tombe de la «Prophétesse d'Antinoé» au Musée de Grenoble. Orient-Archäologie 26. Rahden, Westf. 2012.

Callot 2004 O. Callot: Les monnaies. Fouilles de la ville 1964–1974. Salamin de Chypre 16. Paris 2004.

Callu 1979 J.-P. Callu: Monnaies antiques (1966–1971). Fouilles d'Apamée de Syrie: VIII. 1. Bruxelles 1979.

Cameron 1992 Av. Cameron: New Themes and Styles in Greek Literature, 7th and 8th Centuries, in: Av. Cameron – L. I. Conrad (eds): The Byzantine and Islamic Early Near East I: Problems in the Literary Source Material. Studies in Late Antiquity and Early Islam I. 1. Princeton 1992, 81–105.

Cameron 2011 Av. Cameron: The anxiety of images: meanings and material objects, in: A. Lymberopoulou (ed.): Images of the Byzantine World: Visions, Messages and Meanings. Studies Presented to Leslie Brubaker. Farnham 2011, 47–56.

Cameron 2013 Av. Cameron: Seeing Byzantium: a personal response, in: A. Eastmond – L. James (eds): Wonderful Things: Byzantium through Its Art. Farnham 2013, 311–318.

Cameron – Ward-Perkins – Whitby 2000 Av. Cameron – B. Ward-Perkins – M. Whitby (eds): Late Antiquity: Empire and Successors, A.D. 425–600. The Cambridge Ancient History 14. Cambridge 2000.

Campbell 1991 S. Campbell: The Mosaics of Aphrodisias in Caria. Toronto 1991.

Campbell 1996 S. Campbell: Signs of prosperity in the decoration of some 4th–5th c. buildings at Aphrodisias, in: C. Roueché – R. R. R. Smith (eds): Aphrodisias Papers 3. JRA Suppl. 20. Ann Arbor 1996, 187–199.

Campbell 1998 S. Campbell: The Mosaics of Anemurium. Toronto 1998.

Caneva – Köroğlu 2010 I. Caneva – G. Köroğlu: Yumuktepe. A Journey through Nine Thousand Years. İstanbul 2010.

Canivet – Canivet 1987 P. Canivet – M. T. Canivet: Huarte, sanctuaire chrétien d'Apamène (IV^{e}–VI^{e} siècles). BAH 122/1–2. Paris 1987.

Carandini 2007 A. Carandini: Roma. Il primo giorno. n.p. 2007.

Casson et al. 1928 S. Casson – G. F. Hudson – A. H. M. Jones – D. Talbot Rice: Preliminary Report upon the Excavations carried out in the Hippodrome of Constantinople in 1927 on Behalf of the British Academy. London 1928.

Casson et al. 1929 S. Casson – B. Gray – G. F. Hudson – A. H. M. Jones – D. Talbot Rice: Second Report upon the Excavations carried out in the Hippodrome of Constantinople in 1928 on Behalf of the British Academy. London 1929.

Casson – Hettich 1950 L. Casson – E. L. Hettich: Excavations at Nessana. vol. II: Literary Papyri. Princeton 1950.

Catling 1972 H. G. Catling: An Early Byzantine Pottery Factory at Dhiorios in Cyprus. Levant 2 (1972) 1–82.

Ceka – Muçaj 2005 N. Ceka – S. Muçaj: Byllis. Its history and monuments. Tirana 2005.

Chavene 1975 M.-J. Chavene: Les petit objects. Salamin de Chypre 6. Paris 1975.

Christie 1989 N. Christie: The archaeology of Byzantine Italy: a synthesis of recent research. Journal of Mediterranean Archaeology 2 (1989) 249–293.

Christiansen – Ploug – Thomsen 1986 A. P. Christiansen – G. Ploug – R. Thomsen: The Graeco-Roman Objects of Clay, the Coins and the Necropolis. Hama: Fouilles et recherches de la Fondation Carlsberg, 1931–1938. vol. 3/3. Copenhague 1986.

Cipriano 2008 G. Cipriano: El-Bagawat. Un cimiterio paleochristiano nell'alto Egitto. Pian di Porto 2008.

Clark – Matthews 2003 D. R. Clark – V. H. Matthews (eds): One Hundred Years of American Archaeology in the Middle East. Boston 2003.

Colt 1962 H. D. Colt (ed.): Excavations at Nessana. vol. I. Princeton 1962.

Cormack 1981 R. Cormack: The Classical Tradition in the Byzantine Provincial City. The Evidence of Thessalonike and Aphrodisias, in: M. Mulett – R. Scott (eds): Byzantium and the Classical Tradition. Birmingham 1981, 103–119.

Cormack 1990 R. Cormack: The Temple as the Cathedral, in: C. Roueche – K. Erim (eds): Aphrodisias Papers I. JRA Suppl. 1. Michigan 1990, 75–88.

Cormack 2000 R. Cormack: Byzantine Art. Oxford 2000.

Crawford 1990 J. S. Crawford: The Byzantine Shops at Sardis. AES 9. Cambridge, Mass. 1990.

Crow – Ricci 1997 J. Crow – A. Ricci: Investigating the hinterland of Constantinople: interim report on the Anastasian Long Wall. JRA 10 (1997) 235–262.

Crow – Bayliss 2004 J. Crow – R. Bayliss: Water for the Queen of Cities: a review of recent research into the Byzantine and early Ottoman water supply of Constantinople. Basilissa 1 (2004) 27–49.

Crow – Bardill – Bayliss 2008 J. Crow – J. P. Bardill – R. I. Bayliss: The water supply of Byzantine Constantinople. London 2008.

Curta 2001 F. Curta: The Making of the Slavs. History and Archaeology of the Lower Danube Region, ca. 500–700. Cambridge 2001.

Curta 2006 F. Curta: Southeastern Europe in the Middle Ages, 500–1250. Cambridge 2006.

Czaja-Szewczak 2005 B. Czaja-Szewczak: Tunics from Naqlun, in: G. Gabra (ed.): Christianity and Monasticism in the Fayoum Oasis. Cairo – New York 2005, 133–142.

Dahari 2000 U. Dahari: Monastic Settlements in South Sinai in the Byzantine Period. The Archaeological Remains. Israel Antiquities Authority Reports 9. Jerusalem 2000.

Daim 1990 F. Daim: Der awarische Greif und die byzantinische Antike, in: H. Friesinger – F. Daim (Hrsg.): Typen der Ethnogenese unter besonderer Berücksichtigung der Bayer. vol. 2. Wien 1990, 273–304.

Daim 2000 F. Daim: „Byzantinische" Gürtelgarnituren des 8. Jahrhunderts, in. F. Daim (Hrsg.): Die Awaren am Rand der byzantinischen Welt. Studien zu Diplomatie, Handel und Technologietransfer im Frühmittelalter. MFMA 7. Innsbruck 2000, 77–204.

Daim et al. 2010 F. Daim – J. Chameroy – S. Greiff – S. Patcher – P. Stadler: Kaiser, Vögel, Rankenwerk. Byzantinische Gürteldekor des 8. Jahrhunderts und ein Neufund aus Südungarn, in: *Daim – Drauschke 2010* vol. 3. 277–330.

Daim – Drauscke 2010 F. Daim – J. Drauschke (Hrsg.): Byzanz – das Römerreich im Mittelalter. vols. 1–3. Monographien des RGZM 84. 1–3. Mainz 2010.

Dalton 1911 O. M. Dalton: Byzantine Art and Archaeology. Oxford 1911.

Dark 2004a K. Dark (ed.): Secular Buildings and the Archaeology of Everyday Life in the Byzantine Empire. Oxford 2004.

Dark 2004b K. Dark: Houses, streets and shops in Byzantine Constantinople from the fifth to the twelfth centuries. Journal of Medieval History 30 (2004) 83–107.

Dauphin 1998 C. Dauphin: La Palestine Byzantine. Peuplement et populations. vols. 1–3. BAR IS 726. Oxford 1998.

Davidson 1940 G. R. Davidson: A Medieval Glass Factory at Corinth. AJA 44 (1940) 297–327.

Davidson 1952 G. R. Davidson: The Minor Objects. Corinth 12. Athens – Princeton 1952.

Dawkins et al. 1906–1907 R. M. Dawkins – A. J. B. Wace – J. P. Droop – G. Dickins – H. J. W. Tillyard – A. M. Woodward – M. Niebuhr Tod: Laconia I: Excavations at Sparta, 1907. ABSA 13 (1906–1907) 1–218.

Dawkins et al. 1907–1908 R. M. Dawkins – J. P. Droop – J. Farrell – A. M. Woodward – G. Dickins – A. J. B. Wace: Laconia I: Excavations at Sparta, 1908. ABSA 14 (1907–1908) 1–158.

Dawkins et al. 1908–1909 R. M. Dawkins – J. P. Droop – A. M. Woodward – P. Giles – A. J. B. Wace – M. S. Thompson – M. S. Thompson: Laconia I: Excavations at Sparta, 1909. ABSA 15 (1908–1909) 1–157.

Dawkins et al. 1909–1910 R. M. Dawkins – A. M. Woodward: Laconia I: Excavations at Sparta, 1910. ABSA 16 (1909–1910) 1–61.

Dawkins – Droop 1910–1911 R. M. Dawkins – J. P. Droop: Byzantine Pottery from Sparta. ABSA 17 (1910–1911) 23–28.

Dawson 2003 T. Dawson: Concerning an unrecognised tunic from Eastern Anatolia. Byzantion 73 (2003) 201–210.

Degeest 2000 R. Degeest: The common wares of Sagalassos. SEMA 3. Turnhout 2000.

De Cupere 2001 B. De Cupere: Animals at Ancient Sagalassos. Evidence of the Faunal Remains. SEMA 4. Turnhout 2001.

Deneauve 1972 J. Deneauve: Céramique et lampes africaines sur la côte de Provence. Antiquités africaines 6 (1972) 219–240.

Dentzer 1985 J.-M. Dentzer (éd.): Hauran I. Recherches archéologiques sur la Syrie du Sud a l'époque hellénistique et romaine. vols. 1–2. BAH 124/1–2. Paris 1985.

Downey 1961 G. Downey: A History of Antioch in Syria: From Seleucus to the Arab Conquest. Princeton 1961.

Deichmann 1983 F. W. Deichmann: Einführung in die Christliche Archäologie. Darmstadt 1983.

Diederichs 1980 C. Diederichs: La céramiques hellénistiques, romaines et byzantines. Salamin de Chypre 9. Paris 1980.

Dimova – Döhle – Gomolka 1979 V. Dimova – B. Döhle – G. Gomolka: Ergebnisse der Ausgrabungen 1966–1973. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. 1. Berlin 1979.

Drauschke 2011 J. Drauschke: Zwischen Handel und Geschenk. Studien zur Distribution von Objekten aus dem Orient, aus Byzanz und aus Mitteleuropa im östlichen Merowingerreich. Rahden, Westf. 2011.

Driscoll – Sheridan 2000 M. S. Driscoll – S. G. Sheridan: Every Knee Shall Bend: Liturgical and ascetical prayer in V–VII century Palestine. Worship 74 (2000) 453–468.

Dulière 1968 C. Dulière: La mosaïque des amazones. Fouilles d'Apamée de Syrie. Miscellanea Fasc 1. Bruxelles 1968.

Dulière 1974 C. Dulière: Mosaïques des portiques de la grande colonnade (Section VII, 16–17). Fouilles d'Apamée de Syrie. Miscellanea Fasc 3. Bruxelles 1974.

Dumas – Guillamont 1969 F. Dumas – A. Guillamont: Kellia I: KOM 219. Fouilles exécutée en 1964 et 1965. Fouilles de l' Institut français d' archéologie orientale 28. Le Caire 1969.

Dunand 2007 F. Dunand: Between tradition and innovation: Egyptian funerary practices in late antiquity, in: *Bagnall 2007* 163–184.

Dunand et al. 1992 Fr. Dunand – J.-L. Heim – N. Henein – R. Lichtenberg: Douch I. La nécropole. Exploration archéologique. Monographie des tombes 1 à 72. Structures sociales, économiques, religieuses de l'Egypte romaine. Collection: Documents de fouilles de l' Institut français d' archéologie orientale 26. Le Caire 1992.

Dunand et al. 2005 Fr. Dunand – J.-L. Heim – N. Henein – R. Lichtenberg: Douch V. La nécropole de Douch. Exploration archéologique. Monographie des tombes 73 à 92. Structures sociales, économiques, religieuses de l'Égypte romaine. Collection: Documents de fouilles de l' Institut français d' archéologie orientale 45. Le Caire 2005.

Dunn 1999 A. Dunn: From Polis to Kastron in southern Macedonia: Amphipolis, Khrysoupolis, and the Strymon Delta, in: Castrum 5: Archéologie des espaces agraires méditerranéens au Moyen Âge. Roma – Madrid 1999, 399–413.

Dunn 2004 A. Dunn: Continuity and Change in the Macedonian Countryside from Gallienus to Justinian, in: W. Bowden – L. Lavan – C. Machado (eds): Recent Research on the Late Antique Countryside. LAA 2. Leiden – Boston 2004, 535–586.

Dunn 2007 A. Dunn: Rural Producers and Markets: Aspects of the Archaeological and Historical Problem, in: M. Grünbart – E. Kislinger – A. Muthesius – D. Ch. Spathakoupoulos (eds): Material Culture and Well-Being in Byzantium (400–1453). Wien 2007, 101–109.

Duval – Popović 1984 N. Duval – V. Popović: Caričin Grad I: Les basiliques B et J de Caričin Grad, quatre objets remarquables de Caričin Grad, le trésor de Hajdučka Vodenica. CEFR 75/1. Belgrade – Rome 1984.

Eger 2011 A. A. Eger: The Spaces Between the Teeth: A Gazetteer of Towns on the Islamic-Byzantine Frontier. İstanbul 2011.

Eger 2012 Ch. Eger: Spätantikes Kleidzubehör aus Nordafrika I: Trägerkreis, Mibilität und Ethnos im Spiegel der Funde der spätesten römischen Kaiserzeit und der vandalischen Zeit. Münchener Beiträge zur Provincialrömischen Archäologie 5. Wiesbaden 2012.

Egloff 1977 M. Egloff: Kellia: la poterie copte. vols. 1–2. Recherches suisses d'archéologie copte 3. Genève 1977.

Elderkin – Campbell – G. Downey 1934 G. W. Elderkin – W. A. Campbell – G. Downey (eds): The Excavations of 1932. Antioch on the Orontes I. Princeton 1934.

Ellis 2004 S. Ellis: Early Byzantine Housing, in: *Dark 2004a* 37–52.

Ellis 2006 S. Ellis: Middle Class Houses in Late Antiquity, in: W. Bowden – A. Gutteridge – C. Machado (eds): Social and Political Life in Late Antiquity. LAA 3.1. Leiden – Boston 2006, 413–437.

Elsner 2002 J. Elsner: The Birth of Late Antiquity: Riegl and Strzygowski in 1901. Art History 25 (2002) 358–379.

Elton 2003 H. Elton: Göksu Archaeological Project. AnatArch 9 (2003) 28–30.

Elton 2004 H. Elton: Göksu Archaeological Project. AnatArch 10 (2004) 26–28.

Erim 1967 K. T. Erim: Two New Early Byzantine Statues from Aphrodisias. DOP 21 (1967) 285–286.

Evenari – Shanan – Tadmor 1982 M. Evenari – L. Shanan – N. Tadmor: The Negev: The Challenge of a Desert. Cambridge 1982.[2]

Fiema et al. 2001 Z. T. Fiema – C. Kanellopoulos – T. Waliszewski – R. Schick: The Petra Church. Amman 2001.

Fiema – Frösén 2008 Z. T. Fiema – J. Frösén (eds): Petra – The Mountain of Aaron. vol. 1: The Church and the Chapel. Helsinki 2008.

Fischer – Gichon – Tal 2000 M. Fischer – M. Gichon – O. Tal: ᶜEn Boqeq. Excavations in an Oasis of the Dead Sea, vol II. The Officina. An Early Roman Building on the Dead Sea Shore. Mainz 2000.

Fitzgerald 1931 G. Fitzgerald: Beth Shean Excavations, 1921–1923: the Arab and Byzantine Levels. Philadelphia 1931.

Fitzgerald 1939 G. Fitzgerald: A Sixth Century Monastery at Beth-Shan (Scythopolis). Philadelphia 1939.

Flood 2001 F. B. Flood: The Great Mosque of Damascus: studies on the makings of an Umayyad visual culture. Leiden – Boston – Köln 2001.

Forrer 1891a R. Forrer: Die Graeber- und Textilfunde aus Achmim-Panopolis. Strassburg 1891.

Forrer 1891b R. Forrer: Römische und Byzantinische Seiden-Textilien aus dem Gräberfelde von Achmim-Panopolis. Strassburg 1891.

Forrer 1893 R. Forrer: Die frühchristlichen Alterthümer aus dem Gräberfeld von Achmim-Panopolis. Strassburg 1893.

Forrer 1895 R. Forrer: Mein Besuch in El-Achmim. Reisebriefe aus Aegypten. Strassburg 1895.

Foss 1976 C. Foss: Byzantine and Turkish Sardis. AES 4. Cambridge, Mass. 1976.

Foss 1985 C. Foss: Survey of medieval castles of Anatolia I: Kuˇtahya. Oxford 1985.

Foss 1996 C. Foss: Survey of medieval castles of Anatolia II: Nicomedia. Oxford 1996.

Foss – Wienfeld 1986 C. Foss – D. Wienfeld: Byzantine fortifications: an introduction. Pretoria 1986.

Frantz 1965 A. Frantz: From Paganism to Christianity in the Temples of Athens. DOP 19 (1965) 185–205.

Frantz 1971 A. Frantz: The Church of the Holy Apostles. The Athenian Agora 20. Athens 1971.

Frantz 1988 A. Frantz: Late Antiquity, 267–700. The Athenian Agora 24. Athens 1988.

Freeman – Kennedy 1986 Ph. Freeman – D. L Kennedy (eds): The Defence of the Roman and Byzantine East: Proceedings of a Colloquium held at the Univ. of Sheffield in April 1986. vols. 1–2. BAR IS 297, BIAA Monographs 8. Oxford 1986.

Frend 1996 W. H. C. Frend: The Archaeology of Early Christianity: A History. London 1996.

Frösen – Arjava – Lehtinen 2002 J. Frösén – A. Arjava – M. Lehtinen (eds): The Petra Papyri. vol. I. Amman 2002.

Fulford – Peacock 1984 M. G. Fulford – D. P. S. Peacock: The Avenue du President Habib Bourgiba, Salammbo: The Pottery and other Ceramic Objects from the Site. Excavation at Carthage: The British Mission. vol. I/2. Sheffield 1984.

Garam 2001 É. Garam: Funde byzantinischer Herkunft in der Awarenzeit vom Ende des 6. bis zum Ende des 7. Jahrhunderts. Monumenta Avarorum Archaeologica 5. Budapest 2001.

Gayet 1901 A. Gayet: Thaïs d'Antinoë. Revue de l'art ancient et moderne 10 (1901) 135–141.

Gayet 1902a A. Gayet: Leukyoné et la civilisation d'Antinoé sous le Régne d'Héliogabale. Revue de l'art ancient et moderne 12 (1902) 9–18.

Gayet 1902b A. Gayet: L'exploration des nécropoles gréco-byzantines d'Antinoë. Annales du Musée Guimet 30/2 (1902) 25–46; 30/3 (1902) 115–140.

Gayet 1904 A. Gayet: Fantomes d'Antinoë. Les sépultures de Leukyoné et Myrithis. Paris 1904.

Georganteli 2008 E. Georganteli: Numismatics, in: *Jeffreys – Haldon – Cormack 2008* 157–175.

Gichon 1993 M. Gichon: En Boqeq: Ausgrabungen in einer Oase am Toten Meer. vol. 1. Geographie und Geschichte der Oase des spätrömisch-byzantinische Kastell. Mainz 1993.

Goldfus 1997 H. Goldfus: Tombs and burials in churches and monasteries of Byzantine Palestine (324–628 A.D.). PhD Thesis, Princeton University 1997.

Grabar 1959 O. Grabar: The Umayyad Dome of the Rock in Jerusalem. Ars Orientalis 3 (1959) 33–62.

Grabar 1973 O. Grabar: The Formation of Islamic Art. New Haven 1973, 1987[2].

Grawehr 2006 M. Grawehr: Die Lampen der Grabungen auf ez Zantur in Petra. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 3 Teil 2. Mainz 2006.

Grawehr 2010 M. Grawehr: Eine Bronzewerkstatt des 1. Jhs. n. Chr. von ez Zantur in Petra. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 4. Mainz 2010.

Greatrex 2008 G. Greatrex: Political-Historical Survey, c. 250–518, in: *Jeffreys – Haldon – Cormack 2008* 232–248.

Gregory 1984 T. Gregory: Cities and Social Evolution in Roman and Byzantine South East Europe, in: J. Bintliff (ed.): European Social Evolution: Archaeological Perspectives. Bradford 1984, 272–273.

Gregory 1993a T. E. Gregory (ed.): The Corinthia in the Roman Period. JRA Suppl. 8. Ann Arbor 1993.

Gregory 1993b T. E. Gregory: Isthmia, vol V: The Hexamilion and the Fortress. Princeton 1993.

Gregory – Kardulias 1990 T. E. Gregory – P. N. Kardulias: Geophysical and Surface Surveys in the Byzantine Fortress at Isthmia. Hesperia 59 (1990) 467–511.

Grigorov 2007 V. Grigorov, Metalni nakiti ot srednevekovna Bălgariâ (VII–XI vv). Sofiâ 2007.

Grossmann 2002 P. Grossmann: Christliche Architektur in Ägypten. Handbuch der Orientalistik 62. Leiden – Boston – Köln 2002.

Guerrini 1974 L. Guerrini: Materiali ceramici, in: Antinoe (1965–1968). Missione Archeologica in Egitto dell'Università di Roma. Roma 1974, 69–113.

Gurt i Esparraguera – Buxeda i Garrigós – Cau Ontiveros 2005 J. M. Gurt i Esparraguera – J. Buxeda i Garrigós – M. A. Cau Ontiveros (eds): LRCW1 Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and archaeometry. BAR IS 1340. Oxford 2005.

Gutteridge 2003 A. Gutteridge: Cultural geographies and "The ambition of Latin Europe": The city of Durres and its fortifications c. 400–c. 1501. Archeologia medievale 30 (2003) 19–65.

Haldon 2002 J. Haldon: Byzantium: A History. Charleston 2002[2].

Haldon 2005 J. Haldon: The Palgrave Atlas of Byzantine History. Houndsmill 2005.

Haldon – Elton – Newhard 2009 J. Haldon – H. Elton – J. Newhard: The Avkat Archaeological Project 2009. 1-8. http://www.princeton.edu/avkat/reports/2009fieldworkreport.pdf [31.10.2015.]

Hamilton 1944 R. W. Hamilton: Excavations against the North Wall of Jerusalem, 1937–38. Quarterly of the Departement of Antiquities in Palestine 10 (1944) 1–54.

Hansen – Hodges – Leppard 2013 I. L. Hansen – R. Hodges – S. Leppard (eds): Butrint 4: The Archaeology and History of a Ionian Town. Oxford 2013.

Harrison 1986 R. M. Harrison: Excavations at Saraçhane in Istanbul. vol 1: The Excavations, Structures, Architectural Decoration, Small Finds, Coins, Bones, and Molluscs. Princeton 1986.

Harrison 1994 R. M. Harrison: Amorium: Answers and Questions, in: XI. Türk Tarih Kongresi, Ankara, 5–9 Eylül 1990, cilt 1. Ankara 1994, 393–396.

Hauser 1932 W. Hauser: The Christian Necropolis in Kharegh Oasis. The Metropolitan Museum of Art Bulletin 27 (1932) 38–52.

Hayes 1972 J. W. Hayes: Late Roman Pottery. London 1972.

Hayes 1976 J. W. Hayes: Pottery: Stratified Groups and Typology, in: J. H. Humprey (ed.): Excavation at Carthage 1975 conducted by the University of Michigan. vol. 1. Tunis 1976, 47–123.

Hayes 1978 J. W. Hayes: Pottery Report–1976, in: J. H. Humprey (ed.): Excavation at Carthage 1976 conducted by the University of Michigan. vol. 4. Ann Arbor 1978, 23–98.

Hayes 1980 J. W. Hayes: Supplement to Late Roman Pottery. London 1980.

Hayes 1992 J. W. Hayes: Excavations at Sarçhane in Istambul. vol. 2: The Pottery. Princeton 1992.

Hayes 1998 J. W. Hayes: The study of Roman pottery in the Mediterranean: 23 years after Late Roman Pottery, in: *Sagui 1998* vols 1, 9.

Hendy 1985 M. F. Hendy: Studies in the Byzantine Monetary Economy, c. 300–1450. Cambridge 1985.

Henein – Wuttmann 2000 N. H. Henein – M. Wuttmann: Kellia II. L'ermitage copte QR 195. vols. 1–2. Fouilles de l' Institut français d' archéologie orientale 41. Caire 2000.

Henning 2007 J. Henning (ed.): Post-Roman Towns, Trade and Settlement in Europe and Byzantium. vols. 1–2. Millennium-Studien/Millennium Studies 5/1–2. Berlin – New York 2007.

Hermans1987 C. J. Hermans: Late antique wall painting from Stobi, Yugoslavia. PhD Thesis (Indiana University) 1987.

Hickey 2008 T. Hickey: Papyrology, in: *Jeffreys – Haldon – Cormack 2008* 115–128.

Hirschfeld 1990 Y. Hirschfeld: A Church and Water Reservoir Built by Empress Eudocia. Liber Annuus 40 (1990) 287–294.

Hirschfeld 1992 Y. Hirschfeld: The Judean desert monasteries in the Byzantine period. New Haven – London 1992.

Hirschfeld 1995 Y. Hirschfeld: The Palestinian Dwelling in the Roman-Byzantine Period. Jerusalem 1995.

Hirschfeld 2003 Y. Hirschfeld: Social aspects of the late-antique village of Shivta. JRA 16 (2003) 395–408.

Hodges 2008 R. Hodges: The Rise and Fall of Byzantine Butrint. London – Tirana 2008.

Hodges – Bowden – Lako 2004 R. Hodges – W. Bowden – K. Lako (eds): Byzantine Butrint: excavations and survey 1994–99. Oxford 2004.

Hohlfelder 1992 K. R. L. Hohlfelder: The first three decades of marine explorations, in: R. L. Van (ed.): Caesarea Papers: Straton's Tower, Herod's Harbour, and Roman and Byzantine Caesarea. JRA Suppl. 5. Ann Arbor 1992, 291–294.

Holloway 2000 R. R. Holloway: The Archaeology of Early Rome and Latium. London – New York 2000.

Holum 2003 K. G. Holum: Constructing the Past in the Cities of Byzantine Palestine, in: *Clark – Matthews 2003* 351–364.

Holum et al. 1988 K. G. Holum – R. L. Hohlfelder – R. J. Bull – A. Raban: King Herod's Dream. Caesarea on the Sea. New York – London 1988.

Hoti et al. 2008 A. Hoti – E. Metalla – B. Shkodra – J. Wilkes: The Early Byzantine Circular Forum in Dyrrachium (Durrës, Albania) in 2002 and 2004–2005: Recent Recording and Excavation. ABSA 103 (2008) 367–397.

Isler 1969 H. P. Isler: Heraion von Samos: Eine frühbyzantinische Zisterne. Athenische Mitteilungen 84 (1969) 202–230.

Ivanisevič 2010 V. Ivanisevič: Caričin Grad – The Fortifications and the Intramural Housing in the Lower Town, in: *Daim – Drauschke 2010* vol. 2/2. 747–775.

Ivison 2007 E. A. Ivison: Amorium in the Byzantine Dark Ages, in: *Henning 2007* vol. 2. 25–60.

Izdebski 2011 A. Izdebski: Why did agriculture flourish in the late antique East? The role of climate fluctuations in the development and contraction of agriculture in Asia Minor and the Middle East from the 4th till the 7th century AD. Millennium 8 (2011) 291–312.

Izdebski 2013 A. Izdebski: A Rural Economy in Transition: Asia Minor from Late Antiquity into the Early Middle Ages. The Journal of Juristic Papyrology, Supplement 18. Warszawa 2013.

Jackson 2007 M. Jackson: The Kilise Tepe Area in the Byzantine Era, in: N. Postgate – D. Thomas (eds): Excavation at Kilis Tepe, 1994–98. From Bronze Age to Byzantine in western Cilicia. vol. 1. BIAA Monographs 30. Oxford 2007, 19–29.

James 2013 L. James: Things: Art and Experience in Byzantium, in: C. Nesbitt – M. Jackson (eds): Experiencing Byzantium. Papers from the 44th Spring Symposium of Byzantine Studies, Newcastle and Durham, April 2011. Farnham 2013, 17–33.

Jantzen 2004 U. Jantzen: Die Wasserleitung des Eupalinos. Die Funde. Samos 20. Bonn 2004.

Jeffreys – Haldon – Cormack 2008 E. Jeffreys – J. Haldon – R. Cormack (eds): The Oxford Handbook of Byzantine Studies. Oxford 2008.

Jobst – Vetters 1992 W. Jobst – H. Vetters (Hrsg.): Mosaikforschung im Kaiserpalast von Konstantinopel. Vorbericht über das Forschungs- und Restaurierungsprojekt am Palastmosaik in den Jahren 1983–1988. Wien 1992.

Jobst – Kastler – Scheibelreiter 1999 W. Jobst – R. Kastler – V. Scheibelreiter (Hrsg.): Neue Forschungen und Restaurierungen im byzantinischen Kaiserpalast von Istanbul. Wien 1999.

Kaegi 1999 W. E. Kaegi: Review of Wittow 1996. Speculum 74 (1999) 536–539.

Kafafi – Schick 2007 Z. Kafafi – R. Schick (eds): Jerusalem before Islam. BAR IS 1699. Oxford 2007.

Kajitani 2006 N. Kajitani: Textiles and Their Context in the Third- to Fourth-Century CE Cemetery of al-Bagawāt, Kharga Oasis, Egypt, from the 1907–1931 Excavations by the Metropolitan Museum of Art, New York, in: *Schrenk 2006* 95–112.

Kakovkin 1994 A. Kakovkin: Vladimir de Bock (1850–1899). Bulletin de la Société d'archéologie copte 33 (1994) 105–108.

Kardulias 2005 P. N. Kardulias: From Classical to Byzantine: Social Evolution in Late Antiquity and the Fortress at Isthmia, Greece. BAR IS 1412. Oxford 2005.

Kalla 1999 G. Kalla: Christentum am oberen Euphrat. Das byzantinische Kloster von Tall Bi'a. Antike Welt 30 (1999) 131–142.

Kalla 2004 G. Kalla: Das Refektorium und die Küche des byzantinischen Klosters in Tall Bi'a (Syrien), in: Gy. Kovács (ed.): „Quasi liber et pictura". Studies in honour of András Kubinyi on his seventieth birthday. Budapest 2004, 257–264.

Karagiorgou 2001 O. Karagiorgou: Demetrias and Thebes: the fortunes and misfortunes of two Thessalian port cities in late antiquity, in: L. Lavan (ed.): Recent Research in Late-Antique Urbanism. JRA Suppl. 42. Porthsmouth 2001, 184–196.

Karpozelos 1984 A. Karpozelos: Realia in Byzantine Epistolography, Xth–XIIth century. BZ 77 (1984) 20–37.

Karpozelos 1995 A. Karpozelos: Realia in Byzantine Epistolography, XIIIth–XVth century. BZ 88 (1995) 68–84.

Kasser 1972 R. Kasser: Kellia: topographie. Recherches suisses d'archéologie copte 2. Genève 1972.

Kasser 1983, 1994, 1999, 2003 R. Kasser (ed.): Survey archéologique des Kellia (Basse-Égypte). vols. 1–4. Leuven 1983, 1994, 1999, 2003.

Kazanski 2003 M. Kazanski: Qal'at Sem'an. vol. IV: rapport final. Fasc. 3: les objets métalliques. BAH 167. Paris 2003.

Keller 2006 D. Keller: Die Gläser aus Petra. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 3 Teil 1. Mainz 2006.

Kennedy 2007 D. Kennedy: Geresa and the Decapolis. A 'Virtual Island' in Northwest Jordan. London 2007.

Kenrick 1977 P. M. Kenrick (ed.): A Summary of Dated Deposits, in: J. A Lloyd (ed.): Excavations at Sidi Khrebish, Benghazzi (Berenice). vol. 1. Supplements to Libya Antiqua V. Tripoli 1977, 289–311.

Kenrick 1985 P. M. Kenrick: The Fine Pottery: Excavations at Sidi Khrebish, Benghazzi (Berenice). vol. III.1. Supplements to Libya Antiqua V. III. 1. Tripoli 1985.

Kienast 1996 H. J. Kienast: Die Wasserleitung des Eupalinos auf Samos. Samos 19. Bonn 1996.

Kingsley 2004 S. A. Kingsley: Shipwreck Archaeology of the Holy Land: Processes and Parameters. London 2004.

Kingsley – Decker 2001 S. Kingsley – M. Decker (eds): Economy and Exchange in the East Mediterranean during Late Antiquity. Oxford 2001.

Kislinger 1986–1987 E. Kislinger: How reliable is early Byzantine hagiography as an indicator of diet? Diptycha 4 (1986–1987) 5–11.

Kislinger 1999 E. Kislinger: Zum Weinhandel in frühbyzantinischer Zeit. Tyche 14 (1999) 141–156.

Kiss 1989 Zs. Kiss: Les ampoules de Saint Ménas découvertes à Kôm el-Dikka, 1961–1981. Alexandrie 5. Warsawa 1989.

Kiss 2002 Zs. Kiss: (ed.): Fouilles Polonaises 1986–1987. Alexandrie 7. Warsawa 2002.

Kızıltan – Baran Çelik 2013 Z. Kızıltan – G. Baran Çelik (eds): "Stories from the Hidden Harbour. Shipwrecks of Yenikaı." Exhibition Catalogue. İstanbul 2013.

Kocabaş 2008 U. Kocabaş (ed.): The 'old ships' of the 'New Gate'. vol. 1. İstanbul 2008.

Koder 1984 J. Koder: Der Lebensraum der Byzantiner. Historisch-geographischer Abriß ihres mittelalterlichen Staates im östlichen Mittelmeerraum. Byzantinische Geschichtsschreiber, Ergänzungsband 1. Graz – Wien – Köln 1984.

Koder 1991–1992 J. Koder: „Zeitenwenden". Zur Periodisierungsfrage aus byzantinischer Sicht. BZ 84–85 (1991–1992) 409–422.

Koder 1993 J. Koder: Gemüse in Byzanz. Die Frischgemüseversorgung Konstantinopels im Licht der Geoponika. Byzantinische Geschichtsschreiber, Ergänzungsband 3. Wien 1993.

Koder 1995 J. Koder: Fresh Vegetables for the Capital, in: C. Mango – G. Dagron (eds): Constantinople and Its Hinterland. Aldershot 1995, 49–56.

Koder 2011 J. Koder: Byzantium as Seen by Itself – Images and Mechanisms at Work, in: *Proceedings 2011* vol. 1. 69–81.

Koder – Hild 1976 J. Koder – F. Hild: Hellas und Thessalia. Tabula Imperii Byzantini 1. Wien 1976, 2004^2, 269–272.

Kolarik 1981 R. E. Kolarik: The floor mosaics of Stobi and their Balkan context. PhD Thesis (Harvard University) Cambridge, Mass. 1981.

Kołątaj 1992 W. Kołątaj: Imperial baths at Kom el-Dikka. Alexandrie 6. Warsawa 1992.

Kolb 2000 B. Kolb: Die spätantike Wohnbauten. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 2 Teil 2. Mainz 2000.

Kolling et al. 2010 I. C. Kolling – M. J. J. Jacinto Fragata – K. Alt: Anthropologische Forschungen zum Byzantinischen Reich – ein Stiefkind der Wissenschaft?, in: *Daim – Drauschke 2010* vol. 3. 479–491.

Köse 2006 V. Köse: Nekropolen und Grabdenkmäler von Sagalassos in Pisidien in hellenistischer und römischer Zeit. SEMA 7. Turnhout 2006.

Kraeling 1938 C. H. Kraeling (ed.): Gerasa: city of the Decapolis. New Haven 1938.

Kraemer 1958 C. Kraemer: Excavations at Nessana. vol. III: Non-Literary Papyri. Princeton 1958.

Kroll 2010 H. Kroll: Tiere im Byzantinischen Reich. Archäozoologische Forschungen im Überblick. Monographien des RGZM 87. Mainz 2010.

Krumeich 2003 K. Krumeich: Spätantike Bauskulptur aus Oxyrhynchus. Spätantike – Frühes Christentum – Byzanz A.12. Wiesbaden 2003.

Kuhlmann 1983 K. P. Kuhlmann: Materialien zur Archäologie und Geschichte des Raumes von Achmim. Deutsches Archäologisches Institut Kairo Sonderschrift 11. Mainz 1983.

Kuhnen 1987 H.-P. Kuhnen: Noerdwest-Palästina in hellenistisch-römischer Zeit. Bauten und Gräber im Karmelgebiet. Quellen und Forschungen zur prähistorischen und provinzialrömischen Archäologie 1. Weinheim 1987.

Kuhnen 1990 H.-P. Kuhnen: Palästina in griechisch-römischer Zeit. Handbuch der Archäologie. Vorderasien II. 2. München 1990.

LaBianca 1990 Ø. S. LaBianca: Sedentarization and Nomadization: Food System Cycles at Hesban and Vicinity in Transjordan. Hesban 1. Berrien Springs 1990.

Laiou 2002 A. E. Laiou (ed.): The Economic History of Byzantium. From the Seventh through the Fifteenth Century. vols. 1–3. Washington 2002.

Laskaris 2000 N. G. Laskaris: Monuments funéraires paléochrétiens (et byzantins) en Gréce. Athénes 2000.

Lassus 1970 J. Lassus: Les portiques d'Antioche. Antioch on the Orontes V. Princeton 1970.

Lauffray 1983 J. Lauffray: Halabiyya–Zenobia: place forte du limes oriental et la Haute-Mésopotamie au VI^{e} siècle. Tom. 1. BAH 119. Paris 1983.

Lauffray 1991 J. Lauffray: Halabiyya–Zenobia: place forte du limes oriental et la Haute-Mésopotamie au VI^{e} siècle. Tom. 2. BAH 138. Paris 1991.

Lavan 2003 L. Lavan: Late Antique Archaeology: An Introduction, in: L. Lavan – W. Bowden (eds): Theory and Practice in Late Antique Archaeology. LAA 1. Leiden – Boston 2003, vii–xvi.

Lavan 2009 L. Lavan: What killed the ancient city? Chronology, causation, and traces of continuity. JRA 22 (2009) 803–812.

Lavan – Swift – Putzeys 2007 L. Lavan – E. Swift – T. Putzeys (eds): Objects in Context, Object in Use. Material Spatiality in Late Antiquity. LAA 5. Leiden – Boston 2007.

Lavan – Özgenel – Sarantis 2007 L. Lavan – L. Özgenel – A. Sarantis (eds): Housing in Late Antiquity. From Palaces to Shops. LAA 3.2. Leiden – Boston 2007.

Lawrence 1983 W. Lawrence: A skeletal history of Byzantine fortifications. ABSA 78 (1983) 171–227.

Lefort – Morrisson – Sodini 2005 J. Lefort – C. Morrisson – J.-P. Sodini (eds): Les villages dans l'empire byzantin, IVe–XVe siècle. Réalités byzantines 11. Paris 2005.

Levine – Netzer 1986 L. I. Levine – E. Netzer (eds): Excavations at Caesarea Maritima 1975, 1976, 1979. Final Report. Qedem 21. Jerusalem 1986.

Liebeschutz 2003 J. H. W. G. Liebeschuetz: Late Antiquity, the Rejection of 'Decline', and Multiculturalism, in: G. Crifó – S. Gioglio (eds): Atti dell'Accademia Romanistica Costantiniana, XIV Convegno Internazionale in Memoria di Guglielmo Nocera. Napoli 2003, 639–652.

Liebeschutz 2004 J. H. W. G. Liebeschuetz: The Birth of Late Antiquity. Antiquité Tardive 12 (2004) 253–261.

Lightfoot 2003 C. S. Lightfoot: Discussion, in: M. A. V. Gill: Middle Byzantine Terracotta Lamps, in: C. S. Lightfoot (ed.): Amorium Reports II. Research Papers and Technical Reports. BAR IS 1170. Oxford 2003, 67–68.

Lightfoot 2007 C. S. Lightfoot: Trade and Industry in Byzantine Anatolia: The Evidence from Amorium. DOP 61 (2007) 269–286.

Lightfoot – Ivison 2012 C. S. Lightfoot – E. A. Ivison (eds): Amorium Reports 3: The Lower City Enclosure Finds Reports and Technical Studies. Amorium Monograph Series 3. İstanbul 2012.

Lilie 1993 R.-J. Lilie: Wie dunkel sind die „dunklen Jahrhunderte"? Zur Quellensituation in der mittelbyzantinischen Zeit und ihren Auswirkungen auf die Forschung. JÖB 93 (1993) 37–43.

Lilie 2003 R.-J. Lilie: Byzanz. Das zweite Rom. Berlin 2003.

Linscheid 2011 P. Linscheid: Frühbyzantinische textile Kopfbedeckungen: Typologie, Verbreitung und soziologischer Kontext nach Originalfunden. Spätantike–Frühes Christentum–Byzanz 30. Wiesbaden 2011.

Lintz – Coudert 2013 Y. Lintz – M. Coudert (eds): Antinoé. Momies, textiles, céramiques et autres antiques. Paris 2013.

Lounghis 1997 T. C. Lounghis: Some Questions Concerning the Terminology Used in Narrative Sources to Designate the Byzantine State. Byzantina Symmeikta 11 (1997) 11–21.

Louvi-Kizi 2003 A. Louvi-Kizi: Thebes, in: A. E. Laiou (ed.): The Economic History of Byzantium. vol. 2. DOS 39. Washington 2003, 631–638.

Lund 1995 J. Lund: A Fresh Look at the Roman and Late Roman Fine Wares from the Danish Excavations at Hama, Syria, in: H. Meyza – J. Młynarczyk (eds): Hellenistic and Roman Pottery in the Eastern Mediterranean – Advances in Scientific Studies. Acts of the II Nieborów Pottery Workshop, Nieborów, 18–20 December 1993. Warsaw 1995, 135–161.

Magness 2003 J. Magness: The Byzantine and Islamic Periods – The Fourth Century through Modern Times, in: *Clark – Matthews 2003* 345–349.

Magoulias 1964 H. J. Magoulias: The Lives of the Saints as Sources of the Data for the History of Byzantine Medicine in the Sixth and Seventh Centuries. BZ 57 (1964) 127–150.

Magoulias 1971a H. Magoulias: The Lives of the Saints as Sources of Data for the History of Commerce in the Byzantine Empire in the VIth and VIIth Centuries. Κληρονομια 3 (1971) 303–330.

Magoulias 1971b H. Magoulias: Bathhouse, Inn, Tavern, Prostitution and the Stage as Seen in the Lives of the Saints of the Sixth and Seventh Centuries. Επετηρίς Εταιρείας Βυζαντινών Σπουδών 38 (1971) 233–252.

Magoulias 1976 H. Magoulias: Trades and Crafts in the Sixth and Seventh Centuries as Viewed in the Lives of the Saints. Byzantinoslavica 37 (1976) 11–35.

Magoulias 1990 H. J. Magoulias: The Lives of the Saints as Sources for Byzantine Agrarian Life in the Sixth and Seventh Centuries. Greek Orthodox Theological Review 35 (1990) 59–70.

Mango 1980 C. Mango: Byzantium: The Empire of New Rome. London 1980.

Mango 1982 C. Mango: Addendum to the Report on Daily Life. JÖB 32/1 (1982) 255–256.

Mango 1986 C. Mango: Byzantine Architecture. London 1986.

Mango 2002 C. Mango (ed.): The Oxford History of Byzantium. Oxford 2002.

Martini – Steckner 1993 W. Martini – C. Steckner: Das Gymnasium von Samos. Das frühbyzantinische Klostergut. Samos 17. Bonn 1993.

Maspero 1893 G. Maspero: Premier rapport sur les fouilles exécutées en Egypte, 1884. Bibliothèque égyptologique 1. Paris 1893.

Mathews 1998 T. F. Mathews: Byzantium: From Antiquity to the Renaissance. New Haven – London 1998.

Mathews 2001 T. F. Mathews: Project Paphlagonia 2001. AnatArch 7 (2001) 20–21.

Mayerson 1992 Ph. Mayerson: The Gaza 'Wine' Jar (Gazition) and the 'Lost' Ashkelon Jar (Askalônion). Israel Exploration Journal 42 (1992) 76–80.

Megaw 2007 A. H. S. Megaw: Kourion: excavations in the episcopal precinct. DOS 38. Washington 2007.

Meier 2003 M. Meier: Das andere Zeitalter Justinians. Kontingenzerfarung und Kontingenzbewältigung im 6. Jahrhundert n. Chr. Hypomnemata 147. Göttingen 2003.

Meier 2012 M. Meier: Ostrom–Byzanz, Spätantike–Mittealter. Überlegungen zum „Ende" der Antike im Osten des Römischen Reiches. Millennium 9 (2012) 187–253.

Menchelli et al. 2010 S. Menchelli – S. Santoro – M. Pasquinucci – G. Guiducci (eds): LRCW3 Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and archaeometry. Comparison between western and eastern Mediterranean. BAR IS 2185. Oxford 2010.

Mendels 1986 D. Mendels: Greek and Roman History in the Bibliotheca of Photios – A Note. Byzantion 56 (1986) 196–206.

Mesterházy 1990–1991 K. Mesterházy: Bizánci és balkáni eredetű tárgyak a 10–11. századi magyar sírleletekben I–II (Gegenstände byzantinischen und balkanischen Ursprunges in den ungarischen Gräberfeldern des 10–11. Jahrhundert I–II). FolArch 41 (1990) 87–115, 42 (1991) 145–177.

Mesterházy 1993 K. Mesterházy: Régészeti adatok Magyarország 10–11. századi kereskedelméhez [Archaeological notes on 10th–11th century trade in Hungary]. Századok 127 (1993) 450–468.

Metaxas 2009 S. Metaxas: Die materielle Kultur des byzantinischen Sizilien (6.–10. Jahrhundert). Unpublished PhD Thesis, University of Vienna 2009.

Milinković 2007 M. Milinković: Stadt oder „Stadt": Frühbyzantinische Siedlungsstrukturen im nörlichen Illyricum, in: *Henning 2007* vol 2, 159–191.

Milinković 2010 M. Milinković: Gradina na Jelici: ranovizantijski grad i sredn'ovekovno nasel'e (Die Gradina auf der Jelica. Frühbyzantinische Stadt und mittelalterliche Siedlung). Beograd 2010.

Mills – Beaudry 2007 P. J. E. Mills – N. Beaudry: The ceramic Coarse Wares from the basilica excavation at Ras el Bassit, Syria: a preliminary assessment, in: *Bonifay – Treglia 2007* 745–754.

Minutoli 2008 D. Minutoli: Antinoe, necropoli nord 2007: la tomba di Tg'ôl. Prime informazioni, in: R. Pintaudi (ed.): Antinoupolis I. Instituto Papirologico «G. Vitelli»: Scavi e materiali I. Firenze 2008, 61–73.

Moravcsik 1976 Gy. Moravcsik: Einführung in die Byzantinologie. Darmstadt 1976.

Morey 1938 C. R. Morey: The Mosaics of Antioch. New York 1938.

Morgan 1942 C. H. Morgan: The Byzantine Pottery. Corinth 11. Athens – Princeton 1942.

Mundell Mango 2003 M. Mundell Mango: The Centre in and beyond the Periphery: Material Culture in the Early Byzantine Empire, in: Byzantina – Metabyzantina. La périphérie dans le temps et l'espace. Dossiers byzantins 2. Paris 2003, 119–140.

Mundell Mango 2006 M. Mundell Mango: Action in the Trenches: A Call for a More Dynamic Archaeology of Early Byzantium, in: E. Jeffreys (ed.): Proceedings of the 21st International Congress of Byzantine Studies, London, 21–26 August, 2006. vol. 1. Aldershot 2006, 83–98.

Mundell Mango 2010 M. Mundell Mango: Androna in Syria: Questions of environment and economy, in: *Daim – Drauschke 2010* vol. 2/1. 245–290.

Mundell Mango 2011a M. Mundell Mango: Byzantine Settlement Expansion in North Central Syria: The Case of Androna/Andarin, in: *Borrut et al. 2011* 93–122.

Mundell Mango 2011b M. Mundell Mango: Monumentality versus Economic Vitality: Was a Balance Structure in the Late Antique City?, in: *Proceedings 2011* 239–262.

Müller 2005 M. Müller: From the History of Archaeology. The Destruction of the Late Antiquity Necropolises in Egypt reconsidered, in: A.-A. Maravelia (ed.): Modern Trends in European Egyptology: Papers from a Session Held at the European Association of Archaeologists, Ninth Annual Meeting in St. Petersburg 2003. BAR IS 1448. Oxford 2005, 43–48.

Müller-Wiener 1977 W. Müller-Wiener: Bildlexikon zur Topographie Istanbuls. Byzantion, Konstantinupolis, Istanbul bis zum Beginn des 17. Jahrhundert. Tübingen 1977.

McCormick 2001 M. McCormick: Origins of the European Economy. Communication and Commerce AD 300–900. Cambridge 2001.

McNicoll et al. 1992 A. W. McNicoll – P. C. Edwards – J. Hanbury-Tenison – J. B. Hennessy – T. F. Potts – R. H. Smith – A. Walmsley – P. Watson: Pella in Jordan 2. Mediterranean Archaeology Supplement 2. Sydney 1992.

McNicoll – Smith – Hennessy 1982 A. W. McNicoll – R. H. Smith – J. B. Hennessy: Pella in Jordan 1: An Interim Report on the Joint University of Sydney and The College of Wooster Excavations at Pella 1979–1981. Canberra 1982.

Nagar – Sonntag 2008 Y. Nagar – F. Sonntag: Byzantine Period Burials in the Negev: Anthropological Description and Summar. Israel Exploration Journal 58 (2008) 79–93.

E. Nagy et al. 2010 K. E. Nagy – Á. Bíró – Á. Bollók – L. Költő – P. Langó – A. Türk: Byzantine Silk Fragments from a Tenth-century Grave at Fonyód. New Data on a Garment in the Tenth-century Carpathian Basin. Ars Decorativa 27 (2010) 21–49.

Nallbani 2002 E. Nallbani: La civilisation de «Komani» de l'Antiquite Tardive au Haut Moyen Âge. Étude du mobilier métallique. Unpublished PhD Thesis, University I of Paris, Sorbonne 2002.

Napoleon-Lemaire – Balty 1969 J. Napoleon-Lemaire – J. Ch. Balty: L'église à atrium de la grande colonnade. Fouilles d'Apamée de Syrie: I.1. Bruxelles 1969.

Nauerth 1996 C. Nauerth: Karara und El-Hibe. Die spätantiken ('koptischen') Funde aus den badischen Grabungen 1913–1914. Studien zur Archäologie und Geschichte Altägyptens 15. Heidelberg 1996.

Nauerth 2006 C. Nauerth: Opportunities and Limits of Post-Evaluation: Qarārah and al-Hibe, in: *Schrenk 2006* 43–55.

Naumann – Belting 1966 R. Naumann – H. Belting: Die Euphemia-Kirche am Hippodrom zu Istanbul und ihre Fresken. Istanbuler Forschungen 25. Berlin 1966.

Naville 1894 E. Naville: Ahnas el Medineh (Heracleopolis Magna). With Chapters on Mendes. The Nome of Thoth, and Leontopolis. London 1894 [repr. Oxford 1981]

Negev 1988 A. Negev: The Architecture of Mampsis. vol. 1: The middle and late Nabatean periods. vol. 2: The late Roman and Byzantine periods. Qedem 26, 27. Jerusalem 1988.

Negev 1989 A. Negev: The Cathedral of Elusa and the Typology and Chronology of the Byzantine Churches in the Negev. Liber Annuus 39 (1989) 129–142.

Negev 1997 A. Negev: The architecture of Oboda: final report. Qedem 36. Jerusalem 1997.

Németh 2010 A. Németh: Imperial Systematisation of the Past. Emperor Constantine VII and His Historical Excerpts. PhD Thesis. Budapest 2010.

Neve 1991 P. J. Neve: Boğazköy – Hattusa in byzantinischer Zeit, in: V. Kravari – J. Lefort – C. Morrisson (eds): Hommes et richnesses dans l'Empire byzantin II. Paris 1991, 91–111.

Nesbitt 1983 W. J. Nesbitt: Byzantine Lead Seals from Aphrodisias. DOP 37 (1983) 159–164.

Netzer – Weiss 1995 E. Netzer – Z. Weiss: New Evidence for Late-Roman and Byzantine Sepphoris, in: The Roman Near East: Some Recent Archaeological Research. JRA Suppl. 14. Ann Arbor 1995, 162–176.

Obolenky 1971 D. Obolensky, The Byzantine Commonwealth: Eastern Europe, 500–1453. New York 1971.

Oikononou-Laniado 2003 A. Oikononou-Laniado: Argos Paléochrétienne. Contribution à l'étude du Péloponnèse Byzantin. BAR IS 1173. Oxford 2003.

Oster 1987 R. E. Oster: A bibliography of ancient Ephesus. Metuchen 1987.

Ostrogorsky 1965 G. Orstrogorsky: Geschichte des Byzantinischen Staates. München 1965.

Otten 2010 Th. Otten: Das byzantinische Pergamon – ein Überblick zu Forschungstand und Quellenlage, in: *Daim – Drauschke 2010* vol. 2/2. 809–830.

Ousterhout 2011 R. Ousterhout: A Byzantine Settlement in Cappadocia (revised edition). DOS 42. Washington 2011[2].

Oziol 1977 T. Oziol: Les lampes du Musée de Cypre. Salamin de Chypre 7. Paris 1977.

Oziol – Pouilloux 1969 T. Oziol – J. Pouilloux: Les lampes. Salamin de Chypre 1. Paris 1969.

Parker 1999 S. T. Parker: The Byzantine Period: An Empire's New Holy Land. Near Eastern Archaeology 62 (1999) 134–180.

Parker 2006 S. T. Parker: The Roman Frontier in Central Jordan: Final Report on the Limes Arabicus Project 1980–1989. vols. 1–2. DOS 40. Washington 2006.

Parlama 2000 L. Parlama (ed.): The City beneath the City: Antiquities from the Metropolitan Railway Excavations. Athens 2000.

Patrich 1995 J. Patrich: Sabas, Leader of Palestinian Monasticism. A Comparative Study in Eastern Monasticism, Fourth to Seventh Centuries. DOS 32. Washington 1995.

Peacock – Williams 1986 D. P. S. Peacock – D. F. Williams: Amphorae and the Roman Economy. London 1986.

Peña – Castellana – Fernández 1987 I. Peña – P. Castellana – R. Fernández: Inventaire du Jébel Baricha. SBF CM 33. Jerusalem 1987.

Peña – Castellana – Fernández 1990 I. Peña – P. Castellana – R. Fernández: Inventaire du Jébel al A'la. SBF CM 31. Milano 1990.

Peña – Castellana – Fernández 1999 I. Peña – P. Castellana – R. Fernández: Inventaire du Jébel Wastani. SBF CM 36. Jerusalem 1999.

Peña – Castellana – Fernández 2003 I. Peña – P. Castellana – R. Fernández: Inventaire du Jébel Doueili. SBF CM 43. Milano 2003.

Pentz 1997 P. Pentz: The Medieval Citadel And Its Architecture. Hama: Fouilles et recherches de la Fondation Carlsberg, 1931–1938. vol. 4/1. Copenhague 1997.

Perlzweig 1961 J. Perlzweig: Lamps of the Roman Period: First to Seventh Century after Christ. The Athenian Agora 7. Athens 1961.

Peschlow 1977 U. Peschlow: Die Irenenkirche in Istanbul. IstMitt Beiheft 18 (1977)

Peschlow 1977–78 U. Peschlow: Byzantinische Keramik aus Istanbul – Ein Fundkomplex bei der Irenenkirche. IstMitt 27–28 (1977–78) 363–414.

Piccirillo 2007 M. Piccirillo: Early Christianity in Jerusalem, in: *Kafafi – Schick 2007* 189–199.

Piccirillo – Alliata 1994 M. Piccirillo – E. Alliata: Umm al-Rasas Mayfa'ah I: Gli scavi del Complesso di Santo Stefano. Jerusalem 1994.

Pieri 2012 D. Pieri: Regional and Interregional Exchanges in the Eastern Mediterranean during the Early Byzantine Period, in: C. Morrisson (ed.): Trade and Markets in Byzantium. Dumbarton Oaks Byzantine Symposia and Colloquia. Washington 2012, 27–49.

Pitarakis 2010 B. Pitarakis (ed.): Hippodrom/Atmeydanı. A Stage for Istanbul's History. İstanbul 2010.

Ploug 1985 G. Ploug: The Graeco-Roman Town. Hama: Fouilles et recherches de la Fondation Carlsberg, 1931–1938. vol. 3/1. Copenhague 1985.

Ploug – Hammershaimb – Oldenburg 1969 G. Ploug – E. Hammershaimb – E. Oldenburg: Les petits objets médiévaux sauf les verreries et poteries. Hama: Fouilles et recherches de la Fondation Carlsberg, 1931–1938. vol. 4/3. Copenhague 1969.

Pringle 1981 D. Pringle: The Defence of Byzantine Africa from Justinian to the Arab Conquest: An Account of the Military History and Archaeology of the African Provinces in the Sixth and Seventh Centuries. vols. 1–2. BAR IS 99. Oxford 1981.

Poblome 1999 J. Poblome: Sagalassos Red Slip Ware. SEMA 2. Turnhout, 1999.

Politis 2010 K. D. Politis: The Monastery of Aghios Lot at Deir 'Ain 'Abata in Jordan, in: *Daim – Drauschke 2010* vol. 2/1. 155–178.

Popović 1979 V. Popović: Desintegration und Ruralisation der Stadt im Ost-Illyricum vom 5. bis 7. Jahrhundert nach Christus, in: Palast und Hütte: Tagungsbeiträge eines Symposiums der A. von Humbolt-Stiftung Berlin, 1979. Mainz 1979, 545–566.

Poulou-Papadimitriou – Nodarou – Kilikoglou 2014 N. Poulou-Papadimitriou – E. Nodarou – V. Kilikoglou (eds): LRCW4 Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and archaeometry. The Mediterranean: a market without frontiers. BAR IS 2616. Oxford 2014.

Putzesy 2007 T. Putzesy: Domestic Space in Late Antiquity, in: *Lavan – Swift – Putzeys 2007* 49–62.

Pouilloux – Callot – Marcillet-Jaubert 1987 J. Pouilloux – O. Callot – J. Marcillet-Jaubert: Testimonia salamiana, fasc. 2: Corpus épigraphique. Salamin de Chypre 13. Paris 1987.

Poulter 1995 A. G. Poulter (ed.): Nicopolis ad Istrum: a Roman, late Roman and early Byzantine city. Excavations 1985–1992. London 1995.

Poulter 1999 A. G. Poulter (ed.): Nicopolis ad Istrum: a Roman, late Roman and early Byzantine city. The potter and glass. London 1999.

Poulter 2007 A. G. Poulter (ed.): Nicopolis ad Istrum: a Roman, late Roman and early Byzantine city. vol. 3: the finds and the biological remains. Oxford 2007.

Proceedings 2011 I. Iliev – A. Nikolov (eds): Proceedings of the 22nd International Congress of Byzantine Studies, Sofia 22 – 27 August 2011. vol. 1: Plenary papers. Sofia 2011.

Quibell 1908 J. E. Quibell: Excavations at Saqqara (1906–1907). With a Section on the Religious Texts by P. Lacau. Le Caire 1908.

Quibell 1909 J. E. Quibell: Excavations at Saqqara (1907–1908). Le Caire 1909.

Quibell 1912 J. E. Quibell: Excavations at Saqqara (1908–1909, 1909–1910). Cairo – Leipzig 1912.

Rabbat 1993 N. Rabbat: The Dome of the Rock Revisited: Some Remarks on al-Wasiti's Accounts. Muqarnas 10 (1993) 67–75.

Ranke 1926 H. Ranke: Koptische Friedhöfe bei Karara und der Amontempel I bei El-Hibe. Berlin – Leipzig 1926.

Ratté 2000 C. Ratté: New Research on the Urban development of Aphrodisias in Late Antiquity, in: D. Parrish (ed.): Urbanism of Roman Asia Minor: The Status of Current Research. JRA Suppl. Ann Arbor 2000, 117–147.

Rautman 1990 M. L. Rautman: Archaeology and Byzantine Studies. Byzantinische Forschungen 15 (1990) 137–165.

Rautman 2006 M. Rautman: Daily Life in the Byzantine Empire. Westport – London 2006.

Reynolds 1995 P. Reynolds: Trade in the Western Mediterranean, AD 400–700: The ceramic evidence. BAR IS 604. Oxford 1995.

Reynolds 2003 P. Reynolds: Pottery and the economy in 8th century Beirut: An Umayyad pottery assemblage from the Roman Imperial baths (BEY 045), in: Ch. Bakirtzis (ed.): VIIe Congrès internationale sur la Céramique Médiévale en Méditerranée. Athènes 2003, 725–734.

Rheidt 1990 K. Rheidt: Byzantinische Wohnhäuser in Pergamon. DOP 44 (1990) 195–204.

Rheidt 1991 K. Rheidt: Die byzantinische Wohnstadt. Alterthümer von Pergamon 15/2. Berlin – New York 1991.

Rice 1958 D. T. Rice (ed.): The Great Palace of the Byzantine Emperors. Second Report. Edinburgh 1958.

Rife 2012 J. L. Rife: The Roman and Byzantine graves and human remains. Isthmia 9. Princeton 2012.

Riis – Poulsen 1957 P. J. Riis – V. Poulsen: Les verreries et poteries médiévales. Hama: Fouilles et recherches de la Fondation Carlsberg, 1931–1938. vol. 4/2. Copenhague 1957.

Riley 1975 J. A. Riley: The Pottery from the First Session of Excavation in the Caesarea Hippodrome. Bulletin of the American School of Oriental Research 218 (1975) 25–63.

Riley 1979 J. A. Riley: The Coarse Pottery from Berenice, in: J. A. Lloyd (ed.): Excavations at Shidi Khrebish, Benghazzi (Berenice). vol. II. Supplements to Libya Antiqua V. II. Tripoli 1979, 91–467.

Robinson 1959 H. S. Robinson: Pottery of the Roman Period: Chronology. The Athenian Agora 5. Athens 1959.

Rodziewicz 1976 M. Rodziewicz: La céramique romaine tardive d'Alexandrie. Alexandrie 1. Warsawa 1976.

Rodziewicz 1984 M. Rodziewicz: Les habitations romaines tardives d'Alexandrie. Alexandrie 3. Warsawa 1984.

Rodziewicz 2007 M. Rodziewicz: Alexandria: auditoria of Kom el-Dikka and late antique education. Warsawa 2007.

Romančuk 2005 A. I. Romančuk: Studien zur Geschichte und Archäologie des byzantinischen Cherson. Colloqia Pontica 11. Leiden – Boston 2005.

Rosen – Avni 1993 S. A. Rosen – G. Avni: The Edge of the Empire: The Archaeology of Pastoral Nomads in the Southern Negev Highlands in Late Antiquity. Biblical Archaeologist 56 (1993) 189–199.

Rosser 1979 J. H. Rosser: A Research Strategy for Byzantine Archaeology. Byzantine Studies/Études byzantines 6 (1979) 152–166.

Rostovtzeff 1934 M. I. Rostovtzeff (ed.): The Excavations at Dura Europos: Preliminary Report of the Fifth Season of Work. New Haven 1934.

Rostovtzeff 1936 M. I. Rostovtzeff (ed.): The Excavations at Dura Europos: Preliminary Report of the Sixth Season of Work. New Haven 1936.

Rostovtzeff et al. 1939 M. I. Rostovtzeff – A. Bellinger – C. Hopkins – C. B. Welles (eds): The Excavations at Dura Europos: Preliminary Report of the Seventh and Eight Season of Work. New Haven 1939.

Rostovtzeff et al. 1944 M. I. Rostovtzeff – A. R. Bellinger – F. E. Brown – C. B. Welles (eds): The Excavations at Dura Europos: Preliminary Report of the Ninth Season of Work: The Agora and Bazaar. New Haven 1944.

Rostovtzeff et al. 1952 M. I. Rostovtzeff – A. R. Bellinger – F. E. Brown – C. B. Welles (eds): The Excavations at Dura Europos: Preliminary Report of the Ninth Season of Work: The palace of the dux ripae and the dolicheneum. New Haven 1952.

Roueché 1989 C. Roueché: Aphrodisias in Late Antiquity. JRS Monographs 5. London 1989.

Rouy 1998 G. Rouy: La basilique de la campanopetra. Salamin de Chypre 15. Paris 1998.

Rupp 1986 D. W. Rupp: Problems in Byzantine Field Reconnaissance: A Non-Specialist's View. Byzantine Studies/Études byzantines 13 (1986) 177–188.

Russel 1976 J. Russel: Anemurium – Eine römische Kleinstadt in Kleinasien. Antike Welt 7 (1976) 3–20.

Russel 1982 J. Russell: Byzantine instrumenta domestica from Anemurium. The significance of context, in: R. L. Hohlfelder (ed.): City, town and countryside in the early Byzantine era. New York 1982, 133–154.

Russel 1986 J. Russell: Transformations in early Byzantine urban life. The contribution and limitations of archaeological evidence, in: The 17th International Byzantine Congress. Major Papers. New Rochelle 1986, 137–154.

Russel 1987 J. Russell: The Mosaic Inscriptions of Anemurium. Vienna 1987.

Russel 1989 J. Russell: Christianity at Anemurium (Cilicia). Recent discoveries, in: Actes du XIe Congrès international d'archéologie chrétienne. Rome 1989, 1621–1637.

Russel 1999 J. Russell: The military garrison of Anemurium during the reign of Arcadius, in: XI Congresso internazionale di epigrafia greca e latina. Atti 2. Rome 1999, 721–728.

Rutschowscaya 1995 M.-H. Rutschowscaya: Le monastére de Baouit – État des publications, in: C. Fluck – L. Langener – S. Richter (eds): Divitiae Aegypti. Koptologische und verwandte Studien zu Ehren von Martin Krause. Wiesbaden 1995, 279–288.

Sagui 1998 L. Sagui (ed.): Ceramica in Italia: VI–VII secolo. Atti del convegno in onore di John W. Hayes, Roma 1995. vols. 1–2. Florence 1998.

Saradi 2006 H. G. Saradi: The Byzantine City in the Sixth Century: Literary Images and Historical Reality. Athens 2006.

Schick 2007 R. Schick: Byzantine Jerusalem, in: *Kafafi – Schick 2007* 169–188.

Schmid 2000 S. G. Schmid: Die Feinkeramik der Nabataer. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 2. Teil 1. Mainz 2000.

Schneider 1999 E. Equini Schneider (ed.): Elaiussa Sebaste I. Campagne di scavo 1995–1997. Roma 1999.

Schneider 2003 E. Equini Schneider (ed.): Elaiussa Sebaste II: un porto tra Oriente e Occidente. vols. 1–2. Roma 2003.

Schneider 2008 E. Equini Schneider: Elaiussa Sebaste: an archaeological guide. İstanbul 2008.

Schneider 2010 E. Equini Schneider (ed.): Elaiussa Sebaste III: L'Agora Romana. İstanbul 2010.

Schreiner 1994 P. Schreiner: Byzanz. Oldenburg Grundriss der Geschichte 22. München 1994[2].

Schreiner 1997 P. Schreiner: Das Haus in Byzanz nach den schriftlichen Quellen, in: H. Beck – H. Steuer (Hrsg.): Haus und Hof in ur- und frühgeschichtlicher Zeit. Abhandlungen der Akademie der Wissenschaften in Göttingen, Philologisch-historische Klasse III. 218. Göttingen 1997, 277–320.

Schrenk 2006 S. Schrenk (Hrsg.): Textiles in situ. Their Find Spots in Egypt and Neighbouring Countries in the First Millennium CE. Riggisberger Berichte 13. Riggisberg 2006.

Scranton 1957 R. L. Scranton: Medieval Architecture in the Central Area of Corinth. Corinth 16. Athens – Princeton 1957.

Segal 1983 A. Segal: The Byzantine City of Shivta [Esbeita], Negev Desert, Israel. BAR IS 179. Oxford 1983.

Segal 2013 A. Segal: Bibliography, in: A. Segal – M. Eisenberg – J. Młynarczyk – M. Burdajewicz – M. Schuler: Hippos (Sussita) of the Decapolis: The First Twelve Seasons of Excavations (2000–2011). vol. 1. Haifa 2013, 18–23.

Seeliger 1985 H. R. Seeliger: Christliche Archäologie oder spätantike Kunstgeschichte? Aktuelle Grundlagenfragen aus der Sicht der Kirchengeschichte. Rivista di archeologia christiana 61 (1985) 167–87.

Shepard 2008 J. Shepard: General Introduction, in: J. Shepard (ed.): The Cambridge History of the Byzantine Empire, c. 500–1492. Cambridge 2008.

Sigalos 2004 L. Sigalos: Middle and Late Byzantine Houses in Greece (tenth to fifteenth centuries), in: *Dark 2004a* 53–81.

Smith 1973 R. H. Smith: Pella of the Decapolis. vol. 1: The 1967 Season of The College of Wooster Expedition to Pella. Wooster 1973.

Smith 1999 R. R. R. Smith: Late antique portraits in a public context: Honorific statuary at Aphrodisias in Caria, AD 300–600. JRS 89 (1999) 155–189.

Smith – Day 1989 R. H. Smith – L. P. Day: Pella of the Decapolis 2: Final Report on the The College of Wooster Excavations in Area IX, The Civic Complex, 1979–1985. Wooster 1989.

Snively 1979 C. S. Snively: The early Christian basilicas of Stobi. A study of form, function and location. Thesis. (University of Texas) Austin 1979.

Sodini 1993 J.-P. Sodini: La contribution de l'archéologie à la connaissance du monde byzantin (IVe–VIIe siècles). DOP 47 (1993) 139–184.

Sodini 1995 J.-P. Sodini: Découvertes récentes à Qal'at Sem'an, in: Actes du XIIe Congrès International d'Archéologie Chrétienne, Bonn 1991. Vatican – Münster 1995, 348–368.

Sodini 1995 J.-P. Sodini: Habitat de l'Antiquité Tardive. Topoi 5 (1995) 151–218.

Sodini 1997 J.-P. Sodini: Habitat de l'Antiquité Tardive (2). Topoi 7 (1997) 435–577.

Sodini 2004 J.-P. Sodini: La naissance de l'habitat médiéval en Méditerranée byzantine : le cas de Gortyne (VIe-VIIe s.), in: Creta Romana e Protobizantina, Atti del Congresso Internazionale (Iraklion, 23-30 sett. 2000). vol. II. Padova 2004 [2005], 669–686.

Sodini et al. 1980 J.-P. Sodini – G. Tate – B. Bavant – J. L. Biscop – D. Orssaud: Déhès (Syrie du Nord): Campagnes I–III (1976–1978). Syria 57 (1980) 1–304.

Soficaru 2011 A. D. Soficaru: Populaţia provinciei Scythia în perioada romano-bizantină (sf. sec. III – înc. sec. VII). Iaşi 2011.

Somogyi 1997 P. Somogyi: Byzantinische Fundmünzen der Awarenzeit. MFMA 5. Innsbruck 1997.

Somogyi 2007–2008 P. Somogyi: Byzantinische Fundmünzen der Awarenzeit. Eine Bestandsaufnahme 1998–2007. ActaArchCarp 42–43 (2007–2008) 231–298.

Somogyi 2008 P. Somogyi: Neue Überlegungen über den Zustorm byzantinischer Münzen ins Awarenland (Numismatischer Kommentar zu Csanád Bálints Betrachtungen zum Beginn der Mittelawarenzeit). Antaeus 29–30 (2008) 347–393.

Somogyi 2014 P. Somogyi: Byzantinische Fundmünzen der Awarenzeit in ihrem europäischen Umfeld. Dissertationes Pannonicae Ser. IV.2. Budapest 2014.

Spanu 1998 P. G. Spanu: Le Sardegna bizantina tra VI e VII secolo. Mediterraneo tradoantico e medievale: scavi e ricerche 12. Oristano 1998.

Stephenson 2010 P. Stephenson (ed.): The Byzantine World. London – New York 2010.

Stillwell 1938 R. Stillwell (ed.): The Excavations, 1933–1936. Antioch on the Orontes II. Princeton 1938.

Stillwell 1941 R. Stillwell (ed.): The Excavations 1937–1939. Antioch on the Orontes III. Princeton 1941.

Stillwell 1961 R. Stillwell: The Houses of Antioch. DOP 15 (1961) 47–57.

Stouraitis 2014 I. Stouraitis: Roman identity in Byzantium: a critical approach. BZ 107 (2014) 175–220.

Strange 1992 J. F. Strange: Six Campaigns at Sepphoris: The University of South Florida Excavations, 1983–1989, in: E. M. Meyers (ed.): The Galilee in Late Antiquity. New York 1992, 339–355.

Strange 2003 J. F. Strange: Byzantine Sepphoris: The Fourth Century as Viewed through Literary and Archaeological Sources, in *Clark – Matthews 2003,* 365–383.

Striker 1981 C. L. Striker: The Myreleaion (Bodrun Camii) in Istanbul. Princeton 1981.

Striker – Kuban 2007 C. L. Striker – Y. D. Kuban (eds): Kalenderhane in Istanbul. The Excavations. Final Reports on the Archaeological Exploration and Restoration at Kalenderhane Camii 1966–1978. Mainz 2007.

Strube 2010 Ch. Strube: Al Andarin, das antike Androna, in: *Daim – Drauschke 2010* vol. 2/1. 211–243.

Strube 2015 Ch. Strube: Al Andarin, das antike Androna. Die Oberflächenbefunde und Grabungsergebnisse: die Umfassungsmauer und das Kastron. Monographien des RGZM 121, 1–2. Mainz 2015.

Stucky et al. 1996 R. A. Stucky – A. Bignasca – N. Desse-Berset – R. Fellmann Brogli – R. Glutz – S. Karg – D. Keller – B. Kolb – C. Kramar – M. Peter – S. G. Schmid – C. Schneider – J. Studer – I Zanoni: Ausgrabungen 1988–1992. Petra ez-Zantur: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1. Mainz 1996.

Szenthe 2013 G. Szenthe: Antique Meaning – Avar Significance. Complex Iconographical Schemes on Early Medieval Small Objects. ActaArchHung 64 (2013) 139–172.

Szőke 2001 B. M. Szőke: Egy avar kori indavirág. Késő avar kori övgarnitúra Zalaegerszeg-Ola, Új kaszárnya területérő (Eine awarenzeitliche Rankenblume. Eine spätawarenzeitliche Gürtelgarnitur aus Zalaegerszeg-Ola, auf dem Gebiet der Neuen Kaserne [Új Kaszárnya]). ZalaiMúz 10 (2001) 103–140.

Taft 1992 R. F. Taft: The Byzantine rite: a short history. Collegeville 1992.

Takács 2006 M. Takács: A nemzetépítés jegyében megfogalmazott elvárások. Kutatási célok az észak-balkáni államok középkori régészetében [Expectations of nation building. Research objectives in the medieval archaeology of the states of the Northern Balkans]. Korall 24–25 (2006) 163–202.

Talgom – Weiss 2004 R. Talgom – Z. Weiss: The mosaics of the House of Dionysos at Sepphoris**.** Qedem 44. Jerusalem 2004.

Tate 1992 G. Tate: Les campagnes de la Syrie du Nord du II^{e} au VII^{e} siècle: un exemple d'expansion démographique et économique à la fin de l'antiquitè. BAH 133. Paris 1992.

Tate et al. 2013 G. Tate – M. Abdulkarim – G. Charpentier – C. Duvette – C. Piaton: Serğilla. Village d'Apamène. Tome I: Une architecture de pierre. BAH 203. Paris 2013.

Tchalenko 1953–1958 G. Tchalenko: Villages antiques de la Syrie du Nord. vols. 1–3. Paris 1953–1958.

Themelis 2000 P. G. Themelis (ed.): Πρωτοβυζαντινη Ελευτερνα I. vol. 1. Αθηνα 2000.

Themelis 2004 P. G. Themelis (ed.): Πρωτοβυζαντινη Ελευτερνα I. vol. 2. Αθηνα 2004.

Thomas 2000 Th. K. Thomas: Late Antique Egyptian Funerary Sculpture. Images for This Word and the Next. Princeton 2000.

Thomas 2007 Th. K. Thomas: Coptic and Byzantine textiles found in Egypt: Corpora, collections, and scholarly perspectives, in: *Bagnall 2007* 137–162.

Thompson 1954 M. Thompson: The Coins: From the Roman through the Venetian Period. The Athenian Agora. Athens 1954.

Tkaczow 1993 B. Tkaczow: Topography of Ancient Alexandria (An Archaeological Map). Warsawa 1993.

Tkaczow 2010 B. Tkaczow: Architectural styles of Anceint Alexandria: elements of architectural decoration from Polish excavations at Kom el-Dikka (1960–1993). Alexadrie 8. Warsawa 2010.

Toll 1946 N. P. Toll: The Excavations at Dura Europos: Preliminary Report of the Ninth Season of Work: The Necropolis. New Haven 1946.

Torp 1997 H. Torp*:* Commentary, in: *Brown 1997* 59–65.

Tortorella 1998 S. Tortorella: La sigillata africana in Italia nel VI e nel VII secolo d.C.: problemi de cronologia e distribuzione, in: *Sagui 1998* vol. 1. 41–69.

Tölle-Kastenbein 1974 R. Tölle-Kastenbein: Das Kastro Tigani. Die Bauten und Funde griechischer, römischer und byzantinischer Zeit. Samos 14. Bonn 1974.

Török 2005 L. Török: Transfigurations of Hellenism. Aspects of Late Antique Art in Egypt, AD 250–700. Leiden – Boston 2005.

Travlos 1971 J. Travlos: Bilderlexikon zur Topographie des antiken Athens. Tübingen 1971.

Treadgold 1990 W. Treadgold: The Break in Byzantium and the Gap in Byzantine Studies. Byzantinische Forschungen 15 (1990) 292–294.

Treadgold 1994 W. Treadgold: Taking Sources on Their Own Terms and on Ours: Peter Brown's Late Antiquity. Antiquité Tardive 2 (1994) 153–159.

Treadgold 1997 W. Treadgold: A History of the Byzantine State and Society. Stanford 1997.

Tsafrir 1988 Y. Tsafrir: Excavations at Rehovot-in-the-Negev. vol. 1: The Northern Church. Quedem 25. Jerusalem 1988.

Tudor 2011 B. Tudor: Christian Funerary Stelae of the Byzantine and Arab Periods from Egypt. Marburg 2011.

Ullinger 2002 J. Ullinger: Early Christian Pilgrimage to a Byzantine Monastery in Jerusalem: A Dental Perspective. Dental Anthropology 16 (2002) 22–25.

Uscatescu 1996 A. Uscatescu: La cerámica del Macellum de Gerasa. Madrid 1996.

Uytterhoeven 2009 I. Uytterhoeven: Hawara in the Graeco-Roman Period. Life and Death in a Fayum Village. Orientalia Lovaninsia Analecta 174. Leuven–Paris–Wolpole, Mass. 2009.

Yashaeva 2011a T. Yashaeva: Byzantine Archaeology at Tauric Chersonesos, in: *Yashaeva 2011* 72–86.

Yashaeva 2011b T. Yashaeva (ed.): The Legacy of Byzantine Cherson. Sevastopol – Austin 2011.

Van 1992 R. L. Van: Early travellers and the first archaeologists, in: R. L. Van (ed.): Caesarea Papers: Straton's Tower, Herod's Harbour, and Roman and Byzantine Caesarea. JRA Suppl. 5. Ann Arbor 1992, 275–290.

Vandeput 2007 L. Vandeput: Pisidia survey project 2007: a survey in the territory of Pednelissos. AnatArch 13 (2007) 33–35.

Vandeput – Köse 2008 L. Vandeput – V. Köse: Pisidia survey project 2008: a survey in the territory of Pednelissos. AnatArch 14 (2008) 32–33.

Vanderhoeven 1989 M. Vanderhoeven: Les terres sigillées (1966–1972). Fouilles d'Apamée de Syrie IX.1. Bruxelles 1989.

Vanhaverbeke – Waelkens 2003 H. Vanhaverbeke – M. Waelkens: The Chora of Sagalassos. The Evolution of the Settlement Pattern from Prehistoric until Recent Times. SEMA 5. Turnhout, 2003.

Veikou 2012 M. Veikou: Byzantine Epirus. A Topography of Transformation. Settlements of the Seventh–Twelfth Centuries in Southern Epirus and Aetoloacarnania, Greece. The Medieval Mediterranean 95. Leiden 2012.

Vermoere 2004 M. Vermoere: Holocene Vegetation History in the Territory of Sagalassos (Southwest Turkey). A Palynological Approach. SEMA 6. Turnhout, 2004.

Vida 2008 T. Vida: Conflict and coexistence: the local population of the Carpathian Basin under Avar rule (sixth to seventh century), in: F. Curta (ed.): The Other Europe in the Middle Ages: Avars, Bulgars, Khazars and Cumans. East Central and Eastern Europe in the Middle Ages, 450–1450, 2. Leiden – Boston 2008, 13–46.

Vida 2009 T. Vida: Local and Foreign Romans? The Problem of the Late Antique Population of the 6th–7th Centuries AD in Pannonia, in: D. Quast (ed.): Foreigners in Early Medieval Europe. Thirtheen International Studies on Early Medieval Mobility. Monographien des RGZM 78. Mainz 2009, 233–260.

Vida – Völling 2000 T. Vida – Th. Völling: Das slawische Brandgräberfeld von Olympia. Rahden, Westf. 2000.

Villeneuve 2011 F. Villeneuve: Dharih (Jordanie méridionale): village chrétien puis musulman (VI^{e}–IX^{e} siècles) dans les ruines d'un sanctuaire nabatéen, in: *Borrut et al. 2011* 315–330.

Vionis – Poblome – Waelkens 2009 A. K. Vionis – J. Poblome – M. Waelkens: The hidden material culture of the Dark Ages: early medieval ceramics at Sagalassos (Turkey); new evidence (ca. 650–800 AD). Anatolian Studies 59 (2009) 147–165.

de Vires 1998 D. de Vires (ed.): Umm el-Jimal. A Frontier Town and its Landscape in Northern Jordan. vol. 1: Fieldwork 1972–1981. JRA Suppl. 26. Portsmouth 1998.

Vizcaíno Sánchez 2007 J. Vizcaíno Sánchez: La presencia Bizantina en Hispania (siglos VI–VII): la documentación arqueológica. Antigüedad y christianismo 24. Murcia 2007.

Vorderstrasse – Roodenberg 2009 T. Vorderstrasse – J. Roodenberg (eds): Archaeology of the Countryside in Medieval Anatolia. Leiden 2009.

Vroom 2005 J. Vroom: Byzantine to modern pottery in the Aegean. Bijlefeld 2005.

Vroom 2006 J. Vroom: Some Byzantine pottery finds from Kaman–Kalehöyük: A first observation. Anatolian Archaeological Studies 15 (2006) 163–169.

Vroom 2007 J. Vroom: The Archaeology of Late Antique Dining Habits in the Eastern Mediterranean: A Preliminary Study of the Evidence, in: *Lavan – Swift – Putzeys 2007* 313–361.

Vroom 2008 J. Vroom: Dishing up history: Early Medieval ceramic finds from the Triconch Palace in Butrint. The Mélanges de l'École Française de Rome - Antiquité 120 (2008) 291–305.

Vroom 2009 J. Vroom: Medieval Ceramics and the Archaeology of Consumptio in Eastern Anatolia, in: *Vorderstrasse – Roodenberg 2009* 235–258.

Vroom 2011 J. Vroom: The other Dark Ages: Early Medieval pottery finds in the Aegean as an archaeological challenge', in: R. Attoui (ed.): When did Antiquity End? Archaeological Case Studies in Three Continents. BAR IS 2268. Oxford 2011, 137–158.

Waagè 1933 F. O. Waagè: The American Excavations in the Athenian Agora, First Report: The Roman and Byzantine Pottery. Hesperia 2 (1933) 279–328.

Waagè 1948 F. O. Waagè: Ceramics and Islamic Coins. Antioch on the Orontes IV/1. Princeton 1948.

Waagè 1952 D. B. Waagè: Greek, Roman, Byzantine and Crusaders' Coins. Antioch on the Orontes IV/2. Princeton 1952.

Waelkens 1993 M. Waelkens (ed.): Sagalassos I. First General Report on the Survey (1986–1989) and Excavations (1990–1991). AAL Monographiae 5. Leuven 1993.

Waelkens – Poblome 1993 M. Waelkens – J. Poblome (eds): Sagalassos II. Report on the Third Excavation Campaign of 1992. AAL Monographiae 6. Leuven 1993.

Waelkens – Poblome 1995 M. Waelkens – J. Poblome (eds): Sagalassos III. Report on the Fourth Excavation Campaign of 1993. AAL Monographiae 7. Leuven 1995.

Waelkens – Poblome 1997 M. Waelkens – J. Poblome (eds): Sagalassos IV. Report on the Fifth and Sixth Excavation Campaigns of 1994 and 1995. AAL Monographiae 9. Leuven 1997.

Waelkens – Loots 2000 M. Waelkens – L. Loots (eds): Report on the survey and excavation campaigns of 1996 and 1997. AAL Monographiae11/a. Leuven 2000.

Waldebaum 1993 J. Waldebaum: Metalwork from Sardis. AES 8. Cambridge 1993.

Waterhause 1998 S. D. Waterhause: The Necropolis of Hesban: The Typology of Tombs. Hesban 10. Berrine Springs 1998.

Waywell et al. 1993 G. B. Waywell – J. J. Wilkes – D. M. Bailey – M. Donald – G. D. R. Sanders: Excavations at Sparta: the Roman Stoa, 1988–1991, Preliminary Report, part I. ABSA 88 (1993) 219–286.

Waywell et al. 1995 G. B. Waywell – J. J. Wilkes – A. D. Powell – N. Fradgley – J. W. Hayes – G. D. R. Sanders, G.D.R – S. E. C. Walker: Excavations at the ancient theatre of Sparta 1992–4: Preliminary Report. ABSA 90 (1995) 435–460.

Waywell – Wilkes 1994 G. B. Waywell – J. J. Wilkes: Excavations at Sparta: the Roman Stoa, 1988–1991: Preliminary Report, part 2. ABSA 89 (1994) 377–432.

Waywell – Wilkes 1997 G. B. Waywell – J. J. Wilkens: Excavations at Sparta. ABSA 92 (1997) 401–434.

Waywell – Wilkes 1999 G. B. Waywell – J. J. Wilkens: Excavations at the ancient theatre of Sparta 1995–1998: Preliminary Report. ABSA 94 (1999) 437–455.

Wendel – Angelova – Gomolka-Fuchs 1986 M. Wendel – St. Angelova – G. Gomolka-Fuchs: Die mittelalterlichen Siedlungen. Iatrus-Krivina: spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau, Bd. III. Berlin 1986.

Whittemore 1933 T. Whittemore: The Mosaics of St. Sophia at Istanbul. Preliminary Report on the First Year's Work, 1931–1932: The Mosaics of the Narthex. Oxford 1933.

Whittemore 1936 T. Whittemore: The Mosaics of Haghia Sophia at Istanbul. Second Preliminary Report. Work done in 1933 and 1934: the Mosaics of the Southern Vestibule. Oxford 1936.

Whittemore 1942 T. Whittemore: The Mosaics of Haghia Sophia at Istanbul. Third Preliminary Report. Work done in 1935–1938: the Imperial Portraits of the South Gallery. Oxford 1942.

Whittemore 1952 T. Whittemore: The Mosaics of Haghia Sophia at Istanbul. Fourth Preliminary Report. Work done in 1934–1938: the Deesis Panel of the South Gallery. Oxford 1952.

Whittow 1996 M. Whittow: The Making of Byzantium, 600–1025. Berkeley – Los Angeles 1996.

Wickham 2005 C. Wickham: Framing the Early Middle Ages. Europe and the Mediterranean, 400–800. Oxford 2005.

Williams 1977 C. Williams: A Byzantine Well-Deposit from Anemurium (Rough Cilicia). Anatolian Studies 27 (1977) 175–190.

Williams 1989 C. Williams: Anemurium. The Roman and Early Byzantine Pottery. Toronto 1989.

Woloszyn 2006 M. Woloszyn: Byzantine Archaeology – Selected Problems. Analecta Archaeologica Ressoviensia 1 (2006) 259–292.

Yangaki 2005 A. G. Yangaki: La céramique des IV^{e}–VIII^{e} siècles ap. J.-C. d'Eleutherna. Athènes 2005.

Zanini 1998 E. Zanini: Le Italie bizantine: territorio, insediamenti ed economia nella provincia bizantina d'Italia (VI–VII secolo). Bari 1998.

Zayadine 1986 F. Zayadine (ed.): Jerash Archaeological Project: 1981–1983. vol. 1. Amman 1986.

Zayadine 1989 F. Zayadine (ed.): Jerash Archaeological Project: 1984–1988. vol. 2. Amman 1989.

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SINOPE IN THE EARLY MEDIEVAL ECONOMY OF THE BLACK SEA REGION (QUESTIONS AND PROBLEMS)

Keywords: economy, trade, amphora, Early Middle Ages, Byzantine Empire, Black Sea, Carpathian Basin

The significance of research on Black Sea trade for Hungarian and international research

The term "Pontic" has been used to denote various regions in archaeological research. Hungarian archaeologists generally use the label for the steppe extending north of the Black Sea, a region that has traditionally played a major role in the "migrationist" theories in Hungarian archaeological scholarship, which highlights population movements.[1] In international research, the Black Sea region includes also the south-eastern shoreline[2] as well as the entire associated coastal area.[3]

Whichever definition is taken as a starting point, the research of the Black Sea region has major implications for studies on the interregional connections of the Carpathian Basin. The Black Sea acted both as a barrier between the "Barbarian" communities pursuing a nomadic lifestyle on the northern coast and the Byzantine Empire extending along the southern coast, and as a link between them. The principal evidence for transmarine connectivity is the corpus of amphorae indicating maritime trade – these amphorae have been found on Sarmatian sites in the Carpathian Basin,[4] on the settlements of the Cherniakhov population,[5] and they appear in large numbers in the find material of the Danube Bulgars[6] and the Khazars of Eastern Europe.[7]

However, the Pontic trade between the fifth to eleventh centuries was much more complex than suggested by the distribution maps of individual amphora types. In addition to local resources, agricultural produce and industrial products, trade was also influenced by the extent of urbanisation in various regions, the interdependence between different regions and, to some extent, by the state's organisation. This study seeks to address these questions and to outline the underlying complex economic processes, as well as to place one of the region's important port towns into a broader context.

The Black Sea as a research unit

During the past decades, historical studies have begun to focus on new units such as the research of the seas[8] instead of the earlier emphasis on nation states and, later, continents.[9]

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[1] The "migrationist" approach can be found in Copper Age (*Bondár 2012*; *Bondár 2013* 97–106), Early Iron Age (*Hatalmasok 2001*) and Migration period studies (*Bálint 1996* 938–939; *Istvánovits – Kulcsár 2006* 203–237).

[2] *Bryer – Winfield 1985.*

[3] *Pillinger – Pülz – Vetters 1992.*

[4] *Sóskuti – Wilhelm 2005* 101–117.

[5] *Magomedov – Didenk 2010* 479–485.

[6] *Kuzmanov 1973* 14–21; *Kuzmanov 1985* 9–95; *Todorova 2011* 131–140.

[7] For the amphora finds from the Crimea, see *Jakobson 1979*; *Sazanov 1989* 41–60; *Romanchuk – Sazanov – Serdnikova 1995* 3–110; for amphora finds from the Don region (Sarkel), see *Pletneva 1959* 243–246; for the amphorae of the Saltovo culture, see *Pletneva 1967* 129–134.

[8] *Bentley 1999* 215–224.

[9] For geographic arguments against the use of continents as absolute units, see *Lewis – Wigen 1997.*

While the Mediterranean is now generally accepted as a research unit, similar studies on the Black Sea only began as late as the 1990s.[10]

The treatment of the Black Sea as an economic system is not new in historiography: Fernand Braudel characterised this landlocked sea as such in his economic and social survey of the sixteenth-century Mediterranean. He described the Black Sea as the bread basket of Constantinople,[11] and characterised its economy as a command economy.[12] At roughly the same time as Braudel, the Romanian historian Gheorghe I. Brătianu came out with his theory on the Black Sea trade activities of medieval Italian merchants: in his view, the economy of the Black Sea region could be best described as a unit fluctuating between a command economy and free trade.[13] His theory was set in a broader historical perspective by Eyüp Özveren, a Turkish economist and economic historian, who illustrated Brătianu's model with examples taken from post-medieval and modern history.[14] Following the transition in Eastern Europe and the disintegration of the Soviet Union, there was an upsurge of interest in the Black Sea: this period saw the appearance of several books on the region's history[15] and of several theoretical models on the historical unit represented by the Black Sea.[16] The model of the sea's unity has also been applied to archaeological studies as shown, for example, by the Sinop Regional Archaeological Project (SRAP), designed to examine the hinterland of Sinop in Turkey (known as Sinope in Antiquity),[17] with a focus on economic changes using the analytical methods of landscape archaeology.[18]

What we have, then, is a theoretical model of an economic unit based on the interaction between the complementary small economies (ecoregions) of the Black Sea. How can this

[10] *Ascherson 1995*; *King 2004*.

[11] In his monumental, roughly 1200-page-long monograph on the Mediterranean, *Braudel 1972* 109–113 devoted no more than five pages to the Black Sea because in his view, it was only "partly Mediterranean" and because he essentially regarded the Black Sea as the "backyard" of the Mediterranean.

[12] This claim, made by *Braudel 1972* 111–112, holds true for the sixteenth century and can be regarded as the end of the process that began with the conquests of Mehmed II. *İnalcık 1979* 74–110 describes the Ottoman occupation of the Black Sea and the ousting of Italian (Venetian and Genoese) merchants as the closing of the sea. At the same time, the Black Sea has also been characterised as a hub of international trade in the High Middle Ages, see *Brătianu 1944* 36–39.

[13] As an active member of the liberal Romanian political elite in the interwar period, Brătianu's studies focused on the roots of Romanian capitalism. His perspective on history was greatly influenced by the French Annales School, and he defended his second doctoral dissertation in Paris in 1929 (*Boia 2001* 190; *Harition 2008* 1). Brătianu emphasised that as a "Byzantine lake", the Black Sea was pivotal to the provisioning of Constantinople, the capital, during the Byzantine period (*Brătianu 1938* 128–181; *Brătianu 1969* 154), and that even though the sea was opened to Italian merchants owing to external pressure, local monopolies continued to be protected. A major change occurred after the Fourth Crusade, when the monopoly of the Black Sea maritime trade was seized by the Venetians, leading to the appearance of free trade in the region, which contributed to the emergence of European trade and finance capital and, ultimately, of capitalism (*Brătianu 1969* 173–177, 219–223). For the activity of the Italian colonies in the Black Sea region during the Late Middle Ages, see *Balard 1978*. For Brătianu's role in the study of the Black Sea in historical studies, see *Özveren 2001* 71–77.

[14] From his study on the "Eastern Question" of the Black Sea and the late Ottoman period *Özveren 1977* concluded that the Black Sea was an economic unit. Özveren's study is, in effect, a rehabilitation of the pioneering work done by Brătianu, whom he calls the "obscure Braudel of the Black Sea", see *Özveren 2001* 71. He sets Brătianu's model of the fluctuation between a command economy and free trade in a broader historical perspective. In his view, the command economy of the eastern bloc was from 1989 again replaced by free trade (*Özveren 2001* 78–79). For a critical appraisal of Özveren's model, see *Troebst 2010* 84.

[15] The stream of books began with Scottish journalist Neal Ascherson's popular volume, see *Ascherson 1995*, followed by a volume summarising the history of the Black Sea written by US foreign affairs specialist, see *King 2004*. The "Black Sea Studies" series, focusing mainly on the region's history in Antiquity, published by the Danish Centre for Black Sea Studies already has sixteenth volumes (http://www.pontos.dk/publications/books/black-sea-studies-vol-1 [06.05.2015]).

[16] *Özveren 2001* 61–84; *Troebst 2006* 92–102; *Doonan 2010* 68–74.

[17] The variant Sinope is used in antique and Byzantine contexts, while the form Sinop is used when referring to the Ottoman period and the modern city.

[18] The main results of the research project and the changes in the settlement patterns in Sinop's hinterland have been published in a separate book, see *Doonan 2004*, alongside a series of theoretical and methodological studies: *Bauer 2006* 225–246; *Doonan 2009* 69–78; *Doonan 2010* 68–74; *Bauer – Doonan 2011* 183–206.

model be applied to the economy of Late Antiquity and the Early Medieval Period, and where does the Carpathian Basin fit into this economic system?

The economy of the Early Middle Ages and the Byzantine Empire

After Edward Gibbon's authoritative monograph,[19] the period following Classical Antiquity was invariably regarded as an age of decline. This image was in part the reason that the fall of the Roman Empire and the end the Antiquity was linked to a fifth-century event.[20] This picture prevailed until the earlier twentieth century and was gradually replaced by a theory that placed the period of decline to a shorter and later period than proposed previously. Henri Pirenne, the Belgian historian, argued that the flourishing of Late Antique economy came to an end in the eighth century in the wake of the expansion of Islam and the activity of Arab pirates.[21] Even though Pirenne Thesis has been severely criticised,[22] it has retained a decisive influence over our conceptual framework.[23]

The period's historiography is essentially determined by works emphasising interaction and urbanism,[24] long-distance trade and mass production in particular.[25] This approach focuses on economic processes that can be easily identified in the archaeological record,[26] but attaches little importance to local trade,[27] or regards it as insignificant "background noise".[28]

This direction is in sharp contrast to an economic history with an ecological perspective, which stresses local resources and environmental conditions.[29] While interactionists often fail

[19] *Gibbon 1776–1789* cover the period from the Roman Empire's third-century crisis to its fall in 1453, which is described as a slow, over one thousand-year-long agony.

[20] In 476, Odoacer deposed Romulus Augustulus, the last West Roman emperor.

[21] The basic idea of the book was conceived during Henri Pirenne's captivity in a POW camp during World War I; the first study, outlining what later became the renowned Pirenne Thesis, according to which medieval Europe owed its existence to the Arab expansion or, to put it otherwise, there would have been no Charlemagne without Mohammed, was published in 1922, while the book bearing the same title was published in 1937 after his death.

[22] The Pirenne Thesis has been criticised both on historical and archaeological grounds. The historical arguments are principally based on the written sources providing evidence for the survival of seventh–eighth century trade (*Horden – Purcell 2000* 160–166; *McCormick 2001*), on the close connection between piracy and long-distance trade (*Horden – Purcell 2000* 154–159) and on the growing role of local trade instead of long-distance trade (categorised as background noise and cabotage by *Horden – Purcell 2000* 151, 170; see also *Bauer – Doonan 2011* 183–206, emphasising the significance of local trade with an ethnoarchaeological perspective). The archaeological counterarguments are succinctly presented in *Hodges – Whitehouse 1983*, who points out the importance of Abbasid silver in the flourishing economy of the Carolingian renaissance.

[23] The Pirenne Thesis essentially represents an economic interpretation of the Dark Ages, a concept originating from Petrarch. The survival of the concept is illustrated by a monograph on economic history ("Dark Age Economics" see *Hodges 1982*). Pirenne was an advocate of the urban and interactionist direction of economic history, emphasising the importance of interactions in general, and of long-distance trade in particular, an approach that is followed by most economic historians today, see *Horden – Purcell 2000* 31–45.

[24] *Horden – Purcell 2000* 31–35, illustrating the impact of the interactionist perspective on the historiography of the Mediterranean through the works of Mikhail Rostovtzeff, Henri Pirenne and Shelomo Dov Goitein.

[25] *Pirenne 1937*; *Hodges 1982*; *Hodges – Whitehouse 1983*; *McCormick 2001*; for a similar approach to Byzantine economic history, see *Hendy 1985*; *Laiou 2002*; *Macrides 2002*; *Mundell Mango 2009.*

[26] Cf. the production of fine wares: Red Slip Ware (RSW): *Hayes 1972*; *Hayes 1980*; *Mackensen 1993*; for Pontic Red Slip Ware, see *Arsen'eva – Domżalski 2002* 415–491; for a comprehensive overview of the distribution of amphorae, see *Karagiorgou 2009* 37–58; for their distribution in the Black Sea region, see *Kassab Tezgör 2010b*; for the archaeology of shipwrecks, see *Parker 1992*; *Horlings 2005*; *Kocabaş 2008*; *Kingsley 2009* 31–36; for a discussion of research on shipwrecks, see *Gibbins – Adams 2001* 279–291.

[27] The prominent role of local trade is highlighted by an ethnoarchaeological study (*Bauer – Doonan 2011* 183–206), which takes as its starting point a purchase made in Erfelek, a small town near Sinop, and goes on to discuss general methodological issues in the study of trade.

[28] *Horden – Purcell 2000* 151, 170, criticise this approach because in their view this "background noise" was much stronger and more significant that earlier assumed.

[29] The first major representative of this approach in the historiography of the Mediterranean was *Braudel 1972* 23–352, who in accordance with the concept of the *longue durée* devoted the first half of his book (over three hundred pages) to the role of the environment and to the interaction between man and his environment.

to acknowledge the role of agriculture, craft industries and local exchange that account for a major portion of the economy, economic historians of ecological approach often fall into the trap of geographic determinism, according to which the interaction between man and his environment is one-sided, with the latter moulding the former; these historians take no account of man's impact on and transformation of the environment or of the changes in the latter.[30]

Thus, a balance has to be struck between these two directions in the interpretation of a region's economy: my examination and discussion of whether the Black Sea can be regarded as an economic unit, whether it was a closed economy, and to what extent it corresponds to the theoretical model outlined in the above – the fluctuation between free trade and a command economy – will be based on the macro- and micro-level description[31] of natural and human resources, and of agriculture, industry and trade.[32]

Natural resources[33]

In terms of physical geography, the Black Sea is a landlocked sea with a length of 1175 km whose smallest width does not exceed 250 km; its shoreline is 4338 km long, its depth is 2212 m in some spots.[34] The Black Sea covers an area of 436 400 km^2, while its drainage area exceeds 2,000,000 km^2, incorporating the Carpathian Basin and the Eastern European steppes.[35] There are few islands in the sea; its straits are more significant, providing a link with the Mediterranean and the Sea of Azov.[36] The water circulation is directed by two currents

In his critics' view, Braudel regarded the environment as a unchanging monolithic entity, which essentially determines human behaviour (in contrast, *Horden – Purcell 2000* 36–43, 45–49, 53–88, highlight the role of microregions and environmental changes). Landscape archaeology too represents an ecological approach and has a research focus on the interaction between man and his environment, principally through field surveys and various analytical procedures. For the methods employed in landscape archaeology, see *Aston – Rowley 1974*; *Wagstaff 1987*; *Aston 1997.*

[30] In order to avoid these pitfalls, landscape archaeology now tends to concentrate on smaller regions (microregions); in the Black Sea region, these projects include the SRAP, the Paphlagonia (*Matthews – Glatz 2009*; *Anderson 2011*), and the Euchaita/Avkat project directed by John Haldon (http://www.princeton.edu/avkat [06.05.2015]). Landscape archaeology has had an influence on historic studies too, as shown by the emphasis on the role of microregions in the new comprehensive survey of the Mediterranean and the case studies on four microregions (Beqa Valley, southern Etruria, Cyreneica and Melos) in order to identify the shared "Mediterranean" cultural elements (*Horden – Purcell 2000* 53–88) and the examples of how human communities transformed their environment through irrigation and terraced cultivation, see *Horden – Purcell 2000* 231–297.

[31] The inland hinterland of Sinop is used for the micro-level descriptions.

[32] This division was inspired by the structure of a monograph on the Byzantine economy, see *Laiou 2002*.

[33] The use of the term resources instead of conditions is deliberate in order to emphasise the exploitation of potentials as opposed to determinism.

[34] The size of the sea had long intrigued travellers, geographers and historians already in Antiquity: according to *Herodotus* IV. 86, a ship made the voyage from the Bosphorus to Phasis (modern Poti, Georgia), the farthermost point of the Pontus in that period, during eight days and nine nights, which in his calculation corresponded to 1 110 000 *orgyia* (ca. 1947 km) or 11 100 *stadia* (1742.7 km). The broadest part of the sea (from Sindica to Themiscyra, i.e. from modern Anapa to Terme) could be crossed in three days and two nights, corresponding to 330 000 *orgyia* or 3300 *stadia* (518,1 km). *Pliny the Elder* IV.XII.77–79 records several estimates, while Polybius specifies the distance between the Thracian and Cimmerian Bosphorus as five hundred miles (quoted by *Işık 2001* 18). Varro reports that the circumference of the Black Sea is 2150 miles (ca. 3186 km); Artemidorus estimated it as 2119 miles (3146.7 km), Agrippa as 2540 miles (3774.4 km) and Mucianus as 2425 miles (3603 km). Al-Mas^{c}ūdī, the tenth-century Arab geographer states that the length of the sea (Buntus) is 1100 miles and its breadth is 300 miles (*al-Mas^{c}ūdī* XIII. I. 260 quoted by *Kmoskó 2000* 153).

[35] For the geography of the Black Sea, see *Sorokin 2002*; *King 2004* 15–19. For the debates on the geological origins of the Black Sea, see *Yanko-Hombach et al. 2007.*

[36] The Bosphorus (called Bosphorus Thracius in Antiquity) provided the link to the Sea of Marmara, while the Kerch Strait (Bosphorus Cimmerius) connected the Black Sea with the Sea of Azov. The straits and their typical currents were described by the authors of Antiquity: *Polybius* IV.39.16 and *Pliny the Elder* II. C. 219 note that the north to south currents carry the water of the Black Sea into the Sea of Marmara (quoted by *Işık 2001* 15, 17). The geography of the Bosphorus is described in detail by Dionysius of Byzantium. The straits

running counter-clockwise, which also influence the movement of shoals and the shipping routes.[37] One effect of the currents is that navigation between the western and eastern basins was considered difficult,[38] and for this reason, the Black Sea was regarded as a double sea in Antiquity.[39] Given the period's conditions, the Black Sea could be crossed[40] in nine days, including the nights, travelling lengthwise, in three days at its widest point,[41] and in one day[42] at is narrowest point.[43] Owing to its low salinity,[44] countless fish species thrived in its waters, offering excellent potentials for fishing.[45]

Precipitation and temperature increases from west to east, resulting in a richly diverse vegetation cover and a number of different ecoregions,[46] whose evolution was significantly influenced by the relief: the vegetation of the Balkans,[47] the Pontic Mountains,[48] the Caucasus[49] and the Crimean Mountains[50] is dotted by woodland and mountain pastures, and the mineral deposits in the mountain regions too played a significant role.[51]

The region's natural resources (agricultural produce and mineral deposits) are versatile: the continental climate along the northern coast was conducive to cereal cultivation from Antiquity onwards,[52] the forested mountains overlooking the southern coast provided the timber necessary for shipbuilding,[53] while the wetter climate of the south-eastern and eastern coast favoured hazelnut cultivation[54] (and, more recently, tea production[55]).

Regarding mineral resources, the literary sources record the production of salt in Dobrudzha and the Crimea during the Byzantine period[56] and the medieval exploitation of

were under strict control in the Byzantine period, see *Ahrweiler 1961* 239–252; *Ahrweiler 1966* 13–14. For a survey of the Byzantine monuments of the Bosphorus, see *Eyice 2007.*

[37] Navigation handbooks contain detailed information on the currents of the Black Sea, see *Black Sea Pilot 1884* 1–5; Read *Barker – Borre 2011* 11–12.

[38] *Black Sea Pilot 1884* 3.

[39] This latter is a double sea, so to speak: "for two promontories jut out at about the middle of it … Now the western sea has a length of three thousand eight hundred stadia … The eastern sea is oblong and ends in a narrow head at Dioscurias; it has a length of five thousand stadia or a little more, and a breadth of about three thousand stadia." *Strabo* II. V. 22.

[40] It must be borne in mind that these data are only valid under ideal shipping conditions, under good wind and weather conditions. The Black Sea was notorious for the sudden fogs descending on it and its storms.

[41] *Herodotus* IV.86.

[42] *Morton 2001* 164, note 28.

[43] In Antiquity it was held that when making the passage between the Crimean Cape Sarych (Kriumetopon) and the Anatolian Cape Kerempe (Karambis) one could see the full length of one coast (*Strabo* VII.IV.3, p. 326). This is not borne out by the geographic data.

[44] The surface salinity of the Black Sea is no more than 17‰, and does not exceed 20–30 ‰ in deeper water either, see *Yanko-Hombach 2007* 2, 158.

[45] Some 180 fish species thrive in the Black Sea, most of which can be harvested. Fishing played an important role from prehistory onwards, and the written sources from Antiquity and later periods all highlight its importance. For Black Sea fishing, see *Bekker-Nielsen 2005.*

[46] The following ecoregions can be found along the Black Sea: 1. Pontic steppes, 2. Crimean sub-Mediterranean forest complex, 3. Caucasian mixed forests, 4. Euxine-Colchic broadleaf forests, 5. northern Anatolian pine and deciduous forests, 6. Balkan mixed forests, 7. East European forest steppe (http://www.worldwildlife.org/science/wildfinder [06.05.2015]).

[47] *Soustal 1991* 53–54.

[48] For the western part of the range, see *Belke 1996* 50–53; for the eastern part, see *Bryer – Winfield 1985* 2–3.

[49] *Armarchuk 2003* 184–185.

[50] *Baranov 1990* 7.

[51] For Byzantine mining, see *Vryonis 1962* 1–17; *Bryer 1982* 133–150.

[52] For cereal cultivation, see *Baranov 1990* 84.

[53] Beech, oak, hornbeam, alder, elm, plane, walnut, chestnut and hazel trees are frequent: *Bryer – Winfield 1985* 5.

[54] *Bryer – Winfield 1985* 5. Hazel cultivation was extremely widespread on the southern coast; according to some sources, the nuts were ground into flour for bread (*Xenophon* V.IV.27–30, quoted by *Bryer – Winfield 1985* 6). Bread baked from hazelnut flour (*fındık unu ekmeği*) is still popular in the Trabzon area.

[55] *Klasra – Khawar – Aasim 2007* 523–524.

[56] Salt distillation is reported in the written sources: "From the Dnieper river to the Cherson is 300 miles, and between them are marshes and harbours, in which the Chersonites work the salt" *DAI* 42, 70, p. 187.

the copper and silver deposits in the Pontic Mountains,[57] while copper and iron mining in the Caucasus (including the exploitation of the iron-bearing sands of the shore) has been documented from prehistory onwards.[58] There is evidence for the exploitation of naphtha on the Taman peninsula from the tenth century onwards;[59] naphtha was one of the main ingredients of Greek fire. The strategically important gold mines of Armenia (Zod) lay somewhat farther from the coast.[60]

The Black Sea region is thus characterised by an environmental diversity, reflected both in the vegetation and the mineral deposits as well as in the employed agricultural techniques. This diversity can be noted not only on the macro-, but also on the micro-level in the case of Sinop.

The prominence of Sinop can be sought in its geographic location[61] and its diversity. The Sinop promontory (Sinop Yarımadası) is currently the northernmost province of Turkey (officially called Sinop İli); the promontory lies at the intersection point of the Black Sea's two major currents, which eases communication with the northern coast.[62] The city's centre was built on the Isthmus leading to the volcanic cone of the Boztepe, the greater part of the promontory is made up of sedimentary rocks (limestone and flysch).[63] The promontory's western and eastern shore differ considerably: sailing is difficult on the western side owing to the steep, rugged, rocky coast and the strong currents,[64] while the eastern shore provides an ideal agricultural hinterland[65] with its natural harbours and gentle hills.[66] The varied vegetation[67] and relief[68] form a colourful patchwork of ecoregions,[69] and led to the emergence of a wide range of economic strategies.[70]

Human resources

In addition to the natural resources, an economy is also based on human resources. Two main points need to be considered in this respect: the region's demographic conditions and the extent of urbanisation, given that cities act as central places in redistribution and as the primary centres of industrial activities.[71]

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[57] There are major silver mines near modern Amasya (Amaseia), Gümüşhane (Argyropolis) and Bayburt, which appear in the literary sources from the twelfth–thirteenth centuries, see *Vryonis 1962* 8–9; *Bryer 1982* 139–140. More recent metallographic analyses have furnished proof for the sixth-century use of the silver mines near Gümüşhane, see *Yener – Toydemir 1992* 155–168.

[58] Chalybian iron production was famous since Antiquity. For the iron-bearing sand suitable for producing pig iron, see *Tylecote 1981* 137–139; for an overview of the contemporary sources on mining, see *Bryer 1982* 135–138.

[59] "Outside the city of Tamatarcha are many wells yielding naphtha" […] "In Zichia, in the place called Papagi, near which is a village called Sapaxi, which means 'dust', there is a spring yielding naphtha", see *DAI* 53. 494–500, p. 285. *DAI* 53. 502–505, p. 285 also mentions a village by the name of Chamouch, where there was a spring yielding naphtha. The village lay at a distance of one day's journey on horse from the coast. The naphtha deposits can be identified with the oilfields of the Kuban region.

[60] The Armenian gold deposits were a source of constant conflict between the Byzantines and the Persians, see *Vryonis 1962* 5–6.

[61] For the geography of Sinop, see *Tarkan 1941.*

[62] For the effect of the sea currents on the settlements in the Sinop area, see *Özdemir 2002* 74–125.

[63] For the geography of the Sinop peninsula, see *Gedik – Ercan – Korkmaz 1982–1983* 34–50; *Gedik – Korkmaz 1984* 53–79; *Doonan 2004* 13.

[64] *Akkan 1975* 76; *Doonan 2004* 16.

[65] *Doonan 2004* 21, 36, 39–40, figs 2–3.

[66] For the morphology of the eastern coast, see *İnandık 1955* 21–45; *İnandık 1957* 51–71; *Akkan 1975* 83–84.

[67] For the region's vegetation, see *Doonan 2004* 18–19.

[68] *Akkan 1975.*

[69] The typical ecoregions are Boztepe, the eastern coastal plain, the plain of the Karasu river, İnceburun and the western coast, see *Doonan 2004* 36, figs 2–3.

[70] Fishing, cereal cultivation, horticulture (vegetables, fruits), olive cultivation, viticulture and transhumant stockbreeding, see *Doonan 2004* 20–21.

[71] This view has come under criticism more recently. Although a sharp boundary cannot be drawn between cities and rural areas in terms of farming (e.g., vegetables were also grown in Constantinople: see *Koder 1993*), we

There are several demographic estimates for the population of the Byzantine Empire, most of which are based on retrojections from later data.[72] Population estimates range between twenty[73] and thirty million[74] for the sixth century, and between seven and ten million for the seventh to ninth centuries.[75] The above estimates suggest a population density ranging between 9 to 15/km^2 in the Byzantine Empire in the sixth to tenth centuries.[76] The Black Sea coast represents a roughly 200 000 km^2 large portion of the Byzantine Empire, the implication being that the region's population could hardly have exceeded two million.

Urbanisation in the Black Sea region began during the Megaran and Milesian colonisation in the Archaic period;[77] most of the Greek colonies survived into the Middle Ages.[78] The cities lay some 100 to 200 km apart, studding the coastline like the pearls of a necklace.[79]

The size of the cities differed considerably. The region's largest city was Constantinople, the empire's capital, which lay some 30 km from the Black Sea and had an estimated population of 350–500 000.[80] The huge imperial city, sprawling over a 1368.97 ha large area eclipsed by far the smaller Black Sea cities, whose *intra muros* area ranged between ten and forty hectares.[81] With its 27 ha large area, Sinope can be ranked among the larger cities.[82] The city's size also allows a rough estimate of its population,[83] which could hardly have exceeded five thousand.[84] Interestingly enough, the region's provincial centres did not lie on the coast. Sinope had administratively belonged to Amaseia,[85] even though their size was roughly identical. The agricultural hinterland of the cities was quite significant – the overwhelming

know that industrial activities were also pursued in villages. For a new interpretation of the role of cities, see *Horden – Purcell 2000* 95–105.

[72] The estimates on the population size of the Byzantine Empire and the data they are based on have been summarised by Angeliki E. Laiou in a study on the empire's human resources: *Laiou 2002* 47–55.

[73] At the lower end of the range are suggestions for a population of twenty-one million around 600 (*Russel 1958* 148) and of twenty-six million in Justinian's age: *Treadgold 1997* 278.

[74] The higher figures were suggested by *Stein 1949* 154, who posited a population of thirty million in the Age of Justinian.

[75] Seven million in 775, eight million in 842 and nine million in 959 (*Treadgold 2001* 236).

[76] 518: 15 people/km^2, 540: 10.21 people/km^2, 565: 12.56 people/km^2, 641: 9.21 people/km^2, 668: 9–34 people/km^2, 775: 10.14 people/km^2, 842: 10–12 people/km^2, 959: 10.58 people/km^2. These figures are my own estimates, based on Warren Treadgold's calculations and the changes in the empire's territory: *Treadgold 2001* 236. As a comparison, the population of the Sinop *kaza* (juridical district) totalled 30 525 people according to the 1487 tax census (*tahrir defteri*) (*Ünal 2008* 107), conforming to a population density of 10.17 people/km^2.

[77] For a summary of the Greek colonisation in the Pontic, see *Tsetskhladze 1998*.

[78] At least regarding the cities on the southern coast, as shown by the survival of the Antique toponyms appearing in the Ravenna Cosmography, see *Ravennatis Anonymi* II. 17. p. 99–102.

[79] The most complete list of cities has been preserved in *Arrian*'s second-century periplus, which lists thirty-one cities along the sea.

[80] *Mango 1980* 62.

[81] The area covered by the Black Sea cities, based on the city walls: Amastris (modern Amasra): 8.39 ha (intra muros) + 1.69 ha (Tavşan adası/Rabbit Island); Amaseia: 26.73 ha; Histria: 7.3 ha (intra muros) + 6.18 ha (extra muros), totalling 13.47 ha; Chersonesus Taurica (modern Sevastopol): 33.9 ha; Trapezunt (modern Trabzon): 30.44 ha; Mesembria (modern Nesebar): 15.78 ha; Odessus (modern Varna): 47 ha. The list is based on my own calculations made using the ArcGIS Explorer programme.

[82] I only considered the city's *intra muros* area and did not include the suburban territories.

[83] A coefficient of 200 people/hectare is generally employed, see *Chandler – Fox 1974* 5; more recently, *de Ligt 2008* 147–154 calculated with an average of 150 people/ha in his estimates for Roman period populations, although in the case of Rome and Ostia, he used an extremely high coefficient of 300–600 people/ha.

[84] Using the median coefficient of 200 people/hectare, the estimated population figures are as follows: Amastris: 2084, Amaseia: 5346, Histria: 2696, Chersonesus Taurica: 6780, Trapezunt: 6088, Mesembria: 3156, Odessus: 9400 and Sinope: 5346. These figures conform to the pre-industrial population of these cities; we know that Nesebar had a population of around 4000 in the nineteenth century (*Venedikov 1969* 27), and we can calculate the Ottoman period population of Sinop from the tax censuses (*tahrir defteri*), which are available from 1487 and which in addition to the urban population, also contain information on the rural population, even if they record the number households only. Calculating with five persons per household, Sinop's population was made up of 3735 Muslims and 815 Christians, adding up to a total population of 3753 in 1487 (*Ünal 2008* 107, Pl. 13). The latter figure would imply that in this case, the coefficient of 200 persons/ha is probably too high.

[85] The city was first the capital of the province of Helenopontus and later the seat of the Armeniac Theme, see *Bryer – Winfield 1985* 12–13.

majority of the population (80–90%) lived in villages during this period.[86] Obviously, the population figures specified in the above are rough estimates reflecting order of magnitude and should not be regarded as exact data.

Agriculture

The most important branch of the economy was agriculture during the period discussed here because it ensured the provisioning of the population and provided the necessary raw materials for various industries (food and textile industry and shipbuilding). Studies on the economy of the ancient world and the Medieval Period argued for the primacy of arable farming; the role of the forest economy is usually underestimated,[87] while animal husbandry is seen as a more rudimentary subsistence practice.[88]

Cultivation techniques and the land tenure system are essentially determined by the size of cultivated fields;[89] in this respect, major differences can be noted between the northern and southern Black Sea coast. The plain-land extending along the northern coast was characterised by large fields, while the mountainous region flanking the southern littoral permitted smaller fields only and the proportion of land suitable for arable farming was also low.[90] This essentially enabled a cereal monoculture in the northern territories, which had already appeared in Classical Antiquity,[91] while the small fields in the south were characterised by polyculture.[92] The differing field sizes also meant that much higher amounts of cereal could be produced on the northern plains than needed for the sustenance of the local population[93] – a substantial grain trade was built on the surplus, which was first used to supply ancient Greece and, later, Constantinople.[94]

In addition to cereals, viticulture and wine production too played a major role in farming and was practiced along the entire Black Sea coast.[95] The cultivation of vegetables[96] and

[86] For the low proportion of the urban population in Antiquity, in contrast to estimates that it accounted for between 25 to 40 % of the population, see *Scheidel 2008* 31; for the Middle Ages, when, for example, the ratio of the urban population of England was 5 to 10 %, see *Pounds 2005* 80. In the case of Sinop, the 1487 tax census records that 81.32 % of the population lived in villages (25 276 persons of a population of 30 525 in the *kaza* of Sinop; cf. *Ünal 2008* 107, Pl. 13).

[87] For the role of woods and the diverse forms of their exploitation (food gathering, brushwood, timber), see *Horden – Purcell 2000* 182–186.

[88] For an overview of earlier studies, see *Horden – Purcell 2000* 197–200. For their part, the authors emphasise the economic stabilising role of transhumant pastoralism.

[89] It must here be noted that the basic unit of land remained unchanged until the twentieth century and denoted the amount of land that a yoke of oxen could plough in one day, hence its name, "yoke" (called *iugum* in Latin, *zeugarion* in Greek and *çiftlik* in Turkish); the actual size varied according to natural conditions (*Bryer 2002* 107): according to data from the Ottoman period, a *çiftlik* ranged between thirty and five hundred hectares, see *Kasaba 1988* 24.

[90] On the Sinop peninsula, the proportion of arable land accounted for 20% of the entire territory of 3000 km^2, *Ünal 2008* 25.

[91] For cereal cultivation in Antiquity and the size of the fields, see *Blavatsky 1953* 25–55.

[92] In this respect, the agriculture of the southern coast is comparable to Mediterranean cultivation practices: both regions are characterised by small fields, polyculture and intensive cultivation, *Horden – Purcell 2000* 257–262; for the small fields of the Sinop peninsula, see *Ünal 2008* 25. For Byzantine farming techniques, see *Kaplan 1992* 47–48; for irrigation, see *Kaplan 1992* 67–68.

[93] The archaeological record would suggest that heavy ploughs were used in the Crimea already during the seventh century: *Baranov 1990* 84; *Noonan 2007* 222. However, *Bryer 2002* 107, note 16, voices his doubts regarding the reliability of the evidence. In contrast, heavy ploughs were virtually unknown in several places on the southern coast even in the twentieth century, which can be explained by the differing quality of the soils and the field sizes.

[94] For the extent of the Black Sea grain trade in Antiquity, see *Braund 2007* 39–68. For the Byzantine grain trade, see *Teall 1959* 87–139.

[95] The Crimean peninsula (*Baranov 1990* 71–72; *Noonan 2007* 222–223), the Taman peninsula (from the Il'ichvsk site: *Nikolaeva 1984* 16–21; *Gavrituhin – Paromov 2003* 154); the Caucasian slopes and northern Anatolia (Ibn Battuta, quoted by *Doonan 2004* 124; the Themiscyra area: *Strabo* XII.3.15; *Belke 1996* 142), Thrace (*Soustal 1991* 149). For Byzantine wine production, see *Kaplan 1992* 33–34.

[96] For the cultivation of vegetables in Constantinople, see *Koder 1993*.

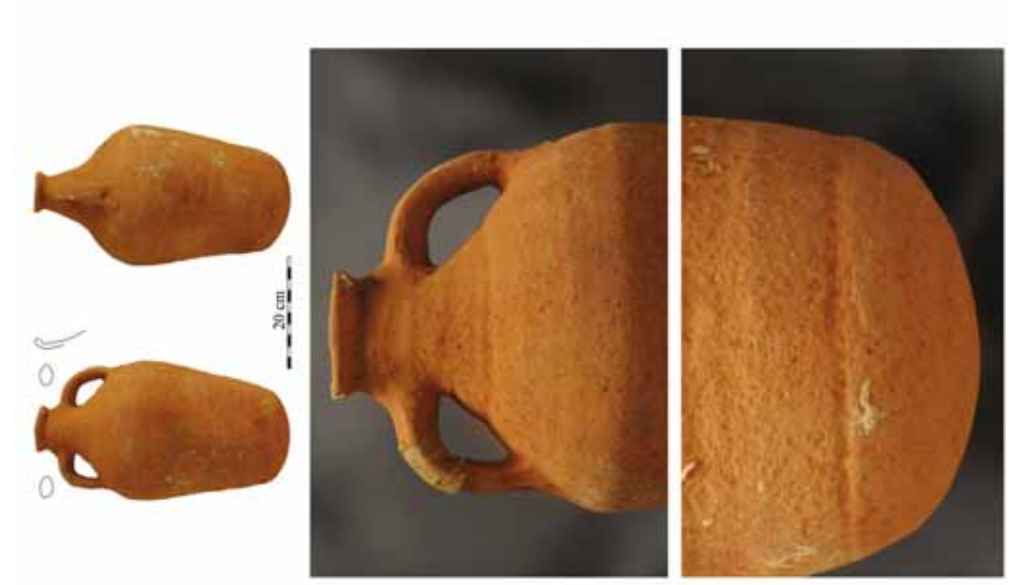

fig. 2. Crimean amphora from Sinop Archaeological Museum (Inv. No. 4.5.82)

fig. 1. Crimean amphora from Sinop Archaeological Museum (Inv. No. 2.2.83)

fruits[97] was equally important, as was the production of industrial plants, principally flax and hemp,[98] and olives were grown in the hinterland of Sinope.[99] Although hazelnut production, typical on the southern coast of the Black Sea, can be regarded as a transition between arable farming and gathering, its significance should not be underestimated.[100]

Forestry was a prominent part of the economy, in part owing to the hazelnut production mentioned above, and in part to lumbering to procure the raw material for heating and house construction as well as shipbuilding, especially on the densely forested southern coast.[101]

Transhumant pastoralism is attested in all forested regions of the Black Sea.[102] Fishing was not merely a supplementary source of subsistence: in addition to meeting local demands, it was complemented by fish processing and trade.[103]

The record from the broader Sinope area indicates the one-time existence of extensive villa economies, which were also engaged in vine cultivation and olive oil production.[104] The remains of a Late Antique villa were identified at Karapınar during the SRAP surveys: on the testimony of the finds, the villa was principally engaged in producing olive oil.[105] Among the Sinopean regions, the eastern coast[106] and the Karasu Valley[107] were most suited to villa economies. The prominence of Sinope lies exactly in that all agricultural forms typical for the Black Sea region can be found in its hinterland; moreover, the production of olive oil was unique in the region.

Industry

Although the period's and the region's industry was essentially a craft and processing industry, there is also evidence for mass production, principally the manufacture of ceramic wares. Finds attesting to the production of amphorae come from the Crimea,[108] Herakleia

[97] *Strabo* XII.3.15 records that apples, grapes and other fruits were grown at Themiscyra. Figs, grapes, chestnut, walnut, pears, apples and plums were grown on the Sinop peninsula during the Ottoman period, see *Ünal 2008* 173; Ibn Baṭṭūṭa also mentions figs, see *Doonan 2004* 124.

[98] On the southern coast of the Black Sea: *Bryer – Winfield 1985* 6. For flax and hemp cultivation during the Ottoman period in the Sinop area, see *Ünal 2008* 175–180.

[99] *Strabo* II.1.15 reports that "the suburbs of Sinope and Amisus and the greater part of Phanaroea are planted with olive-trees."

[100] In addition to roasting, hazelnut was also ground into flour and used for oil production, see *Bryer – Winfield 1985* 4–5.

[101] The importance of lumbering was noted already by *Strabo* XII.3.12: "Both Sinopitis and all the mountainous country … above the aforesaid seaboard have shipbuilding timber that is excellent and easy to transport. Sinopitis produces also the maple and the mountain-nut, the trees from which they cut the wood used for tables." See also *Theophrastus* IV. 5. 5. 327; *Belke 1996* 139.

[102] For transhumant pastoralism in the Pontus Mountains, see *Bryer – Winfield 1985* 7; *Belke 1996* 143–144; *Tuncel et al. 2004* 49–66; in the Balkan Mountains, see *Soustal 1991* 150; *Arnold –Greenfield 2006*; for the Crimean Mountains, see *Baranov 1990* 76–78; for the Caucasus, see *Radvanyi – Muduyev 2007* 157–177.

[103] The fished species were mackerel, barbel, red mullet, scorpionfish, tuna, anchovy and cod. For Black Sea fishing, see *Bekker-Nielsen 2005*. *Strabo* (VII.6.2) describes fishing and fish processing in the Sinope area, while tuna fishing and processing are mentioned in several sources, see *Pliny the Elder* IX.18, *Athenaeus* III.118c, VII.307b and *Aelianus* XV. 4–5. 10, all cited by *Doonan 2004* 95; for Paphlagonia, see *Belke 1996* 144–145; *Bryer – Winfield 1985* 6; for the Crimea, see *Romanchuk 2005* 101–102.

[104] *Strabo* II.1.15, XII.3.12; *Doonan 2004* 94, based on the legend of St. Phocas.

[105] *Doonan 2004* 112, 115–116.

[106] A high settlement density characterised the area around Demirci (*Doonan 2004* 106–108) and Çiftlik (*Doonan 2004* 101) on the eastern coast.

[107] The evidence from the archaeological field surveys (*Doonan 2004* 111–114) and the tax censuses (*tahrir defteri*) of the Ottoman period (*Ünal 2008* 60–64) indicate a similar settlement density during the Late Antique and Ottoman periods too.

[108] For the pottery kilns in the Crimea, see *Jakobson 1979* 39–60; *Romanchuk 2005* 113–117.

fig. 4. Late variant of LR 2 amphora from Sinop Archaeological Museum (Inv. No. 3.25.73)

fig .3. Crimean amphora from Sinop Archaeological Museum (Inv. No. 6.1.73)

Pontike[109] and Sinope.[110] While amphora production ceased in Herakleia and Sinope by the seventh century,[111] the amphora kilns found on the Crimean peninsula clearly indicate that the production of this ware continued during the eighth and ninth centuries.[112] Fine wares such as Pontic Red Slip Ware were also produced *en masse* in the Black Sea region until the later fifth century (although the workshops are not known); this ware was distributed along the entire coastline in the fourth–fifth centuries.[113] From the later fifth century to the seventh century, this ware was replaced by Phocean Red Slip Ware from the Aegean.[114] There is evidence for the mass production of roof tiles in Herakleia and Sinope.[115] The food industry is represented by production of olive and hazelnut oil, and of fish sauce.

A processing industry was based on the flourishing agricultural production of Sinope in its hinterland, as shown by the many oil and grape presses found along the eastern coast, especially near the modern village of Demirci. Remains of the workshops producing the amphorae needed for the transport of the pressed oil were excavated by Dominique Kassab Tezgör at Demirci on the coast.[116] The so-called Sinopean carrot amphorae reached every corner of the Black Sea and various areas in the eastern Mediterranean,[117] and their use has been attested as late as the seventh century in the Crimea.[118] Sinopean amphorae were extremely popular, to the extent that the ware regarded as the city's hallmark began to be copied in Herakleia Pontike and other cities on the northern Black Sea coast.[119]

In addition to the mass production of amphorae, there is evidence for the manufacture of domestic pottery and roof tiles in Sinope; these can be easily identified from their pyroxene (black sand) contents.[120] Judging from the use of pyroxene as a tempering agent, the ninth–tenth-century Tmutarakan type jugs in the Sinop Archaeological Museum (Sinop Arkeoloji Müzesi) were likewise made in this area.[121] However, the current record is insufficient for determining when glazed pottery became widespread in the region and whether this ware was produced locally:[122] the survey data would suggest that unglazed vessels were used before the appearance of the twelfth–thirteenth-century sgraffito ornamented glazed wares. Local metalworking is indicated by a mould for a strap-end housed in a private collection in Sinop.[123] At the same time, there is no mention of shipbuilding in the written sources, even though this craft was quite certainly practiced in the city,[124] or of linen weaving.

[109] For the carrot amphorae of Herakleia, see *Opaiţ 2010* 389–393.

[110] Late Antique amphora kilns have been found on the coast by the modern village of Demirci, south of Sinope, see *Kassab Tezgör 2010a*.

[111] *Kassab Tezgör 2010a* 11.

[112] *Jakobson 1979* 39–60; *Romanchuk 2005* 113–117.

[113] *Arsen'eva – Domźalski 2002* 415–491; *Domźalski 2011* 163–178.

[114] *Hayes 1972* 323–369, maps 14–16; *Domźalski 2011* 172–173; *Laflı – Kan Şahin 2012* 75.

[115] For the production of roof tiles in Sinope during the Hellenistic period, see *Stoyanova 2010* 441–465. The field survey data suggest that the manufacture of roof tiles continued in the late Roman–early Byzantine period, see *Doonan 2004* 42, 48, 102.

[116] The amphora kilns were found along a 20 km long section near the coast; four workshops were identified during the field surveys (*Kassab Tezgör 2010a* 7). For the amphora kilns uncovered at Demirci, see *Kassab Tezgör 2010a* 43–94.

[117] For the finds from the eastern coast of the Black Sea, see *Kassab Tezgör 2002* 199–218; *Inaishvili –Khalvashi 2010* 497–502; for amphoras from Cherniakhov contexts, see *Magomedov – Didenk 2010* 479–485; *Kassab Tezgör 2010b* 167–173.

[118] *Baranov 1990* fig. 9.

[119] *Opaiţ 2010* 371–401.

[120] *Doonan 2004* 15; *Kassab Tezgör 2010a* 7; *Opait 2010* 379.

[121] For a discussion of these jugs, see *Pletneva 1959* 248–251; *Pletneva 2003* 175; *Chkhaidze 2008* 161–173.

[122] Constantinople glazed ware has been found at Pompeiopolis: *Domźalski 2011* 173–174; for early Byzantine glazed pottery, see *Böhlendorf-Arslan 2004* 97–99.

[123] Antik Otel inv. no. 219; good parallels are known from Chersonesus: *Aibabin 1982* 190–198.

[124] There is only a single reference to ship-building in Sinope, namely that according to the legend of Saint Phocas, the saint's father worked as a ship-builder: *van de Vorst 1911* 260, 280; *Belke 1996* 139.

fig. 6. Late variant of LR 2 amphora from Sinop Archaeological Museum (Inv. No. 28.4.80)

fig. 5. Late variant of LR 2 amphora from Sinop Archaeological Museum (Inv. No. 10.12.1981)

Trade

Studies on early medieval trade tend to focus on large-volume long-distance trade, even though this probably accounted for a smaller portion of the period's one-time merchant activities.[125] The early medieval trade of the Black Sea can be reconstructed from the information contained in the literary sources,[126] the distribution of amphorae,[127] the widespread use of certain fine ware types[128] and the analysis of shipwrecks.[129]

Studies on a period's trade are based on the knowledge of communication and transportation means. The most cost-effective transportation was water transport for which the sea provided excellent opportunities. Shipping routes were essentially determined by the currents, which ensured Sinope's distinguished role in the period's trade. Shipping was principally hindered by the weather and it is not mere chance that the sailing season lasted from spring to autumn, as evidenced by the stipulations in the *Codex Theodosianus*.[130] The sea could be circumnavigated within a relatively short time, despite the storms typical for the sea,[131] which was extremely conducive to marine trade. The excavated ship remains indicate that the length of merchant ships ranged between 10 and 30 m and they were rigged with lateen sails, used from the sixth century onward.[132]

Other trade routes were also available in addition to the marine one. The road network of the Roman Age was still used in Anatolia and in parts of the Balkans during the Byzantine period – as indicated by the fact that the Roman postal system[133] was first reformed by Justinian.[134] In the case of northern Anatolia, the surviving Roman inscribed milestones have enabled the mapping of the Roman-Byzantine roads.[135] Rivers too played a prominent role beside the overland routes, although the major rivers of the northern coast (the Don, the Dnieper and the Dniester) were probably more important[136] than the ones on the southern coast (Halys: Kızılırmak, Iris: Yeşilırmak)[137] in this respect.

Owing to the good state of preservation of the city walls, the exact location and extent of Sinope's harbour is known: the harbour covering a roughly oblong area lay south of the city wall, near the acropolis, by the modern shipyard.[138] Several other harbours are known near the city, the most important among these being Harmene (Akliman) at the mouth of the Karasu[139] and Karousa (modern Gerze) lying 30 km from Sinope.[140] Shipwrecks have been discovered

[125] For the importance of small-volume local trade, see *Horden – Purcell 2000* 143–145; *Bauer – Doonan 2011* 183–206.

[126] The literary sources such as the *Notitia Urbis Constantinopolitanae* and the *Book of the Eparch* (late ninth century) mainly provide descriptions of Constantinople: *Mundell Mango 2000* 189–207.

[127] *Karagiorgou 2009* 37–58.

[128] *Hayes 1972*; *Hayes 1980*; *Domżalski 2011* 163–178.

[129] *Kocabaş 2008*; *Kingsley 2009* 30–36; for the shipwrecks in the Sinop area, see *Ward – Ballard 2004* 2–13; *Ward – Horlings 2008* 148–173; *Ward 2010* 189–198, 541–542.

[130] According to the stipulations of the *Codex Theodosianus* XIII. 9. 3 sailing was prohibited between October and April owing to the weather conditions, see *Meijer – van Nijf 1992* 165.

[131] For the period's seafaring conditions, see *Pryor 2002* 33–58.

[132] The shipwrecks are well reported in the literature; one of the more outstanding recent discoveries is the Theodosian harbour in the Yenikapı quarter of Istanbul, where thirty-three shipwrecks were excavated. For the technical details of merchant ships, see *Kocabaş 2008* 103–175.

[133] For a discussion of the Roman postal system (*cursus publicus*), see *Kolb 2001.*

[134] In this case, the reform actually meant dismantling the system because with the exception of the road to Persia, the emperor only retained the postal stations lying at a distance of one day's travel on all the roads.

[135] For the Roman roads in northern Anatolia, see *Winfield 1977* 151–166; *French 1981* 149–174; *Bryer – Winfield 1985* 19–59; *Belke 1996* 117–134.

[136] Evidence for the use of the rivers on the northern coast as waterways comes from the ninth–tenth centuries, in connection with the trading activities of the Rus, see *DAI* 8–9. p. 55–63.

[137] It is hardly more chance that Amaseia, the region's large provincial centre, was located on the Iris (Yeşilırmak). For the navigable rivers of Anatolia, see *Bryer – Winfield 1985* 18–19.

[138] *Bryer – Winfield 1985* 88.

[139] *Doonan 2004* 72, 81–82.

[140] *Bryer – Winfield 1985* 89.

fig. 8. Tmutarakan type jug from Sinop Archaeological Museum (Inv. No. 4.1.82)

fig. 7. Tmutarakan type jug from Sinop Archaeological Museum (Inv. No. 1.6.89)

in the immediate vicinity of Sinope: Cheryl Ward and Robert Ballard found four Antique sunken ships west of İnceburun during the investigations conducted as part of the Black Sea Trade Project.[141] Overland routes could be reconstructed from the location of the Roman milestones[142] and a GIS-based least cost path analysis,[143] which suggested the existence of two major routes: a coastal road leading to Amisos (modern Samsun) and an inland road to the promontory's interior, towards Boyabat and Pompeiopolis (modern Taşköprü).[144]

The period's undoubtedly most significant trade was in grain. Between 330 and 618, Constantinople provided free bread for 80 000 people as part of the *annona*: this corresponded to an annual 31 200 tons and the cargo of 620 fifty-ton ships.[145] Even though the greater part of the city's grain was at the time still provided by Alexandria,[146] the Black Sea region too played an important role in the city's provisioning. Following the faltering of grain transports from Alexandria after 618/642, new resources were sought and found in part in Sicily,[147] and in part along the Black Sea coast.[148] The shift is reflected in the harbours of Constantinople: the Theodosian harbour of Yenikapı gradually silted up and the Julianus or Sophia harbour was used on the Sea of Marmara,[149] while the harbours at Prosphorion and Neorion, open towards the Black Sea, in the Golden Horn Bay.[150] These changes indirectly reflect the transformation of trade preferences.

The distribution of amphorae is extremely useful for identifying trade patterns, especially if the workshops manufacturing the amphorae are also known. The LR 1 and LR 2 amphorae representing the most widely used types during the fifth to seventh centuries in the western basin of the Black Sea were produced in Cilicia and the Aegean.[151] The study of the museum's collection in summer 2013 revealed that these amphora types had also reached Sinope,[152] confirming the openness of the Black Sea towards the Mediterranean. The extensive distribution of carrot amphorae similarly reveals much about the long-distance trade conducted from Sinope: although the occurrence of these amphorae has been documented as far as the eastern Mediterranean in the fifth century, they were mostly typical for the eastern Black Sea during the sixth–seventh centuries.[153]

We only have indirect evidence for the Sinopean grain trade: Gülgün Köroğlu's recent excavations have revealed that the *extra muros* Balatlar baths, built in the fourth century,[154] were used as a granary after the collapse of the fifth–sixth-century church in the seventh century.[155] When speaking of "exotic commodities", we must also take stock of the mass presence of Red Slip Ware in Sinope and its agricultural hinterland.[156] Unfortunately, the workshops of the Pontic Red Slip Ware have not been identified yet.

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[141] Although the ships themselves have not survived, the scatter of amphorae suggested that they had been large merchant ships: *Ward – Ballard 2004* 2–13; *Horlings 2005*; *Ward – Horlings 2008* 148–173; *Ward 2010* 189–198, 541–542.

[142] Cf. note 135.

[143] The analysis was made by Matthew Conrad; his findings have not been published yet.

[144] For the city's archaeological relics, see *Summerer 2011*.

[145] *Kingsley – Decker 2001* 2; *Kingsley 2009* 34.

[146] *Teall 1959* 91; *Kingsley 2009* 34.

[147] *Teall 1959* 97–98.

[148] *Teall 1959* 90, 118.

[149] *Magdalino 2000* 211–219.

[150] According to *Magdalino 2000* 219–226, the shift of the major ports towards the Golden Horn Bay from the late eleventh century onward can be attributed to the Italian (mostly Venetian and Genoese) merchants.

[151] *Karagiorgou 2001* 133; *Karagiorgou 2009* 49–50.

[152] We identified and examined eighteen LR 1 amphoras (three represented the LR 1A and fifteen the LR 1B type) and six LR 2 amphoras dating from the sixth–seventh centuries.

[153] For the distribution of Sinopean carrot amphoras, see *Kassab Tezgör 2010b* 167–173.

[154] *Köroğlu 2012* 65–76.

[155] The later use of the complex as a granary was already suggested by *Bryer – Winfield 1985* 81–82. See also *Köroğlu 2012* 67.

[156] *Arsen'eva – Domżalski 2002* 415–491; *Domżalski 2011* 163–178.

fig. 9. Tmutarakan type jug from Sinop Archaeological Museum (Inv. No. 11.6.83)

Sinope's prosperity was based on the processing of various agricultural products grown in the hinterland and on trade. The accumulation of material goods is reflected by the fine floor mosaics uncovered in the Meydankapı district of Sinope,[157] the church with floor mosaics found at Çiftlik, a village lying some 2 km from the amphora workshops of Demirci,[158] and the construction of the nearby stone bridge, still standing today.

The distribution of Crimean amphorae in Anatolia has not been studied yet, even though a better knowledge of the occurrence of these amphorae in Anatolia would ease the dating of the currently little known ceramic assemblages of the Byzantine Dark Ages (eighth–ninth centuries) owing to the extensive production of this ware on the Crimean peninsula.[159] An examination of the material in the Sinop Archaeological Museum (Sinop Arkeoloji Müzesi) between July 3 and 26, 2013, revealed that there were seven specimens of the late, eighth–ninth-century variant of the cylindrical, ribbed Late Roman (LR) 1 amphora with grooved handles (*fig. 1–3*) and ten specimens of the late, seventh–eighth-century variant of the LR 2 amphorae with globular body and cylindrical neck originating from the Aegean (*fig. 4–6*).[160]

[157] *Dereli 2010* 60–63.
[158] *Hill 1995* 219–231; *Hill 1999* 285–300.
[159] *Jakobson 1979* 39–60; *Romanchuk 2005* 113–117.
[160] *Karagiorgou 2001* 130–131.

Both types reflected major changes compared to the original Late Antique wares in terms of temper (the use of sand and grog instead of pyroxene in the case of the LR 1 type (*fig. 1–3*), ornamentation (combed bundles on the shoulder instead of the grooved surface in the case of the LR 2 type) and the vessel form (a short, triangular sectioned rim instead of the Late Antique funnel rim in the case of the LR 2 type (*fig. 4–6*). In the light of the above, Sinope retained its role in Anatolian trade during the Byzantine Dark Ages too, although the volume of trade decreased.

We know much more about long-distance trade from the later ninth century onwards owing to the Günsenin 1 amphorae[161] and the so-called Tmutarakan jugs. In view of their pear-shaped, densely ribbed body, short, oval-section handles and mica temper, the fourteen Günsenin 1 amphorae could be easily identified in the Sinope Museum during the examination of the collection. This type was produced in Ganos (modern Gaziköy near Tekirdağ) on the Sea of Marmara and was probably used for transporting Ganos wine, the period's popular commodity.[162] The Greek letters of the graffiti on the amphorae, scratched onto the vessel surface after firing, recorded the volume of these transport vessels and their contents. A high number of similar amphorae have been found along the northern Black Sea coast too, as well as in the ceramic assemblage of Sarkel, a city located on the Don.[163]

The so-called Tmutarakan jugs, characterised by a short ribbed rim, a tall cylindrical neck (often as tall as 45–60 cm) and 5–6 cm wide flat handles (*fig. 7–9*), can be dated to roughly the same period as the Günsenin amphorae. These jugs were mainly known from the Taman and Crimean peninsulas, and from the settlements along the Don of a regional variant of the Saltovo culture.[164] The examination of the ceramics in the Sinope Museum in 2013 indicated that these jugs had been probably manufactured in workshops between Sinope and Trebizond (modern Trabzon) in view of the pyroxene (black sand) used as a tempering agent, which abounded on the southern Black Sea coast. This is further underscored by Svetlana Alexandrovna Pletneva's observation that a major portion (about 80%) of the jugs found at Tmutarakan had a black, pitch-like residue in their interior (*fig. 7–9*),[165] suggesting that they had been used for transporting petroleum (naphtha). A similar residue could be identified in the interior of four jugs housed in the Sinope Museum, providing evidence for the trade in petroleum from the Kuban region as recorded in the *De Administrando Imperio*.[166]

Aside from the archaeological finds, the importance of local trade is indicated by the lead seals, reflecting the permanent presence of a *kommerkiaros* in Sinope. In fact, trade was more dynamic in the Black Sea during the eighth century than in the eastern Mediterranean,[167] and we know that an *abydikos komes*, who officially supervised navigation, resided in Sinope during the tenth and eleventh centuries.[168] There was a permanent Genoese colony whose affairs were administered by a consul in the city during the thirteenth century and the Venetians too had a local representation.[169] The occupation of Sinope by the Seljuks in 1214 opened a new chapter in the settlement's life,[170] which from now on appears as a Muslim and Turkish town in the written sources.

[161] *Günsenin 1989* 267–276.
[162] While Ganos lies north of the northernmost distribution of olive trees, the region remains famed for its wines, see *Günsenin 1993* 193–201.
[163] *Pletneva 1959* 243–245.
[164] *Pletneva 1959* 248–251; *Pletneva 2003* 175; *Chkhaidze 2008* 161–173.
[165] *Pletneva 2003* 175; *Chkhaidze 2008* 169.
[166] Cf. note 59.
[167] *Brandes 1989* 153–157; *Belke 1996* 147.
[168] *Ahrweiler 1966* 57, 101. For the nature of this office, see *Ahrweiler 1961* 246.
[169] *King 2004* 84.
[170] *Redford 2010* 125–149.

The Black Sea and the Carpathian Basin

The Carpathian Basin is part of the Danube's drainage area and thus it has a direct waterway connection with the Black Sea. The principal territory from which various population groups continuously migrated to the Carpathian Basin from the east was the steppe region extending north of the Black Sea, and thus the study of early medieval trade, migrations and interactions in the Black Sea is of outstanding importance not only for international, but also for Hungarian research. I shall illustrate the early medieval contacts between the Black Sea and the Carpathian Basin by demonstrating the Black Sea background of the amphorae recovered from Avar period burials.

A connection with the Black Sea was already assumed in earlier studies on the amphorae of the early Avar period.[171] A study written together with Piroska Hárshegyi focused on fitting these amphora finds into the broader context of international research on amphorae. The study is currently in print,[172] and thus instead of presenting the details of our research, I shall outline our main findings.

The amphorae recovered from Avar period graves can be assigned to five different types Tiszavasvári-Vöröshadsereg útja, Grave 8:[173] LR 1B;[174] Kunbábony:[175] LR 2B;[176] Dány:[177] Opaiţ's B V;[178] Kiskőrös-Pohibuj mackó, Grave 56[179] and Gátér-Vasútállomás, Grave 193:[180] perhaps representing an Agora M273 – Samos cistern transitional type; Óbecse-Úttörő utca/ Bečej-ulica Pionirska[181] and Székesfehérvár-Pozsonyi út, Grave 59:[182] Opaiţ's Type B Id[183] and they were brought to light in various regions. Two specimens have a decidedly Aegean origin (LR 2B;[184] Samos cistern type)[185], while a western Black Sea origin seems likely in the case of two other pieces (Opaiţ's Type B V[186] and B Id)[187], and an eastern Mediterranean, probably Cypriote origin can be assumed for one amphora (LR 1B).[188] Their capacity is fairly small, ranging between 1.5 and 8 litres, the single exception being the large LR 2 amphora with a capacity of 53 litres found at Kunbábony.[189] In the lack of residue analyses and the absence of inscriptions, we know nothing about their contents

[171] *Horváth 1935*; *Török 1975* 295; *H. Tóth 1987* 51–56; *H. Tóth – Horváth 1992* 63; *Vida 1999* 91–93.
[172] *Csiky – Hárshegyi 2013*.
[173] *Csallány 1962* 54; *Awaren 1985*, 38, fig. 24; *Bóna 1986* 78–79, fig. 27; *Vida 1999* 243, Pl. 38. 3.
[174] *Opaiţ 2004a* 9.
[175] *H. Tóth 1972* 149, fig. 3, *H. Tóth 1987* 51–56; *H. Tóth – Horváth 1992* 63, 273, fig. 16. 5, Pl. 27.
[176] *Opaiţ 2004a* 11.
[177] *Tettamanti 1980* 157 fig. 4, *Vida 1999* 242, Pl. 39. 1, Pl. 129. 1.
[178] *Topoleanu 2000* 153; *Opaiţ 2004a* 29.
[179] *Horváth 1935* Pl. 40. 1; *Török 1975* 295.
[180] *Kada 1906* 207–208.
[181] *Stanojević 1980* 163–164; *Vida 1999* 243, Pl. 39. 2; *Mikić Antonić 2012* 40.
[182] Unpublished. I would like to thank Loránd Olivér Kovács for his kind permission to publish the amphora here. I am grateful to László Schilling for calling my attention to this amphora.
[183] *Opaiţ 2004a* 28–29.
[184] Workshops have been identified on Chios (*Tsaravopoulos 1986* figs. 36–37; *Arthur 1989* 82, note 2; *Arthur 1998* 168) and Cnidus (*Tuna et al. 1988* 49) as well as in the Bodrum area in south-western Anatolia (*Williams 1982* 102; *Opaiţ 2004a* 11; *Opaiţ 2004b* 296). Another workshop site with kilns has been reported from near Kounopi in the Argolid (*Zimmermann Munn 1985* 342).
[185] Although workshops have not been identified yet, this amphora type was widespread in the Aegean. Specimens are known from the Athenian Agora (*Robinson 1959* Pl. 29. M273), Yassı Ada (*Bass – van Doorninck 1971* Pl. 2. 8), and Thasus (*Abadie-Reynal – Sodini 1992* fig. 26).
[186] *Opriş 2003* 79.
[187] *Opriş 2003* 74; *Opaiţ 2004* 28–29.
[188] Pottery kilns have been found at Ayaş, Soles, Karataş, Tarsus and Yumurtalık on the Cilician coast in southern Anatolia, see *Empereur – Picon 1989* 236–243; major workshops have been investigated at Paphos and Zygi on Cyprus too, see *Demesticha 2000* 549–553; *Demesticha – Michaelides 2001* 289–296; *Demesticha 2003* 469–476. For an overview of regional workshops, see *Reynolds 2005* 565. It would appear that amphora production was relocated to the Cypriote workshops from the later sixth century onward, see *Piéri 2007* 300.
[189] Amphora capacities were calculated with the software of the Ashmolean Museum (http://potweb.ashmolean.org/NewBodleian/11-Calculating.html [06.05.2015]).

– however, small amphorae were generally used for transporting wine, while the large LR 2 amphora from Kunbábony was probably used for shipping olive oil.[190]

The amphorae probably arrived on the Danubian waterway, which is also borne out by the high number of amphorae from the Iron Gates and Viminacium, which include all the types mentioned above.[191] In view of their type, the LR 1 and LR 2 amphorae from Kunbábony and Tiszavasvári had probably been transported to the Lower Danubian forts as military *annona* (wine and olive oil).[192] These vessels reached the Carpathian Basin in the Viminacium and Singidunum area along the Danubian *limes*.[193] Sirmium as a mediator seems unlikely owing to the city's siege between 579 and 583, and its subsequent occupation by the Avars – we know that the Avars blocked the water routes (the Danube and the Sava) in order to starve the city.[194]

It must be noted that with the exception of the amphora from Székesfehérvár, we cannot speak of the deposition of amphorae made considerably earlier.[195] The amphorae in question are late variants of a particular type and were more or less contemporaneous with the graves in which they were found.[196]

Amphorae are extremely rare finds in the Carpathian Basin during the Avar period. The currently known seven vessels are, for example, vastly eclipsed by the eleven thousand amphora fragments dating from the late sixth century found at Svetinja, which was part of Viminacium,[197] and can hardly be compared to the abundance of finds from the coastal sites. This would suggest that amphorae were not used regularly for the transportation of various commodities and that they had reached the Carpathian Basin occasionally only, along the Danubian route from the Black Sea. Their deposition in burials is a reflection of the burial customs of Avar society and its social representation.

Perspectives and potentials in the study of Black Sea trade

Research on the Late Antique and early medieval trade of the Black Sea is hardly complete – in many respects, it is still in its infancy. Most studies are regional in their scope and there are few works which make use of the many different classes of finds from the entire region.[198] Many collections in Turkish museums are still awaiting a rigorous examination or are unpublished. Given that archaeologists working on the northern and southern Black Sea coast rarely communicate with each other owing to language problems, one welcome advance in this respect is the forum provided by the conference series *Black Sea Antiquities*,[199] even if the main theme of these events is Classical Antiquity.

Landscape archaeological research and topographic surveys provide an important foundation for a better understanding of the hinterland and local resources of the major Black Sea harbours, as shown by the success of the Sinop Regional Archaeological Project

[190] LR 2 amphoras are assumed to have been mainly used for shipments of olive oil, suggested by the greasy interior surface of some fragments representing this type (*Hautumn 1981* 47), the painted inscriptions (*tituli picti*) referring to olive oil on the amphoras (*Opaiţ 2004a* 12; *Opaiţ 2004b* 297), and the vessel form, especially the rim form, and the large vessel capacity (*Karagiorgou 2001* 146–149).

[191] *Bjelajac 1996* 67–77, 80–81.

[192] *Böttger 1990* 926, quoted by *Curta 2004* 187; *Karagiorgou 2001* 149–156.

[193] *Bjelajac 1996* 67–77, 80–81; *Popović 1987.*

[194] *Pohl 2002* 70–76.

[195] These types do not occur among the Roman period finds from Transdanubia or in the assemblages of the Sarmatian Barbaricum during the same period. See the comprehensive survey of fourth–fifth-century Roman amphora finds: *Hárshegyi – Ottományi 2013* 484–486.

[196] See also *Krekovič 2012* 89–95, 90–95.

[197] *Popović 1987* 13.

[198] One exception being the study by *Günsenin 2009* 153, fig. 10. 2.

[199] The International Congress of Black Sea Antiquities, organised by Gocha R. Tsetskhladze, has been held five times to date.

in the case of Sinope[200] and the At Empire's Edge project focusing on the inland regions of Paphlagonia.[201]

The various amphora databases[202] that are now available online represent a very useful initiative and the digitised versions of the inventory registers of Turkish museums will also soon be accessible,[203] as will the reports on major archaeological sites and regional surveys. Significant advances have been made in the identification and research on Pontic Red Slip Ware,[204] even if the workshops producing this ware have not been located yet.

One promising perspective is the application of network analysis[205] in Black Sea studies, which will undoubtedly contribute new data to many still unanswered questions regarding trade, as has already been demonstrated in the Mediterranean[206] and the North Sea.[207] Instead of the earlier static distribution maps used in the study of trade networks, this approach enables the construction of more dynamic models focusing on connectivity, which in turn enable the study of economic activities and the dynamics of interregional trade.[208]

WRITTEN SOURCES

Aelianus	Aeliani variae historiae libri XV. J. Scheffer – J. Vultejus – J. Kühn (eds). Straßburg 1685.
al-Masᶜūdī	al-Masᶜūdī: Murūğ al-ḏahab. B. de Meynard (ed. and trans. by). Paris 1861–1917.
Arrian	Arrian: Periplus Ponti Euxini. M. Arslan (ed. and trans. by): Arrianus'un Karadeniz Seyahatı. Odin Yayıncılık Antik Kaynaklar Dizisi 1. İstanbul 2005.
Athenaeus	Athenaeus: Deipnosophistae. Vol. 1: Libri I-V. Vol. 2: Libri VI–X. G. Kaibel (ed.) Leipzig 1887.
Codex Theodosianus	C. Pharr (ed. and trans. by): The Theodosian Code and Novels and the Sirmondian Constitutions. New Jersey 1952.
DAI	Constantine Porphyrogenitus: De Administrando Imperio. Gy. Moravcsik (ed.) – R. J. H. Jenkins (trans. by). Dumbarton Oaks Center for Byzantine Studies. Washington D.C. 1967.
Herodotus	Herodotus: Historiae. Vol. I: Books I–IV. H. Rosen (ed.) Bibliotheca scriptorum Graecorum et Romanorum Teubneriana. Munich 1998.
Ravennatis Anonymi	Ravennatis Anonymi: Cosmographia et Guidonis Geographica. M. Pinder – G. Parthey (eds). Berlin 1860.
Polybius	Polybius: Historiae. T. Büttner-Wobst (ed.) Leipzig 1922.
Pliny the Elder	Pliny the Elder: Naturalis Historia. J. Bostock – H. T. Riley (eds). London 1855.
Strabo	Strabo: Geographica. H.C. Hamilton – W. Falconer (eds and trans. by). London 1903.
Theophrastus	Theophrastus: Historia Plantarum. A. Hort (trans. by): Enquiry into Plants. Books 1–5. Loeb Classical Library. London – New York 1916.
Xenophon	Xenophon: Anabasis. C. L. Brownson (ed and trans. by). Books I–VII. Loeb Classical Library. London 1922.

[200] *Doonan 2004*.
[201] *Matthews – Glatz* 2009.
[202] Roman Amphorae: a digital resource. University of Southampton 2005 (http://archaeologydataservice.ac.uk/archives/view/amphora_ahrb_2005/ [06.05.2015]).
[203] http://www.envanter.gov.tr/ [06.05.2015].
[204] *Arsen'eva – Domźalski 2002* 415–491; *Domźalski 2011* 163–178.
[205] For its application in archaeology, see *Knappett 2013*.
[206] *Knappett – Evans – Rivers 2008* 1009–1024; *Tartaron 2013*.
[207] *Sindbaek 2007* 119–132.
[208] This study was written as part of the research project "The Black Sea trade in the Early Middle Ages – Research in the Byzantine harbour of Sinope/Sinop" funded by OTKA PD grant no. 100177.

REFERENCES

Abadie-Reynal – Sodini 1992 C. Abadie-Reynal – J.-P. Sodini: La céramique paleochrétienne de Thasos (Aliki, Delkos, fouilles anciennes). Études thasiennes 13. Athens 1992.

Ahrweiler 1961 H. Ahrweiler: Fonctionnaires et bureaux maritimes à Byzance. Revue des études byzantines 19 (1961) 239–252.

Ahrweiler 1966 H. Ahrweiler: Byzance et la mer. La marine de guerre, la politique et les institutions maritimes de Byzance aux VII^{e} – XV^{e} siècles. Paris 1966.

Aibabin 1982 А. И. Айбабин: О производстве поясных наборов в раннесредневековом Херсоне. Советская Археология 3 (1982) 190–198.

Akkan 1975 E. Akkan: Sinop Yarımadasının Jeomorfolojisi. Ankara Üniversitesi Dil ve Tarih–Coğrafya Fakültesi Yayınları 261. Ankara 1975.

Anderson 2011 W. Anderson: Paphlagonia in Late Antiquity: Landscape and Material Culture in North-central Anatolia. Melbourne 2011.

Armarchuk 2003 Е. Л. Армарчук: Северо-Восточное Причерноморье, in: Т. И. Макарова – С. А. Плетнева (ред.): Крым, Северо-Восточное Причерноморье и Закавказье в эпоху средневековья. IV-XIII века. Москва 2003, 184–269.

Arnold – Greenfield 2006 E. R. Arnold – H. J. Greenfield: The Origins of Transhumant Pastoralism in Temperate South Eastern Europe: A Zooarchaeological Perspective from the Balkans. BAR IS Oxford 2006.

Arsen'eva – Domźalski 2002 T. M. Arsen'eva – K. Domźalski: Late Roman red slip pottery from Tanais. Eurasia Antiqua 8 (2002) 415–491.

Arthur 1989 P. Arthur: Aspects of Byzantine economy: An evaluation of amphora evidence from Italy, in: V. Déroche – J.-M. Spieser (eds): Recherches sur la céramique byzantine. BCH Suppl 18 (1989) 79–93.

Arthur 1998 P. Arthur: Eastern Mediterranean amphorae between 500 and 700: a view from Italy, in: L. Sagui (ed.): Ceramica in Italia: VI–VII secolo. Atti del convegno in onore di John W. Hayes, Roma, 11–13 maggio 1995. Firenze 1998.

Ascherson 1995 N. Ascherson: Black Sea: The Birthplace of Civilisation and Barbarism. New York 1995.

Aston 1997 M. Aston: Interpreting the Landscape. Landscape Archaeology and Local History. London 1997.

Aston – Rowley 1974 M. Aston – T. Rowley: Landscape Archaeology: an Introduction to Fieldwork Techniques on Post-Roman Landscapes. Newton Abbot 1974.

Awaren 1985 W. Meier-Arendt (Hrsg.): Awaren in Europa. Schätze eines asiatischen Reitervolkes 6.–8. Jh. Frankfurt am Main 1985.

Balard 1978 M. Balard: La romanie génoise (XII^{e}–début de XV^{e} siècle). Bibliothèques de l'École françaises d'Athènes et de Rome 18. Rome 1978.

Bálint 1996 Cs. Bálint: A kora középkori kelet-európai steppe régészete és a 9–10. századi magyarok [The archaeology of the Eastern European Steppes in the Early Middle Ages and the 9–10th century Hungarians]. Magyar Tudomány 41/8 (1996) 937–947.

Baranov 1990 И. А. Баранов: Таврика в Эпоху Раннего Средневековья. Киев 1990.

Bass – van Doorninck 1971 G. F. Bass – F. H. van Doorninck: A fourth-century shipwreck at Yassi Ada. AJA 75 (1971) 27–37.

Bauer 2006 A. A. Bauer: Between the steppe and the sown: Prehistoric Sinop and inter-regional interaction along the Black Sea Coast, in: D. L. Peterson. – L. M. Popova – A. T. Smith (eds): Beyond the Steppe and the Sown. Leiden 2006, 225–246.

Bauer – Doonan 2011 A. A. Bauer – O. P. Doonan: Buying a table in Erfelek: Socialites of contact and community in the Black Sea Region, in: A. Agbe-Davies – A. A. Bauer (eds): Trade as Social Interaction. Walnut Creek 2011, 183–206.

Bekker-Nielsen 2005 T. Bekker-Nielsen: Ancient Fishing and Fish Processing in the Black Sea Region. Black Sea Studies 2. Aarhus 2005.

Belke 1996 K. Belke: Paphlagonien und Honōrias. Tabula Imperii Byzantini 9. Wien 1996.

Bentley 1999 J. H. Bentley: Sea and ocean basins as frameworks of historical analysis. Geographical Review 89/2 (1999) 215–224.

Bjelajac 1996 L. Bjelajac: Amfore gornjo mezijskog Podunavlja (Amphorae from the Danubian Basin in Upper Moesia). Beograd 1996.

Black Sea Pilot Black Sea Pilot. Hydrographic Office, Admiralty. London 1884.

Blavatsky 1953 В. Д. Блаватский: Земледелие в античных государствах Северного Причерноморья. Москва 1953.

Boia 2001 L. Boia: History and Myth in Romanian Consciousness. Budapest 2001.

Bóna 1986 I. Bóna: Szabolcs-Szatmár megye régészeti emlékei 1 [The archaeological monuments of Szabolcs-Szatmár county 1], in: G. Entz (ed.): Magyarország Műemléki Topográfiája 10. Szabolcs-Szatmár Megye Műemlékei 1. Budapest 1986, 15–91.

Bondár 2012 M. Bondár: Prehistoric Wagon Models in the Carpathian Basin (3500–1500 BC). Archaeolingua Series Minor 32. Budapest 2012.

Bondár 2013 M. Bondár: Újabb késő rézkori kocsimodell a Kárpát-medencéből (A newly found Late Copper Age wagon model from the Carpatian Basin). KRMK 1 (2013) 97–106.

Böhlendorf-Arslan 2004 B. Böhlendorf-Arslan: Glasierte byzantinische Keramik aus der Türkei. Teil I. İstanbul 2004.

Böttger 1990 B. Böttger: Zur Lebensmittelversorgung des niedermösischen Kastells Iatrus (4.–6. Jh.), in: H. Vetters – M. Kandler (Hrsg.): Akten des 14. internationalen Limeskongresses 1986 in Carnuntum. Wien 1990, 925–929.

Brandes 1989 W. Brandes: Die Städte Kleinasiens im 7. und 8. Jahrhundert. Berliner Byzantinistische Arbeiten 54. Berlin 1989.

Brătianu 1938 G. I. Brătianu: Études sur l'approvisionnement de Constantinople et le monopole de blé à l'époque Byzantine et Ottomane, in: Études Byzantines d'histoire économique et sociale. Paris 1938, 127–181.

Brătianu 1944 G. I. Brătianu: La mer Noire, plaque tournante du trafic international à là fin du Moyen Age. Revue historique du sud-est européen (1944) 36–39.

Brătianu 1969 G. I. Brătianu: La mer Noire des Origines à la Conquète Ottomane. Societas Academia Dacoromana. Acta Historica 9. München 1969.

Braudel 1972 F. Braudel: The Mediterranean and the Mediterranean World in the Age of Philip II. Vol. 1. London – New York 1972.

Braund 2007 D. Braund: Black Sea grain for Athens? From Herodotus to Demosthenes, in: V. Gabrielsen – J. Lund: The Black Sea in Antiquity. Regional and Interregional Economic Exchanges. Aarhus 2007, 39–68.

Bryer 1982 A. A. M. Bryer: The question of Byzantine mines in the Pontos: Chalybian iron, Chaldian silver, Koloneian alum and the mummy of Cheriana. AnSt 32 (1982) 133–150.

Bryer 2002 A. A. M. Bryer: The means of agricultural production: Muscle and tools, in: *Laiou 2002a* 99–113.

Bryer – Winfield 1985 A. Bryer – D. Winfield: The Byzantine Monuments and Topography of the Pontos. DOS 20. Washington D.C. 1985.

Csallány 1962 D. Csallány: Tiszavasvári–Vöröshadsereg útja. RégFüz I. 15 (1962) 54.

Chandler – Fox 1974 T. Chandler – G. Fox: 3000 Years of Urban Growth. New York 1974.

Chkhaidze 2008 В. Н. Чхаидзе: Таматарха. Раннесредневековый город на Таманском полуострове. Москва 2008.

Csiky – Hárshegyi 2013 G. Csiky – P. Hárshegyi: Wine for the Avar elite? Amphorae from Avar-age burials in the Carpathian Basin, in: The Danubian Lands between the Black, Aegean and Adriatic Seas (7th century BC–10th century AD). Proceedings of the 5th International Congress of Black Sea Antiquities. Belgrade 17–21 September 2013.

Curta 2004 F. Curta: The Making of the Slavs. History and Archaeology of the Lower Danube Region c. 500–700. Cambridge 2004.

Demesticha 2000 S. Demesticha: The Paphos kiln: Manufacturing techniques of LR1 amphoras. RCRF 36 (2000) 549–554.

Demesticha 2003 S. Demesticha: Amphora production on Cyprus during the Late Roman Period, in: C. Bakirtzis (ed.): De Rome a Byzance; de Fostat a Cordoue: évolution des faciès céramiques en Méditerranée (Ve–IXe siècles). Actes du VIIe congrès international sur la céramique médiévale en Méditerranée (Thessalonique, 11–16 octobre 1999). Athens 2003, 469–476.

Demesticha – Michaelides 2001 S. Demesticha – D. Michaelides: Excavation of a Late Roman 1 amphora kiln in Paphos, Cyprus, in: E. Villeneuve – P. M. Watson (eds): La céramique byzantine et proto-islamique en Syrie-Jordanie (IVe–VIIIe siècles apr. J.-C.). Actes du Colloque (Amman, 3–5 décembre 1994). BAH 159. Beirut 2001, 289–296.

Dereli 2010 F. Dereli: Sinop. Kuzeyin Hırçın Güzeli. Sinope. Sinop 2010.

Domźalski 2011 K. Domźalski: Late Roman pottery from Pompeiopolis, in: *Summerer 2011* 163–178.

Doonan 2004 O. P. Doonan: Sinop Landscapes. Exploring Connection in a Black Sea Hinterland. Philadelphia 2004.

Doonan 2009 O. P. Doonan: Sacred landscapes and the colonization of the Sinop Promontory, in: C. Gates – J. Morin – T. Zimmermann (eds): Sacred Landscapes in Anatolia and Neighboring Regions. BAR IS 2034. Oxford 2009, 69–78.

Doonan 2010 O. P. Doonan: The corrupting Sea and the hospitable Sea: Some early thoughts towards a regional history of the Black Sea, in: A. Tuck – D. Counts (eds): KOINE: Mediterranean Studies in Honor of R. Ross Holloway. Joukowsky Institute Publication 1. Providence 2010, 68–74.

Empereur – Picon 1989 J.-Y. Empereur – M. Picon: Les régions de production d'amphores impériales en Mediterranée Orientale, in: Amphores romaines et histoire économique: dix ans de recherche. Collection d'École Française de Rome 114. Rome 1989, 236–243.

Eyice 2007 S. Eyice: Bizans Devrinde Boğaziçi. İstanbul 2007.

French 1981 D. French: Roman Roads and Milestones of Asia Minor. BAR IS 105. Oxford 1981.

Gavrituhin – Paromov 2003 И. О. Гавритухин – Я. М. Паромов: Ильичевское городище и поселения его округи, in: Т. И. Макарова – С. А. Плетнева (ред.): Крым, Северо-Восточное Причерноморье и Закавказье в эпоху средневековья. IV-XIII века. Москва 2003, 152–156.

Gedik – Ercan – Korkmaz 1982–1983 A. Gedik – T. Ercan – S. Korkmaz: Orta Karadeniz (Samsun-Sinop) havzasının jeolojisi ve volkanik kayaçlarının petrolojisi. Maden Tetkik ve Arama Dergisi 99–100 (1982–1983) 34–51.

Gedik – Korkmaz 1984 A. Gedik – S. Korkmaz: Sinop havzasının jeolojisi ve petrol olanakları (Geology of the Sinop basin and petroleum possibilities). Türk Mühendis ve Mimar Odaları Birliği eoloji Mühendisliği Odası (1984) 53–80.

Gibbins – Adams 2001 D. Gibbins – J. Adams: Shipwrecks and maritime archaeology. World Archaeology 32/3 (2001) 279–291.

Gibbon 1776–1789 E. Gibbon: The History of the Decline and Fall of the Roman Empire. vols 1–6. London 1776–1789.

Günsenin 1989 N. Günsenin: Recherches sur les amphores byzantines dans les musées turcs, in: V. Déroche – J.-M. Spieser (eds): Recherches sur la céramique byzantine. BCH Suppl 18 (1989) 267–276.

Günsenin 1993 N. Günsenin: Ganos. Centre de production d'amphores à l'époque byzantine. AnAnt 2 (1993) 193–201.

Günsenin 2009 N. Günsenin: Ganos wine and its circulation in the 11th century, in: *Mundell Mango 2009* 145–156.

Harition 2008 S. Harition: Beyond National History: the Reception of Annales in Romania. Representations of the Past: The Writing of National Histories in 19th and 20th century Europe. NHIST Summer School Kőszeg 30 June – 6 July 2008.

Hárshegyi – Ottományi 2013 P. Hárshegyi – K. Ottományi: Imported and local pottery in Late Roman Pannonia, in: L. Lavan (ed.): Local Economies? Production and Exchange of Inland Regions in Late Antiquity. LAA 10 2013, 471–528.

Hatalmasok 2001 P. Havassy (ed.): Hatalmasok viadalokban. Az Alföld szkíta kora (Sie sind in Kämpfen siegreich. Das Zeitalter der Skythen in der Tiefebene). Gyulai Katalógusok 10. Gyula 2001.

Hautumn 1981 W. Hautumn: Studien zu Amphoren der spätrömischen und frühbyzantinischen Zeit. Fulda 1981.

Hayes 1972 J. W. Hayes: Late Roman Pottery. The British School at Rome. London 1972.

Hayes 1980 J. W. Hayes: Supplement to Late Roman Pottery. British School at Rome. London 1980.

Hendy 1985 M. F. Hendy: Studies in the Byzantine Monetary Economy c. 300–1450. Cambridge 1985.

Hill 1995 S. Hill: The first season of rescue excavation at Çiftlik (Sinop). AntSt 45 (1995) 219–231.

Hill 1999 S. Hill: Rescue excavations at Çiftlik (Sinop), in: R. Matthews (ed.): Ancient Anatolia. Fifty Years' Work by the BIAA. Ankara 1999, 285–300.

Hodges 1982 R. Hodges: Dark Age Economics: The Origins of Town and Trade. London – New York 1982.

Hodges – Whitehouse 1983 R. Hodges – D. Whitehouse: Mohammed and Charlemagne and the Origins of Europe. Archaeology and the Pirenne Thesis. Ithaca – New York 1983.

Horden – Purcell 2000 P. Horden – N. Purcell: The Corrupting Sea: A Study of Mediterranean History. Oxford 2000.

Horlings 2005 R. L. Horlings: Deepwater Survey, Archaeological Investigation and Historical Contexts of Three Late Antique Black Sea Shipwrecks. MA thesis, Florida State University 2005.

Horváth 1935 T. Horváth: Az üllői és kiskőrösi avar temető. Die awarische Gräberfelder von Üllő und Kiskőrös. ArchHung 19. Budapest 1935.

Inaishvili – Khalvashi 2010 N. Inaishvili – M. Khalvashi: Sinopean imports on the Black Sea littoral of South-West Georgia. ACSS 16 (2010) 487–559.

İnalcık 1979 H. İnalcık: The question of the closing of the Black Sea under the Ottomans. Archeion Pontou 35 (1979) 74–110.

İnandık 1955 H. İnandık: Sinop – Terme arasındaki kıyıların morfolojik etüdü. Türk Coğrafya Dergisi XII/15–16 (1955) 21–45.

İnandık 1957 H. İnandık: Sinop – Terme arasındaki kıyıların morfolojik etüdü 2. Türk Coğrafya Dergisi XIII/17 (1957) 51–71.

Işık 2001 A. Işık: Antik kaynaklarda Karadeniz bölgesi. Türk Tarih Kurumu VI. Dizi – Sayı 60. Ankara 2001.

Istvánovits – Kulcsár 2006 E. Istvánovits – V. Kulcsár: Az első szarmaták az Alföldön /Gondolatok a Kárpát-medencei jazig foglalásról/ (The first Sarmatians in the Great Hungarian Plain /Some notes on the Jazygian immigration into the Carpathian Basin/). JAMÉ 48 (2006) 203–237.

Jakobson 1979 А. Л. Якобсон: Керамика и керамическое производство средневековой Таврики. Ленинград 1979.

Kada 1906 E. Kada: Gátéri (kun-kisszállási) avar temető a régibb középkorból (Das awarische Gräberfeld von Gátér aus dem älteren Mittelalter). ArchÉrt 26 (1906) 135–155, 207–221.

Kaplan 1992 M. Kaplan: Les hommes et la terre à Byzance du VI^e^ au XI^e^ siècles: propriété et exploitation du sol. Paris 1992.

Karagiorgou 2001 O. Karagiorgou: The Late Roman 2 amphora: a container for the military annona on the Danubian border? in: *Kingsley – Decker 2001* 129–166.

Karagiorgou 2009 O. Karagiorgou: Mapping trade by the amphora, in: *Mundell Mango 2009* 37–58.

Kasaba 1988 R. Kasaba: The Ottoman Empire and the World Economy. The Nineteenth Century. New York 1988.

Kassab Tezgör 2002 D. Kassab Tezgör: La production sinopéenne et ses relations avec la Colchide à l'époque romaine, in: Pont-Euxin et commerce. Actes du IX^e^ symposium de Vani. Paris 2002, 199–218.

Kassab Tezgör 2010a D. Kassab Tezgör: Les fouilles et le materiel de l'atelier amphorique de Demirci preÃs de Sinope: recueil de travaux. Varia Anatolica 22. Paris 2010.

Kassab Tezgör 2010b D. Kassab Tezgör: Le réseau commercial des amphores sinopéennes entre les II^e^–III^e^ s. et le VI^e^ s. de notre ère, in: D. Kassab Tezgör – N. Inaishvili (eds): Patabs I. Production and Trade of Amphorae in the Black Sea. Actes de la Table Ronde Internationale de Batoumi et Trabzon, 27–29 avril 2006. Varia Anatolica 21. Istanbul 2010, 167–173.

King 2004 C. King: The Black Sea: a History. Oxford 2004.

Kingsley 2009 S. Kingsley: Mapping trade by shipwrecks, in: *Mundell Mango 2009* 31–36.

Kingsley – Decker 2001 S. Kingsley – M. Decker (eds): Economy and Exchange in the East Mediterranean during Late Antiquity. Proceedings of a One-day Conference at Somerville College, Oxford 29th May 1999. Oxford 2001.

Klasra – Khawar – Aasim 2007 M. A. Klasra – Kh. M. Khawar – M. Aasim: Review: History of tea production and marketing in Turkey. International Journal of Agriculture and Biology 9/3 (2007) 523–529.

Kmoskó 2000 M. Kmoskó: Mohamedán írók a steppe népeiről. Földrajzi irodalom [Muslim Writers on the Peoples of the Steppe. Geographical Literature] I/2. MŐK 13. Budapest 2000.

Knappett 2013 C. Knappett (ed.): Network Analysis in Archaeology. New Approaches to Regional Interaction. Oxford 2013.

Knappett – Evans – Rivers 2008 C. Knappett – T. Evans – R. Rivers: Modelling maritime interaction in the Aegean Bronze Age. Antiquity 82 (2008) 1009–1024.

Kocabaş 2008 U. Kocabaş: Old Ships of the 'New Gate'. Yenikapi Shipwrecks. 1. Istanbul 2008.

Koder 1993 J. Koder: Gemüse in Byzanz. Die Versorgung Konstantinopels mit Frischgemüse im Lichte der Geoponika. Byzantinische Geschichtsschreiber. Ergänzungsband 3. Wien 1993.

Kolb 2001 A. Kolb: Transport und Nachrichtentransfer im Römischen Reich. Berlin 2001.

Köroğlu 2012 G. Köroğlu: 2010 Yılı Sinop Balatlar Kilisesi Kazısı. Kazı Sonuçları Toplantısı 33/3. 23–28 Mayıs Malatya. Ankara 2012.

Krekovič 2012 E. Krekovič: Roman pottery in the Migration Period. RCRF 42 (2012) 89–95.

Kuzmanov 1973 Г. Кузманов: Типология и хронология на ранновизантийские амфори (IV-VI в.) Археология 1 (1973) 14–21.

Kuzmanov 1985 Г. Кузманов: Ранновизантийска керамика от Тракия и Дакия (IV - началото на VII в.) Разкопки и проучвания 13. София 1985.

Laflı – Kan Şahin 2012 E. Laflı – G. Kan Şahin: Terra sigillata and red-slipped ware from Hadrianopolis in southwestern Paphlagonia. AnAnt 20 (2012) 45–120.

Laiou 2002a A. E. Laiou (ed.): The Economic History of Byzantium from the Seventh through the Fifteenth Century. DOS 39. Washington 2002.

Laiou 2002b A. E. Laiou: The human resources, in: *Laiou 2002a* 47–55.

Lewis – Wigen 1997 M. W. Lewis – K. E. Wigen: The Myth of Continents: A Critique of Metageography. Berkeley – Los Angeles 1997.

de Ligt 2008 L. de Ligt: The population of Cisalpine Gaul in the time of Augustus, in: L. de Ligt – S. J. Northwood: People, Land and Politics. Demographic Developments and the Transformation of Roman Italy, 300 BC–AD 14. Mnemosyne Supplements: History and Archaeology of Classical Antiquity 303. Leiden – Boston 2008, 139–183.

Mackensen 1993 M. Mackensen: Die spätantiken Sigillata- und Lampentöpfereien von el Mahrine (Nordtunesien): Studien zur nordafrikanischen Feinkeramik des 4. bis 7. Jahrhunderts. München 1993.

Macrides 2002 R. Macrides: Travel in the Byzantine World. Oxford 2002.

Magdalino 2000 P. Magdalino: The maritime neighborhoods of Constantinople: Commercial and residential functions, sixth to twelfth centuries. DOP 54 (2000) 209–226.

Magomedov – Didenk 2010 B. Magomedov – S. Didenk: Sinopean amphorae and Chernyakhov Culture. ACSS 16 (2010) 479–485.

Mango 1980 C. Mango: Byzantium, the Empire of New Rome. New York 1980.

Matthews – Glatz 2009 R. Matthews – C. Glatz: At Empire's Edge: Project Paphlagonia Regional Survey in North-Central Turkey. British Institute of Archaeology at Ankara Monographs. Ankara 2009.

McCormick 2001 M. McCormick: Origins of the European Economy: Communications and Commerce AD 300–900. Cambridge 2001.

Meijer – van Nijf 1992 F. Meijer – O. van Nijf: Trade, Transport and Society in the Ancient World: A Sourcebook. London 1992.

Mikić Antonić 2012 B. Mikić Antonić: Nekropola iz perioda avarske dominacije. Lokalitet Pionirska ulica u Bečeju. Bečej 2012.

Morton 2001 J. Morton: The Role of the Physical Environment in Ancient Greek Seafaring. Leiden 2001.

Mundell Mango 2000 M. Mundell Mango: The Commercial Map of Constantinople. DOP 54 (2000) 189–207.

Mundell Mango 2009 M. Mundell Mango (ed.): Byzantine Trade, 4th–12th Centuries. The Archaeology of Local, Regional and Interregional Exchange. Papers of the Thirty-eighth Spring Symposium of Byzantine Studies, St. John's College, University of Oxford, March 2004. Publications of Society for the Promotion of Byzantine Studies 14. Farnham – Burlington 2009.

Nikolaeva 1984 Э. Я. Николаева: Боспор после гуннского нашествия. Кандидатская диссертация. Москва 1984.

Noonan 2007 T. S. Noonan: The economy of the Khazar Khaganate, in: P. B. Golden – H. Ben-Shammai – A. Róna-Tas (eds): The World of the Khazars. New Perspectives. Selected Papers from the Jerusalem 1999 International Khazar Colloquium. Leiden – Boston 2007, 207–244.

Opaiţ 2004a A. Opaiţ: Local and Imported Ceramics in the Roman Province of Scythia (4–6th centuries AD). BAR IS 1274. Oxford 2004.

Opaiţ 2004b A. Opaiţ: The Eastern Mediterranean amphorae in the province of Scythia, in: J. Eiring – J. Lund (eds): Transport Amphorae and Trade in the Eastern Mediterranean. Acts of the International Colloquium at the Danish Institute at Athens, September 26–29, 2002. Monographs of the Danish Institute at Athens 5. Athens 2004

Opaiţ 2010 A. Opaiţ: Sinopean, Heraklean and Chersonesan „carrot" amphorae. ACSS 16 (2010) 371–401, 552–556.

Opriş 2003 I. C. Opriş: Ceramica romană târzie şi paleobizantină de la Capidava în contextul descoperirilor de la Dunărea de Jos (sec IV. – VI. p. Chr.). Bucureşti 2003.

Özdemir 2002 N. Özdemir: Sinop İlinde Doğal Afetlerden Etkilenen Yerleşmeler. T. C. Ankara Üniversitesi Sosyal Bilimleri Enstitüsü Coğrafya (Türkiye Coğrafyası) Anabilim dalı doktora tezi. Ankara 2002.

Özveren 1997 E. Özveren: A framework for the study of the Black Sea World, 1789–1915. Review (Fernand Braudel Center) 20/1 (1997) 77–113.

Özveren 2001 E. Özveren: The Black Sea World as a unit of analysis, in: T. Aybak (ed.): Politics of the Black Sea: Dynamics of Cooperation and Conflict. London 2001, 61–84.

Parker 1992 A. J. Parker: Ancient Shipwrecks of the Mediterranean and the Roman provinces. BAR BS 580. Oxford 1992.

Piéri 2007 D. Piéri: Béryte dans le grand commerce méditerranéen. Production et importation d'amphores dans le Levant protobyzantin (V^{e}–VII^{e} s. ap. J.-C.), in: M. Sartre (ed.): Productions et échanges dans la Syrie gréco-romaine. Actes du 2e colloque international sur la Syrie antique (Tours, 12–13 juin 2003). Topoi Orient Occident, Suppl. 8. Lyon – Paris 2007, 297–327.

Pillinger – Pülz – Vetters 1992 R. Pillinger – A. Pülz – H. Vetters: Die Schwarzmeerküste in der Spätantike und im frühen Mittelalter. Wien 1992.

Pirenne 1922 H. Pirenne: Mahomet et Charlemagne. Revue belge de philologie et d'histoire I (1922) 77–86.

Pirenne 1937 H. Pirenne: Mahomet et Charlemagne. Paris 1937.

Pletneva 1959 С. А. Плетнёва: Керамика Саркела-Белой вежи, in: Труды Волго-Донской Археологической Экспедиции. Том 2. МИА 75. Ленинград 1959, 212–272.

Pletneva 1967 С. А. Плетнёва: От кочевый к городам. Сальтово-маяцкая культура. МИА 142. Москва 1967.

Pletneva 2003 С. А. Плетнёва: Таматарха-Тмутаракань, in: Макарова, Т. И. – Плетнева, С. А. (ред.) Крым, Северо-Восточное Причерноморье и Закавказье в эпоху средневековья. IV-XIII века. Москва 2003, 171–178.

Pohl 2002 W. Pohl: Die Awaren. Ein Steppenvolk in Mitteleuropa 567–822 n. Chr. Wien 2002.

Popović 1987 M. Popović: Svetinja, novi podaci o ranovizantijskom Viminaciumu. Starinar 38 (1987) 1–37.

Pounds 2005 N. J. G. Pounds: The Medieval City. Greenwood Guides to Historic Events of the Medieval World. Westport 2005.

Pryor 2002 R. Pryor: Types of ships and their performance capabilities, in: R. Macrides: Travel in the Byzantine World. Papers from the Thirty-Fourth Spring Symposium of Byzantine Studies, Birmingham, April 2000. Publications of the Society for the Promotion of Byzantine Studies 10. Aldershot 2002, 33–58.

Radvanyi – Muduyev 2007 J. Radvanyi – Sh. Muduyev: Challenges facing the mountain peoples of Caucasus. Eurasian Geography and Economics 48/2 (2007) 157–177.

Read Barker – Borre 2011 D. Read Barker – L. Borre: Black Sea Cruising Guide. RCC Pilotage Foundation 2011.

Redford 2010 S. Redford: Sinop in the Summer of 1215: The beginning of Anatolian Seljuk architecture. ACSS 16 (2010) 125–538.

Reynolds 2005 P. Reynolds: Levantine amphorae from Cilicia to Gaza: a typology and analysis of regional production trends from the 1st to 7th centuries, in: J. M. Gurt i Esparraguerra – J. Buxeda i Garrigós – M. A. Cau Ontiveros (eds): Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry (Conference papers, held at Barcelona, 14–16th March 2002). BAR IS 1340. Oxford 2005, 563–611.

Robinson 1959 H. S. Robinson: The Athenian Agora 5. Pottery of the Roman Period. Chronology. Princeton – New Jersey 1959.

Romanchuk – Sazanov – Serdnikova 1995 А. И. Романчук – А. В. Сазанов – Л. В. Сердикова: Амфоры из комплексов византийского Херсона, in: Средневековый Херсон. История, стратиграфия, находки. Екатеринбург 1995, 3–110.

Romanchuk 2005 A. I. Romančuk: Studien zur Geschichte und Archäologie des byzantinischen Cherson. Colloquia Pontica 11. Leiden – Boston 2005.

Russel 1958 J. C. Russel: Late Ancient and Medieval Population. Philadelphia 1958.

Sazanov 1989 А. В. Сазанов: О хронологии боспора ранне-византийского времени. Советская археология 4 (1989) 41–60.

Scheidel 2008 W. Scheidel: Roman population size: The logic of the debate, in: L. de Ligt – S. J. Northwood (eds): People, Land and Politics. Demographic Developments and the Transformation of Roman Italy, 300 BC–AD 14. Mnemosyne Supplements: History and Archaeology of Classical Antiquity 303. Leiden – Boston 2008, 17–70.

Sindbaek 2007 S. M. Sindbaek: Networks and nodal points: the emergence of towns in early Viking Age Scandinavia. Antiquity 81 [311] (2007) 119–132.

Sorokin 2002 Y. I. Sorokin: The Black Sea: Ecology and Oceanography. Backhuys 2002.

Sóskuti – Wilhelm 2005 K. Sóskuti – G. Sz. Wilhelm: Bor és olaj a szarmatáknál? (Amphorák az alföldi Szarmata Barbarikumban) [Wine and Oil at the Sarmatians? (Amphorae on the Hungarian Plain in the Sarmatian Barbaricum)]. Múzeumi Kutatások Csongrád Megyében (2005) 101–117.

Soustal 1991 P. Soustal: Thrakien (Thrakē, Rodopē und Haimimontos). Tabula Imperii Byzantini 6. Wien 1991.

Stanojević 1980 Н. Станојевић: Улица Пионирска Бечеј. Археолошки преглед 21 (1980) 163–164.

Stein 1949 E. Stein: Introduction à l'histoire et aux institutions byzantines. Traditio 7 (1949) 95–168.

Stoyanova 2010 D. Stoyanova: The importation of roof tiles from Sinope and Heraklea Pontica to the Western Black Sea Area. ACSS 16 (2010) 441–465.

Summerer 2011 L. Summerer (Hrsg.): Pompeiopolis. Eine Zwischenbilanz aus der Metropole Paphlagoniens nach fünf Kampagnen (2006–2010). Schriften des Zentrums für Archäologie und Kulturgeschichte des Schwarzmeerraumes 21. Langenweißbach 2011.

Tarkan 1941 H. Tarkan: Sinop Coğrafyası. İzmir 1941.

Tartaron 2013 T. F. Tartaron: Maritime Networks in the Mycenaean World. Cambridge 2013.

Teall 1959 J. L. Teall: The Grain Supply of the Byzantine Empire. DOP 13 (1959) 87–139.

Tettamanti 1980 S. Tettamanti: Der awarische Grabfund von Dány. ActaArchHung 32 (1980) 153–160.

Todorova 2011 E. Todorova: The medieval amphorae (Ninth to fourteenth centuries AD) from excavation at Silistra (Preliminary report), in: Ch. Tzochev – T. Stoyanov – A. Bozkova (eds): PATABS II. Production and Trade of Amphorae in the Black Sea. Acts of the International Round Table held in Kiten, Nessebar and Sredetz, September 26–30, 2007. Sofia 2011, 131–140.

Topoleanu 2000 F. Topoleanu: Ceramica Romana şi Romano-Bizantina de la Halmyris (Sec. I–VII d. Chr.) Roman and Roman-byzantine Pottery from Halmyris (1st–7th centuries AD). Tulcea 2000.

H. Tóth 1972 E. H. Tóth: Preliminary account of the Avar princely find of Kunbábony (Előzetes beszámoló a kunbábonyi avar fejedelmi leletről). Cumania 1 (1972) 143–168.

H. Tóth 1987 E. H. Tóth: A kunbábonyi lelet amphorája és kapcsolatai [The amphora of the find of Kunbábony and its relations]. Múzeumi kutatások Bács-Kiskun megyében (1987) 51–56.

H. Tóth – Horváth 1992 E. H. Tóth – A. Horváth: Kunbábony. Das Grab eines Awarenkhagans. Kecskemét 1992.

Török 1975 Gy. Török: The Kiskőrös-Pohibuj, Mackó dűlő cemetery, in: I. Kovrig (ed.): Cemeteries of the Avar Period (567–829) in Hungary. Budapest 1975, 283–304.

Treadgold 1997 W. Treadgold: A History of Byzantine State and Society. Stanford 1997.

Treadgold 2001 W. Treadgold: A Concise History of Byzantium. Palgrave 2001.

Troebst 2006 S. Troebst: Schwarzmeerwelt: Eine geschichtsregionale Konzeption. Südosteuropa-Mitteilungen 46 (2006) 92–102.

Troebst 2010 S. Troebst: Meso-regionalizing Europe: History versus politics, in: J. P. Arnason – N. J. Doyle (eds): Domains and Divisions of European History. Liverpool 2010, 78–89.

Tsaravopoulos 1986 A. Tsaravopoulos: The city of Khios. A contribution to the topography of the city from the results of rescue excavations. HOROS: Ena Archaeognostiko Periodiko 4 (1986) 124–144.

Tsetskhladze 1998 G. R. Tsetskhladze: The Greek Colonisation of the Black Sea Area: Historical Interpretation of Archaeology. Stuttgart 1998.

Tuna et al. 1988 N. Tuna – J.-Y. Empereur – M. Picon – E. Döger: Rapport préliminaire de la prospection archéologique turco-française des ateliers d'amphores de Reşadiye-Kiliseyanı sur la Péninsule de Datça. AnAnt 1 (1987) 47–52.

Tuncel et al. 2004 H. Tuncel – G. Gürgen – İ. Çiçek – F. Doğu: Doğu Karadeniz Dağlarında yaylacılık (Transhumance on the Eastern Black Sea Mountains in Turkey). Fırat Üniversitesi Sosyal Bilimler Dergisi 14/2 (2004) 49–66.

Tylecote 1981 R. F. Tylecote: Iron sands from the Black Sea. AnSt 31 (1981) 137–139.

Ünal 2008 M. A. Ünal: Osmanlı Devrinde Sinop (XV. Yüzyıldan XVIII. Yüzyıla Sinop Kazâsı). Isparta 2008.

Venedikov 1969 I. Venedikov: Nessebre. Sofia 1969.

Vida 1999 T. Vida: Die awarenzeitliche Keramik I. (6.–7. Jh.). VAH 8. Budapest 1999.

van de Vorst 1911 C. van de Vorst: Saint Phocas. Annalecta Bollandiana 30. 1911.

Vryonis 1962 S. Vryonis: The question of the Byzantine mines. Speculum 37/1 (1962) 1–17.

Ward 2010 C. Ward: Four ships of Late Antiquity in the Black Sea. ACSS 16 (2010) 189–542.

Ward – Ballard 2004 C. Ward – R. Ballard: Deep-water archaeological survey in the Black Sea: 2000 Season. The International Journal of Nautical Archaeology 33/1 (2004) 2–13.

Ward – Horlings 2008 C. Ward – R. Horlings: The remote exploration and archaeological survey of four Byzantine ships in the Black Sea, in: R. Ballard (ed.): Archaeological Oceanography. Princeton 2008, 148–173.

Wagstaff 1987 J. M. Wagstaff (ed.): Landscape and Culture: Geographical and Archaeological Perspectives. Oxford 1987.

Williams 1982 D. F. Williams: The petrology of certain amphorae: some suggestions as to origins, in: CEDAC Carthage dossiers 1. Colloque sur la Céramique Antique. Carthage 23–24 June 1980. Carthage 1982, 99–110.

Winfield 1977 D. Winfield: The northern routes across Anatolia. AnSt 27 (1977) 151–166.

Yanko-Hombach et al. 2007 V. Yanko-Hombach – A. S. Gilbert – N. Panin – P. M. Dolukhanov (eds): The Black Sea Flood Question: Changes in Coastline, Climate and Human Settlement. Dordrecht 2007.

Yener – Toydemir 1992 A. Yener – A. Toydemir: Byzantine silver mines: An archaeometallurgical project in Turkey, in: S. A. Boyd – M. Mundell Mango: Ecclesiastical Silver Plate in Sixth-Century Byzantium: Papers of the Symposium held May 16–18, 1986 at the Walters Art Gallery, Baltimore and Dumbarton Oaks, Washington, D.C. 1992.

Zimmermann Munn 1985 M. L. Zimmermann Munn: A late Roman kiln site in Hermionid Greece. AJA 89 (1985) 342–343.

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ERIKA GÁL

"FINE FEATHERS MAKE FINE BIRDS": THE EXPLOITATION OF WILD BIRDS IN MEDIEVAL HUNGARY

Keywords: bird hunting, medieval period, Hungary, Carpathian Basin

By the Roman Period and throughout the Middle Ages, remains of poultry had become dominant in bird bone assemblages across Europe. However, catalogues of wild bird remains from archaeological sites in Hungary have been published for the last 40–50 years.[1] They include the list of species, the bones identified and their measurements, as well as the register of sites and the periods represented. Little was published, however, on the contexts of remains and on the possible role of wild birds in the Middle Ages. This topic has only been shortly addressed in the Dictionary of the Middle Ages.[2]

Subsequent to recently published studies of bird exploitation during the 16th century Ottoman Turkish Period in Hungary,[3] the aim of my paper is to present evidence of wild birds from medieval settlements in the former Hungarian Kingdom. Thus, in addition to earlier and recently published materials, all the new data and results concerning medieval avian remains are included in this study. In addition to giving taxonomic and numerical information from the settlements excavated, several ways of exploiting wild birds, as well as changes in the Hungarian avifauna will also be examined.

Short historical outline

The Middle Ages in Hungary began after the Hungarian Conquest that had taken place in 895–896 AD. Its first epoch – the Period of the Árpád Dynasty, named after the chieftain who led the Hungarians into the Carpathian Basin – lasted for three hundred years, from the 10th to the 13th century. The next period, the Late Middle Ages is somehow shorter: it is counted from 1301 and continues until the Ottoman Turkish invasion in 1526. The Period of the Ottoman Empire ends in Hungary in 1686, while the post-medieval Early Modern Age lasts as late as 1790.[4]

In the Middle Ages, the territory of the Hungarian Kingdom was about three times larger than that of modern day Hungary. The Transylvanian part of present day Romania, the south-western part of the Ukraine, the southern part of Slovakia, the eastern parts of Austria and Slovenia, as well as the northern areas of Croatia and Serbia, definitively detached from Hungary in 1920, all belonged to the former Hungarian Kingdom *(fig. 1)*.

The sites included in this paper represent a time interval between the 10th to the 17th century, sometimes overlapping by several hundred years. They were grouped in three classes: 'rural', 'urban' and 'high status' settlements. This grouping is based on the historical development of sites (e.g. rural settlements were especially characteristic of the Early Middle Ages) in Hungary, and the documented or most possible meat provisioning and consumption at the sites in question. The most heterogeneous group is 'high status settlements' that includes royal and aristocratic residences, forts and castles as well as religious settlements where the residents largely depended on meat provisioning by rural people on the one hand, but also had hunting rights on the other.[5]

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[1] *Bökönyi – Jánossy 1965*; *Jánossy 1985*.
[2] *Bökönyi 1985* 151–152.
[3] *Bartosiewicz – Gál 2003*; *Gál 2005a*; *Gál 2012a*.
[4] *Vaday 2003* 487.
[5] *Bartosiewicz 1999* 141–142.

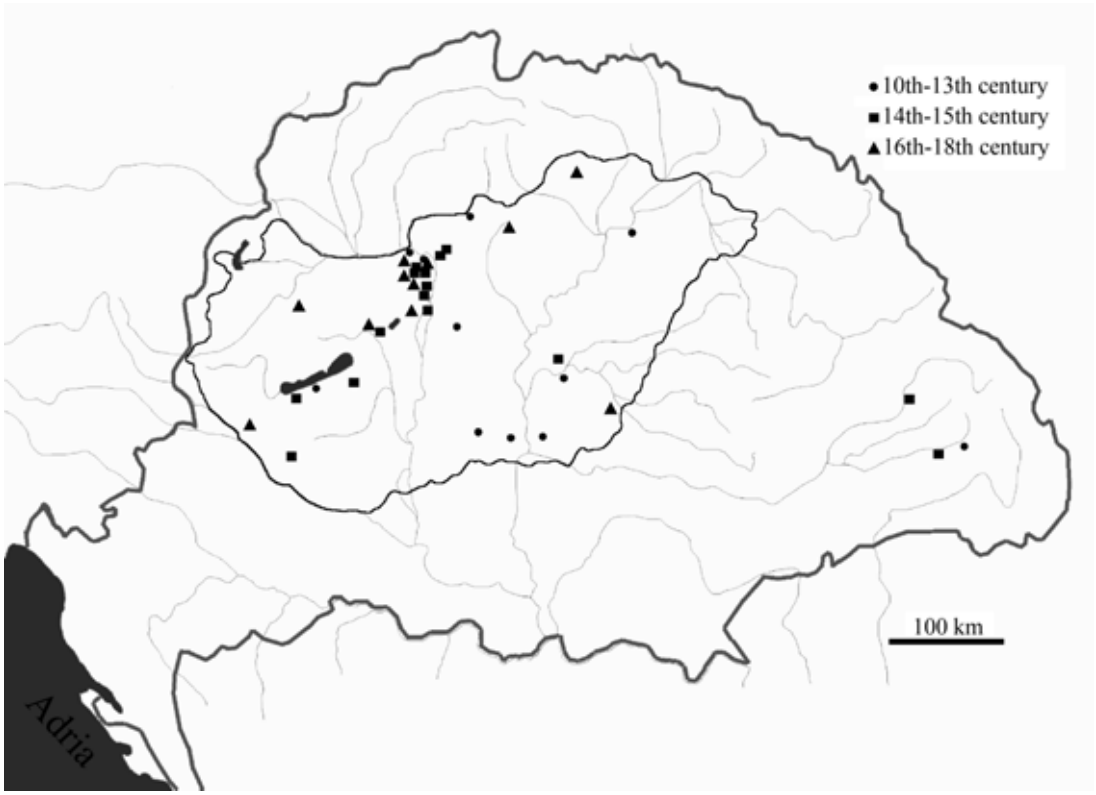

fig. 1. The location of settlements by period in the territory of the medieval Hungarian Kingdom (borders by thick line) and modern day Hungary (borders by thin line)

Results

To date, 38 medieval settlements have provided remains of wild birds. The majority lay within the territory of present day Hungary, while three sites are located in Transylvania. Although a number of publications summarising the Holocene avifauna in neighbouring countries have been published,[6] no data are available regarding wild fowl from the period and region studied here. It is very likely, however, that the lack of water-sieved samples, as well as the small number of bird bone specialists working in the countries involved have also hampered the consistent and detailed representation of avian materials.

From a chronological point of view, the distribution of sites under discussion here is rather balanced. Twelve belonged to the Árpád Period (10th–13th centuries), 14 represented the Late Middle Ages (14th–15th centuries) and 11 date to the Post-medieval Period (16th–17th centuries) *(fig. 1)*. Due to the aforementioned reasons, however, the number of specimens retrieved tends to be modest; usually less than two dozen avian remains per site (excluding domestic birds). More abundant materials were collected from only two sites: the 14th–15th century site of Visegrád-Palota and the 16th century settlement of Csepel-Vízművek, respectively.

Altogether 55 bird taxa have been described from medieval sites in Hungary. Fifty-three of these could be identified to species-, while two only to the genus-level. The representation of wild fowl varies between sites: the numbers of species identified range from one to nine per settlement.

The distribution of species has also been studied from the viewpoint of the status of each settlement. *Figure* 2 indicates that rural and urban settlements were represented by comparable numbers of both sites and species, while high status settlements such as royal and ecclesiastic centres and related residences provided most of the data.

[6] *Peške 1981; Jurcsák – Kessler 1988.*

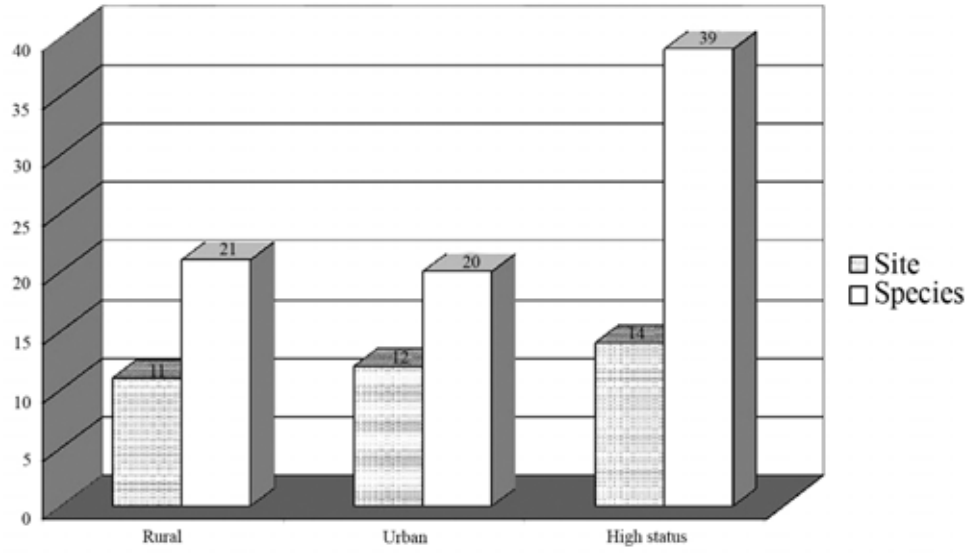

fig. 2. The distribution of sites, species and numbers of identifiable specimens (NISP) by the social status of settlements

Rural settlements

Altogether 11 rural settlements yielded bird remains from the area of the former Hungarian Kingdom. All of them are distributed within the territory of present day Hungary *(fig. 3)*. Eight were inhabited during the 10th–13th centuries. Most remains from the multi-period site of Balatonkeresztúr-Réti-dűlő were also dated to this period. Two rural settlements, Csepel-Vízművek and Túrkeve-Móricz were inhabited during the 15th–16th centuries.

Twenty-one species have been identified from these sites. The number of identifiable specimens (NISP) ranged from one to 82 per site. Usually, only a few species were recognized from each settlement. The maximum of five species from the same site came from Balatonkeresztúr-Réti-dűlő and Visegrád-Várkert.

Not only the NISP and the number of species, but also the various types of wild fowl differ from settlement to settlement. None of them indicate that people would have had a special preference for a certain species or group of birds. The best represented order is passerines (Passeriformes) by five species: fieldfare (*Turdus pilaris*), jay (*Garrulus glandarius*), jackdaw (*Corvus monedula*), rook (*C. frugilegus*) and house sparrow (*Passer domesticus*). The next most frequent group is galliforms (Galliformes) that yielded four wild species: black grouse (*Tetrao tetrix*), partridge (*Perdix perdix*), quail (*Coturnix coturnix*) and peacock (*Pavo cristatus*). The large wading- and terrestrial birds contributed three species each from the orders of Ciconiiformes and Gruiformes: little egret (*Egreta garzetta*), grey heron (*Ardea cinerea*) and white stork (*Ciconia ciconia*) as well as coot (*Fulica atra*), crane (*Grus grus*) and great bustard (*Otis tarda*). Black-tailed godwit (*Limosa limosa*) represents the small wading birds. Remains from both diurnal and nocturnal birds of prey were identified: the bones of white-tailed eagle (*Haliaeetus albicilla*) and the short-eared owl (*Asio flammeus*). Grey-lag goose (*Anser anser*) and mallard (*Anas platyrhynchos*) represent the order Anseriformes. This is the first time that pelican (*Pelecanus onocrotalus*), short-eared owl and house sparrow were identified from medieval villages in Hungary *(Table 1)*.

Scientific name	English name	Balatonkeresztúr-Réti-dűlő	Csengele-Fecskés	Csepel-Vízművek	Kardoskút-Hatablak	Ópusztaszer	Ordacsehi-Kistöltés	Szarvas-Rózsás	Tiszalök-Rázom	Túrkeve-Móricz	Üllő 9	Visegrád-Várkert
		11th–15th c.	**12th–13th c.**	**16th c.**	**11th–13th c.**	**11th–12th c.**	**10th–13th c.**	**10th–12th c.**	**11th–13th c.**	**15th–16th c.**	**10th–13th c.**	**10th–11th c.**
Pelecanus onocrotalus	White pelican										1	
Egretta garzetta	Little egret					3/?						
Ardea cinerea	Grey heron	3/1					1					
Ciconia cf. *ciconia*	White stork									1		
Anser anser	Greylag goose											5/1
Anas platyrhynchos	Mallard											1
Haliaeetus albicilla	White-tailed eagle								1			
Tetrao tetrix	Black grouse				17/?							
Perdix perdix	Partridge	1										5/1
Coturnix coturnix	Quail						1					
Pavo cristatus	Peacock	1										
Fulica atra	Coot					1	1					
Grus grus	Crane	1										
Otis tarda	Great bustard					1				1		
Limosa limosa	Black-tailed godwit							4/1				
Asio flammeus	Short-eared owl										1	
Turdus cf. *pilaris*	Fieldfare											2/1
Garrulus glandarius	Jay											1
Corvus monedula	Jackdaw			82/14								
Corvus cf. *frugilegus*	Rook	1										
Passer domesticus	House sparrow		25/1									
Total (NISP/MNI)		7/5	25/1	82/14	17/?	5/?	3/3	4/1	1	2/2	2/2	14/5
References		*Gál 2007b*	*Gál 2008a*	*Vörös 1998*	*Jánossy 1985*	*Jánossy 1985*	*Gál 2007b*	*Jánossy 1985*	*Jánossy 1985*	*Jánossy 1985*	new data	*Jánossy 1985*

Table 1. Summary of species identified from rural settlements

fig. 3. The location of rural- and urban settlements. Rural settlements (marked by dots): 1. Balatonkeresztúr-Réti-dűlő; 2. Csengele-Fecskés; 3. Csepel-Vízművek; 4. Kardoskút-Hatablak; 5. Ópusztaszer; 6. Ordacsehi-Kistöltés; 7. Szarvas-Rózsás; 8. Tiszalök-Rázom; 9. Túrkeve-Móricz; 10. Üllő 9; 11. Visegrád-Várkert. Urban settlements (marked by squares): 1. Budapest-Szt. György tér; 2. Budapest-Teleki Palota; 3. Budapest-Várpalota; 4. Muhi; 5. Pásztó-Gótikus ház; 6. Segesd; 7. Székelykeresztúr-Szabadság tér 29.; 8. Székelykeresztúr-Udvarház; 9. Székesfehérvár-Jókai u.; 10. Vác-Széchenyi u. 3–7; 11. Vác-Széchenyi u. 4–6; 12. Visegrád-Kálvária

Urban settlements

Owing to the character of sites and the process of urban development, medieval towns cover a shorter time period than villages (four and seven centuries, respectively). Nevertheless, they include settlements from the proximity of the royal residence at Buda as well as more distant market-towns both from the Great Hungarian Plain (Muhi) and Transylvania (Székelykeresztúr). The number of identifiable bones ranges from one to 24 in these assemblages. The richest site is the 15th–16th century market town of Székelykeresztúr-Udvarház in Transylvania, both in terms of NISP and the number of species (six) identified. Most of the remaining sites are located in northern Hungary *(fig. 3).*

The number of species identified from urban sites is the same as from rural settlements, but half of the species identified are new in comparison with rural settlements. New entries include four diurnal birds of prey, black kite (*Milvus migrans*), buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*) and lanner (*F. biarmicus*), as well as galliforms such as Capercaillie (*Tetrao urogallus*), hazel hen (*Bonasa bonasia*) and pheasant (*Phasianus colchicus*). Bean goose (*Anser* cf. *fabalis*), teal (*Anas crecca*) and ferruginous duck (*Aythya nyroca*) were recognized among Anseriformes, while woodcock was identified among Charadriiformes. Mallard, Ferruginous duck, buzzard, lanner, magpie and jackdaw were first identified from urban settlements within the framework of this study *(Table 2).*

Scientific name	English name	Budapest - Szt. György tér	Budapest Teleki Palota	Budapest-Várpalota	Pásztó-Gótikus ház	Muhi	Segesd	Székely-keresztúr - CEC	Székely-keresztúr Udvarház	Székesfehérvár Jókai u.	Vác - Széchenyi u. 3–7.	Vác-Széchenyi u. 4–6.	Visegrád-Kálvária
		13th–14th c.	14th c.	15/16th–17th c.	16th c.	13th c.	14th–16th c.	14th–16th c.	15th–16th c.	16th–17th c.	15th–16th c.	15th c.	14th c.
Ciconia cf. *ciconia*	White stork										1		
Anser cf. *fabalis*	Bean goose						1						
Anas platyrhynchos	Mallard					1							
Anas crecca	Teal						1						
Aythya nyroca	Ferruginous duck					1							
Milvus migrans	Black kite												1
Buteo buteo	Buzzard					1							
Falco tinnunculus	Kestrel								2/1				
Falco biarmicus	Lanner		2/1										
Bonasa bonasia	Hazel hen								12/6				
Perdix perdix	Partridge	1	1			1		1	4/2				19/?
Coturnix coturnix	Quail								3/2				
Phasianus colchicus	Pheasant												2/?
Pavo cristatus	Peacock			1	1								
Grus grus	Crane									9/1	5/1		
Scolopax rusticola	Woodcock							1					
Turdus sp.	Thrush												1
Pica pica	Magpie	6/3	1										
Garrulus glandarius	Jay								2/2		2/1	5/1	
Corvus monedula	Jackdaw	3/1							1				
Total (NISP/MNI)		10/5	4/3	1	1	4/4	2/2	2/2	24/14	9/1	7/2	5/1	23/?
References		*Gál 2008a*	*Gál 2008a*	*Bökönyi 1958*	*Vörös 2003*	new data	*Bartosiewicz 1996*	*Gál 2012*	*Gál 2008b*	*Bartosiewicz 1997*	*Bartosiewicz 1995*	*Vörös 1986*	*Jánossy 1985*

Table 2. Summary of species identified from urban settlements

fig. 4. The location of high status settlements: 1. Bajcsavár; 2. Esztergom-Alsósziget; 3. Érd-Ófalu; 4. Felsőnyék-Várhegy; 5. Gyula-Vár; 6. Homoródokland-Kustaly vára; 7. Marosvásárhely-Vártemplom; 8. Pilisszentkereszt; 9. Szendrő-Felsővár; 10. Széchény; 11. Székesfehérvár-Sziget; 12. Ugod-Vár; 13. Visegrád-Palota (14th–15th century); 14. Visegrád-Palota (16th–17th century); 15. Visegrád-Alsóvár

High status settlements

This last category of sites is the best represented both in terms of the number of sites and NISP as well as the number of species identified. Altogether 15 assemblages, representing settlements related to royal-, aristocratic-, church- and military centres and residences, yielded bird remains from the 12th to the 17th century. The majority of them occur within the territory of present day Hungary and are concentrated in the central and northern parts of the country. Two sites are located in Transylvania *(fig. 4)*.

The numbers of avian bone specimens recovered range from one to 39 per site. The richest assemblage of bird bones originates from the 14th–15th century royal palace of Visegrád where partridge remains (n = 32) formed the majority of the assemblage. Nevertheless, in terms of the number of birds identified, the 13th–16th century Pauline monastery at Pilisszentkereszt stands out by nine species of wild fowl. It is followed by the Turkish Period fortress of Bajcsavár as well as the 15th–17th century castle at Gyula and the aforementioned royal palace at Visegrád. Eight and seven different species of wild bird were identified from these settlements, respectively.

The group of waterfowl has been enriched by four new species from this type of settlement: great crested grebe (*Podiceps cristatus*), whooper swan or mute swan (*Cygnus cygnus*/*C. olor*), garganey (*Anas querquedula*) and pochard (*Aythya ferina*). Among the large wading birds, great white egret (*Egretta alba*), purple heron (*Ardea purpurea*), night heron (*Nycticorax nycticorax*) and glossy ibis (*Plegadis falcinellus*) are also new species in comparison with the previously discussed materials.

Nevertheless, the greatest increase has been noted in the families of diurnal birds of prey (Accipitridae and Falconidae) that, in addition to song birds (Passeriformes), also form

Scientific name	English name	Bajcsavár	Esztergom - Alsósziget	Érd - Ófalu	Felsőnyék - Várhegy	Gyula - Vár	Homoródokland - Kustaly vára	Marosvásárhely - Vártemplom	Pilisszentkereszt
		OP	12th–14th c.	OP	13th–16th c.	15th–17th c.	10th–13th c.	14th c.	13th–16th c.
Pelecanus onocrotalus	White pelican	1							
Podiceps cristatus	Great crested grebe					2/?			
Nycticorax nycticorax	Night heron			2/?					
Egretta alba	Great white egret		1						
Ardea purpurea	Purple heron	1							
Ciconia nigra/C. ciconia	Black stork/White stork								1
Plegadis falcinellus	Glossy ibis								2/1
Cygnus cygnus/C. olor	Whooper swan/Mute swan								3/1
Anas platyrhynchos	Mallard					3/?			
Aythya ferina	Pochard					1			
Milvus migrans	Black kite								3/1
Accipiter gentilis	Goshawk	1							3/1
Accipiter nisus	Sparrow hawk	1							
Aquila rapax	Tawny eagle	1							
Aquila heliaca	Imperial eagle								2/2
Haliaeetus albicilla	White-tailed eagle					2/1			
Buteo buteo	Buzzard					1			
Falco tinnunculus	Kestrel				1				
Tetrao urogallus	Capercaillie						4/2		
Tetrao tetrix	Black grouse				1				
Perdix perdix	Partridge				1			2/1	
Pavo cristatus	Peacock								2/2
Fulica atra	Coot	1							
Grus grus	Crane					4/?			1
Otis tarda	Great bustard					1			
Columba palumbus	Woodpigeon	1							
Strix aluco	Tawny owl							1	
Corvus cf. *corone*	Hooded crow	1							
Corvus corax	Raven				2/1				7/1
Total NISP/MNI		8/8	1	2/1	5/4	14/?	4/2	3/2	24/11
References		*Gál 2005a*	*Jánossy 1985*	*Jánossy 1985*	*Jánossy 1985*	*Jánossy 1985*	*Gál 2012*	*Gál 2012*	*Gál forthcoming*

Scientific name	English name	Szendrő - Felsővár	Széchény	Székesfehérvár - Sziget	Ugod - Vár	Visegrád - Palota	Visegrád - Palota	Visegrád - Alsóvár
		17th c.	12th–13th c.	15th–16th c.	16th–17th c.	14th–15th c.	16th–17th c.	15th–17th c.
Egretta alba	Great white egret				1			
Anas querquedula	Garganey						1	
Aquila chrysaetos	Golden eagle							2/1
Tetrao tetrix	Black grouse							1
Perdix perdix	Partridge	1				32/?		1
Phasianus colchicus	Pheasant					1		
Pavo cristatus	Peacock							2/1
Fulica atra	Coot					1		
Columba palumbus	Woodpigeon					1		1
Bubo bubo	Eagle owl							2/1
Strix aluco	Tawny owl				1	1	2/1	
Upupa epops	Hoopoe							1
Sturnus vulgaris	Starling	1						
Turdus viscivorus	Mistle trush					1		
Turdus cf. *pilaris*	Fieldfare					1		
Corvus monedula	Jackdaw		4/1	11/1				
Corvus cf. *frugilegus*	Rook	1	10/1			1		
Total NISP/MNI		3/3	14/2	11/1	2/2	39/?	3/2	10/7
References		*Gál 2008a*	*Bartosiewicz 2004*	*Bartosiewicz 1984*	*Vörös 1988*	*Jánossy 1985*	*Jánossy 1985*	*Jánossy 1985; Gál 2005c*

Table 3. Summary of species identified from high status settlements. Abbreviations: OP – Ottoman Period

the best represented bird category from the Middle Ages in Hungary. The newly encountered large raptors include imperial eagle (*Aquila heliaca*), tawny eagle (*A. rapax*) and golden eagle (*A. chrysaetos*). The medium sized species are goshawk (*Accipiter gentilis*), sparrow hawk (*A. nisus*) and buzzard (*Buteo buteo*). In contrast to the absence of owls from urban sites, two new species have been identified from high status settlements: eagle owl (*Bubo bubo*) and tawny owl (*Strix aluco*). Three sites yielded remains of the latter. Similarly, the remains of woodpigeon (*Columba palumbus*) came to light at three high status localities. Bones of this bird occurred only at this type of settlement. The woodland species Capercaillie and hoopoe (*Upupa epops*) each has been noted from one site only. The family of passerines has provided five new species at high status settlements: starling (*Sturnus vulgaris*), mistle trush (*Turdus viscivorus*), hooded crow (*Corvus* cf. *corone*) and raven (*C. corax*). Stork, glossy ibis, swan, black kite, imperial eagle and starling have been first identified from medieval settlements once inhabited by high-ranking people *(Table 3).*

Discussion

A relatively great number of medieval settlements of various statuses yielded osteological evidence of wild birds in Hungary. In spite of the hand collection of avian remains from archaeological sites, the number of species reached 53. This means that the number of species known in 1985 (31) has almost doubled since avian species were summarized by archaeological periods last time.[7] Such a great variety of hunted birds was observed only in the Neolithic with 76 taxa identified to date.[8] Both the following prehistoric- (e. g. the Bronze Age)[9] and Roman Period[10] have yielded a much smaller repertoire of wild fowl (23 and 28 bird taxa, respectively).

The detailed taphonomic interpretation of various bird remains from different types of archaeological sites is doomed to failure, however, due to recovery bias and the small number of bones per species. The importance of bird hunting versus poultry keeping could not be always appraised either, since only the wild species were published from a number of sites.[11] Nevertheless, the available data as well as my own results show that – with the exception of some rare cases such as the early medieval castle site of Homoródokland in Transylvania from where domestic birds were not recorded[12] – bird hunting was of marginal significance regardless of the rural, urban or aristocratic character of sites.

The majority of species identified still breed in the territory of Hungary. Some of them arrive in the breeding season only, while others are part of the avifauna year round. Bean goose and teal are spring- and autumn passage species; bean goose often over winters in our region. Thus bone evidence for these two species found at 14th–16th century Segesd, a market town of the queen, indicates fowling during the cold season. Fieldfare and mistle thrush rarely breed in Hungary, they can be mostly seen during the winter. Their remains recovered from the 14th–15th century contexts of the palace at Visegrád also suggest that these birds were killed on the occasion of a winter hunting party. Three species, tawny eagle, lanner and peacock were imported to Hungary.

Since by the Middle Ages the provision of bird meat and eggs was based on poultry keeping and already different types of domestic birds were kept, the variety of wild birds identified from medieval settlements points to reasons beyond simple food provisioning. The number of species (39) identified from high status settlements is especially outstanding, even

[7] *Jánossy 1985.*
[8] *Gál 2004.*
[9] *Gál 2013.*
[10] *Gál 2005c.*
[11] *Bökönyi – Jánossy 1965*; *Jánossy 1985.*
[12] *Gál 2012b* 699.

fig. 5. Partridge (detail from *Collaert 1617*)

if these sites are also best represented among the three settlement categories under discussion here *(fig. 2)*.

Nevertheless, the main reason for hunting animals has always been the procurement of meat. A great number of birds among the species mentioned in this work also offer clear evidence for this tendency. Partridge, apparently the most hunted bird, identified from 13 settlements, is one of the favoured small game birds even today *(fig. 5)*. According to Lubomír Peške,[13] all seven medieval settlements investigated in former Czechoslovakia yielded remains of this species. Evidence of partridge was also found at a number of medieval sites in Austria, Germany and Poland.[14] On the other hand, pheasant, a recently preferred game bird, did not appear at all in Peske's data set. In Hungary, its remains are known from three settlements only, the earliest being the 8th–9th century castle of Zalavár in western Hungary.[15] The closest evidence of medieval pheasant remains came from France and Switzerland.[16]

Other frequent species such as peacock, crane and jackdaw, identified from five sites each, suggest additional forms of exploitation for certain wild fowl as well as the adaptation of others to human habitats. Although peacock originates from bushy environments in east India and has been introduced into the Carpathian Basin as a tamed or semi-domesticated bird, it obviously played an important role in medieval times by its decorative appearance and plumage. In the following section, an attempt is made to interpret the roles of these birds as reflected in historical and ethnographic sources.

[13] *Peške 1981* 144–145, Table 1.
[14] *Piehler 1976* 85–86.
[15] *Jánossy 1985* 76.
[16] *Piehler 1976* 87.

Economic importance

Following the Mesolithic when hunting, fishing, fowling and gathering were the only sources of animal protein, hunting usually only complemented meat supplies largely based on animal husbandry in farming economies. With a few notable exceptions, the remains of wild animals are under-represented in archaeozoological assemblages from Hungary, reflecting the secondary and often seasonal character of this activity.

It is also worth mentioning that hunting seems to have been allowed to people regardless of social status until as late as 1504, when under the terms of a law introduced by King Ulászló II, serfs were banned from hunting. Records from late medieval England also suggest that wild birds were eaten only by those of high rank by the early 16th century.[17]

Our data concerning the rural settlements actually point to this direction since only the site of Csepel-Vízművek yielded wild avian remains as late as the 16th century *(Table 1).* A single species, jackdaw, was identified from this settlement. The remains of 3 juvenile and 11 adult individuals as well as of other animals were found in grain pits, which served as primary refuse deposits at this site.[18] Although there is evidence for the consumption of certain species from the family of Corvidae (see below), we may not be sure that these birds were eaten.

There is no doubt, however, that among the species identified from medieval sites in Hungary, the meat of great crested grebe, swan, greylag goose, bean goose, garganey, mallard, teal, pochard, black grouse, hazel hen, partridge, quail, pheasant, coot, crane, great bustard, black-tailed godwit, woodpigeon, starling, mistle thrush and fieldfare were consumed. Similarly to fish, eating the flesh of coot and great crested grebe was allowed even during Lent.[19]

The 10th–11th century village and the 14th–15th century palace of Visegrád in northern Hungary, as well as the 15th–16th century town of Székelykeresztúr in Transylvania, illustrate the economic exploitation of wild fowl most directly. The majority of avian remains identified from these sites originate from frequently hunted and eaten species. Greylag goose and mallard, hunted in the earlier period of Visegrád, must have been often found in the riverine environment of this site, located on the bank of the Danube River. Game birds, including partridge, coot, pheasant, woodpigeon and two species of thrushes from the subsequent royal settlement rather point to a distinguished taste and forest hunting *(Table 3).* On the other hand, the galliforms living in grazing ground and ploughed land (partridge and quail), as well as the forest species hazel hen, reflect the hilly landscape where the town of Székelykeresztúr was established *(fig. 3).*

The cook book entitled *Ein new Kochbuch* by the German author Marx Rumpolt (Frankfurt am Main, 1581), was translated into Hungarian by János Keszei a century later, and dedicated to Anna Bornemisza, wife of the Transylvanian prince Michael I. Apafi. In addition to dozens of recipes treating domestic species, this work gives descriptions for the preparation of 20 kinds of wild fowl. It also contains relatively numerous instructions concerning species considered, to say the least, tasteless by modern standards, such as the eagle and jackdaw. Nevertheless, most of the recipes treating wild fowl discuss wild geese and ducks as well as galliforms such as grouses, hazel hen, pheasant, partridge and quail.[20]

A number of small birds, mostly including passerines, are also listed in this gastronomy book. Judging by the 15 different recipes treating the song thrush (*Turdus philomelos*), this must have been especially appreciated among perching birds.[21] Bone evidence found in 14th–16th centuries contexts of two wealthy households in England also reflect the value of small birds in addition to other game birds from Anseriformes and Galliformes.[22] When grouped by the status of settlements, our data show a trend to the consumption of small birds by the

[17] *Serjeantson 2001* 273.
[18] *Vörös 1998.*
[19] *Bökönyi 1985* 151; *Chernel 2003.*
[20] *Lakó 1983.*
[21] *Lakó 1983* 158–159.
[22] *Serjeantson 2001.*

fig. 6. Hoopoe (detail from *Collaert 1614*)

higher social class. While remains of thrush were found only at a rural and urban site each, three different high status sites provided bones of mistle thrush and fieldfare, as well as of starling and hoopoe. The latter species *(fig. 6),* similarly to cuckoo, is also listed in the cook book dedicated to the wife of the prince of Transylvania.

Black grouse, pheasant, hazel hen and bustard were among the most popular delicacies of Hungarian aristocracy during the 17th century, as is confirmed by the menus of weddings as well as presents sent by noble couples to one other. According to a letter by the aristocratic lady Erzsébet Rákóczi, five young crows formed the gift she sent to her husband after an unsuccessful hunting party.[23] Two cut marks observed on the ulna of a rook found in the contemporaneous castle site of Szendrő-Felsővár may also point to the consumption of this bird.[24] According to the ethnographic record, crows were trapped by noose and prepared with eggs as late as the beginning of the 20th century.[25]

In addition to the fowl considered primarily as a source of meat, there were numerous bones from large avian species, such as the night heron, purple heron, great white egret, glossy ibis, swan, peacock and crane. These birds may have been served as special banquet items in wealthy households as indicated by eating customs in Western Europe. Almost 800 roasted herons, spoonbills, storks and cranes were served during a meeting between the French king Henry VIII and the duke of Flanders in Calais in 1532. Distal elements of wing and leg from white stork were especially abundant in the 16th–17th century contexts of mainly aristocratic settlements in the Netherlands. In this period, banquets were common, where meals were served in special ways. According to the abundance of bones from meatless body parts, it has been presumed that stork, similarly to other large birds, could be used as show pieces

[23] *Benda 2004*.
[24] *Gál 2008* 110.
[25] *Kardos 1943* 11.

on pastries.[26] Remains of this bird were found at three late medieval settlements in Hungary. Nevertheless, the sole bones recovered from rural, urban and high status *milieus* alike do not allow us to assess the role and frequency of this species, which became one of the most popular birds in Hungarian folklore.[27]

Nevertheless, a number of large wading birds and peacock were exploited for their feathers as well. In addition, live peacock, crane and swan were preferred decorative pets in courtyards, indicating the special social affiliation of the inhabitants.[28] According to a register made in Eger in 1554, 20 tamed cranes were kept in Magyarszállás, eastern Hungary.[29]

Symbolic importance

In addition to the economic importance of meat, feathers most probably have represented the greatest value of wild birds since prehistoric times. The great number of archaeological samples in which wing bones predominate may point to wing curation as well as the possible use of feathers, especially primary remiges.[30]

Contrary to the sacrificial use of entire bodies or separated body parts (e.g the skull, skins, hides with limbs) from certain mammals such as dog, aurochs and horse,[31] little is known about the similar exploitation of birds. According to ethnographic sources concerning the building sacrifice that survived from pagan rituals as late as the medieval period, small animals (cats, puppies, birds) of low practical value were either walled into the foundation at the four corners of new buildings, or bled onto the doorstep of the house. Among birds (black) hen, chicken, the brooder with chickens (*Gallus domesticus*) or crow were usually thus sacrificed. The role of these offerings was apotropaic: they were intended to ward off evil from the newly erected home. There are also speculations that such animal offerings may have served as a substitute for ancient human sacrifice mentioned in folk mythology as part of building major structures such as castles.[32] Similar construction sacrifices involving, among others, chicken were found in 22 pots turned upside down in houses and ditches of the Christian era village of Kána in the southern outskirts of modern day Budapest, inhabited during the Árpád Period (10th–13th centuries).[33]

One of the most interesting finds, possibly connected to this custom, comes from the coeval (12th–13th century) village of Csengele-Fecskés, located in southern Hungary. The complete skeleton of a house sparrow placed into a pot was discovered in Feature no. 209 at this site.[34] In addition, horse skulls as well as skeletons of domestic hen were found in a number of features.[35] Although these had been published as the remains of roosters, my zoological re-examination of the material yielded remains of females as well.

More data point, however, to the symbolic use of feathers from different sorts of birds. The decoration of hats with feathers, first of diurnal birds of prey and applied by hunters, became a fashion in medieval Hungary. Wearing cloths decorated with the feathers of crane was the sign of wealth, and was widely practiced by kings and the members of aristocracy, including ladies.[36] Aside from crane, other wading birds such as egrets, as well as ostrich (!), peacock and birds of prey were exploited for their plumage. Following the style of Turkish leaders, horses were also decorated with feathers during the Ottoman occupation of Hungary *(fig. 7)*.

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[26] *Esser – Verhagen 2001.*
[27] *Herman 1983.*
[28] *Paládi-Kovács 2001.*
[29] *Takáts 1917* 82.
[30] *Bovy 2002*; *Gál 2007.*
[31] *Bálint 1969*; *Kalicz – Raczky 1981*; *Vörös 1990*; *Vörös 1996*.
[32] *Pölös 1999.*
[33] *Daróczi-Szabó 2010.*
[34] *Gál 2008* 111.
[35] *Balogh – Türk 2004*.
[36] *Bálint 1974–1975* 362.

fig. 7. Hungarian noblemen at the turn of the 16th–17th century (*Szilágyi 1897* 587).

The value of the plumage from cranes sometimes was comparable to that of gold, and represented one of the tax items in the 17th century. Thus crane hunting and the making of decorative plumes from the feathers of this bird became a special trade during the Middle Ages. Wealthy owners of game parks were also interested in the keeping of ornamental birds such as crane and peacock both as luxurious decorations of their surroundings and as sources of beautiful feathers. Specialists, named "craners", were employed to take care of these birds. Subsequently crane feather was replaced by the feather of great bustard in clothing. Men from lower social classes decorated their hats with the feathers of cock, goose and duck (drake).[37]

Among the rural settlements studied, only the multi-period site at Balatonkeresztúr-Réti-dűlő yielded remains of both crane and peacock *(Table 1)*. The femur fragment of a peacock was found in the late medieval Feature B-233/483 *(fig. 8)*, while the tibiotarsus fragment of a crane was found in the Árpád Period Feature B-1773. The latter specimen represents the first medieval evidence for crane in the western, Transdanubian part of Hungary. Nevertheless, numbers of toponyms including the word "crane" indicate that this bird, especially frequent in the Great Hungarian Plain, was widely spread in western Hungary as well.[38]

fig. 8. Distal fragment of a peacock femur, found at Balatonkeresztúr-Réti-dűlő

[37] *Ortutay 2004*.
[38] *Jánossy 1985* 89, fig. 2.

Although these large and tasty species may have been eaten, no marks of butchery or cooking on their bones recovered from archaeological sites confirm this possibility. According to written sources as well as archaeological finds, such as the quality, decorative pottery, iron objects and other, sometimes imported items, the rich landowner of the Balatonkeresztúr area managed a wealthy household.[39] Consequently, both crane and peacock as well as grey heron, also identified from this site, may have been exploited for their plumage. A bone from grey heron was also found at the site of Ordacsehi-Kistöltés near Lake Balaton, while little egret was identified from the settlement of Ópusztaszer, southern Hungary. Remains of the two ornamental birds appeared together at the 13th–16th century monastery of Pilisszentkereszt as well. Glossy ibis, also identified from that site, would suggest a third species kept or hunted for its elegant feathers. Peacock was identified from the 16th century town of Pásztó, and the 15th–17th century castles of Buda and Visegrád. Osteological evidence for crane was recognized from the medieval towns of Székesfehérvár and Vác as well as the 15th–17th century castle of Gyula in southeastern Hungary.

Speaking of the symbolic meanings of birds in medieval Hungary, even without zooarchaeological evidence, the name of the most famous Hungarian Renaissance king, Matthias Corvinus is worth mentioning. According to the legend mentioned in the 13th century Polish-Silesian Chronicle, the king took off his ring during a hunting party and a raven stole it. Matthias chased the bird and successfully recovered the ring. After this incident, the raven was chosen as the symbol in his coat of arms. No matter how, the name became attached to the king to such a degree, that the books from his famous 15th century library have been referred to as *corvinae*. A mid-19th century romantic poem also mentions using a raven as a go-between, as the mother of the future king sent a letter to his son imprisoned in the castle of Prague.

Falconry

Hunting with birds is an early form of meat provisioning from small game, which dates back to well before the Christian era. It developed in the steppe region of Asia since most birds of prey hunt in open grassland. The earliest written document pointing to falconry in connection with a royal gift is known from China from around 2200 BC. The first Arabian and Persian description dates back to 1700 BC. Falconry reached Europe around the AD 3rd–4th centuries.[40]

The first osteological evidence for falconry in Hungary dates back to the Avar Period. A complete skeleton of a falcon and a horse was found in a 6th century burial at Mártély, near the modern city of Hódmezővásárhely in southern Hungary. This is the only grave of a falconer found so far in the territory of present day Hungary.[41]

Falconry reached its greatest popularity in the Middle Ages, when acquiring small game animals was combined with a pastime. The falconry book entitled *De arte venandi cum avibus* by Emperor Friedrich II of the Holy Roman Empire, written in the first half of the 13th century, is one of the most precious documents providing information on the management, training and use of falcons in hunting, as well as illustrating the coeval wildlife and the variety of birds. A number of illustrations, including tapestries, paintings and drawings[42] indicate how widely falconry was practiced by men and women alike.

Hunting with falcons was also pursued by the aristocracy living in the medieval capital, Buda. It is well known that a distinct place was maintained for the falconers of King Matthias. The name of the place *Solomar* (1266), located west of the city, could be clearly connected to the expression *solymász*, meaning falconer in Hungarian.

[39] *Kiss 2006.*
[40] *Epstein 1943* 497.
[41] *Zolnay 1977.*
[42] *Almond 2003.*

The best hunting results are obtained with tamed falcons. Peregrine (*Falco peregrinus*), gyrfalcon (*F. rusticolus*) and merlin (*F. columbarius*) are the most appreciated species. These were also the most valuable hunting birds, consequently they were owned by royalty and other high ranking people.[43] Gyrfalcon and merlin had to be imported since they nest in Northern Europe and adjacent areas of the Arctic only.[44] There is no doubt that these conditions considerably raised the value of the species mentioned. Falcons mainly live and hunt in the air, thus the majority of their prey also consists of birds.

Goshawk and sparrow hawk were also used, both by people of higher and lower social levels. These species are common birds of prey all over Europe. Since they live in forest habitats and thus navigate between trees, they are the best for targeting woodland species. Sparrow hawk is especially efficient in hunting passerine birds that are its favourite prey. Eagles are rather used in Mongolia only. Recently buzzards have also been trained by falconers since they belong to a common and accessible species, but they are relatively slow and not very aggressive birds of prey.

fig. 9. Tibiotarsus and tarsometatarsus of lanner found at Budapest-Teleki Palota

Bones from diurnal birds of prey, potentially used in falconry, were found at settlements inhabited by high-ranking people in Hungary. Neither white-tailed eagle found at the 11th–13th century village of Tiszalök-Rázom, nor black kite and kestrel identified in the materials from 14th century Visegrád and the 15th–16th century town of Székelykeresztúr would have been suitable for this activity.

The most interesting diurnal bird of prey identified from the assemblages studied is the lanner. Two complete leg bones of this bird were found in Feature G/1–804 of the 14th century settlement of Budapest-Teleki Palota *(fig. 9).* According to Solti[45] the measurements of these remains fall within the lower size range for this species *(Table 4).* Since females are up to 15% larger than males,[46] it is likely that our specimen was a male. Although the bone was found in a pit that may have been connected to an urban context, the site is located within the Buda castle district that was the royal residence during the Middle Ages. Since this species is distributed in Southern Europe from Italy to Turkey, it is possible that the bird was taken to Hungary during one of the military expeditions led by King Sigismud. The natural habitat of lanner is craggy hillsides and rocky plains. It is slower and less daring than the peregrine, but similarly feeds mainly on birds.[47]

The other exotic bird of prey that must have also been imported to Hungary is tawny eagle. A complete tarsometatarsus was found in Feature 218 of the 16th century fortress Bajcsavár in western Hungary. According to the measurements of this specimen *(Table 4),* the bone belonged to a female. Tawny eagle lives in Eastern Europe and Central Asia; consequently this specimen may have been introduced by the Ottomans Turks. It hunts in dry, open lowlands; its small and medium-sized prey includes game- and aquatic birds as well.[48]

[43] *Prummel 1997*; *Bartosiewicz 2012.*
[44] *Peterson – Mountfort – Hollom 1977* 94–97.
[45] *Solti 1981* 147.
[46] *Cramp 1998.*
[47] *Peterson – Mountfort – Hollom 1977* 97.
[48] *Cramp 1998.*

Species	Skeletal part	Side	GL	Lm/ Lp	Bp/ Gb	Dp	SC	Bd	Dd	Note	Site	Feature	Period
Ardea purpurea	carpometacarpus	sin	76.0	74.0	13.7	9.5	8.3	8.4	5.5		Bajcsavár	333	16th c.
Accipiter gentilis	humerus	dex	85.0		18.8		7.0	16.0	8.4	male	Bajcsavár	157	16th c.
Accipiter nisus	tibiotarsus	dex	70.0				4.0	7.1	4.9	female	Bajcsavár	105	16th c.
Aquila rapax	tarsometatarsus	dex	95.0		19.2	15.1	9.0	22.0	13.0	female	Bajcsavár	218	16th c.
Falco biarmicus	tibiotarsus	dex	80.0		10.8		5.0	12.0	8.1	male	Budapest-Teleki Palota	G/1-804	14th c.
	tarsometatarsus	sin	49.0		9.8		5.3	12.0	8.2	male			
Tetrao urogallus	humerus	sin					12.7	25.0	14.6	male	Homoródokláld-Kustaly vára	1	13th c.
	humerus	sin						24.4	14.0	male			
Perdix perdix	femur	dex	57.0	55.0	10.1	6.7	4.0	9.3	7.4		Szendrő-Felsővár	2	17th c.
Fulica atra	tarsometatarsus	dex			9.9	10.0	4.3				Bajcsavár	165	16th c.
Columba palumbus	tibiotarsus	dex	60.0		7.1		3.4	7.2	7.2		Bajcsavár	173	16th c.
Asio flammeus	tibiotarsus	sin					9.5	7.4			Üllő 9	196	10th–13th c.
Strix aluco	tarsometatarsus	dex						12.0	9.0		Marosvásárhely-Vártemplom	L1	14th c.
Sturnus vulgaris	femur	sin	25.0	24.0	4.3	2.8	2.0	4.5	3.6		Szendrő-Felsővár	2	17th c.
Pica pica	neurocranium			34.0	30.3						Budapest-Szt. György tér	94/3	13th–14th c.
	ulna	sin	59.0		7.7	8.8	3.5	7.3	5.0				
	ulna	sin			7.9	9.4	3.3						
	ulna	sin			7.7	9.0	3.3						
	tibiotarsus	dex	66.0		9.7		3.1	6.4	6.0				
	tarsometatarsus	sin	44.0		7.3	6.8	2.8	5.3	3.0				
Corvus monedula	humerus	sin					4.4	11.0	6.1		Budapest-Szt. György tér	94/3	13th–14th c.
	humerus	dex	47.0		13.4		4.4	11.0	5.6				
	femur	sin	39.0	37.0	7.8	4.6	3.1	7.8	6.4				
Corvus cf. *frugilegus*	ulna	dex			10.2	11.8	4.9				Szendrő-Felsővár		17th c.
Passer domesticus	cranium		26.0		15.1						Csengele-Fecskés	209	10th–13th c.
	mandibula		21.0										
	sternum		23.0										
	coracoideum	sin	18.8	17.7			0.9	5.3	4.1				
	coracoideum	dex	18.7	17.8			0.9	5.1	4.6				
	scapula	sin	20.7				1.4						
	humerus	dex	18.3		5.8		1.8	4.6	2.3				
	humerus	sin	18.3		5.7		1.8	4.4	2.2				
	ulna	dex	20.4		2.9	3.5	1.2	2.6	1.8				
	radius	sin	17.9				0.5						
	radius	dex	17.9				0.5						
	carpometacarpus	dex	11.8		2.9	1.6	2.6	2.7	1.2				
	carpometacarpus	sin	11.8		3.0	1.3	2.3	3.0	1.2				
	pelvis		18.8		13.6								
	femur	sin	17.3	16.7	3.0	1.9	1.3	2.9	2.4				
	femur	dex	17.3	16.8	2.9	1.8	1.3	2.9	2.4				
	tibiotarsus	dex	27.5		3.6		1.2	2.4	2.4				
	tibiotarsus	sin	27.5		3.7		1.2	2.5	2.4				
	tarsometatarsus	sin	17.9		2.7		1.0	2.0	1.3				
	tarsometatarsus	dex	18.1		2.7	2.6	1.0	2.0	1.3				

Table 4. Measurements of the yet unpublished medieval avian remains (following *von den Driesch 1976*)[53]

In addition to these species, the fort of Bajcsavár yielded remains of both goshawk and sparrow hawk. The hunted birds included coot, woodpigeon and (possibly) hooded crow. Since this fortress was a military outpost at the border of the country, it is very likely that hawking was practiced by some of the military personnel stationed there.[49] According to

[49] *Gál 2012a*.

the relatively great contribution of domestic fowl to the diet (over 90% of the avian bone assemblage), the provisioning of bird meat was based on poultrykeeping.[50]

Goshawk, in addition to black kite and imperial eagle, was identified from the 13th–16th century monastery of Pilisszentkereszt in northern Hungary. The large feathers of the latter species, similarly to that of white tailed eagle, identified from the rural settlement Tiszalök-Rázom and the castle of Gyula, may have been used for the fledging of arrows. Arrow production using the feathers of white tailed eagle has been reported from 16th century Poland.[51]

Two bone flutes made from the ulnae of golden eagle, found at the high status site of Visegrád-Alsóvár, are also special finds. The finger holes on their one side and the thumb holes on the other point to rather developed musical instruments. By all means the eagle bones were chosen as raw materials because of the length, resistance and circular cross-section of these skeletal parts.[52]

The changing distribution of species in the recent centuries

When studying bird bones from archaeological assemblages formed in recent centuries, one has to take into account certain ecological and socio-cultural effects that developed during the Middle Ages.

It is well known, that wild animals are rather sensitive to environmental conditions. Owing to the human-induced modifications of the natural landscape such as deforestation, river-regulations, drainage or intensive agricultural cultivation, the original habitats of a number of species have been on the decrease or even disappeared. Since birds are much more mobile than mammals and able to find new habitats, most possibly the latter class of vertebrates, i. e. mammals, was the greatest loser in the medieval and especially of post-medieval changes. In addition, the over-hunting of certain species compounded the bad situation caused by the accelerating loss of natural habitats.

One of the most affected groups of birds was terrestrial fowl, such as black grouse, crane, and little bustard. Disturbances of the landscape, the cultivation of lowlands eradicating the steppe environment as well as the intensive hunting of these birds resulted in their disappearance from Hungary. Recently the populations of great bustard number approximately 1.200 breeding pairs in the Great Hungarian Plain, concentrated in protected national parks.[53] White pelican and mute swan used to breed in Hungary as late as the 19th century; nowadays they are rare visitors in the country. The increasing number of semi-domesticated specimens among the latter, however, can hardly be distinguished from the wild specimens.[54] Golden eagle, most probably also considerably affected by direct hunting, became so rare by the 20th century in Hungary, that only stray specimens were found, mainly in the Hortobágy region.[55] According to Cramp,[56] this species has bred since the 1980's. Recently the country-wide stock is estimated to five-six pairs in Hungary.[57]

On the other hand, some species among diurnal- and nocturnal birds of prey as well as passerines could make the best of increased urbanization. The increasing number of slaughterhouses, markets and household deposits attracted several carnivorous and omnivorous commensal species to the inner-city. Some species such as the white stork, swallows (*Delichon urbica*, *Hirundo rustica*) and certain owl species indirectly avoided their natural enemies to a great extent by nesting in human environments. Rodents occurring in croplands and around grain deposits, insects attracted by the concentration of livestock

[50] *Gál 2005a*.
[51] *Makowiecki – Gotfredsen 2002* 77.
[52] *Gál 2005b* 329, figs 6–7.
[53] *BirdLife International 2004*.
[54] *Peterson – Mountfort – Hollom 1977* 58.
[55] *Peterson – Mountfort – Hollom 1977* 87.
[56] *Cramp 1998*.
[57] *Firmánszky – Puskás – Széll 2006* 32.

as well as artificial illumination of houses also meant a source of food for the latter group of birds. A relatively great number of song birds over-winter in the gardens and parks of modern cities.[58] On the other hand, insects, rodents and small birds are favourite food of owls. These species often nest in the cracks and cavities of tall human buildings and trees. It is not accidental therefore, perhaps, that tawny owl has begun occurring at these settlements only since the 14th century. It is also notable that the sites, from where this species was described, represent somehow "isolated" places such as a palace, castle or cloister *(Table 3).*

Some among the corvids were by all means among the earliest urbanized species. These birds of minimal economic value mainly had a negative reputation as reflected by oral tradition in Hungary.[59] This phenomenon is possibly rooted in their noisy and aggressive temper as well as in the real and presumed damage caused in farms. They were persecuted by peasants since their large stocks often invaded crops, while other landowners were grateful for these birds because of cleaning the lands from vermin. Corvids show a greater interest in gleaming artefacts than would be expected, which also resulted in the condemnation of these otherwise witty birds, especially magpie, as "thieves". Owing to their social character, however, many of these birds could be tamed and kept as personal pets.

These birds became more and more frequent by time and consequently, by the increasingly populated settlements. The most remarkable finds from this family of birds came from the 16th century site of Csepel-Vízművek. Eighty-two bones from 14 jackdaws, including chicks, were found in grain storage pits that were converted into refuse pits.[60] The relatively great number of birds from this single species may suggest the consumption of their meat, but may also indicate the killing of a nesting stock. Bone evidence for jackdaw, jay and kestrel found in the 15th–16th century towns of Vác in northern Hungary and Székelykeresztúr in Transylvania indicate that these birds were present in the urban landscape. Jackdaw was also identified from 16th–17th century cesspits in Székesfehérvár in Hungary[61] and Groningen in the Netherlands.[62]

Conclusions

A total of 38 rural, urban and high status settlements yielded avian remains from medieval Hungary. Most of the remains and species identified came from settlements that had been inhabited by high-ranking people such as royalty, the aristocracy and high clergy.

Owing to the more reliable recovery of bird bone during recent archaeological excavations and their ongoing identification, the number of species recognized has increased to 50. Pelican, short-eared owl and house sparrow were first identified from medieval villages during my most recent works. Mallard, Ferruginous duck, buzzard, lanner, Capercaillie, magpie and jackdaw represented new species for urban settlements, while stork, glossy ibis, swan, black kite, imperial eagle, Capercaillie and starling were first identified from settlements inhabited by people of the highest social ranks. Evidence for Capercaillie and hazel hen came from Transylvania only. Tawny eagle, lanner, pheasant and peacock were imported wild birds.

Owing to the nature of bones found in refuse materials, the majority of bird remains represented food by all means. Small game birds, including galliforms and passerines, were the most appreciated species. In addition, a number of species may have been exploited for their plumage or used as ornamental pets. Feathers of crane, great bustard, peacock and of certain diurnal birds of prey were popular decorative items among higher and lower nobility. A number of diurnal birds of prey may even have been used in falconry. A pair of ulna from golden eagle served as raw material for flutes.

[58] *Gál 2003.*
[59] *Bartosiewicz 2004.*
[60] *Vörös 1998* 324.
[61] *Bartosiewicz 1984.*
[62] *Zeiler – Prummel 2001.*

The species identified not only express people's cultural attitudes toward wild birds but also point to the nature of medieval environments. The great variety of birds indicates hunting in all kinds of habitats. The majority of the fowl represented in archaeozoological assemblages were breeding in Hungary, thus could be pursued either from spring to autumn or year round. Winter fowling, indicated by the bones of bean goose, teal, fieldfare and mistle thrush, could be hypothesized at the sites of Segesd and Visegrád. In addition, certain species seem to have adapted well to human environments. Jackdaw and house sparrow were present at medieval sites in Hungary as commensal species as early as the 12th–13th centuries. Evidence for tawny owl since the 14th century would point to the exploitation of human environments for food (by preying on commensal insects, rodents and small birds) and nesting place (high buildings such as churches) as well.

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REFERENCES

Almond 2003 R. Almond: Medieval hunting. Phoenix Mill 2003.

Bálint 1969 Cs. Bálint: A honfoglalás kori lovastemetkezések néhány kérdése (Über die Pferdebestattungen der Landnahmezeit). MFMÉ 1 (1969) 107–114.

Bálint 1974–1975 S. Bálint: A szögedi nemzet. A szegedi nagytáj népélete I. (Das "Geschlecht von Szöged". Das Volksleben der Gegend um Szeged I). MFMÉ 2 Szeged 1974–1975.

Balogh – Türk 2004 Cs. Balogh – A. Türk: Csengele, Fecskés. RKM 2003 (2004) 199.

Bartosiewicz 1984 L. Bartosiewicz: Faunal material from the Medieval cess-pool at Székesfehérvár–Sziget. MittArchInst 12–13 (1984) 241–251.

Bartosiewicz 1999 L. Bartosiewicz: Animal husbandry and medieval settlement in Hungary: A review. Beiträge zur Mittelalterarchäologie in Österreich 15 (1999) 139–155.

Bartosiewicz 2004 L. Bartosiewicz: Data on the culture history of crows (Corvidae) in the Hungarian Middle Ages, in: Gy. Kovács (ed.): „Quasi liber et pictura". Tanulmányok Kubinyi András hetvenedik születésnapjára (Studies in honour of András Kubinyi on his seventieth birthday). Budapest 2004, 37–45.

Bartosiewicz 2012 L. Bartosiewicz: Show me your hawk, I'll tell you who you are, in: D. C. M. Raemaekers – E. Esser – R. C. G. M. Lauwerier – J. T. Zeiler (eds): A bouqet of archaeozoological studies. Essays in honour of Wietske Prummel. Groningen 2012, 178–187.

Bartosiewicz – Gál 2003 L. Bartosiewicz – E. Gál: Animal exploitation in Hungary during the Ottoman Era, in: I. Gerelyes – Gy. Kovács (eds): Archaeology of the Ottoman Period in Hungary. Budapest 2003, 365–376.

Benda 2004 B. Benda: Étkezési szokások a 17. századi főúri udvarokban Magyarországon [Eating customs in 17th century aristocratic courts in Hungary]. Unpublished PhD thesis, Dept. of Arts and Humanities, Eötvös Loránd University. Budapest 2004.

BordLife international 2004 BordLife international: Birds in Europe: population estimates, trends and conversation Status. BirdLife Conservatorion Series 12 Cambridge 2004.

Bovy 2002 K. M. Bovy: Differential avian skeletal part distribution: explaining the abundance of wings. JAS 29 (2002) 965–978.

Bökönyi 1985 S. Bökönyi: Fowling, in: J. R. Strayer (ed.): Dictionary of the Middle Ages. Vol. 5. New York 1985, 151–152.

Bökönyi – Jánossy 1965 S. Bökönyi – D. Jánossy: Szubfosszilis vadmadár-leletek Magyarországon (Subfossile Wildvogelfunde aus Ungarn). Vertebrata Hungarica 7 (1965) 85–99.

Chernel 2003 I. Chernel: Magyarország madarai [Birds of Hungary]. CD ROM. Budapest 2003.

Collaert 1617 A. Collaert: Avium vivae icones. Anvers 1617 [1967].

Cramp 1998 S. Cramp (ed.): The complete birds of the Western Palearctic on CD-ROM. Oxford 1998.

Daróczi-Szabó 2010 M. Daróczi-Szabó: Pets in pots: superstitious belief in a medieval Christian (12th–14th century) village in Hungary, in: D. Campana – P. Crabtree – S. de France – J. Lev-Tov – A. Choyke (eds): Anthropological Approaches to Zooarchaeology: Colonialism, Complexity and Animal Transformations. Oxford 2010, 144–249.

von der Driesch 1976 A. von der Driesch: A guide tothe measurement of animal bones from archeological sites. Canbroge Ma 1976, 103–129.

Epstein 1943 H. J. Epstein: The origin and earliest history of falconry. Isis 34 (1943) 6. 497–509.

Esser – Verhagen 2001 E. Esser – M. Verhagen: The white stork (*Ciconia ciconia*) in an archaeological and historical perspective, in: H. Buitenhuis – W. Prummel (eds): Animals and Man in the Past. Groningen 2001, 291–307.

Firmánszky – Puskás – Széll 2006 G. Firmánszky – L. Puskás – A. Széll: Szirti sas állomány adatok – 2004 [Data on golden eagle stock – 2004]. Heliaca Évkönyv (2004) [2006] 32.

Gál 2003 E. Gál: Adaptation of different bird species to human environments, in: J. Laszlovszky – P. Szabó (eds): People and Nature in historical perspective. Budapest 2003, 120–138.

Gál 2004 E. Gál: The Neolithic avifauna of Hungary within the context of the Carpathian Basin. Antaeus 27 (2004) 273–286.

Gál 2005a E. Gál: Vogelfunde aus der Festung von Bajcsavár, in: D. Kramer (ed.): Auf Sand gebaut Weitschawar Bajcsa-Vár eine steirische Festung in Ungarn. Graz 2005, 120–124, 128.

Gál 2005b E. Gál: New data to the bird bone artefacts from Hungary and Romania, in: H. Luik – A. M. Choyke – C. E. Batey – L. Lugas (eds): From Hooves to Horns, from Mollusc to Mammoth. Manufacture and Use of Bone Artefacts from Prehistoric Times to the Present. Tallinn 2005, 325–338.

Gál 2005c E. Gál: New evidence of fowling and poultry keeping in Pannonia, Dacia and Moesia during the Period of the Roman Empire, in: G. Grupe – J. Peters (eds): Feathers, grit and symbolism. Birds and humans in the ancient Old and New Worlds. Rahden, Westf. 2005, 303–318.

Gál 2007 E. Gál: Bird remains, in: A. Whittle (ed.): The Early Neolithic on the Great Hungarian Plain: investigations of the Körös culture site of Ecsegfalva 23, County Békés. VAH 21. Budapest 2007, 361–375.

Gál 2008 E. Gál: A középkori madarászat régészeti állattani emlékei [Memories of the medieval fowling]. In: A. Kubinyi – J. Laszlovszky – P. Szabó (eds): Gazdaság és gazdálkodás a középkori Magyarországon: gazdaságtörténet, anyagi kultúra, régészet. Budapest 2008, 109–112.

Gál 2012a E. Gál: Possible evidence for hawking from a 16th century Styrian Castle (Bajcsa, Hungary), in: D. C. M. Raemaekers – E. Esser – R. C. G. M. Lauwerier – J. T. Zeiler (eds): A bouqet of archaeozoological studies. Essays in honour of Wietske Prummel. Groningen 2012, 170–177.

Gál 2012b E. Gál: Állatcsontleletek a középkori Székelyföldről [Animal bone remains from the medieval Székelyland], in: E. Benkő (ed.): A középkori Székelyföld. Budapest 2012, 663–750.

Gál 2013 E. Gál: Bird bone remains from Bronze Age settlements in the Carpathian Basin, in: M. Vicze – I. Poroszlai – P. Sümegi (eds): Hoard, Phase, Period? Round table conference on the Koszider problem. Százhalombatta 2013, 193–204.

Herman 1983 O. Herman: Arany, Tompa, Petőfi és a népköltés madárvilága [The avian kingdom in the poetry of Arany, Tompa, Petőfi and folklore]. Budapest 1983.

Jánossy 1985 D. Jánossy: Wildvogelreste aus archäologischen Grabungen in Ungarn (Neolithicum bis Mittelalter). Fragmenta Mineralogica et Palaeontologica 12 (1985) 67–103.

Jurcsák – Kessler 1988 T. Jurcsák – E. Kessler: Evoluţia avifaunei pe teritoriul României. III. Filogenie şi sistematică (The evolution of the avian fauna in the territory of Romania. Part 3: Phylogeny and Systematics). Crisia 18 (1988) 647–688.

Kalicz – Raczky 1981 N. Kalicz – P. Raczky: The precursors to the "horns of consecration" in the Southeast European Neolithic. ActaArchHung 33 (1981) 5–20.

Kardos 1943 L. Kardos: Az Őrség népi táplálkozása [Traditional food in the Őrség region]. Budapest 1943.

Kiss 2006 Cs. Kiss: Középkori település Balatonkeresztúr határában [Medieval settlement in the district of Balatonkeresztúr]. Unpublished diploma thesis, Dept. of Arts, University of Szeged. Szeged 2006.

Lakó 1983 E. Lakó: Bornemisza Anna szakácskönyve 1680-ból [Bornemisza Anna's cook book from 1680]. Bukarest 1983.

Makowiecki – Gotfredsen 2002 D. Makowiecki – A. B. Gotfredsen: Bird remains of Medieval and Post-Medieval coastal sites at the Southern Baltic Sea, Poland, in: Z. M. Bocheński – Z. Bocheński – J. R. Stewart (eds): Proceedings of the 4th Meeting of the ICAZ Bird Working Group, Kraków, Poland, 11–15 September, 2001. Kraków 2002. Acta zoologica cracoviensia 45 (2002) 65–84.

Ortutay 2004 Gy. Ortutay (ed.): Magyar néprajzi lexikon [Hungarian Ethnographic Encyclopaedia]. CD ROM. Budapest 2004.

Paládi-Kovács 2001 A. Paládi-Kovács (ed.): Magyar Néprajz. II. Gazdálkodás [Hungarian Ethnography. II. Agriculture]. Budapest 2001.

Peške 1981 L. Peške: Ekologická interpretace Holocenní avifauny Československa (Ökologische Interpretation der Holozänavifauna in der Tschechoslowakei). ArchRoz 33 (1981) 142–153.

Peterson – Mountfort – Hollom 1977 R. T. Peterson – G. Mountfort – P. A. D. Hollom: Európa madarai [Birds of Europe]. Budapest 1977.

Piehler 1976 H. M. Piehler: Knochenfunde von Wildvögeln aus archäologischen Grabungen in Mitteleuropa (Zeitraum: Neolithikum bis Mittelalter). PhD Dissertation. München 1976.

Pölös 1999 A. Pölös: Építési áldozatok [Construction offerings], in: Á. Perémi (eds): A népvándorláskor fiatal kutatói 8. találkozójának előadásai. Veszprém 1999, 205–208.

Prummel 1997 W. Prummel: Evidence of hawking (falconry) from bird and mammal bones. IJO 7 (1997) 333–338.

Serjeantson 2001 D. Serjeantson: A dainty dish: consumption of small birds in Late Medieval England, in: H. Buitenhuis – W. Prummel (eds): Animals and Man in the Past. Groningen 2001, 263–274.

Solti 1981 B. Solti: Falco biarmicus Temminck 1825 oszteológiai vizsgálata (Osteologische Untersuchungen an Falco biarmicus Temminck 1825). Folia Historico-Naturale Matraensis 7 (1981) 135–151.

Szilágyi 1897 S. Szilágyi: A magyar nemzet története [The history of Hungarian nation]. Budapest 1897.

Takáts 1917 S. Takáts: Rajzok a török világból III [Drawings from the Turkish World III]. Budapest 1917, 82.

Vaday 2003 A. Vaday: Chronological charts, in: Zs. Visy (ed.): Hungarian Archaeology at the turn of the Millenium. Budapest 2003, 483–487.

Vörös 1990 I. Vörös: Kutyaáldozatok és kutyatemetkezések a középkori Magyarországon I (Dog sacrifices and burials in Medieval Hungary I). FolArch 41 (1990) 117–145.

Vörös 1996 I. Vörös: Dog as building offering from the Brone Age tell at Jászdózsa. FolArch 45 (1996) 69–90.

Vörös 1998 I. Vörös: Későközépkori gabonásvermek állatcsont leletei a Csepel-szigeten (Animal bone remains from the Late Medieval grain storage pits on Csepel Island). BudRég 32 (1998) 323–328.

Zeiler – Prummel 2001 J. T. Zeiler – W. Prummel: Game and wild birds in the town of Groningen in the 16th and 17th century, in: H. Buitenhuis – W. Prummel (eds): Animals and Man in the Past. Groningen 2001, 308–316.

Zolnay 1977 L. Zolnay: Kincses Magyarország [Wealthy Hungary]. Budapest 1977.

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CSILLA ZATYKÓ

PEOPLE BEYOND LANDSCAPES: PAST, PRESENT AND FUTURE OF HUNGARIAN LANDSCAPE ARCHAEOLOGY

Keywords: landscape archaeology, theory and research methods, Hungary

Settlement, Environment and Landscape: Development of Landscape Archaeology[1]

Over the last decades, diverse theoretical and methodological approaches to the landscape have developed in Hungarian archaeology. Studies either mention the term "landscape archaeology" or simply employ the landscape approach as an overarching framework to examine historical processes, often using the concept with different connotation. For a better understanding of the role and position of Hungarian landscape studies in international research, a brief overview of the development of the discipline seems in order alongside a tracing of the stages of its history and a look at the different branches that evolved and influenced the landscape approach over the past decades.[2]

Although the term "landscape archaeology" first appeared – more like a method than a theory – in the work of Michael Aston and Trevor Rowley in 1974,[3] its origin goes back to the school of field archaeology that evolved in Great Britain in the first decades of the past century. Based on the archaeological results of aerial photos that broadened knowledge about the variability of settlement features, the methodology of field archaeology was developed by Osbert Guy Stanhope Crawford in 1925,[4] and the approach became widely accepted after William George Hoskins' book, *The Making of the English Landscape* published in 1955.[5] According to their definition, the goal of field archaeology is to explore landscape features and characteristics that are recognisable in the present and can reveal past human activities in the landscape. Along with the regional and multi-period approach, field archaeology requires an interdisciplinary and non-destructive research by involving physical geography, economic and social history, and by applying various kinds of methods (e.g. aerial photography, field survey) and consulting multiple sources (e.g. historical documents, maps, landscape features and toponyms). As archaeologists benefited from the complexity of sources, the term "total archaeology" was introduced as a method that combines all the sources and research techniques, which are relevant for examining past settlements. Based on the idea that the history of a landscape can be unravelled by close and careful observations of its characteristics, Hoskins' historical landscape view serves as a fundamental concept for the empirical school of landscape archaeology represented by British archaeologists even today.[6]

After WWII, new schools of thought emerged in the UK and in the US. The goal of processualism was a better characterisation of the economic nature and to better understand the rationales behind settlement systems and patterns, based on the underlying

[1] The study was prepared as part of the research project "An Environmental History of the Carpathian Basin in the Middle Ages" funded by the National Research Fund of Hungary (OTKA).
[2] I am grateful to József Laszlovszky and Attila Gyucha for their valuable comments and suggestions.
[3] *Aston – Rowley 1974.*
[4] *Crawford 1925; Crawford 1953.*
[5] *Hoskins 1955.*
[6] *Taylor 1974; Aston 1985; Everson – Williamson 1998; Muir 2000; Bond 2004; Williamson 2004; Gardiner – Rippon 2007.*

concept of rationality and regularity of human economic behaviour.[7] Since the 1960s, both anthropological approaches and major models of the earth sciences have begun to be systematically applied to resolve archaeological problems. Consequently, landscape has been predominantly conceptualised as a background to human activities and as the natural environment determining human behaviour.

In the UK, the theoretical framework and methods of spatial archaeology were developed by David Clarke,[8] with the aim of characterising the spatial relationships within various levels, from artefacts to archaeological cultures, based on the idea that all spatial structures are products of human decisions and are formed through repeated regularities. The key development in the US was the immense impact of anthropology on the study of patterns in the spatial distribution of sites across the landscape in relation to socio-economic systems.[9] As archaeologists became more interested in reconstructing the human use of landscape, field survey strategies changed from site-based to off-site (or non-site) surveys, with an emphasis on careful probability sampling strategies.[10] Other studies focused on settlement systems and suggested that the spatial arrangement of the landscape would probably be patterned in predictable ways with respect to spatial and temporal variations in resource availability.[11] In these approaches, the focus was the process rather than the location of human behaviour in the landscape.

The rapid development of multi-disciplinary methodologies brought together archaeology and natural history, and thereby led to major improvements in geoarchaeology, bioarchaeology and palaeoarchaeology.[12] This resulted in a more detailed understanding not only of landscape formation processes, but also of human organisation in the landscape. In order to gain a better understanding of the processes whereby human communities exploited their environment and of the extent of settlement territories, archaeologists began to apply more accurate analytical methods, quantitative techniques and statistical procedures (flow-off curves, site catchment analyses, predictive modelling, etc.) and a new spatial scale of regional approach was introduced as well.[13]

In sum, during the 1970s and at the beginning of the 1980s, landscape studies primarily focused on economic and adaptive attitudes to the environment, and archaeologists considered landscape research predominantly as environmental archaeology.[14]

From the 1980s onwards, ancient landscapes have been interpreted from social and cultural perspectives as well, adopting insights from social anthropology, social theory and philosophy. To some extent, this new direction was associated with the challenges that processual archaeology experienced when seeking universal rules of human behaviour and for abstract spatial modelling. Within the framework of the new school of post-processual landscape research, it is not so much the mechanisms of human adaptation to changing natural circumstances that invite attention, but the forms in which people interacted and perceived, experienced or transformed their environments.[15] According to this approach, past landscapes were not mere sets of environmental properties, but were a spiritualised, historicised identity with which not only adaptive, but socially interacting people were engaged differently according to space, time and culture. The new approach included studies on symbolic, ontological and phenomenological practices that required social and philosophical understanding as well.[16]

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[7] *Willey – Phillips 1953; Caldwell 1959; Butzer 1964; Binford – Binford 1968; Clarke 1972; Hodder – Orton 1976.*
[8] *Clarke 1972; Clarke 1977.*
[9] *Willey 1953; Binford 1962; Chang 1968; Parsons 1972.*
[10] *Binford 1964; Foley 1981; Dunnell – Dancey 1983.*
[11] *Binford 1978.*
[12] *Butzer 1964; Hassan 1979; David – Thomas 2010.*
[13] *Hodder – Orton 1976.*
[14] *Evans 1978; Butzer 1982.*
[15] *Hodder 1978; Hodder 1986; Bender 1998.*
[16] *Bender 1998; Tilley 1994.*

In Germany, the origins of landscape archaeology go back to the beginning of the last century; however, the development of the landscape concept diverged slightly from the movements in the US and in the UK. Gustaf Kossinna first strove to study settlement archaeology in a wider geographical framework, although he was mainly concerned with ethnic interpretations in relation to the spatial distribution of archaeological sites.[17] The concept of *Siedlungsarchäologie* introduced by him began to follow an ecological-economical paradigm only from the 1940s,[18] and was revised by the new theoretical framework of the Göttingen school led by Herbert Jankuhn in the 1970s.[19] While retaining the term *Siedlungsarchäologie*, historians and archaeologists studied the origins and evolvement of spatial patterns of settlements in connection with ecological factors, and explored the demographic and socio-economic background of human-landscape relationships. The new approach led to new methodologies: the analysis of geological and soil maps, palynological and climatic data, and the systematic collection of archaeological data (*archäologische Landesaufnahme*[20]) became the principal methods of settlement archaeology.[21] Although the lively theoretical discussions that boosted processual and post-processual schools in English-speaking regions did not arise in German archaeology, an increasing number of studies from the 1980s have used the concept of *Kulturlandschaft* introduced by Jens Lüning.[22] Even though the term places landscape in the dichotomy of human/environment or culture/nature, it turns the focus not so much on the natural environment as on the social, economic and symbolic aspects of the spatial organisation of human environment. Thus, German landscape archaeology – *Landschaftsarchäologie* – represents a comprehensive approach which emphasises the structure and function of different landscape components that reveal human-nature interaction in the past.[23]

Due to political isolation and the unavailability of western professional publications, and also owing to the widespread historicity of domestic archaeology, archaeological research in East Central Europe remained almost completely unaffected by the theoretical debates in Western European and North American archaeology until the transition around 1990.[24] In most of the countries behind the Iron Curtain, archaeological discussions centred around methodological issues of archaeology, and the research of human-landscape interaction was dominated chiefly by influences from the Göttingen school of German archaeology. Nonetheless, large-scale surface survey projects conducted in Poland and Hungary since the 1960s and 1970s,[25] along with regional research projects and intensive field surveys accompanied by aerial photography from the 1980s,[26] gradually turned the attention from the study of individual sites to investigations on a regional scale. After the political changes in 1989, through archaeological fieldwork associated with large-scale infrastructural projects and the introduction of new field and analytical techniques and technologies, the theory and methods of landscape archaeology gradually spread across East Central European archaeology as well.[27]

[17] *Kossinna 1911.*
[18] *Wahle 1941.*
[19] *Jankuhn 1977.*
[20] *Jankuhn 1973.*
[21] This approach is well represented by the volumes of „*Siedlungsforschung: Archäologie – Geschichte – Geographie*" published yearly since 1983.
[22] *Lüning 1982.*
[23] *Gramsch 1996; Lüning 1997; Zimmermann 2009.*
[24] *Kalicz – Raczky 1977; Laszlovszky – Siklódi 1991; Neustupný 1991; Barford 2001; Gojda 2003; Meier 2006; Suhr 2006; Kuna – Deslerová 2007; Bartosiewicz – Mérai – Csippán 2011.*
[25] Hungary: *MRT 1–11*; Poland: *Barford – Brzezinski – Kobylinski 2000.*
[26] *Kuna 2000; Barford 2001.*
[27] *Neustupný 1991a; Zvelebil – Beneš 1997; Gojda 2011; Kuna – Deslerová 2007.*

What does landscape archaeology really mean?

The wide variety of landscape approaches – including British empirical research, environmental approaches, processual and postprocessual schools and the German *Landschaftsarchäologie* – confirms that landscape archaeology is not simply considered as landscape-scale archaeology, but it is one of the vaguest concepts in current archaeology. As it is widely inclusive in terms of subject and method, it could be regarded as a conceptual framework concerned with spatial environments and their transformations by humans as they adapt to the landscape consciously or unconsciously. There is no clear-cut boundary between natural and cultural environments; however, landscape archaeology – differing slightly from environmental archaeology in this sense – focuses on the human aspect of landscape, as it aims to record and analyse different landscape features that can reveal past human-environment interactions, and to evaluate their natural, economic, social and cognitive connotations.

Regarding the notion of landscape and research methodologies, there are some commonalities between different landscape archaeologies.[28] According to their archaeological concept, landscapes are dynamic and complex constructions, continuously changing, multi-period structures. As archaeological palimpsests, landscapes are the results of changes layered on top of each other over periods that constantly modify the cultural landscape. Natural and cultural components of the landscape have such great variety, ranging from pollens and soil samples to castles, that landscape archaeology is one of the most interdisciplinary fields of archaeology considering its subjects and methods. Furthermore, as landscape archaeology focuses more on patterns and connections within larger areas, and settlement patterns, field-systems and road-networks are investigated, studies following this approach must acknowledge multi-site and off-site contexts. As larger contiguous territories (e.g. settlement areas and regions) are studied, landscape archaeology applies non-destructive (or at least less destructive) methods of data collection such as field survey, geoarchaeological and archaeobotanical sampling, remote sensing methods (aerial and satellite imagery), and geophysical imaging techniques as well as GIS analyses. Through the description and analysis of the modern landscape, the method of Historic Landscape Characterisation also has a great importance as a conceptual framework for the alternative approaches of various methods.[29]

Development of landscape approaches in Hungary

Even though several earlier studies dealt with environmental historical or settlement historical aspects or involved its specific attributes such as regional scale approach, off-site studies, or non-destructive methods, the term landscape archaeology (*tájrégészet*) first appeared in Hungary around the turn of the millennium.

The origins of Hungarian landscape studies are rooted in several disciplines and go back to the first decades of the last century. Investigating settlement geography, geographers drew the attention to the role of environmental variables in settlement development for the first time.[30] Historical research was influenced by the German Kossinna school,[31] and the first attempts to interpret settlement history within its environmental and broader spatial context were made in the 1930s and 1940s.[32] As a member of the so-called ethno-historical school, István Szabó used written sources, historical maps and modern toponyms to reconstruct environmental features around the villages, the medieval road network and the settlement boundaries in his study of the

[28] *Gramsch 1996; Anschuetz – Wilshusen – Scheick 2001; Gojda 2003; Gojda 2011; Hicks – McAtackney 2003; David – Thomas 2010; Kluiving – Lehmkuhl – Schütt 2012; Laszlovszky 2008; Zatykó 2011a.*

[29] *Fairclough – Grau Moller 2008.*

[30] *Bátky 1905; Prinz 1922; Cholnoky 1930.*

[31] A much milder version of Kossinna‘s thoughts without their political connotations can be seen in Hungarian historical research.

[32] *Szabó 1937; Jakó 1940.*

settlement history of Ugocsa County. Beside geography and history, ethnographical research also had an impact on the development of landscape studies. Investigations of the origins of field systems, boundary marks[33] and ways of water management[34] often revealed different forms of landscape exploitation and arrangement rooted in medieval times. From the 1950s onward, most probably independently from the aforementioned British school, the concept of the empirical landscape study approach emerged in Hungary, along with the recognition of the importance of off-site areas. István Méri observed that during field surveys, landscape features could indicate certain characteristics of medieval village townships, which can occasionally be associated with the data contained in medieval documentary sources.[35]

Two major initiatives in historical and archaeological research had significant impacts on the development of the landscape approach in the 1960s. In his *Az Árpád-kori Magyarország történeti földrajza* [The Historical Geography of Hungary in the Árpádian Age], György Györffy strove to collect all historical data regarding not only the medieval settlements themselves, but their natural and cultural environment as well. This project created a widely-used dataset of medieval landscape features mentioned in documentary sources.[36] In addition, the first volume of the *Archaeological Topography of Hungary* series had been published in 1966.[37] The project was established to map archaeological sites through field surveys in the entire country and to collect the relevant data from the archaeological literature, archives and museum collections. From the very beginning of the several decades-long project, archaeologists recorded not only archaeological sites, but also remains of numerous fish ponds, mills, abandoned riverbeds, bridges, dams and early roads. Parallel with the documentation of landscape and off-site archaeological features, the demand for exploring their economic and social contexts emerged as well. Based on the first results of the archaeological topography in Veszprém County, István Éri proposed the idea of reconstructing settlement patterns, road networks and hydrological conditions by analysing data obtained from the large-scale surface survey project and the relevant historical sources.[38] Indeed, as the results of Archaeological Topography of Hungary started to put the distribution, hierarchy and mobility of settlements into a broader perspective, and revealed different ways in which settlements adapted to their landscapes over time, a series of regional field surveys began to focus on environmental factors in settlement patterns and interpret settlements within their landscapes from the 1960s and 1970s onward.[39]

The paradigm of New Archaeology hardly affected professional discussions. Similarly to other East Central European countries, Hungarian archaeology remained isolated from the theoretical debates of western archaeology and followed a specific, internal development until the 1990s.[40]

From the 1990s, influences from different directions shaped the progress of Hungarian landscape archaeology. Large-scale excavations, the emergence of environmental archaeology, the increase in regional projects and the influence of the British empirical landscape school in medieval archaeology all inspired the formation of the landscape concept. As no clear boundaries between specific fields of landscape research can be drawn, Hungarian landscape studies have benefited from multiple interdisciplinary approaches and methods since the very beginning.

As in other East Central European countries,[41] development-led, large-scale excavations intensified after the transition in the early 1990s that gave rise to new perspectives in the

[33] *Belényesy 1958; Takács 1980.*
[34] *Herman 1887; Belényesy 1953; Andrásfalvy 1976.*
[35] *Méri 1952–1954* 151.
[36] *Györffy 1963–1998.*
[37] *MRT 1–11.* For a methodological summary, see *Jankovich 1993; Jankovich 2011.*
[38] *Éri 1969.*
[39] *Kovalovszki 1965; Mesterházy 1973–1974; Valter 1977; Müller 1971.*
[40] *Kalicz – Raczky 1977; Laszlovszky – Siklódi 1991; Bartosiewicz – Mérei – Csippán 2011; Langó 2013.*
[41] *Neustupný 1991; Barford 2001; Gojda 2003; Meier 2006; Suhr 2006; Kuna – Deslerová 2007.*

investigations of multi-period sites and large, multi-site areas. They have also facilitated developments in archaeological methods. Remote sensing techniques, GIS analyses, aerial photos and geophysical prospection have had a considerable impact not only on data collection, but have also provided a wealth of detailed spatial data for interpretation.[42] After the first research projects initiated in cooperation with René Goguey and Otto Braasch, targeted to inspire aerial photography in Hungarian archaeology,[43] the large-scale excavations also brought a new impetus to aerial archaeological reconnaissance.[44]

Along with improvements in the archaeological investigation of multi-period sites and multi-site areas, large-scale excavations also have contributed to theoretical and methodological debates, including the concept and role of archaeological sites. Several researchers challenged the site-based approach of archaeological topography and emphasised the importance of recording the distribution of individual artefacts on the surface and their spatial analysis instead of using the concept of archaeological site as basic unit. Adopting the methodology of processual archaeology, in the new approach, archaeological topography is considered not merely as a register of sites, but as a GIS-based, statistical research tool for mapping and analysing patterns of past human activities in the continuous landscape.[45]

The application of methods associated with hard sciences (C14, palaeobotany, palynology) was uncommon in Hungarian archaeological research until the 1990s. However, the methods of the natural sciences were utilised in the course of several excavations and related analyses during the 1980s, which led to the emergence of ecological and environmental archaeology in the country.[46] Parallel to the growing number of studies on the interpretation of archaeological results within landscape contexts, the focus of environmental research gradually turned towards the impact of human activities on environmental changes from the 1990s onwards. Developments in geoarchaeology inspired Hungarian landscape studies such as investigations on pedological data as well as on macrofossil and pollen remains that reflected not only the characteristics of, and changes in, the local environment of a given site or sediment catchment basin, but also the impact of human activities (crop cultivation, water and woodland management, etc.) on changes in the environment.[47] Various branches of geoarchaeology became an integral part of archaeological studies of different periods; first prehistory and, later, the medieval period became subject to geoarchaeological studies.

In addition to large-scale excavations and the application of new advances in the earth sciences to archaeological problems, the growing number of regional surveys also had an impact on the evolution of landscape archaeology in Hungary. Numerous regional scale projects were carried out already in the 1980s, several of them in international cooperation. These research projects sought to explore settlement patterns in broader regions through systematic field surveys and statistical analyses of artefact distributions, and also studied different aspects of human-landscape interactions.[48]

From the 1990s, the non-invasive research techniques of regional surveys were supplemented by geoarchaeological (soil science, palynology, palaeohydrology) and bioarchaeological (DNA, stable isotope analysis, etc.) analyses. Although one of the earliest regional projects, the Anglo-Hungarian landscape archaeological Upper-Tisza Project (1991-2004)[49] aimed to study the interaction between settlements and environment within three

[42] *Raczky 2007.*

[43] Aerial photos became available to the public only after the political changes in 1989. *Goguey – Szabó 1995; Goguey 1997; Braasch 2003.*

[44] *Czajlik – Marton – Holl 1997; Czajlik 2009; Czajlik – Holl 2011; Czajlik – Bödőcs 2013; Miklós 2010; Miklós 2011; Bertók – Gáti 2014.*

[45] *Padányi-Gulyás et al. 2012; Stibrányi – Mesterházy – Padányi-Gulyás 2012; Mesterházy – Stibrányi 2012; Mesterházy 2013.*

[46] *Jerem et al. 1984–1985.*

[47] *Pálóczi Horváth 1993; Sümegi 2003; Sümegi – Gulyás 2004; Gál – Juhász – Sümegi 2005; Zatykó – Juhász – Sümegi 2007.*

[48] *Kosse 1979; Sherratt 1983; Raczky – Seleanu – Rózsa 1985; Bökönyi 1992; Bökönyi 1996; Szőke 1996.*

[49] *Chapman et al. 2010.*

micro-regions from the Neolithic to the medieval period, most regional projects have primarily focused on prehistory.

International regional projects focusing on the Neolithic routinely involved geoarchaeology and bioarchaeology, and utilised cutting-edge technologies such as remote sensing techniques and GIS after the turn of the millennium. Applications have included the reconstruction of palaeohydrology for a better understanding of settlement distributions over time,[50] complex palaeoenvironmental reconstructions to study the frontier zones of a region,[51] and local scale investigations in the immediate surroundings of particular sites.[52] Other regional projects focusing on the Bronze Age study the dynamic interactions between environmental factors and human societies, and explore settlement patterns and social hierarchies. In addition to typically small-scale, targeted excavations, these projects also apply systematic field surveys, GIS analyses and geophysical prospection.[53]

The regional survey of the Sárvíz region in Transdanubia is based on probability sampling methods of predictive archaeology, and primarily seeks to reveal regularities in settlement decisions with regard to environmental and economic factors over time. Additionally, wider spatial contexts of past human activities such as medieval settlement patterns and road networks are studied as well.[54] On the basis of the multi-site and multi-period nature of large-scale excavations conducted along the planned track of the M7 Motorway, and supplementing the results with geomorphological investigations, a regional research project focusing on the southern shore of Lake Balaton aimed to reconstruct how communities adapted their settlement strategies to altering hydrological conditions from prehistory to the medieval period.[55]

The abovementioned projects, which benefitted considerably from the methods of the hard sciences and primarily focused on prehistory, employed the theory and methodology of the processual concept. In classical and medieval landscape studies, the environmental historical and environmental archaeological approaches,[56] and settlement pattern studies based on topographical surveys[57] as well as GIS-based regional studies were considered.[58] Moreover, presumably owing to their traditionally strong connections to historical research, the influence of the British empirical school of landscape studies is also fairly significant in classical and medieval research.[59] These investigations are more related to historical and ethnographical concepts than to anthropological theories, and are concerned primarily with those features and characteristics in the landscape that potentially facilitate a more nuanced understanding of past human-landscape interaction and spatial relationships between communities. As a result, these projects focus on off-site areas rather than individual sites, and explore subjects such as different ways of landscape exploitation and communication systems. Along with non-destructive archaeological methods, empirical landscape studies utilise historical documents and maps as well as ethnographical data. However, the landscape is considered to be one of the most important sources: the characteristics and spatial relationships of various earthworks, historical roads, ditches, canals, mounds, ponds and boundaries are recorded and interpreted as organic elements of past human behaviours.[60]

[50] Körös Regional Archaeological Project: *Parkinson 2006; Gyucha – Duffy – Frolking 2011; Gyucha – Duffy – Parkinson 2013.*

[51] *Bánffy 2004; Bánffy 2013.*

[52] *Whittle 2007.*

[53] Százhalombatta Archaeological Expedition: *Poroszlai – Vicze 2000; Poroszlai – Vicze 2005*; Benta Valley Project*: Earle et al. 2011; Earle et al. 2012;* Borsod County: *Fischl – Kienlin – Seres 2012;* Kakucs Archaeological Expedition: *Kulcsár et al. 2014.*

[54] *Mesterházy – Stibrányi 2012; Stibrányi 2008.*

[55] *Fábián – Serlegi 2009; Serlegi 2009; Mészáros – Serlegi 2011.*

[56] *Pálóczi Horváth 1993; Pálóczi Horváth 1999; Zatykó 2010.*

[57] *Benkő 1992; Zatykó 2004; Stibrányi 2008; K. Németh 2011; Viczián – Zatykó 2011.*

[58] *Pusztai 2005; Pető 2014b.*

[59] *Laszlovszky 2008; Zatykó 2011a.*

[60] *Aston – Rowley 1974; Muir 2000; Darwill 2001.*

Major research themes in current Hungarian landscape studies

There are not only methodological characteristics, but also actual key topics in landscape studies that define the field of landscape archaeology. Regarding the Roman and medieval periods, the most common landscape components that constitute the principal fields of interest in landscape studies are the natural environment, settlements, agriculture, non-agricultural resources, communication routes, ritual foci, social structures, territorial structures and demography.[61] Instead of providing a detailed description of each landscape-related investigation, a few major research topics of current Hungarian landscape studies will be discussed, focusing mainly on the Roman and medieval periods.

One of the main areas of human-landscape interaction is the townships of settlements, where much of the landed resources available for communities were exploited. The international, mostly Anglo-Saxon landscape research has frequently published data on the remains of prehistoric or medieval arable lands, relics of past field boundaries and traces of medieval ridge-and-furrows.[62] Due to geographical conditions and agricultural traditions, investigations into ancient field relics in the landscape are remarkably difficult in Hungary. Nevertheless, the research of field remains, begun in the 1970s, has confirmed that structures associated with past agriculture may survive over the centuries under certain circumstances.[63] When ancient field relics did not survive in the landscape, data gained from historical written sources and maps as well as aerial photos often provide valuable information about the organisation and other characteristics of past land use.

During the past decades, both urban and rural landscapes of Roman settlements have been studied successfully by using aerial archaeological methods. The centuria-system and the related road network have been reconstructed in Savaria and other Roman settlements through the identification of landscape features of the cadastre system such as cropmarks, recent field boundaries and tracks of dirt roads, and by the assessment of remote sensing data.[64] The reconstructions that were also supplemented by geomorphological research have contributed fundamental new data to our knowledge of the landscape-forming activities of Roman communities.[65] Aerial reconnaissance, along with field surveys and trial excavations, have helped to identify and study the layout of a Roman villa and its intensively cultivated fields in their estates in Cserdi (Baranya County).[66]

Regarding the Migration period, studies on human-landscape interaction have been scarce in Hungarian archaeology. The settlement decisions of the 5–6th century population could be investigated through the spatial patterns in settlement distributions in landscape contexts. It may be assumed that these decisions were influenced largely by natural environmental features and the possibilities to reuse the elements of the previous, Roman landscape, including the remains of settlements, road networks, and urban and rural environments.[67]

Relics of arable fields and terraces dating to the medieval period have been identified primarily in areas that were cultivated only temporarily, and where forestation occurred after the abandonment of the fields.[68] Remains of terraces and lines of stones that marked the edge of cultivated fields were found in the external areas of several medieval village townships (Nagybörzsöny, Bernecebaráti, Tamási, Sarvaly),[69] and as arable fields attached to the past plot system (Szentmihály) as well.[70] Relics of ploughscars unearthed in Kiskunhalas and

[61] *Rippon 2000* 51.
[62] *Hall 1982; Muir 2000* 67–91; *Dyer – Hey – Thirsk 2003; Williamson 2004* 62–90.
[63] *Laszlovszky 1999.*
[64] *Mócsy 1965; Zsidi 2004; Bödőcs 2011; Borhy – Czajlik – Bödőcs 2013.*
[65] *Bödőcs – Kovács 2011.*
[66] *Szabó 2012.*
[67] *Virágos 2008.*
[68] For summary of medieval field systems in Hungary see *Laszlovszky 1999.*
[69] *Nováki 1977; Nováki 1985; Torma 1981.*
[70] *Nováki 1990.*

the geomorphological and palynological investigations into the shifting sand land contribute to the understanding of changes in landscape use in the shifting sand land.[71] While terrace remains along the Danube at Nagymaros inform us about medieval vineyards,[72] landscape features in forested areas along with an analysis of historical data reveal the different ways of woodland management in the medieval Carpathian Basin.[73] Some other studies focusing on how medieval communities adjusted their life to the surrounding landscape explored cultivation and land use patterns in townships by using surface survey results, landscape archaeological observations and data from historical maps and written sources as well as archive aerial photos.[74] Landscape features such as boundary stones, boundary mounds and road networks provide insights into the spatial organisation of the landscape and shed some light on how past communities perceived the landscape.[75]

As landscape archaeology turns its focus not so much on individual archaeological sites as on patterns in their spatial distribution and on the relationships between them, the research of communication networks, particularly of road systems, constitutes an important theme for landscape archaeology.[76] After the early studies that were based on historical maps and written sources,[77] archaeological investigations into roads concentrated on unearthed sections of roads in Hungary. As remote sensing methods became available and landscape approaches developed, scholars began to interpret road systems as communication networks embedded into the settlement pattern and the landscape.[78] Even though rivers were the main transportation routes in historical times, roads can be considered as the overland side roads of rivers. Roads as actual constructions were built in the Roman period for the first time. Remains of their pebble foundation can be seen in ploughed fields or appear as soilmarks on aerial photos, and therefore road studies of the Roman period have developed principally from aerial archaeological research.[79] Apart from the re-use of Roman roads, medieval roads were not built constructions, but rather evolved spontaneously between places as continuous treading removed the vegetation from their surface. As a result, medieval roads are often known from historical maps or written sources and not as archaeological features in the landscape. At the same time, remnants of roads often appear in uncultivated, predominantly wooded areas, sometimes bridge remains indicate a forgotten road, or they become recognisable in forms of hollow ways deepened as a result of erosion of water, footfalls and wheel tracks.[80] Documentary sources are also frequently of help in interpreting the function, physical property or legal status of medieval roads, and in placing their archaeological remains into a wider economic and social context.[81] The multi-period approach of landscape archaeology gains a great importance in road studies, as the re-use of roads dating to earlier periods is a common phenomenon from prehistory until recent times.[82]

Before river regulation and land reclamation works changed the natural hydrology of Hungary in the 19th century, large areas of the Carpathian Basin were perennially or temporarily inundated. The reconstruction of the past hydrology coupled with a study of the water management strategies of historical times constitutes another significant theme in Hungarian landscape studies. From around the 1970s, several canals, dams, abandoned

[71] *Nyári – Rosta 2009.*
[72] *Kiss et al. 2005.*
[73] *Szabó 2005; Szabó 2008.*
[74] *Zatykó 1997; Zatykó 2004; Zatykó 2013; Ferenczi – Laszlovszky 2014; Pálóczi Horváth 2002.*
[75] *Bödőcs 2013; Szilágyi 2014a* 64–66, *83; Sárosi 2013.*
[76] *Hindle 1982.*
[77] *Glaser 1929–1930.*
[78] *Szilágyi 2014a* 13–52.
[79] *Borhy – Czajlik – Bödőcs 2013.*
[80] *Zatykó 2004; Stibrányi 2008; Benkő 2011; Pető 2014a; Pető 2014b; Máté 2014; Szilágyi 2012; Szilágyi 2014a.*
[81] *Szilágyi 2014b; Ferenczi – Laszlovszky 2014.*
[82] *Szilágyi 2014a; Szilágyi 2014b.*

fishponds and dikes have been identified during field surveys. They belonged to royal and monastic estates, or were elements of the landscape around rural settlements.[83]

Regarding the water management of village communities, one of the most thought-provoking studies has been the reconstruction of the medieval canal-system with ponds in the Tóköz region.[84] Archaeologists have studied ponds and canals with regard to their landscapes and settlement patterns in several regions, and landscape features associated with water management have been interpreted in their environmental, economic and social contexts.[85] As archaeogeological investigations began to consider medieval layers as well, and environmental data of corings from existing or former lakes also were consulted during archaeological research, landscape reconstructions resulted in a more complex picture of human adaptation to environmental changes during the medieval period.[86]

The permanent demand of religious communities for fish made fishpond facilities prominent elements at monastic sites. Usually associated with Cistercian and Pauline estates, one of the most characteristic features of the monastic landscape was the complex use of springs and watercourses by means of building watermills and creating fishponds in the immediate surrounding of monasteries.[87] Good examples of the complexity of monastic water management systems include fishponds distributed in a relatively small area near the Pauline monasteries at Nagyvázsony and Tálod, and the Pauline ponds established by damming streams in the Abaúj region.[88]

Not only fishponds and water management, but also various other ways of landscape exploitation and the monks' impacts on the environment are among the subjects of monastic landscape studies that have been conducted only in the past decade in Hungary.[89] Excavations, field surveys and GIS analyses have exposed several fishponds, agricultural terraces and roads, and remains of industrial activities such as evidence for glass production related to the grange of the Cistercian monastery at Pilis.[90] Geophysical research conducted in the courtyard of the monastery shed some light on the complex usage of the water supply that was collected in a waterwheel reservoir and drained through a workshop towards the latrines.[91] By identifying the remains of several ponds, dikes, drainage outlets and pathways in the landscape and by using digital terrain models and Least Cost Path analyses, a recent study of Pauline monasteries has demonstrated the complexity of landscape exploitation of the religious communities living in the Pilis Mountains.[92] Current archaeological and geoarchaeological investigations of fishponds in the Pilis Mountains offer a good example of combining the empirical and environmental approaches, and will definitely broaden our knowledge not only of monastic landscapes, but of their interactions with climatic and vegetation changes during the medieval period.[93]

Conclusion

The development of Hungarian landscape archaeology has been remarkably similar to that in other East and Central European countries. After sporadic and isolated studies focusing on specific aspects of human-environment interaction, the real upswing in landscape research can be regarded as a result of possibilities offered by the political changes in 1989. Considering various trends in Hungarian landscape studies, some differences can be identified between approaches

[83] *MRT 5 1979* 216–220*; Miklós 1997; Takács 2003; Ferenczi 2008; Zatykó 2011b.*
[84] *Takács 2003.*
[85] *Rácz – Laszlovszky 2005; K. Németh 2013; Zatykó 2013.*
[86] *Sümegi – Gulyás 2004; Sümegi et al. 2009; Zatykó – Sümegi 2009.*
[87] *Laszlovszky 2004; Bencze 2015.*
[88] *Kékedi 2008; Belényesy 2004.*
[89] *Laszlovszky 2004; Pető 2014b.*
[90] *Benkő 2008; Laszlovszky 2009; Laszlovszky et al. 2014; Ferenczi – Laszlovszky 2014.*
[91] *Hervay – Benkő – Takács 2007; Benkő 2010.*
[92] *Pető 2014b.*
[93] *Benkő 2015.*

employed in the research of different periods. While prehistoric landscape archaeology has been largely influenced by the processual paradigms, landscape studies of the Roman and medieval periods apply the concept of the British empirical school more frequently. Nevertheless, the different paradigms that were introduced and spread simultaneously in Hungary from the 1990s have the potential of intellectual cross-fertilisation, and can offer a beneficial conjunction of various landscape approaches to inspire and shape future developments.

REFERENCES

Andrásfalvy 1976 — B. Andrásfalvy: A Duna-mente népének ártéri gazdálkodása [Floodplain farming of the people of the Danube-valley]. Budapest 1976.

Anschuetz – Wilshusen – Scheick 2001 — K. F. Anschuetz – R. H. Wilshusen – C. L. Scheick: An Archaeology of Landscapes: Perspectives and Directions. Journal of Archaeological Research 9/2 (2001). 157–211.

Aston 1985 — M. Aston: Interpreting the Landscape. Landscape Archaeology and Local History. London 1985.

Aston – Rowley 1974 — M. Aston – T. Rowley: Landscape Archaeology: an Introduction to Fieldwork Techniques on Post-Roman Landscapes. Newton Abbot 1974.

Bánffy 2004 — E. Bánffy: The 6th millenium BC boundary in Western Transdanubia and its role in the Central European transition (The Szentgyörgyvölgy-Pityerdomb settlement). VAH 15. Budapest 2004.

Bánffy 2013 — E. Bánffy: The Early Neolithic in the Danube-Tisza Interfluve. BAR IS 2584. Oxford 2013.

Barford 2001 — P. Barford: Space, environment, and cultural landscapes in Polish archaeology, in: D. Timothy – M. Gojda (eds): One Land, Many Landscapes. BAR BS 987. Oxford 2001, 19–32.

Barford – Brzezinski – Kobylinski 2000 — P. Barford – W. Brzezinski – Z. Kobylinski: The Past, Present and Future of the Polish Archaeological Record Project, in: J. Bintliff – M. Kuna – N. Venclová (eds): The Future of Surface Artefact Survey in Europe. Sheffield 2000, 73–92.

Bartosiewicz – Mérai – Csippán 2011 — L. Bartosiewicz – D. Mérai – P. Csippán: Dig up-Dig in: Practice and Theory in Hungarian Archaeology, in: L. R. Lozny (ed.): Comparative Archaeologies: A Sociological View of the Science of the Past. New York 2011, 273–337.

Bátky 1905 — Zs. Bátky: Magyarság néprajza [Hungarian Ethnography], in: A. György (ed.): Föld és népei V. Magyarország. Budapest 1905, 173–237.

Belényesy 1953 — M. Belényesy: A halászat a XIV. században [Fishing in the 14th century] Ethnographia 64 (1953) 148–165.

Belényesy 1958 — M. Belényesy: Der Ackerbau und seine Produkte in Ungarn in XIV. Jahrhundert. Acta Ethnographica Academiae Scientiarum Hungaricae 6 (1958) 265–321.

Belényesy 2004 — K. Belényesy: Pálos kolostorok az Abaúj-hegyalján (Pauline Friaries in the Abaúj Hegyalja Region). Miskolc 2004.

Bencze 2015 — Ü. Bencze: A medieval Pauline monastic landscape in the Szekler Land. Transsylvania Nostra 2 (2015) 10–17.

Bender 1998 — B. Bender: Stonehenge: Making Space. Oxford – New York 1998.

Benkő 1992 — E. Benkő: A középkori Keresztúrszék régészeti topográfiája (Die archäologische Topographie des mittelalterlichen Stuhles Keresztúr). Budapest 1992.

Benkő 2008 — E. Benkő: A pilisi apátság régészeti kutatása [Archaeological research of Pilis Abbey], in: L. Horváth – L. Legeza (eds): Ciszterci apátság Pilisszentkereszten. Budapest 2008, 16–27.

Benkő 2010 E. Benkő: A pilisi ciszterci monostor geofizikai kutatása (Geophysical research at the Pilis Cistercian Monastery), in: E. Benkő – Gy. Kovács (eds): A középkor és a kora újkor régészete Magyarországon I. Budapest 2010, 401–419.

Benkő 2011 E. Benkő: Via regis - via gregis. Középkori utak a Pilisben [Via regis - via gregis. Medieval roads in the Pilis Mountains], in: K. Kővári – Zs. Miklós (eds): „Fél évszázad terepen". Tanulmánykötet Torma István tiszteletére 70. születésnapja alkalmából. Budapest 2011, 115–119.

Benkő 2015 E. Benkő: Udvarházak és kolostorok a pilisi királyi erdőben (Manor houses and cloisters in the royal forests of the Pilis region), in: E. Benkő – K. Orosz (eds): In Medio Regni Hungariae. Régészeti, művészettörténeti és történeti kutatások „az ország közepén". Budapest 2015, 727–753.

Bertók – Gáti 2014 G. Bertók – Cs. Gáti: Old Times - New Methods. Non-invasive archaeology in Baranya County (Hungary) 2005–2013. Budapest 2014.

Binford 1962 L. R. Binford: Archaeology as anthropology. AmAnt 28/2 (1962) 217–225.

Binford 1964 L. R. Binford: A consideration of archaeological research design. AmAnt 29 (1964) 425–441.

Binford 1978 L. R. Binford: Willow Smoke and Dogs' Tails: Hunter-Gatherer Systems and Archaeological Site Formation. AmAnt 45/1 (1980) 4–20.

Binford – Binford 1968 L. R. Binford – S. R. Binford: New Perspectives in Archaeology. Chicago 1968.

Borhy – Czajlik – Bödőcs 2013 L. Borhy – Z. Czajlik – A. Bödőcs: Neue Wege der Erforschung des Siedlungs- und Wegenetzes im römischen Pannonien, in: G. Schörner (Hrsg.): Leben auf dem Lande. Wien 2013, 331–384.

Bökönyi 1992 S. Bökönyi (ed.): Cultural and Landscape Changes in South-East Hungary I. Reports on the Gyomaendrőd Project. Budapest 1992.

Bökönyi 1996 S. Bökönyi (ed.): Cultural and Landscape Changes in South-East Hungary II. Prehistoric Roman Barbarian and Late Avar Settlement at Gyoma 133 (Békés County Microregion). Budapest 1996.

Bödőcs 2011 A. Bödőcs: Aerial archaeological substantiation of a Roman cadastre system's predictive model. AARGnews 42 (2011) 20–28.

Bödőcs – Kovács 2011 A. Bödőcs – G. Kovács: A római kori birtokrendszer kialakítása és tájformáló hatása Pannoniában (The designation of the Roman cadastral system in Pannonia province, and its effects on recent landscape). Geodézia és Kartográfia 63/3 (2011) 20–25.

Bödőcs 2013 A. Bödőcs: Borders. The problems of aerial archaeological research of a Roman limitatio in Pannonia, in: Z. Czajlik – A. Bödőcs (eds): Aerial archaeology and remote sensing from the Baltic to the Adriatic. Selected papers of the annual conference of the Aerial Archaeology Research Group, 13th–15th September 2012, Budapest, Hungary. Budapest 2013, 59–108.

Bond 2004 J. Bond: Monastic Landscapes. Stroud 2004.

Braasch 2003 O. Braasch: Die Donau hinab – archäologische Flüge in Ungarn, in: Zs. Visy (ed.): Régészeti műemlékek kutatása és gondozása a 3. évezred küszöbén. Pécs 2003, 41–65.

Butzer 1964 K. W. Butzer: Environment and Archaeology: An Introduction to Pleistocene Geography. London 1964.

Butzer 1982 K. W. Butzer: Archaeology as Human Ecology: Method and Theory for a Contextual Approach. New York 1982.

Caldwell 1959 J. R. Caldwell: The new American archaeology. Science 129 (1959) 303–307.

Chang 1968 K. Chang: Settlement Archaeology. Palo Alto 1968.

Chapman et al. 2010 J. Chapman et al.: The Upper Tisza Project: Studies in Hungarian Landscape Archaeology. E-book 1: Introduction and Archaeological Field Survey in the Polgár Block, Book 2: Settlement Patterns in the Bodrogköz Block, Book 3: Settlement Patterns in the Zemplen Block, BAR IS 2089. Oxford 2010.

Cholnoky 1930 J. Cholnoky: A Föld titkai III. Az ember drámája [Secrets of the Earth III. Drama of mankind]. Budapest 1930.

Clarke 1972 D. L. Clarke: Models in Archaeology. London 1972.

Clarke 1977 D. L. Clarke: Spatial archaeology. London 1977.

Crawford 1925 O. G. S. Crawford: The Long Barrows of the Cotswolds. Gloucester 1925.

Crawford 1953 O. G. S. Crawford: Archaeology in the Field. 1953.

Czajlik 2009 Z. Czajlik: Légi régészet Magyarországon [Air photography in Hungary], in: A. Anders – M. Szabó – P. Raczky (eds): Régészeti dimenziók. Tanulmányok az ELTE Régészettudományi Intézetének tudományos műhelyéből. Budapest 2009, 23–36.

Czajlik – Holl 2011 Z. Czajlik – B. Holl: Contributions to the GIS Background of Field Surveys in Archaeologically Less Known Areas, in: E. Jerem – F. Redő – V. Szeverényi (eds): On the Road to Reconstructing the Past. Computer Applications and Quantitative Methods in Archaeology. Proceedings of the 36th International Conference – Budapest, April 2–6, 2008. Budapest 2011, 114–119.

Czajlik – Bödőcs 2013 Z. Czajlik – A. Bödőcs: The effectiveness of Aerial Archaeological Research – An Approach from the GIS Perspective, in: G. Kulcsár – A. Anders (eds): Moments in Time. Papers Presented to Pál Raczky on His 60th Birthday. Budapest 2013, 873–883.

Czajlik – Marton – Holl 1997 Z. Czajlik – Á. Marton – B. Holl: Az M3-as autópálya régészeti leletmentéseinek térinformatikai feldolgozása Hajdú-Bihar megyében [The GIS Processing of the Rescue Excavations Associated with the M3 Motorway in Hajdú-Bihar County], in: P. Raczky –T. Kovács – A. Anders (eds): Utak a múltba. Az M3-as autópálya régészeti leletmentései [Paths into the Past. Rescue Excavations on the M3 Motorway]. Budapest 1997, 153–155.

Darwill 2001 T. Darwill: Traditions of landscape archaeology in Britain: issues of time and scale, in: T. Darwill – M. Gojda (eds): One Land, Many Landscapes. BAR BS 987. Oxford 2001, 33–46.

David – Thomas 2010 B. David – J. Thomas: Landscape Archaeology: Introduction, in: B. David – J. Thomas (eds): Handbook of Landscape Archaeology. Walnut Creek 2010, 27–43.

Dunnell – Dancey 1983 R. C. Dunnell – W. S. Dancey: The siteless survey: A regional scale data collection strategy. Advances in Archaeological Method and Theory 6 (1983) 267–287.

Dyer – Hey – Thirsk 2003 C. Dyer – D. Hey – J. Thirsk: Lowland Vales, in: J. Thirsk (ed.): Rural England. An illustrated history of the landscape. Oxford 2003, 78–96.

Earle et al. 2011 T. Earle – A. Kreiter – C. Klehm – J. Ferguson – M. Vicze: Bronze Age Ceramic Economy: The Benta Valley, Hungary. EJA 14 (2011) 419–440.

Earle et al. 2012 T. Earle – V. Kiss – G. Kulcsár – V. Szeverényi – T. Polányi – J. Czebreszuk – M. Jaeger – Ł. Pospieszny: Bronze Age Landscapes in the Benta Valley. MR/HA 2012/Winter http://www.hungarianarchaeology.hu/wp-content/uploads/2014/08/eng_Benta_14S.pdf [22.10.2015]

Éri 1969 I. Éri: Veszprém megye középkori településtörténeti vázlata [The settlement history of Veszprém in the medieval period]. VMMK 8 (1969) 199–213.

Evans 1978 J. Evans: An Introduction to Environmental Archaeology. London 1978.

Everson – Williamson 1998 P. Everson – T. Williamson (eds): The Archaeology of Landscape. Studies presented to Christopher Taylor. Manchester – New York 1998.

Fábián – Serlegi 2009 Sz. Fábián – G. Serlegi: Settlement and environment in the Late Copper Age along the Southern shore of Lake Balaton in Hungary, in: T. Thurston – R. B. Salisbury (eds): Regional Analyses of Spatial and Social Dynamics. Cambridge 2009, 199–231.

Fairclough – Grau Moller 2008 G. Fairclough – P. Grau Moller (eds): Landscape as Heritage. The Management and Protection of Landscape in Europe, a summary by the COST A27 project "LANDMARKS" (Geographica Bernensia G79) Bern 2008.

Ferenczi 2008 L. Ferenczi: Vízgazdálkodás a középkori Magyarországon [Water management in medieval Hungary], in: A. Kubinyi – J. Laszlovszky – P. Szabó (eds): Gazdaság és gazdálkodás a középkori Magyarországon. Budapest 2008, 341–361.

Ferenczi – Laszlovszky 2014 L. Ferenczi – J. Laszlovszky: Középkori utak és határhasználat a pilisi apátság területén (Medieval roads and land use in the territory of the Pilis Abbey). StCom Új folyam 1 (2014) 103–124.

Fischl – Kienlin – Seres 2012 K. P. Fischl – T. L. Kienlin – N. Seres: Bronzezeitliche (RBA1-2) Siedlungsforschungen auf der Borsoder Ebene und im Bükk-Gebirge. Überblick und Neue Ergebnisse. HOMÉ 51 (2012) 23–43.

Foley 1981 R. Foley: Off-site archaeology: an alternative approach for the short-sited, in: I. Hodder – G. Isaac – N. Hammond (eds): Patterns of the Past. Studies in honour of David Clarke. Cambridge 1981, 157–183.

Gardiner – Rippon 2007 M. Gardiner – S. Rippon (eds): Medieval Landscapes. Landscape History after Hoskins Vol. 2. Bollington, Macclesfield 2007.

Gál – Juhász – Sümegi 2005 E. Gál – I. Juhász – P. Sümegi (eds): Environmental Archaeology in North-Eastern Hungary. VAH 19. Budapest 2005.

Glaser 1929–1930 L. Glaser: Dunántúl középkori úthálózata [The medieval road network of Transdanubia] Századok 63 (1929) 138–164, 64 (1930) 257–285.

Goguey 1997 R. Goguey: Coopération franco-hongroise en Archéologie Aérienne: Cinq campagnes de recherches de 1993 à 1997, in: J. Oexle (Hrsg.): Aus der Luft – Bilder unserer Geschichte: Luftbildarchäologie in Zentraleuropa. Dresden 1997, 83–89.

Goguey – Szabó 1995 R. Goguey – M. Szabó (eds): L'histoire vue du ciel: Photograhphie aérienne et archéologie en France et en Hongrie. Budapest 1995.

Gojda 2003 M. Gojda: Archaeology and Landscape Studies in Europe: Approaches and Concepts, in: J. Laszlovszky – P. Szabó (eds): People and Nature in Historical Perspective. Budapest 2003, 35–51.

Gojda 2011 M. Gojda: Archaeology in current society. A Central European perspective. Antiquity 85 (2011) 1448–1453.

Gramsch 1996 A. Gramsch: Landscape Archaeology: of making and seeing. EJA 4 (1996) 19–38.

Györffy 1963–1998 Gy. Györffy: Az Árpád-kori Magyarország történeti földrajza. Geographia historica Hungariae tempore stirpis Arpadianae. 1–4. Budapest 1963–1998.

Gyucha – Duffy – Frolking 2011 A. Gyucha – P. R. Duffy – T. A. Frolking: The Körös Basin from the Neolithic to the Hapsburgs: Linging Settlement Distributions with Pre-Regulation Hydrology Through Multiple Data Set Overlay. Geoarchaeology: An International Journal 26/3 (2011) 392–419.

Gyucha – Duffy – Parkinson 2013 A. Gyucha – P. R. Duffy – W. Parkinson: Prehistoric human-environmental interactions on the Great Hungarian Plain. Anthropologie 51/2 (2013) 157–168.

Hall 1982 D. Hall: Medieval Fields. Shire Archaeology. 1982.

Hassan 1979 F. A. Hassan: Geoarchaeology: The Geologist and Archaeology. AmAnt 44 /2 (1979) 267–270.

Herman 1887 O. Herman: A magyar halászat könyve I–II. [The Book of Hungarian Fishing I–II.] Budapest 1887.

Hervay – Benkő – Takács 2007 F. Hervay – E. Benkő – I. Takács: Ciszterci apátság Pilisszentkereszten [The Cistercian Abbey of Pilisszentkereszt]. Budapest 2007.

Hicks – McAtackney 2003 D. Hicks – L. McAtackney: Introduction: Landscapes and Standpoints, in: D. Hicks – L. McAtackney – G. Fairclough (eds): Envisioning Landscape: Situations and Standpoints in Archaeology and Heritage. Walnut Creek 2003, 13–29.

Hindle 1982 P. Hindle: Medieval Roads and Tracks. A Shire Archaeology Book. 1982.

Hodder 1978 I. Hodder: The Spatial Organization of Cultures. London 1978.

Hodder 1986 I. Hodder: Reading the Past: Current Approaches to Interpretation in Archaeology. Cambridge 1986.

Hodder – Orton 1976 I. Hodder – C. Orton: Spatial Analysis in Archaeology. Cambridge 1976.

Hoskins 1955 W. G. Hoskins: The Making of the English Landscape. London 1955.

Jakó 1940 Zs. Jakó: Bihar megye a török pusztítás előtt [Bihar County before the Ottoman period] (Település- és népiségtörténeti értekezések 5). Budapest 1940.

Jankovich 1993 D. Jankovich-Bésán: A felszíni leletgyűjtés módszerei és szerepe a régészeti kutatásban [Methods of surface survey and its role in archaeological research]. Régészeti Továbbképző Füzetek 4. Budapest 1993.

Jankovich 2011 D. Jankovich-Bésán: Régészeti terepbejárás [Archaeological field walking], in: P. Gróf – F. Horváth – V. Kulcsár – B. F. Romhányi – E. Tari – K. T. Biró (eds): Régészeti Kézikönyv CD ROM. Budapest 2011, 17–28.

Jankuhn 1973 H. Jankuhn: Archäologische Landesaufnahme. Reallexikon der germanischen Altertumskunde 1. Berlin – New York 1973, 391–394.

Jankuhn 1977 H. Jankuhn: Einführung in die Siedlungsarchäologie. Berlin 1977.

Jerem et al. 1984–1985 E. Jerem – G. Facsar – L. Kordos – E. Krolopp – I. Vörös: A Sopron-Krautackeren feltárt vaskori telep régészeti és környezetrekonstrukciós vizsgálata [The archaeological and environmental investigation of the Iron Age settlement discovered at Sopron-Krautacker] ArchÉrt 111 (1984) 141–169; 112 (1985) 3–24.

Kalicz – Raczky 1977 N. Kalicz – P. Raczky: Új-e az „Újrégészet”? [Is “New Archaeology” really new?] Valóság 6 (1977) 76–94.

Kékedi 2008 A. Kékedi: Középkori pálos kolostorok környezetalakítása a nagyvázsonyi történeti táj példáján [Landscape transformation of Pauline monasteries through the case of Nagyvázsony]. MA Thesis, Budapesti Corvinus Egyetem Tájépítész mérnöki Kar, Budapest 2008.

Kiss et al. 2005 A. Kiss – A. Czinege – K. Barta – Z. Sümeghy – A. Grynaeus: Felhagyott szőlőteraszok, intenzív történeti tájhasználat és talajerózió elleni védekezés Nagymaroson (Abandoned Vine-Growing Terraces, Intensive Usage of Historical Landscape and Defensive Techniques Against Erosion in Nagymaros) StCom Új folyam 1 (2014) 125–143.

Kluiving – Lehmkuhl – Schütt 2012 S. J. Kluiving – F. Lehmkuhl – B. Schütt: Landscape Archaeology at the LAC2010 conference. Quaternary International 251 (2012) 1–6.

Kosse 1979 K. Kosse: Settlement Ecology of the Körös and Linear Pottery Cultures in Hungary. BAR IS 64. Oxford 1979.

Kossinna 1911 G. Kossinna: Die Herkunft Germanen zur Methode der Siedlungsarchäologie. Mannus-Bibliothek 6. Würzburg 1911.

Kovalovszki 1965 J. Kovalovszki: Orosháza és környéke a magyar középkorban [Orosháza and its vicinity in the medieval period], in: Gy. Nagy (ed.): Orosháza története. Orosháza 1965, 175–203.

Kulcsár et al. 2014 G. Kulcsár – M. Jaeger – V. Kiss – G. Márkus – J. Müller – Á. Pető – G. Serlegi – V. Szeverényi – N. Taylor: The Beginnings of a New Research Program - Kakucs Archaeological Expedition - KEX 1. MR/HA 2014/Winter http://www.hungarianarchaeology.hu/wp-content/uploads/2015/01/Kulcsar_E14T.pdf [22.10.2015]

Kuna 2000 M. Kuna: Surface Artefact Studies in the Czech Republic, in: J. Bintliff – M. Kuna – N. Venclová (eds): The Future of Surface Artefact Survey in Europe. Sheffield 2000, 29–44.

Kuna – Deslerová 2007 M. Kuna – D. Deslerová: Landscape Archaeology and 'Community Areas' in the Archaeology of Central Europe, in: D. Hicks – L. McAtackney – G. Fairclough (eds): Envisioning Landscape: Situations and Standpoints in Archaeology and Heritage. Walnut Creek 2003, 146–171.

Langó 2013 P. Langó: The Study of the Archaeological Finds of the Tenth-Century Carpathian Basin as National Archaeology: Early Nineteenth-Century Views, in: P. J. Geary – G. Klaniczay: Manufacturing Middle Ages. Entangled History of Medievalism in Nineteenth-Century Europe. Leiden – Boston 2013, 397–418.

Laszlovszky 1999 J. Laszlovszky: Field Systems in Medieval Hungary, in: B. Nagy – M. Sebők (eds): The Man of Many Devices, Who Wandered Full Many Ways. Festschrift in Honor of János M. Bak. Budapest 1999, 432–444.

Laszlovszky 2004 J. Laszlovszky: Középkori kolostorok a tájban, középkori kolostortájak [Medieval Monasteries in the Landscape, Medieval Monastic Landscapes], in: Gy. Kovács (ed.): „Quasi liber et pictura" Tanulmányok Kubinyi András hetvenedik születésnapjára. Budapest 2004, 337–349.

Laszlovszky 2008 J. Laszlovszky: Az Európai Táj Egyezmény és a hazai tájrégészet [The European Landscape Convention and Hungarian landscape archaeology]. Műemlékvédelem 52 (2008) 101–104.

Laszlovszky 2009 J. Laszlovszky: Ciszterci vagy Pálos? A Pomáz-Nagykovácsi-pusztán található középkori épületmaradványok azonosítása [Identification of medieval architectural remains in Pomáz-Nagykovácsi-puszta], in: B. Guitman (ed.): A Ciszterci Rend Magyarországon és Közép-Európában. Budapest 2009, 191–288.

Laszlovszky – Siklódi 1991 J. Laszlovszky – Cs. Siklódi: Archaeological Theory in Hungary since 1960, in: I. Hodder (ed.): Archaeological Theory in Europe: the last three decades. London–New York 1991, 272–298.

Laszlovszky et al. 2014 J. Laszlovszky – D. Mérai – B. Szabó – M. Vargha: The "Glass Church" in the Pilis Mountains. The Long and Complex History of Árpád Period Village Church. MR/HA 2014/Winter http://www.hungarianarchaeology.hu/wp-content/uploads/2015/01/Laszlovszky_E14T.pdf [22.10.2015]

Lüning 1982 J. Lüning: Siedlung und Siedlungslandschaft in Bandkeramischer und Rössener Zeit. Offa 39 (1982) 9–33.

Lüning 1997 J. Lüning: Landschaftsarchäologie in Deutschland, ein Programm. Archäologisches Nachrichtenblatt 2–3 (1997) 277–85.

Máté 2014 G. Máté: Research of the local road network. Modern Geográfia 1 (2014) 1–18.

Meier 2006 T. Meier: On Landscape Ideologies: An Introduction, in: T. Meier (ed.): Landscape Ideologies. Budapest 2006, 11–50.

Méri 1952–1954 I. Méri: Beszámoló a tiszalök-rázompusztai és túrkeve-mórici ásatások eredményeiről I–II. [Report on the results of the excavations at Tiszalök-Rázompuszta and Túrkeve-Móric I-II]. ArchÉrt 79 (1952) 49–67, 81 (1954) 138–154.

Mesterházy 1973–1974 K. Mesterházy: Régészeti adatok Hajdú-Bihar megye területe XI–XIII. századi településtörténetéhez I–II (Archäologische Angaben zur Siedlungsgeschichte des Komitates Hajdú-Bihar in den 9–13. Jahrhunderten I-II). DMÉ (1973) 95–174, (1974) 211–266.

Mesterházy 2013 G. Mesterházy: Regionális léptékű terepbejárás módszertani lehetőségeinek vizsgálata Magyarországon (Methodology and potentials of field surveys on a regional scale in Hungary). ArchÉrt 138 (2013) 265–279.

Mesterházy – Stibrányi 2012 G. Mesterházy – M. Stibrányi: Non-destructive Archaeological Investigations in the Sárvíz-valley. MR/HA 2012/Winterhttp://www.hungarianarchaeology.hu/wp-content/uploads/2013/02/eng_mesterhazy_12W.pdf [22.10.2015]

Mészáros – Serlegi 2011 O. Mészáros – G. Serlegi: The impact of environmental change on Medieval settlement structure in Transdanubia. ActaArchHung 62 (2011) 199–219.

Miklós 1997 Zs. Miklós: Falvak, várak, kolostorok a Dél-Börzsönyben [Villages, castles, monasteries in South-Börzsöny Mountain]. Váci könyvek 8 (1997) 7–154.

Miklós 2010 Zs. Miklós: A légi fotózás szerepe a középkori régészetben (The Role of Aerial Photography in the Archaeology of the Middle Ages), in: E. Benkő – Gy. Kovács (eds): A középkor és kora újkor régészete Magyarországon. II. Budapest 2010, 853–870.

Miklós 2011 Zs. Miklós: A régészeti topográfia és a légi fotózás kapcsolata [Relationship between archaeological topography and aerial photography], in: K. Kővári – Zs. Miklós (eds): „Fél évszázad terepen" – Tanulmánykötet Torma István tiszteletére 70. születésnapja alkalmából. Budapest 2011, 121–130.

Mócsy 1965 A. Mócsy: Savaria utcarendszerének rekonstrukciójához (Contribution á la reconstitution du système routier de Savaria). ArchÉrt 92 (1965) 27–35.

MRT 1–11. Magyarország Régészeti Topográfiája 1–11. [Archaeological Topography of Hungary 1–11]. Budapest 1966–2012.

MRT 5 1979 I. Torma (ed.): Magyarország Régészeti Topográfiája 5. Komárom megye régészeti topográfiája. Esztergom és a dorogi járás [Archaeological Topography of Hungary 5. Archaeological Topography of Komárom county. Esztergom and the Dorogi district]. Budapest 1979.

Muir 2000 R. Muir: The New Reading the Landscape: Fieldwork in Landscape History. Exeter 2000.

Müller 1971 R. Müller: Régészeti terepbejárások a göcseji "szegek" vidékén és településtörténeti tanulságaik [Archaeological field surveys in the area of Göcsej "Szegek" and their settlement historical results]. Göcseji Múzeum Kiadványai 30. Zalaegerszeg 1971.

K. Németh 2011 A. K. Németh: A középkori Tolna megye egyházi topográfiájának módszertani tapasztalatai [Methodological experiences of ecclesiastic topography of medieval Tolna County], in: K. Kővári – Zs. Miklós (eds): „Fél évszázad terepen" – Tanulmánykötet Torma István tiszteletére 70 születésnapja alkalmából. Budapest 2011, 35–42.

K. Németh 2013 A. K. Németh: Barátok tava. Tájrégészeti és történeti adatok egy helynév eredetéhez [Barátok tava (Teich der Mönche) Landschaftsarchäologische und Historische Angaben zum Ursprung eines Geografischen Namens] ArchÉrt 138 (2013) 367–374.

Neustupný 1991 E. Neustupný: Recent theoretical achievements in prehistoric archaeology in Czechoslovakia, in: I. Hodder (ed.): Archaeological Theory in Europe: the last three decades. London–New York 1991, 248–271.

Neustupný 1991a E. Neustupný: Community Areas of Prehistoric Farmers in Bohemia. Antiquity 65 (1991) 388–395.

Nováki 1977 Gy. Nováki: Régi szántóföldek nyomai a Börzsönyben (Spuren von einstigen Ackerfeldern im Börzsöny-Gebirge). MMMK (1975–1977) 53–79.

Nováki 1985 Gy. Nováki: Szántóföldek maradványai a XIV–XVI. századból a Sümeg-Sarvalyi erdőben (Überreste der Ackerfelder des 14.-16. Jahrhunderts aus dem Wald Sümeg-Sarvaly). MMMK (1984–1985) 19–32.

Nováki 1990 Gy. Nováki: A középkori Szentmihály falu földvára és szántóföldjei (Der Burgwall und die Acker des mittelalterlichen Dorfes Szentmihály). ZalaiMúz 2 (1990) 209–219.

Nyári – Rosta 2009 D. Nyári – Sz. Rosta: Középkori szántás a homok alatt. Előzetes jelentés Kiskunhalas határából [Medieval arable land beneath the sand. Preliminary report from Kiskunhalas], in: A. Szakál (ed.): Emlékkönyv a Thorma János Múzeum 135. évfordulójára. Halasi Múzeum 3. Kiskunhalas 2009, 27–34.

Padányi-Gulyás et al. 2012 G. Padányi-Gulyás – M. Stibrányi – G. Mesterházy – M. Deák: Familiar Road, Unfamiliar Ground. Archaeological Predictive Modelling in Hungary, in: CAA2012 Proceedings of the 40th Conference in Computer Applications and Quantitative Methods in Archaeology, Southampton, United Kingdom, 26–30 March 2012. 694–709.

Parkinson 2006 W. Parkinson: The Social Organization of Early Copper Age Tribes on the Great Hungarian Plain. BAR IS 1573. Oxford 2006.

Parsons 1972 J. R. Parsons: Archaeological Settlement Patterns. Annual Review of Anthropology 1 (1972) 127–150.

Pálóczi Horváth 1993 A. Pálóczi Horváth: A környezeti régészet szerepe Magyarországon a középkori kutatásában [The role of environmental archaeology in medieval studies in Hungary], in: Á. R. Várkonyi – L. Kósa (eds): Európa híres kertje. Történeti ökológiai tanulmányok Magyarországról. Budapest 1993, 44–66.

Pálóczi Horváth 1999 A. Pálóczi Horváth: Environmental Archaeological Research at Visegrád in the Medieval Garden of the Royal Palace, in: E. Jerem – I. Poroszlai (eds): Archaeology of the Bronze and Iron Age. Experimental Archaeology, Environmental Archaeology. Budapest 1999, 343–350.

Pálóczi Horváth 2002 A. Pálóczi Horváth: A késő középkori Szentkirály határhasználata és gazdálkodása [Land management and farming in late medieval Szentkirály], in: L. Novák (ed.): Gazdálkodás az Alföldön. Földművelés. Az Arany János Múzeum Közleményei 9. Nagykőrös 2002, 53–68.

Pető 2014a Zs. E. Pető: Roman or Medieval? Historical Roads in the Pilis Forest. MR/HA 2014/Autum http://www.hungarianarchaeology.hu/wp-content/uploads/2014/11/eng_peto_14O.pdf [22.10.2015]

Pető 2014b Zs. E. Pető: The medieval landscape of the Pauline monasteries in the Pilis forest. MA thesis, Central European University, Budapest, 2014.

Poroszlai – Vicze 2000 I. Poroszlai – M. Vicze (eds): SAX. Százhalombatta Archaeological Expedition. Annual Report 1 – Field Season 1998. Százhalombatta 2000.

Poroszlai – Vicze 2005 I. Poroszlai – M. Vicze (eds): SAX. Százhalombatta Archaeological Expedition. Report 2 – Field Seasons 2000–2003. Százhalombatta 2005.

Prinz 1922 Gy. Prinz: Magyarország településformái [Settlement forms in Hungary]. Budapest 1922.

Pusztai 2005 T. Pusztai: The archaeological investigation of Kelemér-Mohosvár and the medieval settlement history of the Kelemér area, in: E. Gál – I. Juhász – P. Sümegi (eds): Environmental Archaeology in North-Eastern Hungary. VAH 19. Budapest 2005, 411–424.

Raczky 2007 P. Raczky: Az autópálya-régészet helyzete Magyarországon. Módszerek és tapasztalatok az 1990 és 2007 közötti munkálatok alapján ("Motorway archaeology" in Hungary. Methods and experience base on the works carried out between 1997 and 2007). ArchÉrt 132 (2007) 5–36.

Raczky – Seleanu – Rózsa 1985 P. Raczky – M. Seleanu – G. Rózsa et al.: Öcsöd-Kováshalom. The intensive topographical and archaeological investigation of a Late Neolithic site. Preliminary report. MittArchInst 14 (1985) 251–370.

Rácz – Laszlovszky 2005 M. Rácz – J. Laszlovszky: Monostorossáp, egy Tisza menti középkori falu (Monostorossáp, a deserted medieval village and its landscape). Dissertation Pannonicae III. 7. Budapest 2005.

Rippon 2000 S. Rippon: Landscapes in transition: the later Roman and early medieval periods, in: D. Hooke (ed.): Landscape – the richest historical record. The Society for Landscape Studies supplementary series 1. 2000, 47–61.

Sárosi 2013 E. Sárosi: Landscapes and Settlements in the Kecskemét Region, 1300–1700. PhD-thesis, Central European University. Budapest 2013.

Serlegi 2009 G. Serlegi: The waterlogged century. EX OFFICINA. Studia in honorem Dénes Gabler. Győr 2009, 135–146.

Sherrat 1983 A. Sherratt: The development of Neolithic and Copper Age settlement in the Great Hungarian Plain. Oxford Journal of Archaeology 1 (1983) 287–3016.

Siedlungsforschung: Archäologie – Geschichte – Geographie Siedlungsforschung: Archäologie – Geschichte – Geographie 1–31. Bonn 1983–2014.

Stibrányi 2008 M. Stibrányi: A Sárvíz településhálózatának vázlata, avagy a templom és a hozzá vezető út (Outline of the settlement pattern of Sárvíz, or the church and the road leading to it). Alba Regia 37 (2008) 189–197.

Stibrányi – Mesterházy – Padányi-Gulyás 2012 M. Stibrányi – G. Mesterházy – G. Padányi-Gulyás: Régészeti feltárás előtt - vagy helyett. Régészeti lelőhely-azonosítás, térinformatika, prediktív modellezés (Before – or instead of – archaeological excavation archaeological site identification, geographic information systems, predictive modeling). Az MNM NÖK Tudományos-népszerűsítő füzetei 5. Budapest 2012.

Suhr 2006 G. Suhr: Settlement-, Environmental- and Landscape Archaeology in Eastern Central Europe between Anglo-American Influence and Communist Ideology, in: Th. Meier (ed.): Landscape Ideologies. Budapest 2006, 97–114.

Sümegi 2003 P. Sümegi: A régészeti geológia és a történeti ökológia alapjai (Basics of Geoarchaeology and Historical Ecology). Szeged 2003.

Sümegi – Gulyás 2004 P. Sümegi – S. Gulyás (eds): The geohistory of Bátorliget Marshland: an example for the reconstruction of late Quaternary environmental changes and past human impact from Northeastern part of the Carpathian Basin. Budapest 2004.

Sümegi et al. 2009 P. Sümegi – G. Jakab – P. Majkut – T. Törőcsik – Cs. Zatykó: Middle Age paleoecological and paleoclimatological reconstruction in the Carpathian Basin. Időjárás. Quarterly Journal of the Hungarian Meteorological Service 113/4 (2009) 265–298.

Szabó 1937 I. Szabó: Ugocsa megye [Ugocsa County] Tanulmányok a magyar népiségtörténet köréből I/1. Budapest 1937.

Szabó 2005 P. Szabó: Woodland and Forests in Medieval Hungary. BAR IS 1348. Oxford 2005.

Szabó 2008 P. Szabó: Erdők és erdőgazdálkodás a középkori Magyarországon (Woodland and its management in medieval Hungary), in: A. Kubinyi – J. Laszlovszky – P. Szabó (eds): Gazdaság és gazdálkodás a középkori Magyarországon. Budapest 2008, 317–339.

Szabó 2012 M. Szabó: Non-invasive methods in the research of Pannonian villas. MR/HA 2012/Autum http://www.hungarianarchaeology.hu/wp-content/uploads/2012/11/eng_SzaboM_12O1.pdf [22.10.2015]

Szilágyi 2012 M. Szilágyi: Medieval Roads in Transdanubia – The methods and potentials of their historical and archaeological investigations. MR/HA 2012/Summer http://www.hungarianarchaeology.hu/?page_id=279#post-2651 [22.10.2015]

Szilágyi 2014a M. Szilágyi: On the Road: The History and Archaeology of Medieval Communication Networks in East-Central Europe. Budapest 2014.

Szilágyi 2014b M. Szilágyi: Római utak a középkori Dunántúlon. Az utak nevei és szerepük a középkori térszervezésben [Roman roads in Medieval Transdanubia. The names of Roman roads and their role in Medieval space organization]. Történelmi Szemle 56/1 (2014) 1–25.

Szőke 1996 B. M. Szőke (ed.): Archaeology and settlement history in the Hahót basin, South-West Hungary from the Neolithic to the Roman Age. Antaeus 22 (1995) [1996].

Takács 2003 K. Takács: Medieval hydraulic systems in Hungary, in: J. Laszlovszky – P. Szabó (eds): People and Nature in Historical Perspective. Budapest 2003, 289–311.

Takács 1980 L. Takács: Irtásgazdálkodásunk emlékei [Remains of deforestation]. Budapest 1980.

Taylor 1974 C. Taylor: Fieldwork in Medieval Archaeology. London 1974.

Tilley 1994 C. Tilley: A Phenomenology of Landscape: Places, Paths and Monuments. Oxford – Providence 1994.

Torma 1981 I. Torma: Mittelalterliche Ackerfeld-Spuren im Wald von Tamási (Komitat Tolna). ActaArchHung 33 (1981) 245–256.

Valter 1977 I. Valter: A Bodrogköz honfoglalás kori és középkori településtörténete [Settlement history of the Bodrogköz in the conquest and medieval period]. Agrártörténeti Szemle 1–2. Budapest 1977.

Viczián – Zatykó 2011 I. Viczián – Cs. Zatykó: Geomorphology and Environmental History in the Drava Valley, near Berzence. Hungarian Geographical Bulletin 60/4 (2011) 357–377.

Virágos 2008 R. Virágos: Tájrégészeti megközelítések a dunántúli 5–6. századi régészeti lelőhelyek értelmezésében (Approaches to interpreting the 5th–6th century landscape in western Hungary). ArchÉrt 133 (2008) 199–221.

Wahle 1941 E. Wahle: Zur ethnischen Deutung frühgeschichtlicher Kulturprovinzen: Grenzen der frühgeschichtlicher Erkenntnis. Heidelberg 1941.

Whittle 2007 A. Whittle (ed.): The Early Neolithic in the Great Hungarian Plain: investigations of the Körös culture site of Ecsegfalva 23. Békés. VAH 21. Budapest 2007.

Williamson 2004 T. Williamson: Shaping Medieval Landscapes. Settlement, Society, Environment. London 2004.

Willey 1953 G. Willey: Prehistoric Settlement Patterns in the Virú Valley, Perú. Washington 1953.

Willey – Phillips 1953 G. Willey – P. Phillips: Method and Theory in American Archaeology: An Operational Basis for Culture-Historical Integration. American Anthropologist 55/5 (1953) 615–633.

Zatykó 1997 Cs. Zatykó: Morphological Study on a 15th Century Village, Csepely. ActaArchHung 49 (1997) 167–193.

Zatykó 2004 Cs. Zatykó: Reconstruction of the Settlement Structure of the Medieval Nagyszakácsi (Somogy County). Antaeus 27 (2004) 367–431.

Zatykó 2010 Cs. Zatykó: Természeti táj – emberformálta táj: a középkori környezet rekonstrukciójának lehetőségei (Natural Landscape – Man-made Landscape: Possibilities for reconstructing the medieval environment), in: E. Benkő – Gy. Kovács (eds): Középkori és újkori régészetünk legújabb eredményei I–II. Budapest 2010, 839–852.

Zatykó 2011a Cs. Zatykó: Integrált kutatások: a tájrégészet [Integrated research: landscape archaeology], in: P. Gróf – F. Horváth – V. Kulcsár – B. F. Romhányi – E. Tari – K. T. Biró (eds): Régészeti Kézikönyv CD ROM. Budapest 2011, 388–402.

Zatykó 2011b Cs. Zatykó: Aspects of fishing in medieval Hungary, in: J. Klapste – P. Sommer (eds): Ruralia VIII: Processing, Storage, Distribution of Food – Food in the Medieval Rural Environment. Turnhout – Brepols 2011, 399–408.

Zatykó 2013 Cs. Zatykó: Settlement pattern, landscape use in medieval Berzence (Hungary) / Obrasci naselja, Korištenje krajolika u srednjovjekovnom Berzencu (Mađarska). Podravski Zbornik 39 (2013) 164–172.

Zatykó – Juhász – Sümegi 2007 Cs. Zatykó – I. Juhász – P. Sümegi (eds): Environmental Archaeology in Transdanubia. VAH 20. Budapest 2007.

Zatykó – Sümegi 2009 Cs. Zatykó – P. Sümegi: Palaeoenvironment and documentary sources: tracing environmental changes in marginal landscapes in Hungary, in: J. Klapste – P. Sommer (eds): Medieval Rural Settlement in Marginal Landscapes. Ruralia VII. Turnhout – Brepols 2009, 393–401.

Zimmermann 2009 A. Zimmermann: Landscape Archaeology in Central Europe. Proceedings of Prehistoric Society 75 (2009) 1–53.

Zsidi 2004 P. Zsidi: Aquincum topográfiája [Topography of Aquincum]. Specimina Nova 18 (2004) 167–226.

Zvelebil – Beneš 1997 M. Zvelebil – J. Beneš: Theorising Landscapes: the concept of the historical interactive landscape, in: J. Chapman – P. Dolukhanov (eds): Landscapes in Flux. Central and Eastern Europe in Antiquity. Colloquia Pontica 3. Oxford 1997, 23–40.