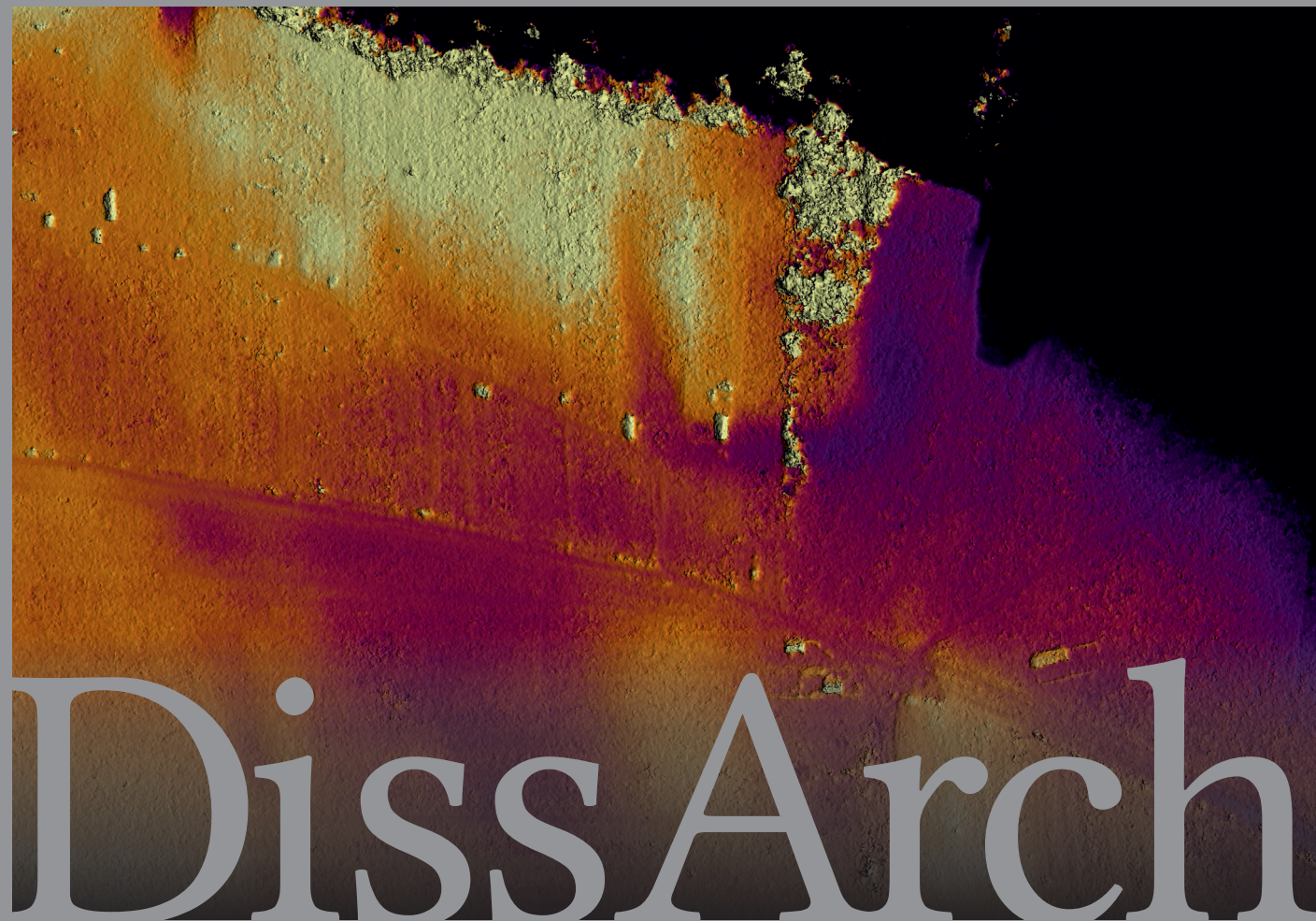


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Northwest Transdanubia from the end of the Early Bronze Age until the Koszider Period

Reworked and extended PhD thesis abstract

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Abstract: Review article of the PhD dissertation submitted in 2023 to the Archaeology Doctoral Programme, Doctoral School of History, Eötvös Loránd University, Budapest, and written under the supervision of Gábor V. Szabó.

The dissertation investigated the processes taking place at the end of the Early and in the Middle Bronze Age in northwest Hungary, predominantly in Győr-Moson-Sopron County, based on sites at Nagycenk, Hegyeshalom, Enese, Győr-Ménfőcsanak, and Mosonszentmiklós. This region between the Devín Gate and the confluence of the Rába and Danube rivers is important for European research on prehistory, as it could have been a gateway between the Carpathian Basin and the western parts of Central Europe. The complex statistical evaluation of the collected archaeological finds and their contexts has revealed the diversity of the material culture (Gáta–Wieselburg, Kisapostag, Transdanubian Encrusted Pottery Culture) and mortuary practices (inhumation and cremation burial rites, diverse patterns of grave furnishing) in the study area and period. In addition, a spatial analysis of the sites indicated a change in the settlement pattern between 2200 and 1500 BC. The typo-chronological analysis and the radiocarbon data helped specify the chronology and refine the connections maintained with Central European territories.

Keywords: Middle Bronze Age, northwest Hungary, typo-chronology, mortuary practices, settlement pattern, absolute chronology, communication network

Chronological and geographical frames

The lowland area between the Alps and the Carpathian Mountains is important for European research on prehistory as it could have been a gateway between the Carpathian Basin and the western parts of Central Europe in all archaeological periods. It is situated at the crossroads of three important waterways: the Danube enters there the Carpathian Basin through the Devín Gate, where the Morava River flows into it from the north, while 80 km to the south-east the Rába River discharges into it.¹ These plainlands are now divided among Austria, Slovakia, and Hungary, with the core area in Hungary being northwest Transdanubia, i.e., the territory of today's Győr-Moson-Sopron County (Fig. 1). Together with the neighbouring parts of Slovakia and Austria, the region was the meeting zone of the first European Bronze Age culture, the so-called Únětice complex, and diverse Early and Middle Bronze Age cultural groups from the Carpathian Basin during the Central European Early Bronze Age (EBA, 2200–1500 BC).²

1 FIGLER 1994, 21; KRENN-LEEB 2011, 11–12.

2 KRENN-LEEB 2011, Fig. 1; KISS 2012b, Fig. 1, Fig. 3.

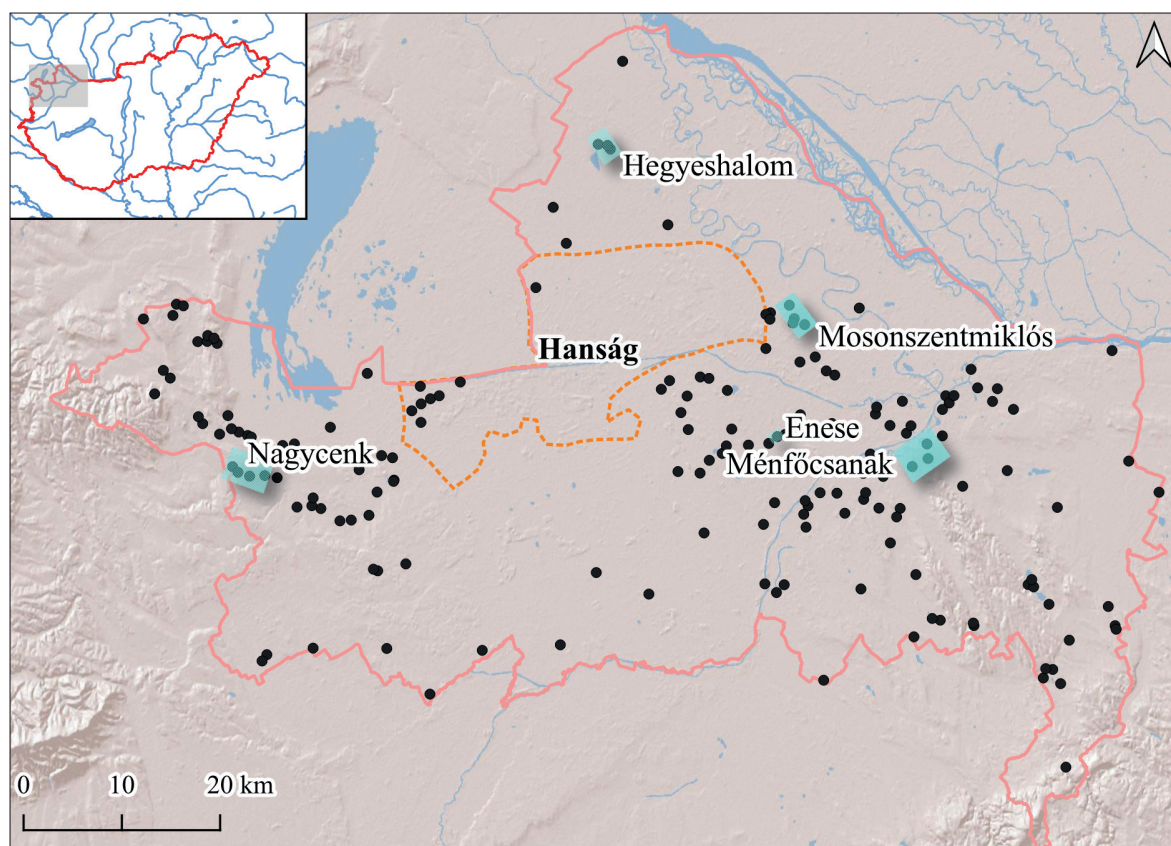


Fig. 1. EBA and MBA sites in Győr-Moson-Sopron County and the five study areas (base map: Esri Shaded Relief)

Northwest Transdanubia is located at the intersection of three major landscapes: the more or less flat Little Hungarian Plain, the hilly Western Hungarian Border Region, representing the foothills of the Alps, and the northernmost stretches of the Transdanubian Mountains.³ The largest part of the Little Hungarian Plain is the Győr Basin, which includes both plainlands and higher terrain, with the Hanság, i.e., the western edge of the swampy plains of the Réece River, between them. Even today, after the marshy areas have been drained, at least a quarter of the Hanság is temporarily covered by water during periods of more intense rainfall; thus, the area may have also been a natural boundary in prehistoric times.⁴

The focus of the dissertation is the Middle Bronze Age (MBA) development of the territories east and west of the Hanság; however, the history of this period is inseparable from the processes that began at the end of EBA.⁵ Thus, the chronological framework of the dissertation covers roughly 700 years, from EBA Phase 3 to the end of MBA Phase 3 (according to Hungarian chronology). This time span, between 2200/2100 and 1600/1500 BC, corresponds broadly to EBA in Central Europe (Rei. Br A1–A2 phases) and the time of the *tell* cultures (Nagyrév, Vátya, Hatvan, Füzesabony, Otomani, Gyulavarsánd and Maros cultures), up to and including the Koszider Period (Rei. Br B1).⁶

3 DÖVÉNYI 2010, 295–318, 325–330, 345–353, 582–585.

4 DÖVÉNYI 2010, 306–308.

5 FIGLER 1994; KISS 2012a, 195–203; FISCHL et al. 2015; SZABÓ 2017.

6 NEUGEBAUER 1994, 71–72; KISS 2012b, Fig. 3; FISCHL et al. 2015, Fig. 1a–b; PEŠKA 2019, 105–106.

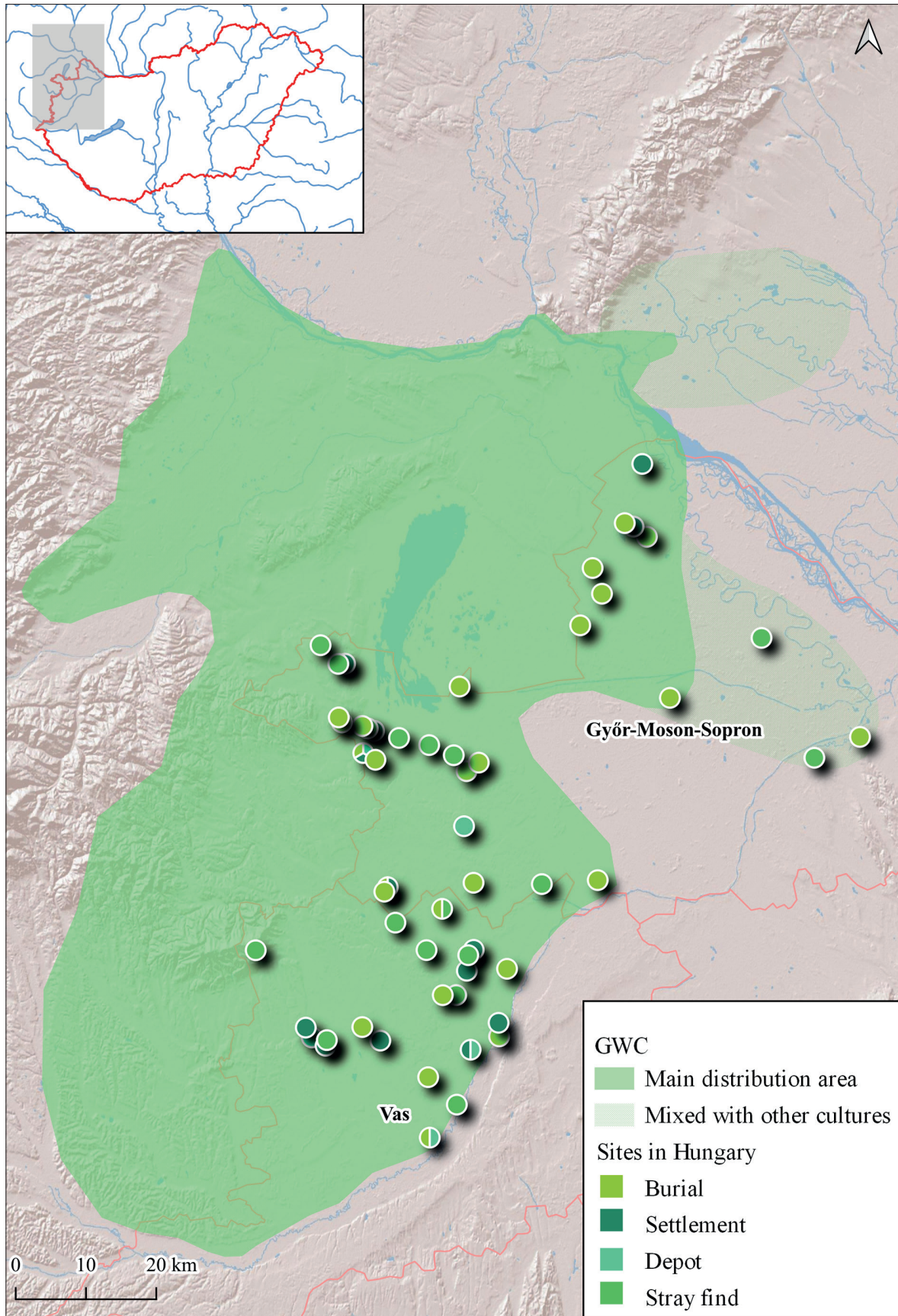


Fig. 2. GWC distribution area and known sites in Hungary (after KRENN-LEEB 2011, Fig. 1. complemented; base map: Esri Shaded Relief)

In most parts of Transdanubia, this period is characterised by the finds of the Kisapostag (or earliest Encrusted Pottery Culture)⁷ and the Transdanubian Encrusted Pottery cultures (TEPC),⁸ the cremation burials and sites of which in the Little Hungarian Plain have been investigated. In the north and northwest, i.e., the neighbouring areas of Slovakia, Austria, and Moravia, the Únětice cultural complex and similar groups with inhumation burial rites were predominant at the time.⁹ Sites of the Gáta–Wieselburg Culture (GWC), also known from eastern Austria and southwest Slovakia,¹⁰ are known from the lands between these communities.

The latest overview targeting the Bronze Age record of Győr and its closer area, published by Sándor Mithay in 1941, relied largely on stray finds.¹¹ Several EBA and MBA settlements and burials have been found in large-scale excavations since, but these have only been briefly summarised so far.¹² Professional evaluations of the EBA and MBA artefacts deposited in museums in the 1950s and 1960s have not yet been published, apart from 75 graves from the cemetery of Mosonszentmiklós–Jánosházapuszta, associated with TEPC.¹³ As the area in focus (i.e., northwest Transdanubia) is an interference or boundary zone of different cultural units in the period under study, its archaeological record is characterised by great diversity. It must be stressed that these differences in material culture (e.g., pottery style) and mortuary practice may be linked with but cannot correspond to Bronze Age group identities.¹⁴ Traditional cultural groups have thus been used as an analytical tool for interpreting the complex and mosaic view emerging from the heterogeneous archaeological record of northwest Hungary.¹⁵

Material and methods

One aim was to prepare a catalogue of the sites dated to EBA Phase 3 and MBA in Győr-Moson-Sopron County based on publications and archive data from museums.¹⁶ This work resulted in identifying 49 unspecified EBA and MBA sites (known from surface finds and settlement traces) in Győr-Moson-Sopron County. The finds of the Kisapostag, TEPC, and Tumulus cultures are often found intermixed in the material of excavated sites, frequently together with pottery made in other styles (Únětice, Mad'arovce, Věteřov, and *Litzenkeramik*). A total of about 112 sites from the county have yielded artefacts that helped specify their dating between the end of EBA and the beginning of the Late Bronze Age (LBA) (Fig. 1). Since another aim of the dissertation was to summarise the results of research on GWC in Hungary, a catalogue of sites and the related finds in Hungary, that is,

7 MOZSOLICS 1942; TORMA 1972; SZABÓ 2010; HAJDU et al. 2016.

8 REICH 2006, 232–264; KISS 2012a, 263–269.

9 STUHLÍK 1993; NEUGEBAUER 1994, 49–144; BÁTORA 2000; BENKOVSKY-PIVOVAROVÁ – CHROPOVSKÝ 2015; BÁTORA 2018; PEŠKA 2019.

10 LEEB 1987; KRENN-LEEB 2011; NAGY 2013; BARTÍK et al. 2016.

11 MITHAY 1941.

12 FIGLER 1994; FIGLER 1996.

13 UZSOKI 1959; UZSOKI 1963; ZOFFMANN 1971; KISS 2012a, 247–261.

14 KONCZ – SZILÁGYI 2017, 202–203.

15 SIKLÓSI 2006.

16 Rómer Flóris Museum of Art and History, Győr; Museum of Sopron; Museum of Hanság, Mosonmagyaróvár. Due to a centralisation in cultural heritage protection in the 2000s, some finds were transferred to the archaeological collection of the Hungarian National Museum. Here I would like to express my gratitude to the museum staff in Sopron, Győr, and Mosonmagyaróvár, the colleagues participating in the excavations at Enese–Pippani-dűlő (2008–2009) and Győr–Ménfőcsanak–Széles-földek (2009–2011), and those who worked in the processing of the finds for their contribution.

Győr-Moson-Sopron and Vas counties, has also been prepared.¹⁷ This new catalogue contains 55 sites from the two counties (Fig. 2), which represents a significant increase primarily in the number of identified GWC settlements and depots;¹⁸ the dataset also includes ca. 220–230 excavated graves.

Next, the main characteristics of the period are presented through the processing and evaluation of unpublished sites and findings. The processing has been guided by the analysis and evaluation of findings from five focus areas (Nagyecenk, Hegyeshalom, Enese, Ménfőcsanak, and Mosonszentmiklós; Fig. 1). The main criterion in their selection was location; the chosen regions represent areas east, west, and north of the Hanság, i.e. Kisapostag/TEPC and GWC-type finds. The research behind the dissertation was based on excavation material from four open, single-layer settlement parts,¹⁹ a multilayer settlement part,²⁰ and two cemeteries.²¹ The published material from the Nagyecenk-Lapos-rét²² and Mosonszentmiklós-Jánosházpuszta²³ cemeteries was integrated into the analysis of the microregions.

The first study area is the region of Nagyecenk, south of Lake Fertő (*Neusiedl*), where 27 GWC inhumation burials²⁴ and settlement traces²⁵ have been unearthed near the Arany Stream, a tributary of the Ikva River. The Momentum Mobility research group carried out a microregional field survey there.²⁶ The second study area covers the largest GWC cemetery in Hungary in the northern part of the Moson Plain, at Hegyeshalom, and the settlement remains excavated in its vicinity.²⁷ The third area is also situated on the western side of the Rába River: a settlement of the Kisapostag Culture at Enese has been included in the analysis to better understand the changes at the end of EBA.²⁸ The fourth study area is located in a transitive zone between the Little Hungarian Plain and the Transdanubian Mountains, along a former bed of the Rába River, in the vicinity of Győr-Ménfőcsanak, where extensive excavations revealed settlements and burials from the end of EBA to the early Tumulus Period.²⁹ The main focus of the dissertation was the processing of the find material of the EBA and MBA settlements and burials excavated in 2009–2011 at the Győr-Ménfőcsanak-Széles-földek site complex, completed by the processing of EBA–MBA settlement remains excavated in

- 17 Data collecting relied in the case of Győr-Moson-Sopron County on publications, National Register of Archaeological Sites in Hungary, and museum archives, while in the case of Vas County, only on publications.
- 18 Cf. LEEB 1987, 277–278, Abb. 1, Abb. 2; NAGY 2013, 75–80, Abb. 1, Abb. 2; KOLONITS 2020, 1. táblázat.
- 19 Enese-Pippáni-dűlő (2008–2009: Judit Antoni); Győr-Ménfőcsanak-Széles-földek (1990–1991: Péter Tomka, 2009–2011: Gábor Ilon); Hegyeshalom-Országúti-dűlő (2007: Ágnes Aszt, 2014–2015: Krisztina Pesti, Róbert Herbály, 2016: András Hargitai); Nagyecenk-Kövesmező (2005: János Gömöri). I would like to thank all field archaeologists for contributing to the processing and publishing of the EBA and MBA remains from their excavations.
- 20 Mosonszentmiklós-Akasztódomb (1957, 1966: András Uzsocki)
- 21 Győr-Ménfőcsanak-Széles-földek (2009–2011: Gábor Ilon); Hegyeshalom-Újlakótelep (1965–1966: Rezső Pusztai).
- 22 ZOFFMANN 2008; GÖMÖRI et al. 2018.
- 23 UZSOKI 1959; UZSOKI 1963; ZOFFMANN 1971.
- 24 ZOFFMANN 2008; GÖMÖRI et al. 2018.
- 25 MELIS et al. 2022, 42–65.
- 26 “From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary (2500–1500 BC)” (LP 2015-3, 2015–2023) PI: Viktória Kiss (MELIS et al. 2022; MELIS et al. 2023).
- 27 SZATHMÁRI 1988, 68–70, 8. ábra; ZOFFMANN 1999; NAGY – FIGLER 2009, 257–260, 1–2. ábra; MELIS 2020b; MELIS 2020c.
- 28 ANTONI et al. 2012.
- 29 KOVÁCS 1997; EGRY 2004; EGRY 2007, 30–31; MELIS 2011; MELIS 2013; ILON 2014; MELIS 2014; MELIS 2015; ILON et al. 2016; TÓTH et al. 2016; ILON 2018; ILON 2019; TUGYA et al. 2022.

1990–1991 in the northern part of the site.³⁰ The fifth study area is the vicinity of Mosonszentmiklós; the related research includes a socioarchaeological analysis of the burials of Jánosházapuszta³¹ and the evaluation of the multilayer settlement part excavated in their vicinity.

The pottery and metal record of the five microregions, excavated using different methods between 1957 and 2016 and representing various contexts (single and multilayer settlements, inhumation and cremation burials, pottery depots), required the application of diverse methods. The more than 7,000 finds obtained from Győr-Ménfőcsanak-Széles-földek by modern excavations were suitable for univariate statistical analyses (Fig. 3). In addition, statistical analyses were carried out on the combined data of the 358 collected graves.

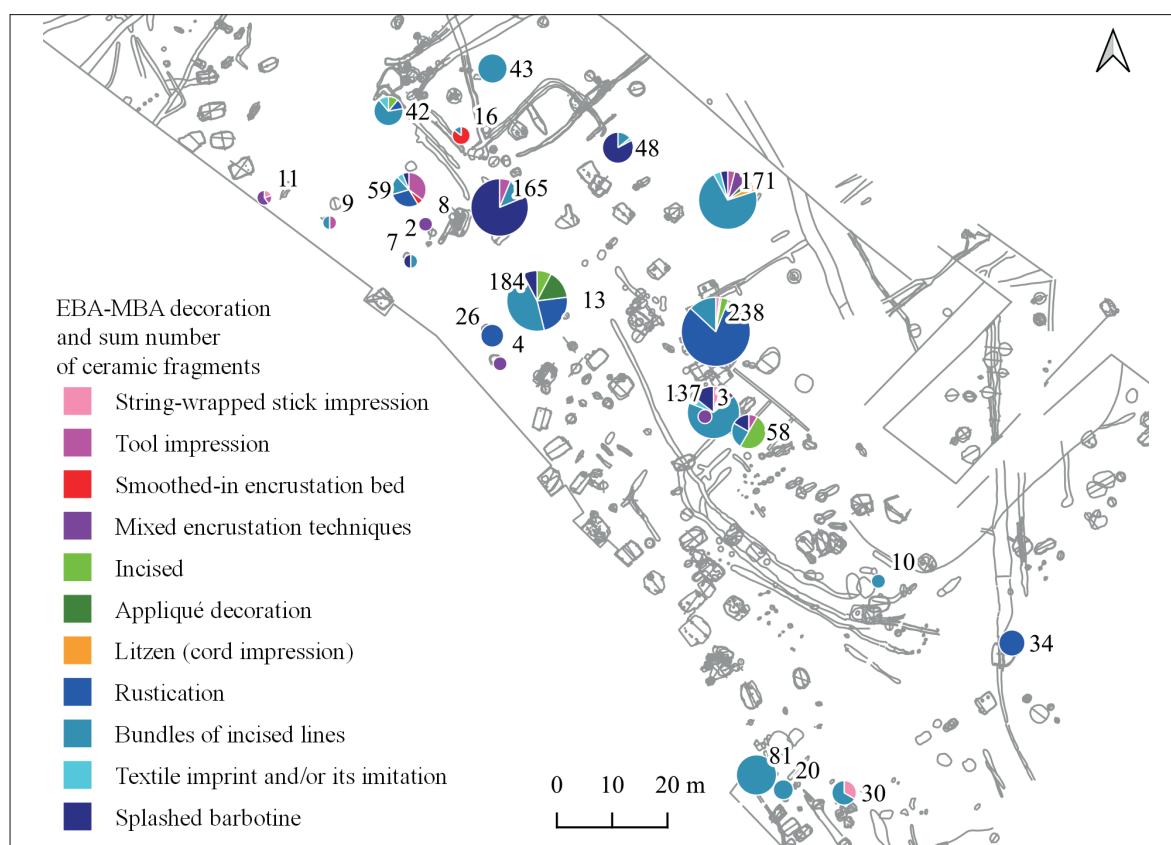


Fig. 3. Győr-Ménfőcsanak-Széles-földek (1990–1991). Detail of the survey map of the excavation with the proportions of decorated and rusticated ceramic fragments in EBA–MBA settlement features (after the documentation in Archaeological Archives of the Rómer Flóris Museum 27–91, 31–96)

The archaeological and anthropological data of three cemeteries (Nagyecenk, Hegyeshalom, Mosonszentmiklós) have been analysed for socioarchaeological research using the multivariate combined social index calculation method, which was applied to assess the ‘value’ of individual burials in the context of the cemetery according to previous Austrian research on prehistory.³² The method requires ascribing a value between 1 and 100 to each burial to express the social ranking of the de-

30 FIGLER 1996, 10, 3. t. 9–10, 4. t. In the extensive Győr-Ménfőcsanak-Széles-földek site complex, the name Szeles-dűlő was given to the site during the first large-scale excavations in 1990–1991 and remained in use for a while. Excavations of the site sections preceding different construction projects were given multiple names (e.g., Road 83, MOL Gas Pipeline, Shopping Centre, Eperföldek); finally, these parts were merged under the name Győr-Ménfőcsanak-Széles-földek (TANKÓ 2020, 15–25, 1, 8, 10. kép).

31 UZSOKI 1959; UZSOKI 1963; ZOFFMANN 1971.

32 SPRENGER 1999, 67–96; REBAY 2006, 199–253.

ceased based on the qualitative and quantitative values of certain selected characteristics. Although the result, of course, cannot be considered to reflect the exact situation in the past, the analytic method may prove to be a useful tool for archaeological interpretation. Since the method involves elements independent of the number and material of grave goods, it can be applied in the case of re-opened burials with the clause that the variables related to grave goods represent minimum values.³³

Settlement data were mainly used for the spatial analysis of the settlement network (kernel density estimation and theoretical zones of influence, i.e., Voronoi polygons) and, to a lesser extent, for investigating the settlement structure.³⁴ Besides the typochronological examination of the Kisapostag, TEPC, Űnětice/Věteřov, and GWC-style pottery, a contextual serial analysis has been carried out focusing on the occurrence of specific vessel forms in GWC inhumation graves in the territory of Hungary (Fig. 6). In addition to a typological and contextual evaluation of the metal objects, the results of thirty X-ray fluorescence analyses helped research.³⁵ Beyond building a relative chronology, the goal was to establish a more reliable absolute chronological framework for MBA in northern Transdanubia. For this purpose, 48 radiocarbon dates (12 unpublished) have been calibrated using the IntCal20 curve and 36 of them were assigned to phases in a model created with the OxCal 4.4 program.³⁶

Mosaics of material cultures at the end of EBA and during MBA

Two different pottery traditions, the GWC and the Kisapostag/TEPC, could be studied in more detail. Amália Mozsolics distinguished the Kisapostag pottery—especially the string-wrapped stick impression³⁷ decoration of the vessels—based on urn graves excavated at the eponymous site.³⁸ Although more recent studies have confirmed the unique character of this decoration technique,³⁹ both archaeological and biological data suggest a continuity and relatedness of Kisapostag and TEPC communities.⁴⁰ In light of the continuous development observed in the cemetery of Bonyhád in southern Transdanubia, Géza Szabó replaced the term ‘Kisapostag Culture’ with ‘earliest TEPC’, corresponding to phases I and II of the Bonyhád cemetery (Tab. 1).⁴¹ However, the EBA string-wrapped stick impressed pottery from northwest Transdanubia can only be partially classified based on the material of the Bonyhád cemetery. In addition, it may be problematic to refer to the pottery without encrustation as the ‘earliest Encrusted Pottery Culture’; therefore, the term ‘Kisapostag Culture’ is used here for a clear distinction.

The typochronological framework of TEPC was published in two versions in the 2000s.⁴² The typological system of Viktória Kiss starts with the Late Kisapostag–Early Encrusted Pottery Phase; this was completed in the dissertation and the present study with the preceding period. The pottery of the Kisapostag Culture was analysed by applying the vessel types distinguished by V. Kiss; this

33 REBAY-SALISBURY et al. 2018, 79–83.

34 PUSKÁS 2023; MELIS (in press).

35 The analysis was performed by Szilvia Döbröntey-David (Archeolore Ltd.) with an Innov-X-Delta XRF instrument in ‘Alloy Mode’ setting. I thank her and Gábor Ilon for the data.

36 BRONK RAMSEY 2009; REIMER et al. 2020.

37 In her book, V. Kiss refers to this technique as ‘reeled stick’ impression; see: KISS 2012a, 18–19.

38 MOZSOLICS 1942.

39 KISS 1996; HORVÁTH – KULCSÁR 2014.

40 CSÁNYI 1978; HONTI – KISS 1996; KISS 2012a, 18–31, 152–160, 227–230; HAJDU et al. 2016; GERBER et al. 2023.

41 SZABÓ 2010; SZABÓ – HAJDU 2011; HAJDU et al. 2016.

42 REICH 2006; KISS 2009; KISS 2012a, 17–78.

Tab. 1. A comparison of the phases of the Kisapostag Culture in diverse chronological frameworks

MOZSOLICS 1942	TORMA 1972	FIGLER 1994/ FIGLER 1996	HAJDU et al. 2016	Kiss 2012a	MELIS 2023
	earlier phase of the Kisapostag Culture	proto-Kisapostag/ early Kisapostag Culture	Bonyhád I. (earliest Encrusted Pottery Culture)	Kisapostag Culture	early Kisapostag
Kisapostag I.	later phase of the Kisapostag Culture		Bonyhád II. (earliest Encrusted Pottery Culture)	Kisapostag Culture	classical Kisapostag
Kisapostag II.	Kisapostag 3./ Tokod Group		Bonyhád III.	Late Kisapostag– Early Encrusted Pottery Phase	Late Kisapostag– Early Encrusted Pottery Phase

record includes finds from twelve pits unearthed at Enese-Pippani-dűlő, as well as from 113 settlement features and nine cremation graves excavated at Győr-Ménfőcsanak-Széles-földek between 1990–1991 and 2009–2011. Based partly on EBA finds brought to light at Győr-Ménfőcsanak in 1990–1991, András Figler referred to the string-wrapped stick-impressed pottery without encrustation as proto-Kisapostag.⁴³ As neither features of the preceding Somogyvár-Vinkovci Culture nor persisting characteristics of its pottery traditions have been identified at Győr-Ménfőcsanak, the term ‘early Kisapostag pottery’ may be appropriate for these assemblages in northwest Transdanubia. There is a continuous development of vessel forms and decoration techniques between the early and classical Kisapostag and the Late Kisapostag–Early Encrusted Pottery phases, as reflected by the pottery from, e.g., two pit complexes at Győr-Ménfőcsanak-Széles-földek (Figs 4–5).

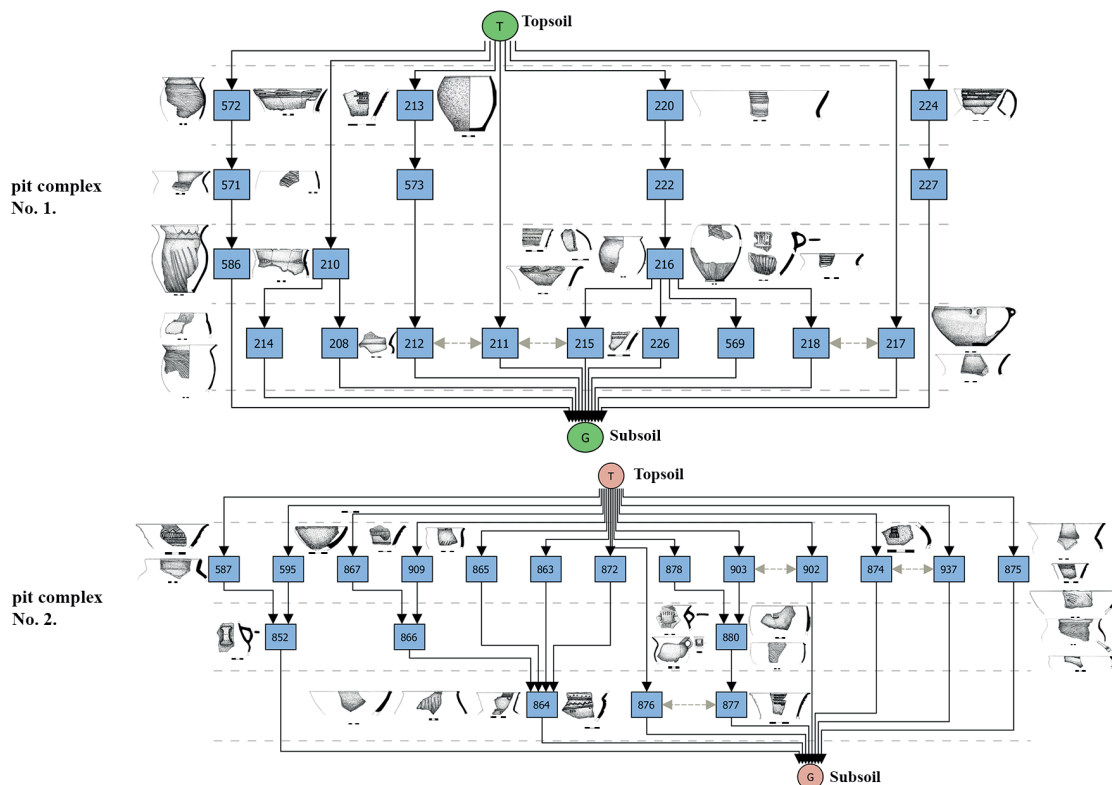


Fig. 4. Győr-Ménfőcsanak-Széles-földek (2009–2011). A stratigraphy of features in pit complexes No. 1 and 2 with the diagnostic vessel fragments (drawing by Hajnalka Binder)

43 FIGLER 1994, 23. However, two years later, in another article, he wrote that the same findings from Ménfőcsanak “[...] have links with the early phase of the Kisapostag Culture.” (FIGLER 1996, 10).

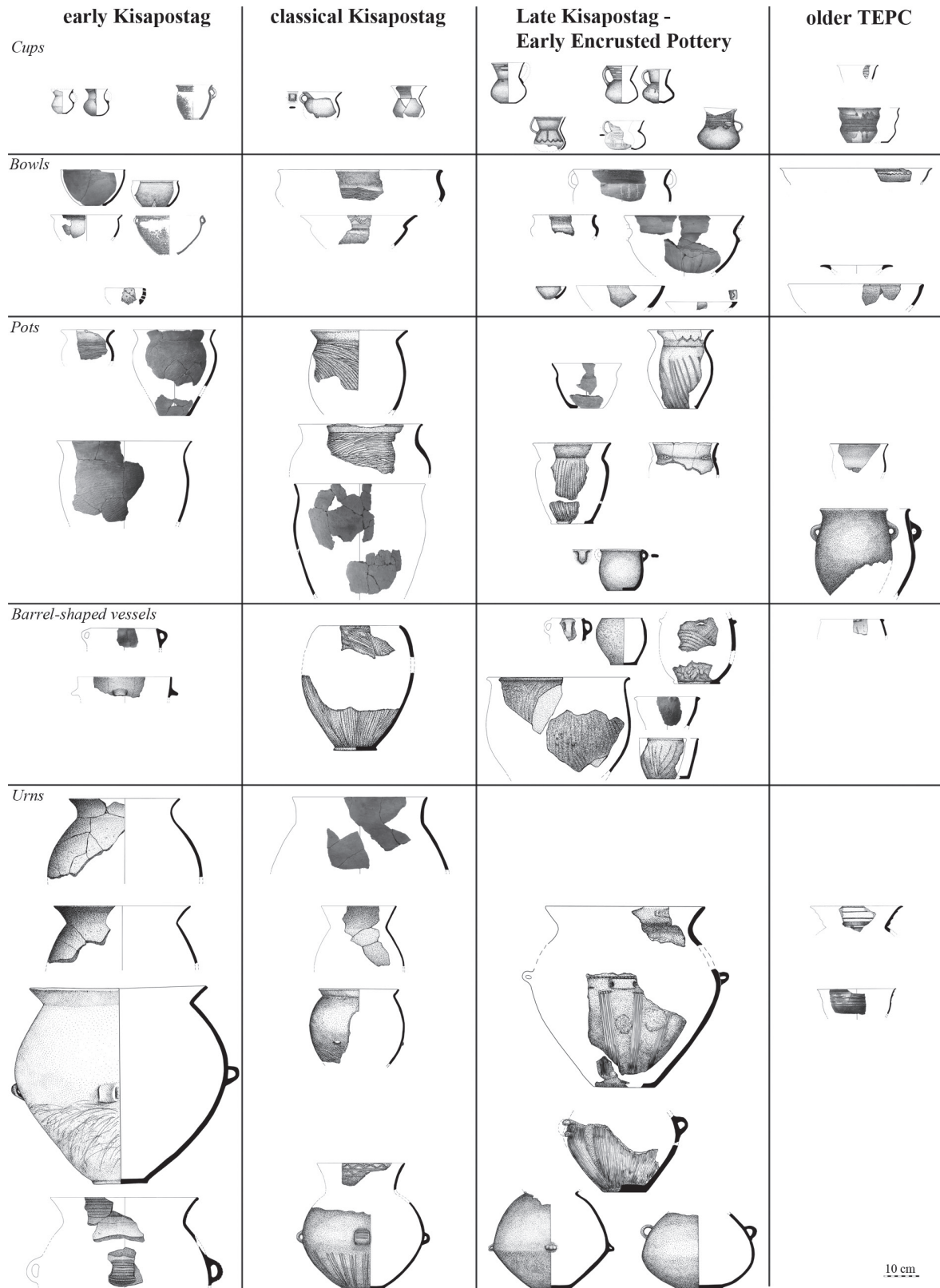


Fig. 5. Vessel forms of the early and the classical Kisapostag Culture, the Late Kisapostag–Early Encrusted Pottery Phase, and older TEPC based on the excavation of Enese-Pippanni-dűlő (2008–2009) and Győr-Ménfőcsanak-Széles-földek (1990–1991, 2009–2011) (after FIGLER 1996; drawing by Hajnalka Binder, Ferenc Zoltán Tóth, Magdolna Mátyus and the author)

The significance of research has been increased by several theories published on the typochronological position of EBA Phase 3 material from Transdanubia (Tab. 1), accompanied by relatively few finds published recently, especially from settlements.⁴⁴

At Győr-Ménfőcsanak-Széles-földek, older TEPC pottery was found in barely representative quantities (15 settlement features); it was mainly identified by wide, deep encrustation, while relatively few vessel forms could be reconstructed (Fig. 5). These assemblages bear several southern Transdanubian style elements.⁴⁵ The Late Kisapostag–Early Encrusted Pottery Phase (Tokod Group), integrating several influences (Hatvan, Únětice), seems to have persisted in the study area in northern Transdanubia for relatively long compared to the southern distribution area of older TEPC; therefore, the classification of TEPC requires further research, including a more detailed analysis of the decorative elements.

As for the younger and late TEPC material, most of the forty vessel forms defined by V. Kiss⁴⁶ were present in the record of the Mosonszentmiklós-Akasztódomb settlement and the Jánosházapuszta cemetery.⁴⁷ However, vessels without encrusted decoration were more common in the settlement, and about 15% of the vessels that could be reconstructed in the Akasztódomb material were of Mad'arovce character. Compared to the older TEPC record of Győr-Ménfőcsanak, the pottery of Mosonszentmiklós shows differences both in forms (e.g., cylindrical, tall-necked jugs, jugs and urns with articulated shoulders, oval bowls with a wide rim) and decoration (fewer and thinner, incised encrustation beds, dot-circles, upstanding and depressed knobs).⁴⁸ Apart from the encrusted decoration about half of all vessel type variants in Mosonszentmiklós have identical or very similar types in the Mad'arovce culture (Fig. 9).⁴⁹ Therefore, Mad'arovce-style pottery in northwest Transdanubia and along the upper course of the Danube in Hungary cannot be interpreted as import but as part of the younger TEPC ceramic inventory. The connection between the Late Kisapostag–Early Encrusted Pottery (Tokod Group) and Únětice communities in southwest Slovakia and Moravia may have been a precursor of this blend.⁵⁰

'Gáta type' was distinguished from the Únětice Culture at the beginning of the 20th century, primarily based on jugs with a pair of long handles.⁵¹ The two most recent GWC pottery typologies were published in 1987.⁵² Of these, the one by Alexandra Leeb was more suitable for the present research as it included material from several sites, including ones in Hungary and at Bratislava-Rusovce (Oroszvár);⁵³ therefore, a developed version of her system is used here (Tab. 2). The studied sites complemented with other findings of the culture published from Hungary,⁵⁴ nearly 220 reconstructed vessels from 127 burials and about 30 settlement features have been analysed. The 52 type variants include characteristic GWC forms: jugs with a pair of long handles and their single-handled variants, diverse amphora (also known as large jug) types, and deep bowls with flared rims and articulated shoulders (Fig. 7.A1, A2a–b, A3, B1, B2, B3, D1a–b–c, D2, D3a–b, G1). The co-occurrence of different type variants in grave assemblages (a more informative source than settlement record)

44 SOMOGYI 2004; VICZE 2011, 71–84; HORVÁTH – KULCSÁR 2014.

45 KISS 2012a, 34–35, Pl. 13.21, Pl. 15.12,19, Pl. 18.12.

46 KISS 2012a, 60–78.

47 UZSOKI 1963.

48 Marietta Csányi observed a similar change between the Encrusted Pottery layers of Veszprém-Várhegy; she ascribed it to the influence of Mad'arovce elements (CSÁNYI 1978, 35–36).

49 REICH 2006, 235, Abb. 110; KISS 2012a, 170–171.

50 KISS 2002, 479–482, Abb. 2–4; MITÁŠ 2004; BÉKEI 2007; KISS 2012a, 158–160; MELIS 2014.

51 MISKE 1917, 264, Taf. 2.

52 HICKE 1987; LEEB 1987.

53 LEEB 1987, 237–257, Abb. 3–5.

54 ILON 1996, 4. t. 7–10, 5. t.; NAGY 2013; MELIS 2015; GÖMÖRI et al. 2018; MELIS 2019.

in Hungary has been investigated by contextual seriation using Past3. Recurring vessel forms and grave assemblages with more than one ceramic type were included in the analysis, resulting in the 42 burials classified into 35 variants (Fig. 6). The available ^{14}C data divided these variants into an early (19 graves) and a late (16 graves) cluster with an overlap in the case of several vessel forms (Fig. 7.A1, C3a, D3a, G3a, H1a-b, I). The early phase seems to have been characterised by a limited type range, followed by greater variability in the late one.

Tab. 2. GWC vessel forms in different typological systems

Main vessel forms	HICKE 1987	LEEB 1987	MELIS 2023
Jugs with a pair of long handles	TA4	A1-A2-A3	A1-A2a-b-A3
Jugs with a single long handle	TA3	B1-B2-B3	B1-B2-B3a-b-B4a-b-c
Jugs/cups with a single short handle	TA1-TA2	C1-C2-C3	C1-C2-C3a-b-C4
Amphorae	Vessels with a funnelled neck THG1-THG2-THG3	large jugs D1a-b-D2-D3	D1a-b-c-D2-D3a-b-c-D4a-b
Bowls	SCH2	E1-E2	E1a-b-E2
Small, deep bowls	S	F1-F2	–
Deep bowls	SCH2	G1-G2-G3	G1-G2a-b-G3a-b-G4
Pots/jars with one handle	TH1-TH2	H1-H2-H3, K2	H1a-b-H2a-b-H3a-b-c-H4
Pots	T1	J1-J2	J1-J2a-b
Storage jars	–	K8-K9	I
Cups	–	K6	K1-K2a-b-K3

Jugs with a single, long handle, a type characteristic of the early phase, may have evolved from the EBA 2 pottery tradition.⁵⁵ Biconical variants jugs with a pair of long handles and amphorae were more common in the late phase.⁵⁶ As for bowls, the articulated GWC variant was more common in the early burials, replaced by Mad'arovec–Věteřov-style variants in the late phase (Fig. 7.E1a–b, G2a, G4). Other vessel forms, reflecting the influence of the Únětice and Únětice-Mad'arovec or Věteřov transitional periods, can also be connected with the late phase (Fig. 7.C4, D3c, D4, H4, K2).⁵⁷ However, pots and bowls with relations to the Unterwölbling Culture (phase Gemeinlebarn II) were more typical of the early graves (Fig. 7.E2, H2a, H3a, J2b),⁵⁸ as indicated by the ^{14}C data from Grave 1 of Nagycenk.⁵⁹ As almost all cemeteries comprise graves with both early and late vessel forms, no

55 KULCSÁR 2009, 74, 279–286, Fig. 19.1–2, Fig. 48.I/9,I/10, Fig. 50.II/1,II/3,II/2a, Pl. 48.1; GÖMÖRI et al. 2018, 64.

56 LEEB 1987, 268; SAUER 2009, 18.

57 STUHLÍK 1993, 255, Obr. 157.22,25,26,29, Obr. 166.25, Obr. 167.6; BENKOVSKY-PIVOVAROVÁ – CHROPOVSKÝ 2015, II, 18, 27, 32–33, Abb. 101.A–7,D–1.

58 BERTEMES 1989, 110, Taf. 24.4–5, Taf. 22.10, Taf. 54, Grab 204/1; NEUGEBAUER 1994, Abb. 35.12,14, Abb. 40.14, Abb. 45.2; SPATZIER 2007, 235–237, Abb. 13.

59 DeA-21171, 3589 ± 33 BP (2011 [68.3%] 1895 calBC, 2034 [95.4%] 1782 calBC) (GÖMÖRI et al. 2018, 70, Fig. 41).

sharp stylistic boundaries or discontinuity can be observed in the GWC pottery. A future step in specifying the internal chronology of GWC requires a large series of radiocarbon dates and the detailed evaluation and publication of cemeteries with hundreds of burials in Austria.⁶⁰

Almost exclusively Únětice- and/or Věteřov-type pottery was found in fourteen sunken settlement features at Győr-Ménfőcsanak, not distinct spatially from other MBA pits (Fig. 14). Similar settlement material has been known so far from Vas and Zala counties, mainly from the Rába River region, in Hungary.⁶¹ However, good analogies to the vessels from Ménfőcsanak can be found in Rei. Br A2 settlements in Moravia and northern Austria (Fig. 8).

The processed record was poor in metal objects and clothing accessories. Of the 37 clothing accessory and weapon types in the published GWC burials, ten clothing accessory types (hair-rings, Ösenrings, spiral beads, dentalium, perforated shells, spectacle spirals, arm spirals) and a dagger type were also associated with the Kisapostag Culture and the Late Kisapostag–Early Encrusted Pottery Phase (Fig. 10). The pXRF analysis of finds from Győr-Ménfőcsanak and Nagycenk⁶²

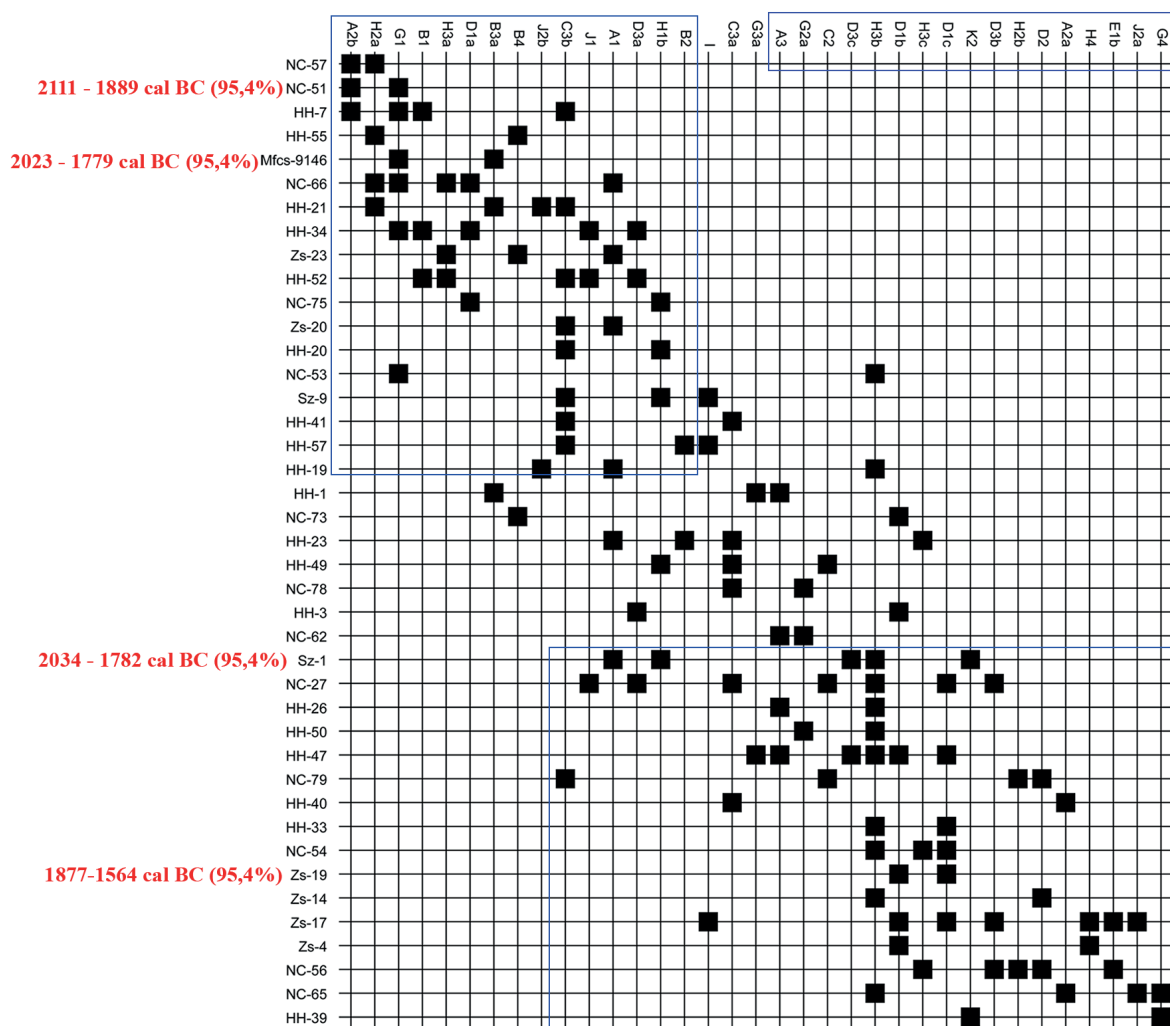


Fig. 6. Contextual seriation of GWC vessel types (see Tab. 2) in burials from Hungary. Legend: HH – Hegyeshalom, Mfcs – Ménfőcsanak, NC – Nagycenk, Sz – Szakony, Zs – Zsennye (by Past3; HAMMER et al. 2001)

60 KRENN-LEEB 2011, 12–25; FRANZ et al. 2017, 52–83.

61 KÁROLYI 1984, 136–138; 143–146, 5. kép 1–3,6–8. kép; KVASSAY et al. 2004, 126–139; BÉKEI 2007; ILON – NAGY 2013; KISS 2012b, 324–328, Fig. 1.2, Fig. 2,10–20, Fig. 3.

62 GÖMÖRI et al. 2018, 58, Footnote 94.

has identified artefacts made of unalloyed copper and bronze (i.e., copper deliberately alloyed with tin) in the relatively metal-rich EBA and MBA transitional period, indicating the emergence of local bronze metallurgy.⁶³

Social dimensions reflected by different mortuary practices

The analysis included burials from Győr-Ménfőcsanak and Hegyeshalom and published anthropological and archaeological data of graves representing diverse funerary practices from eleven other sites. A total of 176 inhumation and 182 cremation graves were investigated according to nineteen different aspects of mortuary practice and funerary equipment.

GWC inhumation graves are probably older than younger TEPC cemeteries but contemporary with the Kisapostag and Late Kisapostag–Early Encrusted Pottery cremation burials at Győr-Ménfőcsanak and in eastern Transdanubia.⁶⁴ Both the frequent addition of clothing accessories to the grave and the reduced number of vessels (2–3) are typical of these early communities (Fig. 11). In the younger phase of TEPC, cremation graves were widespread in the study area, with a slightly higher proportion of urn burials (53–64%) over scattered cremation graves amongst the burials with the rite known.⁶⁵ This younger grave horizon is characterised by a significant decrease in metal grave finds, similar to other graves dating to the second half of MBA.⁶⁶ In contrast, the increase in the number of vessels and the appearance of animal bones in a considerable part of burials (20%) indicate a growing significance of food and drink offerings (Fig. 11).

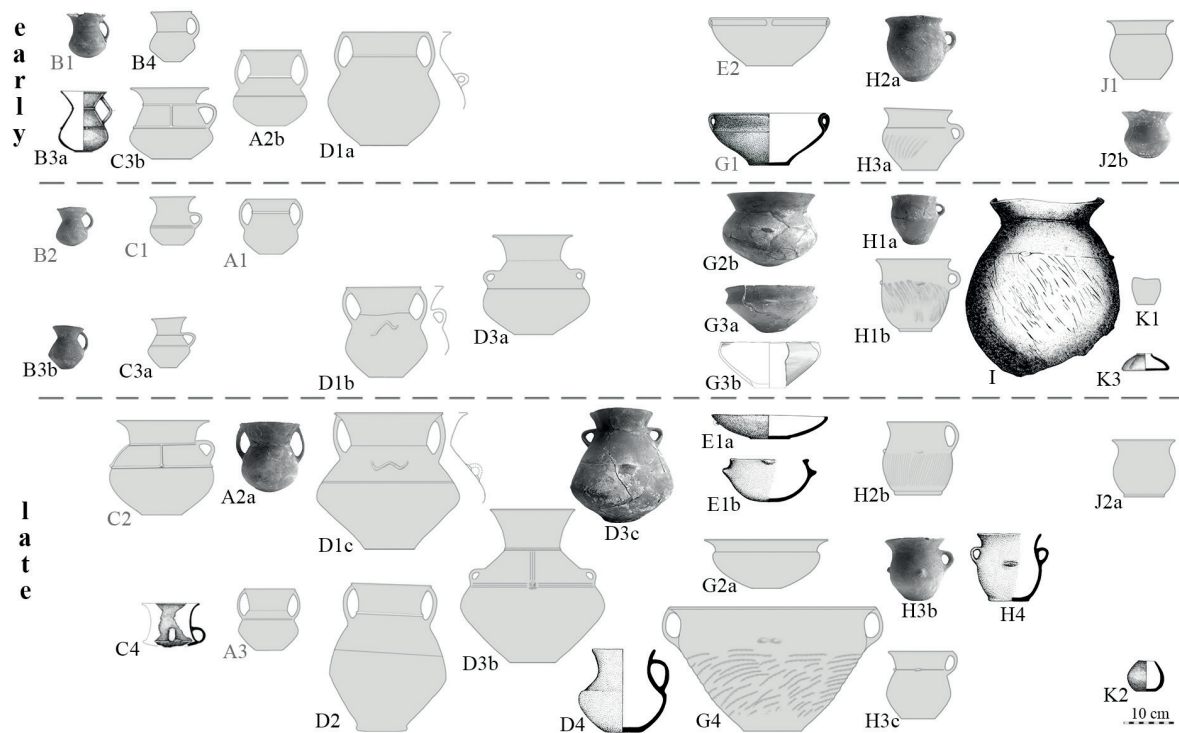


Fig. 7. Typochronology of GWC vessel forms and variants (see Tab. 2) (after NAGY 2013; MELIS 2015; GÖMÖRI et al. 2018; drawing by László Gucsi, photo by the author)

63 KISS 2020, 537–538. The provenance of the raw materials requires further isotope analyses.

64 KISS 2002, 478–482; KISS 2012a, 152–161; MELIS 2013; MELIS 2015.

65 KISS 2012a, 250–251.

66 DANI et al. 2016; CAVAZZUTI et al. 2022.

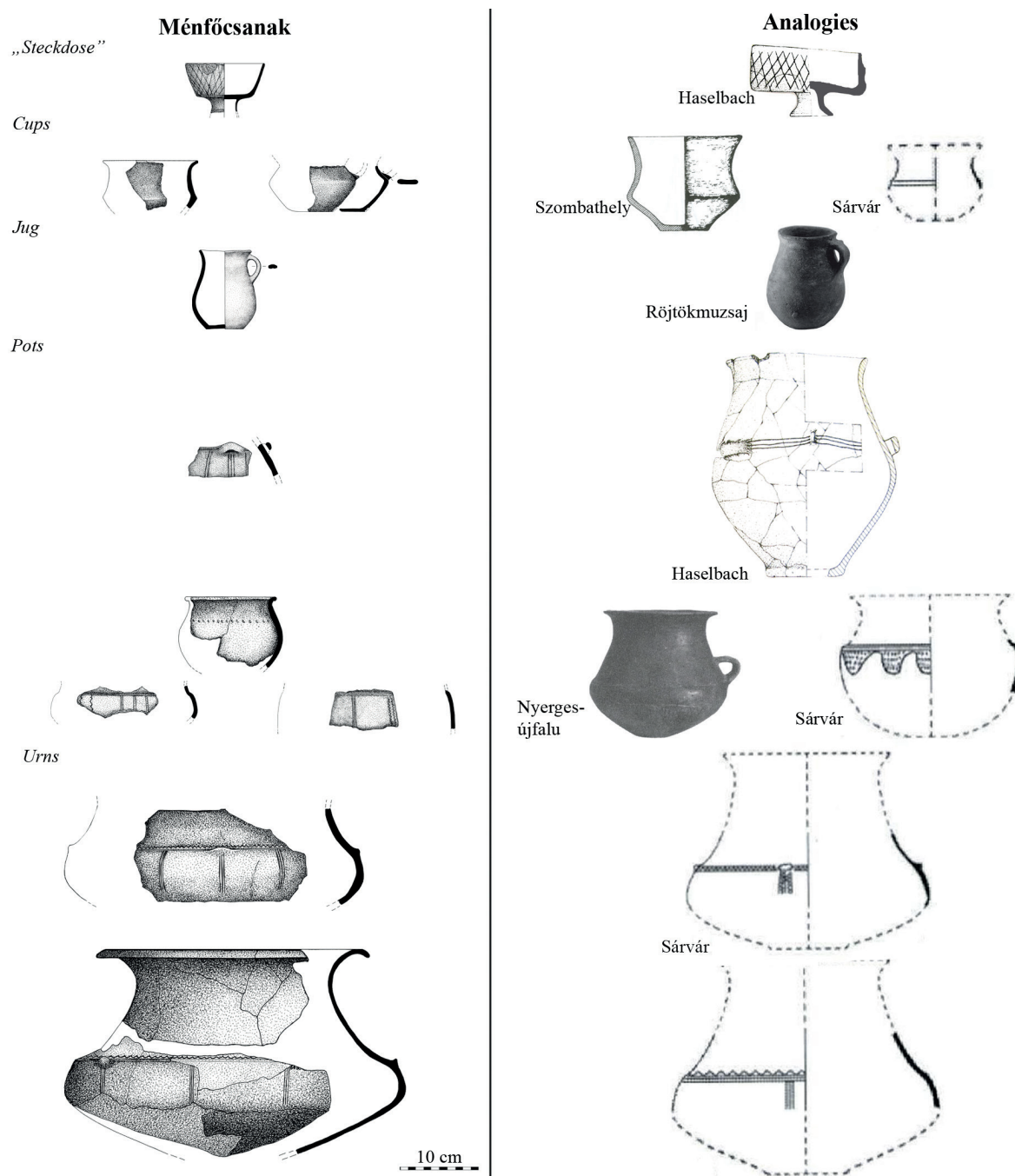


Fig. 8. Únětice/Věteřov-type vessels from Győr-Ménfőcsanak-Széles-földek (2009–2011) and their analogies (after LAUERMANN et al. 2001; KISS 2002; KÁROLYI 2004; BÉKEI 2007; KISS 2012b; MELIS 2014; drawing by Hajnalka Binder)

Post-burial activities could be investigated in the inhumation cemeteries; however, the reopening of graves seems not to have been practised by all communities (e.g., Nagycenk-Lapos-rét), while there are also examples of consecutive burials.⁶⁷ In the later phase of GWC, the reopening of graves to remove metal items and, frequently, body parts (e.g., skull) may have been more widespread,⁶⁸ suggesting ritual reasons in addition to economic motivations behind the phenomenon.⁶⁹

67 MELIS 2017a; MELIS 2019.

68 SAUER 2009; KRENN-LEEB 2011, 22–23.

69 KÜMMEL 2009, 185–190, 223–225, Abb. 5.15; ROBB 2013, 451–452.

The combined social index calculation carried out on inhumation (Nagyecenk, Hegyeshalom) and cremation cemeteries (Mosonszentmiklós) integrates not only the number, composition and material of the grave finds but also variables describing the grave structure (grave depth and surface area).⁷⁰ Based on the social index values of the TEPC graves in Mosonszentmiklós, the burials in the highest category stand out from the rest of the cemetery. Apart from these graves, the social index values of cremated burials show a gradually decrease, with the lowest category comprising graves that had fallen victim of modern disturbance and became mostly destroyed. The relatively large gaps observed between the social indices of the graves in the series of Nagyecenk and Hegyeshalom indicate a more pronounced representation of social identity in inhumation graves and the presence of at least four social strata in the related mortuary communities (Fig. 12).

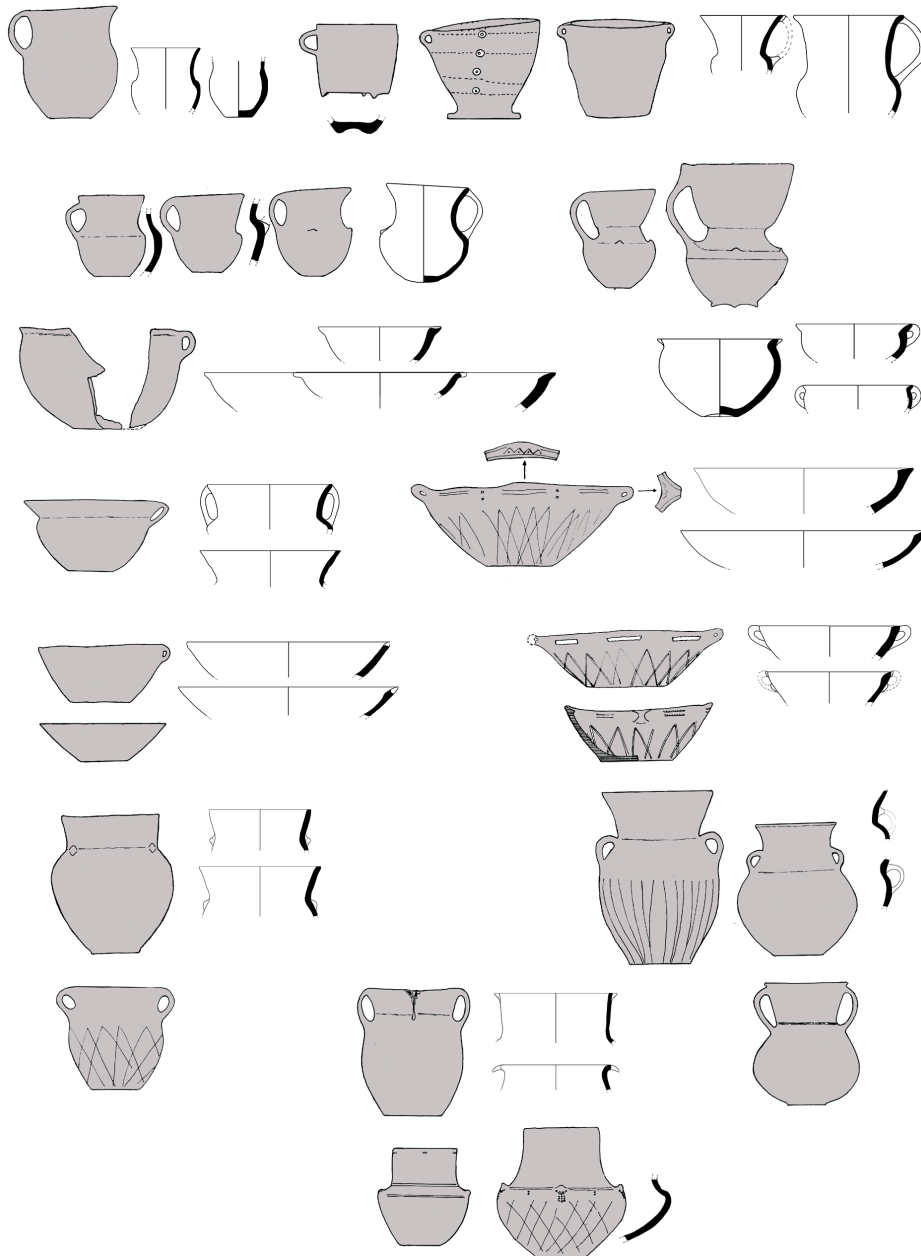


Fig. 9. Common vessel forms of the younger TEPC and the Mad'arovce Culture in Mosonszentmiklós (after UZSOKI 1963; drawing by the author)

70 SPRENGER 1999, 67–96; REBAY-SALISBURY et al. 2018, 79–83; MELIS 2020c.

The analyses presented above allow one to draw the following conclusions about the social structure of the studied Bronze Age communities.⁷¹ Gender identity representation—mainly through clothing accessories and weapons—could be proven in GWC inhumation burials.⁷² Age-related differences could be observed in TEPC cremation cemeteries, manifesting especially in the different burial rites related to children: the youngest members of the community were often buried in multiple burials, in urn graves, and supplied with an above-average number of bronze items.⁷³ Burials of the GWC elite are easily distinguished by their central position within the cemetery, characteristic grave structure (grave dimensions, coffin), and status markers.⁷⁴ The lavish child burials at Nagycenk, Hegyeshalom, and Győr-Ménfőcsanak could be signs of inherited status, reflecting tendencies toward a permanently stratified community.⁷⁵ GWC burials, however, reflect primarily individual identity or one related to a core family within the households.

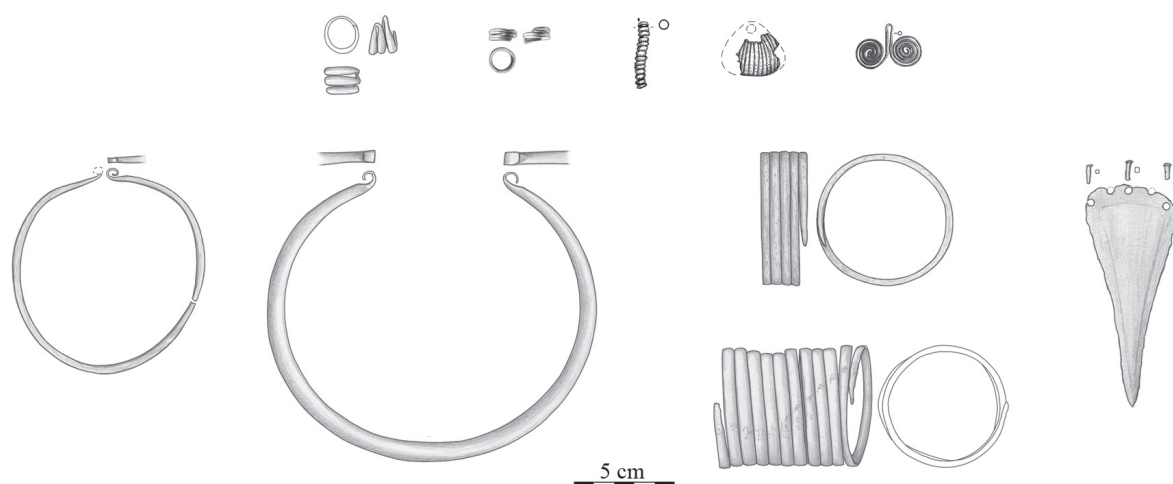


Fig. 10. Common metal types of GWC, the Kisapostag Culture, and the Late Kisapostag–Early Encrusted Pottery Phase (after MELIS 2013; MELIS 2015; GÖMÖRI et al. 2018; drawings by László Gucsi and Hajnalka Binder)

In the case of cremation burials, the changes in treating the corpse before the burial may mark a certain transformation in the Bronze Age conception of the body; however, both inhumation and cremation graves reflect the importance of the integrity of the buried body (e.g., the use of urns or stone or potsherd covers to protect the ashes).⁷⁶ The find composition of TEPC grave assemblages expresses a different focus involving the increasing role of food/drink offerings, i.e., the well-being of the deceased, over metal artefacts. Besides the relatively large grave number (over a hundred) per cemetery, the common act of burning the dead,⁷⁷ the presence of numerous vessels from probably multiple households in a grave,⁷⁸ and complex vessel decorations with diverse meanings⁷⁹ in TEPC cemeteries imply a higher-level group identity (village or mortuary community) than the extended family, the expression of roles and ‘ranking’ within which is less emphasised in the grave. However, the relative bronze ‘poverty’ of the graves does not mean the disappearance of the elite, as metals

71 SIKLÓSI 2006, 85–86; SIKLÓSI 2013, 43–44.

72 KONCZ – SZILÁGYI 2017, 196–197, 207, 2. kép; MELIS 2020a.

73 KISS 2012a, 248–251, Fig. 83; MELIS et al. 2020.

74 NAGY 2013; GÖMÖRI et al. 2018.

75 BÖSEL 2008, 99–100, 105; SOSNA 2009, 6–7, Fig. 2.1; MELIS 2020c.

76 SØRENSEN – REBAY 2008, 66; SØRENSEN – REBAY 2009, 61–69; HAJDU et al. 2016.

77 SØRENSEN – REBAY 2005, 160–162, Tabs 6–7; FÜLÖP – VÁCZI 2016.

78 SØRENSEN – REBAY 2009, 63.

79 SZABÓ – HAJDU 2011; HAJDU et al. 2016.

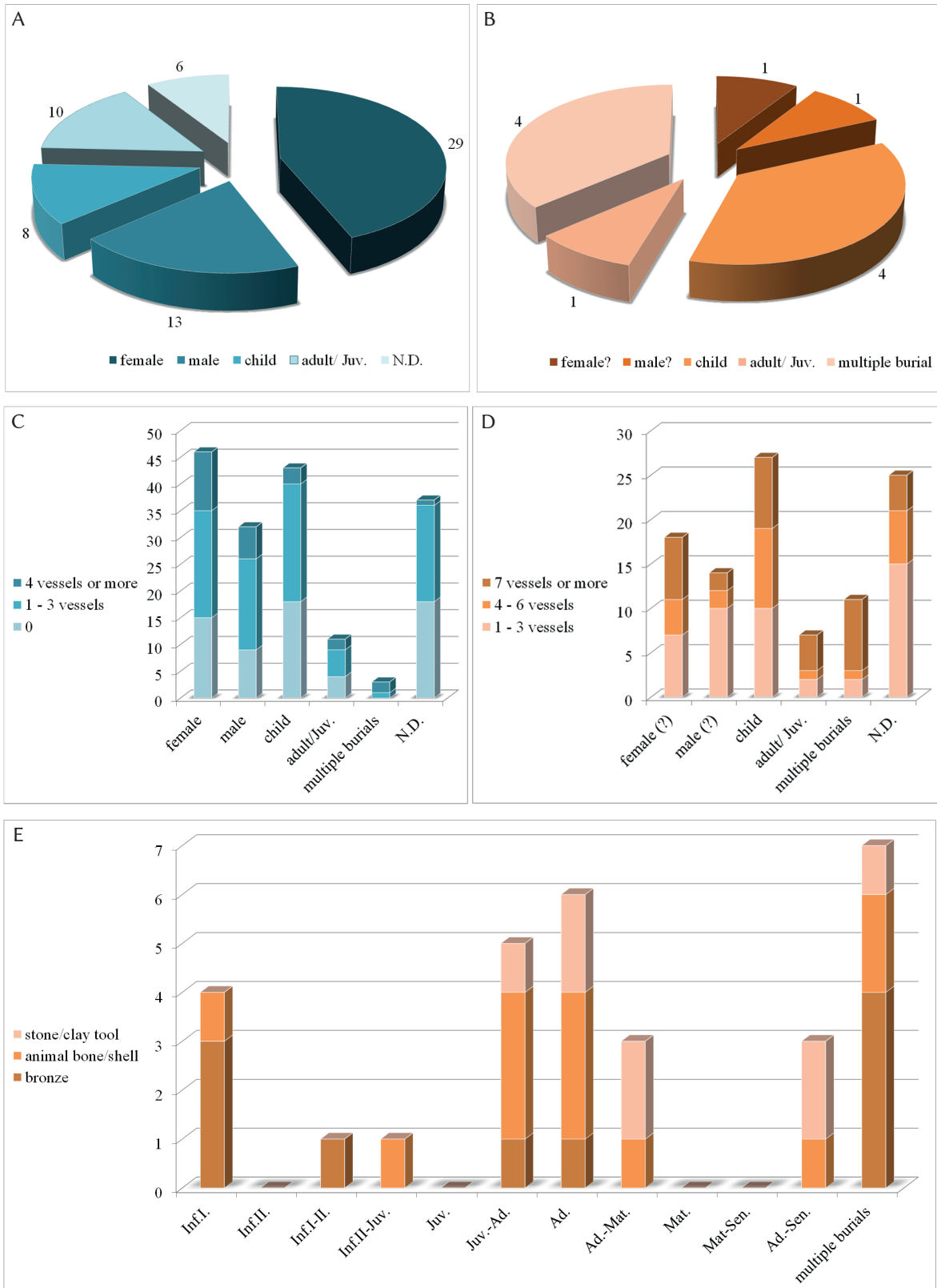


Fig. 11. Comparison of the funerary equipment. A – inhumation burials with clothing accessories at GWC sites in Hungary, B – cremation burials with clothing accessories at Mosonszentmiklós, C – pottery vessels in GWC inhumation graves, D – pottery vessels in TEPC cremation graves in Mosonszentmiklós, E – distribution of bronze items, tools, and animal bones/shells amongst age groups in Mosonszentmiklós

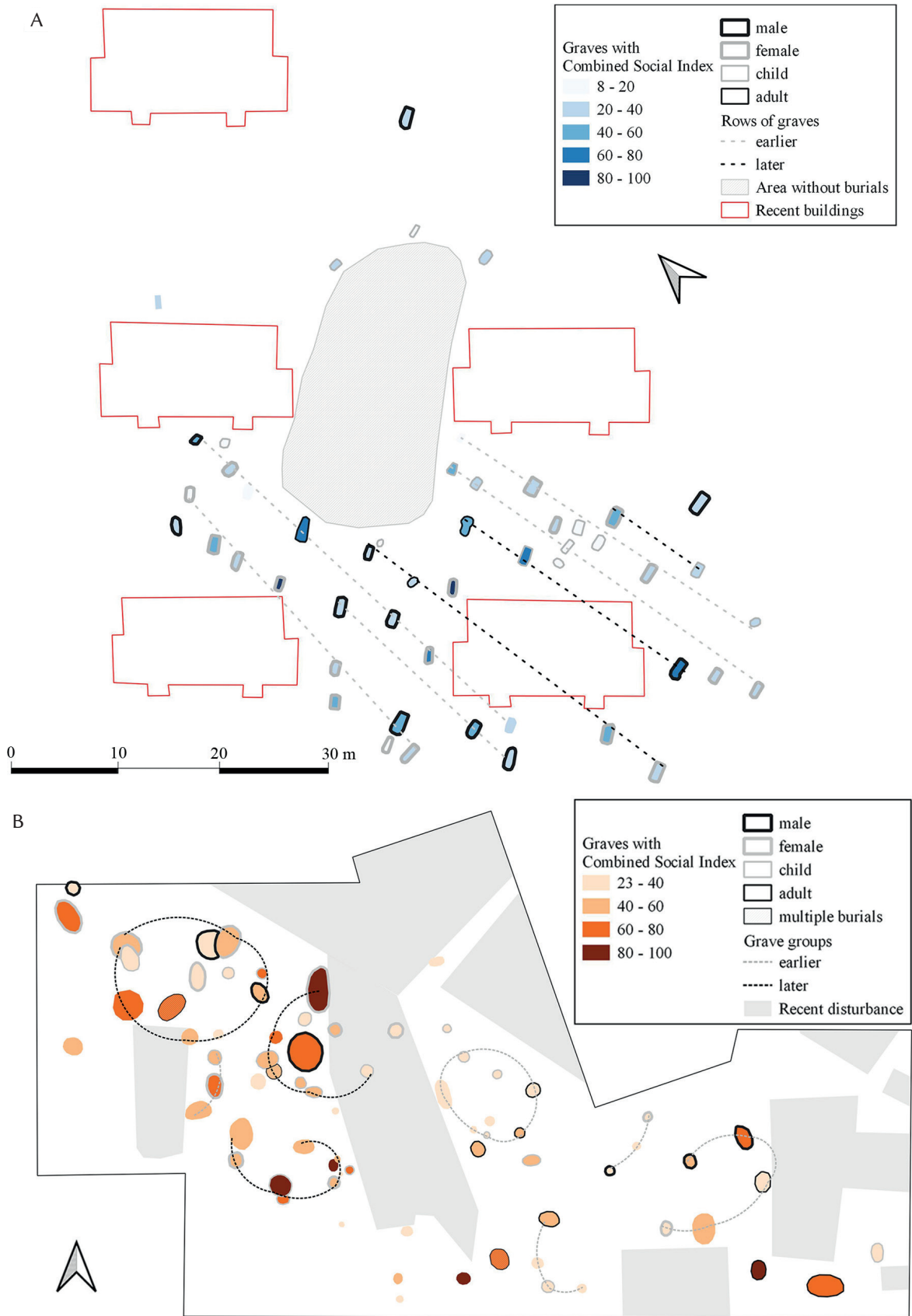


Fig. 12. Combined social index analysis of two cemeteries. A – Hegyeshalom-Újlakótelep (after the documentation at HNM Arch. Archives V. 91/1967), B – Mosonszentmiklós-Jánosházapuszta (after Uzsóki 1963, 30. ábra; Kiss 2012a, Fig. 76)

are known in higher amounts than in the preceding period from bronze (e.g., Abda-Tamásgyöp)⁸⁰ and gold depots. According to István Bóna, the accumulation and hiding of valuable metals may attest to the disintegration of a tribe-based organisation.⁸¹

Comparison of settlement structures

The characteristics of GWC, Kisapostag Culture, and TEPC settlements in northwest Transdanubia were analysed based on the data of eighty EBA and MBA settlement remains. Identifying settlements associated with GWC burials is an important development of research, as only a few sites have been published from Austria and Slovakia, too.⁸² Based on excavated sites, large (more than 10 ha) low-intensity settlements with more phases were typical, while a spatial separation of residential and storage functions could also be observed in Nagycenk. While in Nagycenk, post-framed surface houses (11 × 5 m) could be identified (Fig. 13),⁸³ other sites provided evidence of smaller, semi-sunken, rectangular buildings.⁸⁴

Being located on a hilltop, some Kisapostag settlements were relatively small by necessity (e.g., Bakony-szentlászló-Kesellőhegy, Ravazd-Villibald-domb, and Győr-Ménfőcsanak-Csanak-hegy).⁸⁵ Open

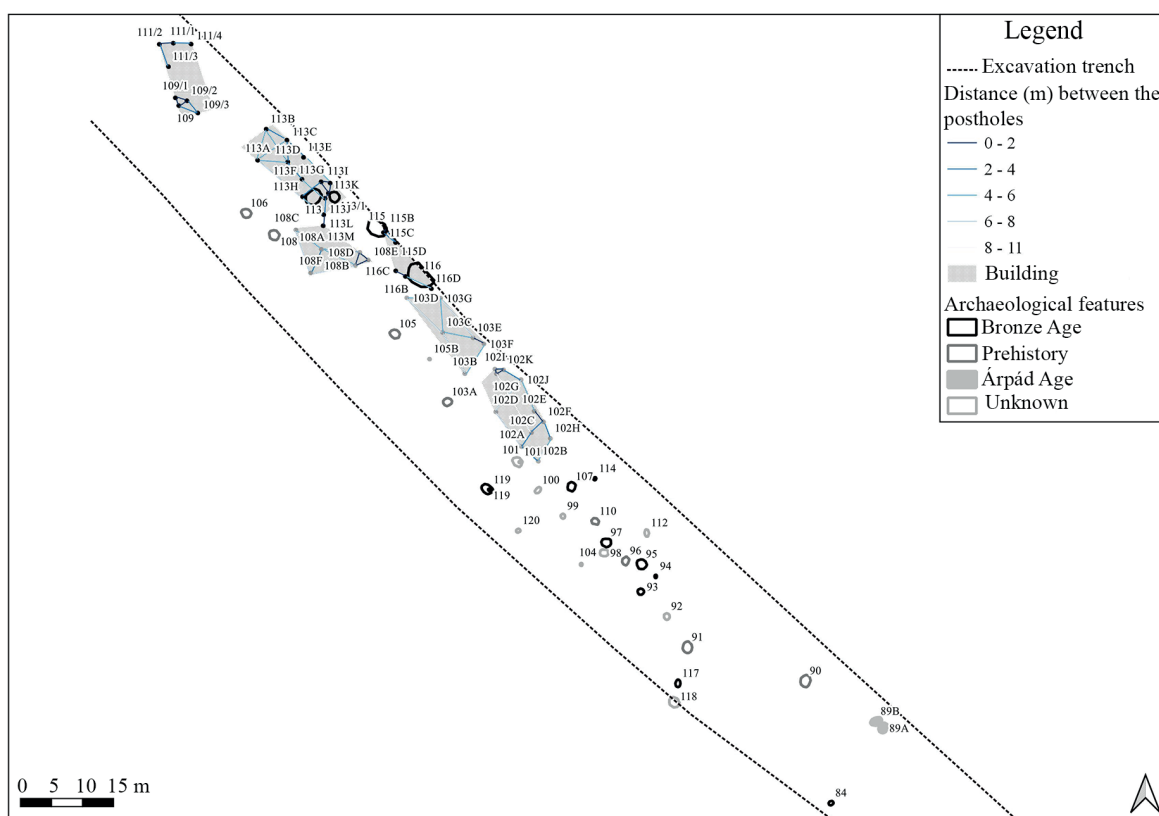


Fig. 13. Nagycenk-Kövesmező. GWC settlement part with a possible reconstruction of post-framed structures (after the documentation at KÖH 600/2575/2009)

80 MITHAY 1941, 12. t. 1–2; MOZSOLICS 1967, 127–128, Abb. 33, Taf. 29.13–27.

81 BÓNA 1975, 223; KISS 2012a, 260–261.

82 KÁROLYI 1984, 133–143; KRENN-LEEB 2011, 15–16; BARTÍK et al. 2016.

83 MELIS et al. 2022, 61–63.

84 NOVÁKI 1965, 19; NAGY et al. 2012, 99.

85 NOVÁKI 1979, 78–84, Pls 7–8; FIGLER 1985; FIGLER 1986; KISS 2012a, 270; POLGÁR 2018.

settlements covered a large area; it has remained a question whether the perimeter ditches mentioned in the case of some sites represented actual boundaries.⁸⁶ Early Kisapostag pits in the excavation area in Enese were scattered in about 1.5 ha; the site had no circular ditch.⁸⁷ At least four settlement clusters, scattered in about 60 ha, could be observed in Győr-Ménfőcsanak-Széles-földek, representing a continuous transition of the Kisapostag and Late Kisapostag–Early Encrusted Pottery phases (Fig. 14). Each cluster had a diverse function : the lower areas in the northeastern part, close to water and rich in clay, were exploited for raw materials, while storage pits and buildings were located on higher terrain.

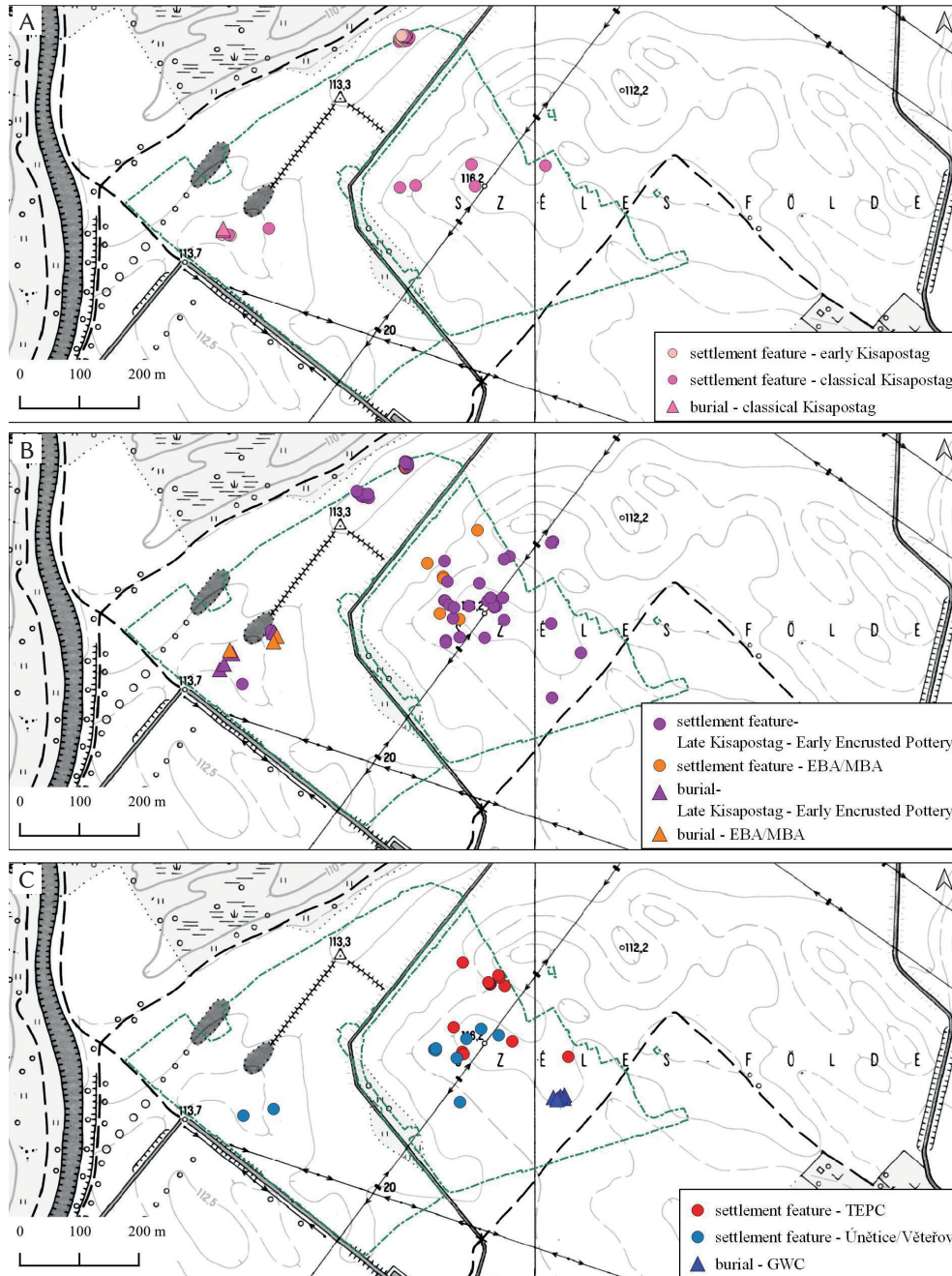


Fig. 14. Győr-Ménfőcsanak-Széles-földek (2009–2011). A – features of the Kisapostag Culture, B– features of the Late Kisapostag–Early Encrusted Pottery Phase and EBA/MBA, C – older TEPC, Únětice/Věteřov, and GWC features

86 KISS 2012a, 206–207, Fig. 57; POLGÁR 2018; POLGÁR 2021.

87 ANTONI et al. 2012.

At Ménfőcsanak, older TEPC settlement features were located at the highest point of the terrain in ca. 3 ha. The structure of Mosonszentmiklós-Akasztódomb, the county's single known multilayer MBA settlement, indicates a much more dense and concentrated TEPC inhabitation. The two buildings on top of each other—or two phases of the same house—in a 1.2–1.4 m thick Bronze Age layer sequence imply at least two occupation horizons.

Considerably more TEPC settlements scattered in a significantly larger area than that occupied by communities in the preceding Kisapostag phase have been identified in the county; their elevated number in the territory of Győr-Moson-Sopron County suggests a population increase in MBA phases 2 and 3 compared to the previous period (Fig. 15). In TEPC, the most intensively inhabited parts were those between the Rába and Moson Danube rivers, with another settlement concentration in the foregrounds of the Transdanubian Mountains. During MBA, settlements were sparse west of the Hanság, while sites with a similar find material, bearing the stylistic traits of the Mad'arovce–Věteřov–Böheimkirchen cultural complex, have also been discovered in the eastern parts of the county, indicating a patchwork of communities with diverse cultural backgrounds inhabiting these lands. This diversity had disappeared by the start of LBA, and settlements of the Tumulus Culture emerged along the Rába River and around Lake Fertő.⁸⁸

Upon analysing the setting of the sites, a distinction was made between open and hilltop settlements;⁸⁹ the former were predominant in all examined archaeological cultures. Completing the work of Gyula Nováki,⁹⁰ a couple of hilltop settlements from the end of EBA and MBA were identified in the Pannonhalmi and Fertőmellék Hills. The analysis of the newly identified sites with the coeval hilltop settlements collected from publications outlined a relatively articulated settlement network in the transitive phase between EBA and MBA (Fig. 15). However, the assessment of the difference or hierarchy between the known settlements requires significantly more excavations or non-destructive investigations, in order to determine their extent and intensity and reveal special features or items, as well as a comprehensive survey of their catchment areas, including the reconstruction of the related water network and the identification of the possibly available natural resources.

As for the building types of the period, the assessed features and the related literature imply the presence of both subterranean and above-ground structures at the end of EBA and during MBA.⁹¹ From the second half of MBA, smaller (4–5 m wide) surface buildings may have become prevalent throughout the region.⁹²

Chronological conclusions

In terms of chronological frameworks developed for the Bronze Age, the area under study represents the fringes of the systems used for Central Europe and Hungary. Therefore, it is essential to synchronise the distinguished phases with those. In terms of typochronology, the early Kisapostag finds are the oldest, representing the second half of EBA in Hungary,⁹³ while GWC burials and settlements appear from EBA Phase 3.⁹⁴ Late Kisapostag–Early Encrusted Pottery Phase (Tokod Group) or older TEPC pottery in late GWC and late Únětice/Věteřov assemblages suggest that GWC may

88 ILON 1999; EGRY 2002.

89 KISS 2012a, 205–224; DANI et al. 2019, 862–864.

90 NOVÁKI 1975; NOVÁKI 1979; NOVÁKI 1997.

91 NOVÁKI 1965; MELIS 2014, 58–59, 3. kép; POLGÁR 2018; POLGÁR 2021, 390–391, 2–3. ábra.

92 FIGLER 1996, 11–12, 2. ábra; EGRY et al. 1997; EGRY 2002.

93 FISCHL et al. 2015, Fig. 1.b; SZABÓ 2017.

94 NAGY 2013; FISCHL et al. 2015, Fig. 1.b; GÖMÖRI et al. 2018.

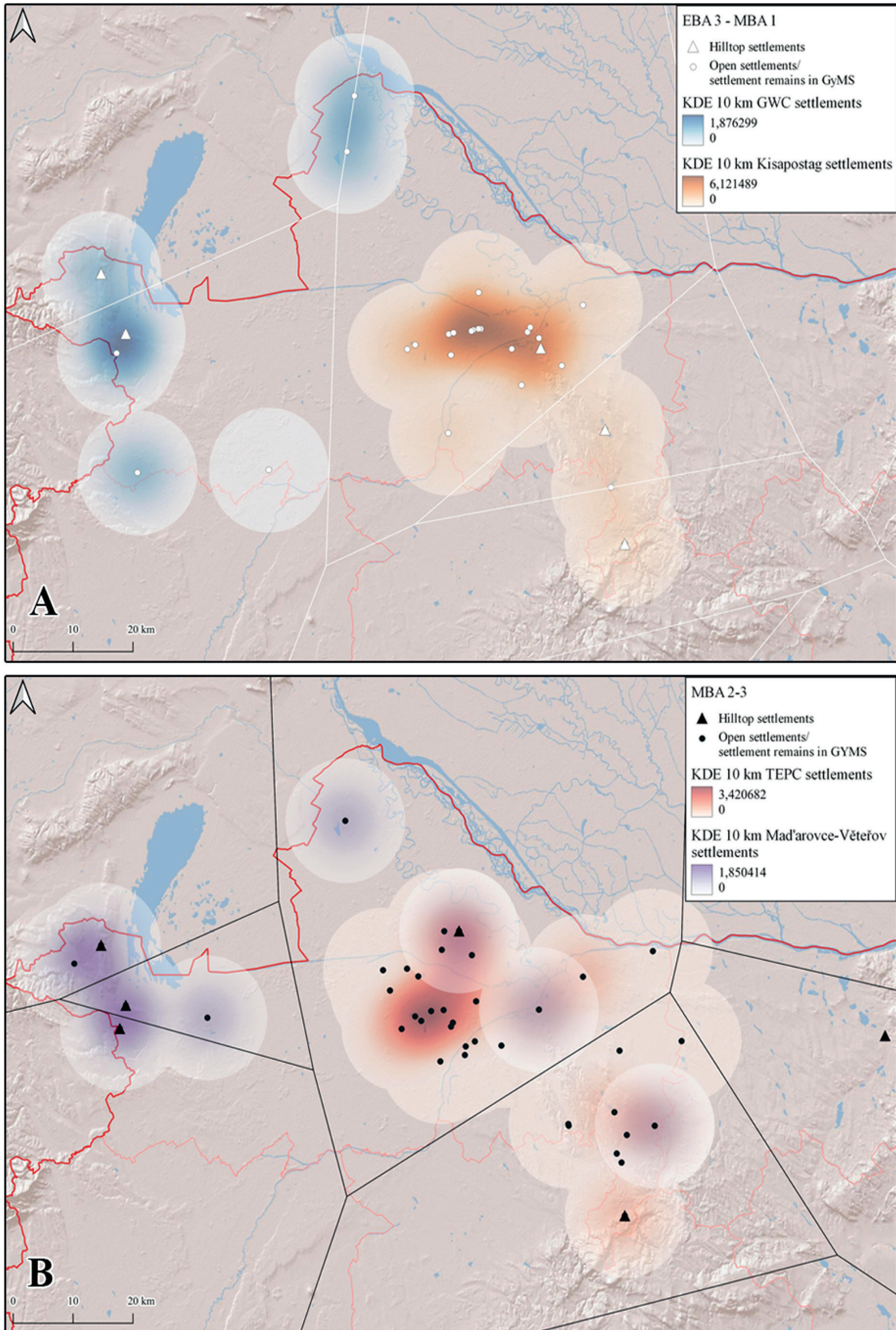


Fig. 15. EBA–MBA settlement patterns in the territory of Győr-Moson-Sopron County with the Voronoi polygons of the hilltop/hillfort settlements in Transdanubia (base map: Esri Shaded Relief)

did not persist in the younger TEPC phase in the region.⁹⁵ The form of a two-handled amphora in a younger TEPC burial at Mosonszentmiklós was first assigned to GWC,⁹⁶ but close analogies have been found amongst younger Mad'arovce and *Litzenkeramik* finds.⁹⁷ Evidence supports the theory of a Mad'arovce–Věteřov–Böheimkirchen expansion in the areas west of the Hanság in this period,⁹⁸ while the interpretation of the related findings in the Lake Fertő area requires further research. The easternmost appearance of the find material of said complex may be identified in the late Únětice/Věteřov pottery recovered from settlement features in Győr-Ménfőcsanak.⁹⁹ Late TEPC communities could have persisted into the Koszider Period, as evidenced by the metal object types in some younger graves of the Mosonszentmiklós–Jánosházapuszta cemetery.¹⁰⁰

The absolute chronological conclusions are based on 48 radiocarbon dates from sites around and north of Lake Balaton, 36 of which were suitable for modelling, with a standard deviation of under 50 years (Fig. 16).¹⁰¹ The two phases of GWC were modelled based on data from twelve burials and two settlement features, indicating between 2037 and 1692 cal BC (model agreement 93%, overall agreement 92.6%) as the most probable dating for GWC sites in Hungary.¹⁰² According to the model, the transition between the two phases occurred around 1934/1825 cal BC.¹⁰³ The 22 radiocarbon dates from north Transdanubia were fitted in a Bayesian model with five contiguous phases covering the period from the Kisapostag to the Tumulus Culture. Three data of the classical Kisapostag Culture have been included in the model, placing its start to 2161/1936 cal BC (model agreement 98.9%, overall agreement 102%). Based on the two models, the transitions between the Kisapostag Culture and the Late Kisapostag–Early Encrusted Pottery Phase and the early and late phases of GWC occurred between 2008 and 1825 cal BC.

Although represented by only a few absolute dates, the older phase of TEPC can hardly be separated in time from the Late Kisapostag – Early Encrusted Pottery and the younger TEPC phases. Different encrusted pottery styles may have been used simultaneously between 1884/1737 and 1772/1631 cal BC. The younger TEPC phase seems to coincide with the earliest dates of the Tumulus Culture between 1686/1536 cal BC, representing the last phase of MBA. The analysed radiocarbon dates from northern Transdanubia confirm that the transition to LBA started around 1650 BC.¹⁰⁴

The classical Únětice Culture in central Germany has been dated to 1975–1775 BC by comparing typo-chronological phases and radiocarbon and dendrochronological data;¹⁰⁵ this is approximately contemporaneous with the Late Kisapostag–Early Encrusted Pottery Phase and the transition between the two phases of GWC in Hungary. A Bayesian analysis of cemeteries in central Bohemia indicates a rather earlier date (2000–1850 BC) for the classical Únětice Culture, although a significant change is suggested for its post-classical phase around 1750 BC (accompanied by a loss

95 BÉKEI 2007; KISS 2012a, 160–161, 171–172; MELIS 2014; MELIS 2015.

96 UZSOKI 1963, 17, 83, 14. t. 3.

97 TOČÍK 1981, Beilage 3, C4; KISS 2002, 486, Footnote 60.

98 BENKOVSKY-PIVOVAROVÁ 1981, 34–35; ILON 1999; KISS 2007, 17, Fig. 2; KISS 2012b; ILON – NAGY 2013.

99 MELIS 2014.

100 UZSOKI 1963, 84, 4. t. 15; KISS 2012a, 65–67, Fig. 34.1.

101 STANIUK 2021, 12.

102 All calibrated data are cited with a 2σ confidence (95.4%).

103 However, the latest date from Zsenyie (Beta-224848, 3410±40 BP [NAGY 2013, 113, Abb. 6]) has an agreement percentage below 60% (48.9%); but, given that it is at the end of the evaluated series and its individual range overlaps considerably with the specified one in the model, its calibrated value could be included in the series (cf. DARÓCZI et al. 2022, 40–42).

104 SZABÓ 2017; ILON 2019, 301–306; KISS et al. 2019, 191.

105 KNOLL – MELLER 2016, Katalog 35, 44; SCHWARZ 2019, 47; RISCH et al. 2022, 24.

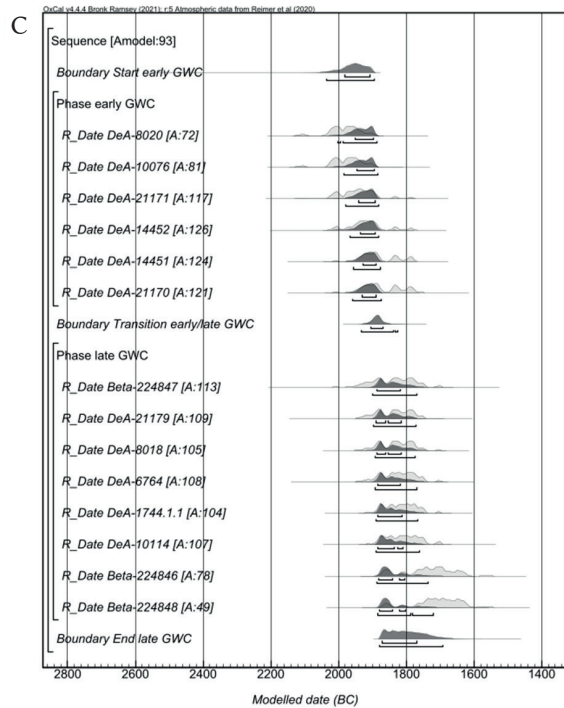
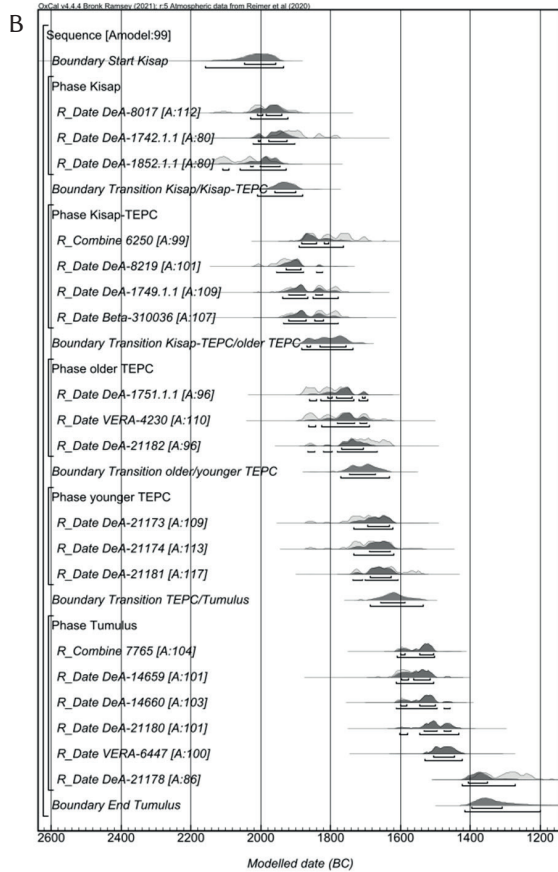
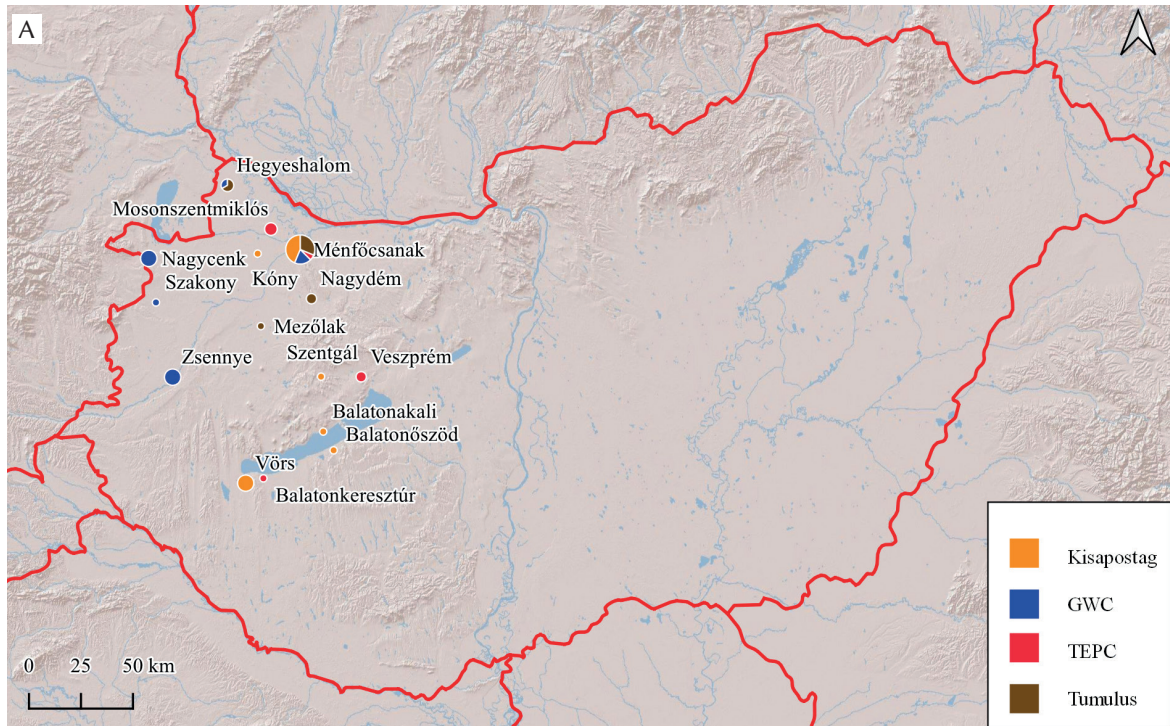


Fig. 16. Analysis of the radiocarbon data. A– Sites with analysed radiocarbon data (the size of the symbol is proportional to the number of data; base map: Esri Shaded Relief), B – Bayesian model of the five studied chronological phases (classical Kisapostag, Late Kisapostag–Early Encrusted Pottery Phase, older and younger TEPC, and Tumulus Culture), C – Bayesian model of the two GWC phases (after [BRONK-RAMSEY 2009](#); [REIMER et al. 2020](#))

of its central role in the region).¹⁰⁶ Extensive radiocarbon series from Moravia demonstrate the coexistence of the Únětice and the Věteřov (1950/1900–1700 BC) and the late Věteřov and Tumulus Culture (1650–1500 BC) sites, respectively.¹⁰⁷ Since many radiocarbon dates have a relatively large standard deviation, some researchers specified the dating of Věteřov-type finds by combining individual radiocarbon data with a typological and a relative chronological assessment of their context to between 1750/1700 and 1500/1450 cal BC.¹⁰⁸ Only a few radiocarbon data with a relatively broad standard deviation are available for the EBA cultures of Lower Austria (Unterwölbling, Böhheimkirchen), the comparison of which is based mainly on relative chronological observations made in the 1990s (Fig. 17).¹⁰⁹ Overviews of archaeological research from southwest Slovakia give an absolute dating of EBA based on radiocarbon measurements from the Jelšovce (Nyitraegerszeg) cemetery.¹¹⁰

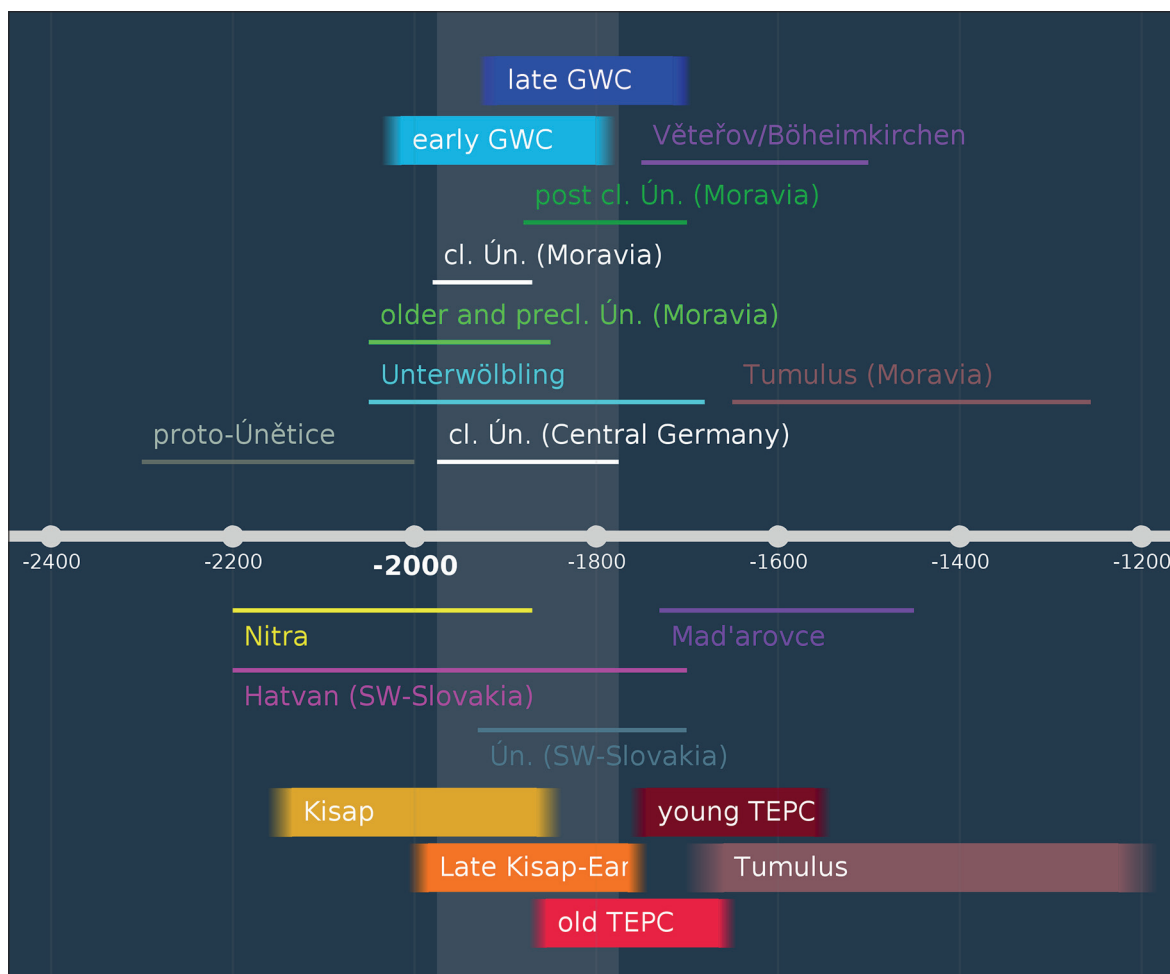


Fig. 17. Absolute chronology of northern Transdanubia and the surrounding areas. Legend: postcl. Ún. – Post-Classical Phase of the Únětice Culture, cl. Ún. – Classical Únětice Culture, Kisap. – Kisapostag Culture, Late Kisap–Early – Late Kisapostag–Early Encrusted Pottery Phase (data after SPATZIER 2007; KISS 2012a; ERNÉE 2015; ERNÉE 2017; BÁTORA 2018; PEŠKA 2019; ROŽNOVSKÝ 2019; ŠABATOVÁ – PARMA 2019; RISCH et al. 2022)

106 ERNÉE 2015, 295–297, Abb. 186; ERNÉE 2017, 116–122.

107 PEŠKA 2019; ŠABATOVÁ – PARMA 2019.

108 ERNÉE 2017, 121; ROŽNOVSKÝ 2019, 120, Abb. 2.

109 NEUGEBAUER 1994, 72; SPATZIER 2007, 220; BENKOVSKY-PIVOVAROVÁ – CHROPOVSKÝ 2015, II, Abb. 119.

110 BÁTORA 2000, 569, Abb. 2; BÁTORA 2018, 80, 89, 107.

The transformation of contacts in northwest Transdanubia between 2200 and 1500 BC

The study region is located along the Danube route, considered important (also) in the EBA in Central Europe; it stretches roughly between the Morava River and the Cuhai Bakony Stream, which were additional communication channels between the areas northwest and south-east of them. There seems to be relatively little interaction in the Little Hungarian Plain around 2100/2000 BC. The analogies of the Kisapostag-style pottery finds of that region point mainly towards Lake Balaton and the area of today's central Hungary.¹¹¹ The Late Kisapostag–Early Encrusted Pottery Phase and the older TEPC could have been the periods when the connection system in northwest Transdanubia revived and Rei. Br A2 period tin bronze artefacts spread from Central Europe into the territory of western Hungary.¹¹² While TEPC pottery was widespread beyond Transdanubia, appearing everywhere from *tell* sites to the lands of today's Bohemia, mainly Únětice-type vessel forms appeared in the TEPC distribution area along the upper course of the Danube in today's Hungary. The pottery record of late GWC sites west and north of Hanság comprises forms indicating a transition to the late or post-classical Únětice groups.¹¹³

The material culture of the so-called post-classical Únětice phase, corresponding with the developed EBA in Central Europe (1775/1750–1600/1500 BC), attests to active communication with the Carpathian Basin not only in southwest Slovakia but also on more distant sites in Bohemia, Moravia, and Germany.¹¹⁴ Meanwhile, in Vas, Zala, and Győr-Moson-Sopron counties, ceramic finds related to eastern Austria and Moravia appeared on MBA sites. It has been suggested, and the results of the research behind this study have confirmed that the transformation of the contact systems in western Transdanubia started several generations before the beginning of the Koszider Period (1600 BC).¹¹⁵ This change may be related to the disappearance of the classical Únětice Culture, the emergence of the Věteřov Group in Moravia and eastern Austria and the Mad'arovce Group in southwest Slovakia, and their non-negligible southern orientation.¹¹⁶ The findings from younger TEPC to Koszider Period sites in the central and eastern parts of the Little Hungarian Plain indicate close links with the Mad'arovce groups.¹¹⁷ The north-northwest-directed contact network dominating the region in the second half of MBA may formed the basis of a larger regional identity group of the Tumulus Culture.

The aim of processing the findings from the study area in Győr-Moson-Sopron County and analysing the EBA and MBA phenomena of the region from several perspectives was to outline a comprehensive picture of the complex processes taking place in north-western Transdanubia between 2200 and 1500 BC. The dataset compiled for this research may serve in the future as a starting point for further regional and interregional research.

111 MOZSOLICS 1942; TORMA 1972; BÓNA 1975, Taf. 1–19; VICZE 2011, Pls 1–87; KISS 2012a, 152–154; HORVÁTH – KULCSÁR 2014.

112 KISS 2002, Abb. 4, 5–10, Abb. 7; KISS 2012a, 154–161; MELIS 2017b; KISS 2020; MRENKA 2022.

113 NAGY 2013, 95–101; MELIS 2015.

114 BENEŠ 1986, Fig. 2.1–7,12; KISS 2002, Abb. 7; ZICH 2004; CHVOJKA et al. 2017, Abb. 5.

115 KISS 2002; KVASSAY et al. 2004; BÉKEI 2007; KISS 2007; KISS 2012a, 176–186; KISS 2012b; ILON – NAGY 2013.

116 NEUGEBAUER 1994, 119–140; FURMÁNEK et al. 1999, 47–49, Abb. 13; ERNÉE 2017; ROŽNOVSKÝ 2019, 118.

117 UZSOKI 1963, 84, 4. t. 15; KISS 2012a, 65–67, Fig. 34.1.

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