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ABBREVIATIONS

AAR	Analecta Archaeologica Ressoviensia (Rzeszów)
ActaArch	Acta Archaeologica (Leiden)
ActaArchHung	Acta Archaeologica Academiae Scientiarum Hungaricae (Budapest)
ActaMusPapensis	Acta Musei Papensis. A Pápai Múzeum Értesítője (Pápa)
Agria	Agria. Az Egri Múzeum Évkönyve (Eger)
AJPA	American Journal of Physical Anthropology (New York)
Alba Regia	Alba Regia. Annales Musei Stephani Regis (Székesfehérvár)
AnB	Analele Banatului. Buletinul Muzeului din Timişoara (Timişoara)
Antaeus	Antaeus. Communicationes ex Instituto Archaeologico (Budapest)
AnthrAnz	Anthropologischer Anzeiger (München)
AnthrK	Anthropológiai Közlemények (Budapest)
Antiquity	Antiquity. A Review of World Archaeology (Durham)
AÖ	Archäologie Österreichs (Wien)
Apulum	Apulum. Acta Musei Apulensis (Alba Iulia)
AR	Archeologické Rozhledy (Praha)
ArchA	Archaeologia Austriaca (Wien)
ArchBulg	Archaeologia Bulgarica (Sofia)
ArcheoSciences	ArcheoSciences. Revue d'Archéométrie (Rennes)
ArchÉrt	Archaeologiai Értesítő (Budapest)
ArchHung	Archaeologia Hungarica (Budapest)
Archiv für Anthropologie	Archiv für Anthropologie. Völkerforschung und kolonialen Kulturwandel (Braunschweig)
ArchKözl	Archaeologiai Közlemények (Budapest)
Arrabona	Arrabona. A Győri Xantus János Múzeum Évkönyve (Győr)
ASM	Archeologické Studijní Materiály (Praha)
AUB	Annales Universitatis Budapestinensis de Rolando Eötvös Nominatae (Budapest)
AVANS	Archeologické Výskumy a Nálezy na Slovensku (Nitra)
Balcanica	Balcanica. Annuaire du Comité Interacadémique de Balkanologie du Conseil des Académies des Sciences et des Arts de la R. S. F. Y. et de l'Institut des Etudes Balkaniques (Beograd)
BAR-IS	British Archaeological Reports – International Series (Supplementary) (Oxford)
BBV	Berliner Beiträge zur Vor- und Frühgeschichte (Berlin)
bioRxiv	bioRxiv. The Preprint Server for Biology
BRGK	Bericht der Römisch–Germanischen Kommission (Berlin)
BROB	Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek (Amersfoort)
BudRég	Budapest Régiségei (Budapest)
CommArchHung	Communicationes Archaeologicae Hungariae (Budapest)
Crisia	Crisia (Oradea)
CurrAnt	Current Anthropology (Chicago)

DissArch	Dissertationes Archaeologicae ex Instituto Archaeologico Universitatis de Rolando Eötvös nominatae (Budapest)
DMÉ	A Debreceni Déri Múzeum Évkönyve (Debrecen)
DocPraehist	Documenta Praehistorica (Ljubljana)
Dolg	Dolgozatok az Erdélyi Múzeum Érem- és Régiségtárából (Kolozsvár)
Dolgozatok	Dolgozatok a Magyar Királyi Ferencz József Tudományegyetem Archaeologiai Intézetéből (Szeged)
DuDolg	Dunántúli Dolgozatok (Pécs)
DuSz	Dunántúli Szemle (Szombathely)
EJA	European Journal of Archaeology (London)
Építés-Építészettudomány	Építés- Építészettudomány. A Magyar Tudományos Akadémia Műszaki Tudományok Osztályának Közleményei (Budapest)
EurAnt	Eurasia Antiqua. Zeitschrift für Archäologie Eurasiens (Bonn)
FAM	Fontes Archaeologiae Moravicae (Brno)
FolArch	Folia Archaeologica (Budapest)
FontArchHung	Fontes Archaeologici Hungariae (Budapest)
FrK	Földrajzi Közlemények (Budapest)
FSI	Forensic Science International. Genetics
FtK	Földtani Közlöny (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)
Gesta	Gesta. Historical Review (Miskolc)
HHR	The Hungarian Historical Review (Budapest)
HOMÉ	A Herman Ottó Múzeum Évkönyve (Miskolc)
HungArch	Hungarian Archaeology. E-Journal (Budapest)
JAA	Journal of Anthropological Archaeology (New York)
JAHA	Journal of Ancient History and Archaeology (Cluj-Napoca)
JAR	Journal of Archaeological Research (New York)
JAS	Journal of Archaeological Science (London)
JFA	Journal of Field Archaeology (Boston)
JFS	Journal of Forensic Sciences (Chicago)
JHE	Journal of Human Evolution (New York)
JIES	The Journal of Indo-European Studies (Washington, D. C.)
JLS	Journal of Lithic Studies (Edinburgh)
JPMÉ	A Janus Pannonius Múzeum Évkönyve (Pécs)
JWP	Journal of World Prehistory
KMK	A Komárom megyei Múzeumok Közleményei (Tata)
KMMK	Komárom-Esztergom Megyei Múzeumok Közleményei (Tata)
KRMK	A Kaposvári Rippl-Rónai Múzeum Közleményei (Kaposvár)
Marisia	Marisia. Studii şi Materiale. Muzeul Judeţean Tîrgu Mureş (Tîrgu Mureş)
MatArchSlov	Materialia Archaeologica Slovaca (Nitra)
MCA	Materiale şi Cercetări Archeologice (Bucureşti)
Menga	Menga. Revista de prehistoria de Andalucía. Journal of Andalusian Prehistory (Antequera)
MFMÉ	A Móra Ferenc Múzeum Évkönyve (Szeged)
MFMÉ StudArch	A Móra Ferenc Múzeum Évkönyve – Studia Archaeologica (Szeged)

MKCsM	Múzeumi Kutatások Csongrád Megyében (Szeged)
MRT	Magyarország Régészeti Topográfiája (Budapest)
Musaica	Musaica Archaeologica. Zborník Filozofickej Fakulty University Komenského (Bratislava)
Nartamongæ	Nartamongae. The Journal of Alano-Ossetic Studies. Epic, Mythology and Language (Vladikavkaz)
OA	Opuscula Archaeologica (Zagreb)
Ossa	Ossa. International Journal of Skeletal Research (Solna)
Ősrégészeti Levelek	Ősrégészeti Levelek. Prehistoric Newsletter (Budapest)
PBF	Prähistorische Bronzefunde (München)
PLoS One	PLoS One. E-Journal (San Francisco)
PNAS	Proceedings of the National Academy of Sciences (Washington, D. C.)
Pravěk	Pravěk (Brno)
Preistoria Alpina	Preistoria Alpina (Trento)
PZ	Praehistorische Zeitschrift (Berlin)
QuaternaryInt	Quaternary International. The Journal of the International Union for Quaternary Research (Oxford – New York)
Radiocarbon	Radiocarbon. An International Journal of Cosmogenic Isotope Research (Tucson)
RégFüz	Régészeti Füzetek (Budapest)
SA	Советская Археология (Moskva)
Satu Mare	Satu Mare. Studii şi comunicări. Seria Arheologie (Satu Mare)
Savaria	Savaria (Szombathely)
SbČSA	Sborník Československé Společnosti Archeologické (Brno)
SCIV	Studii şi Cercetări de Istorie Veche (Bucureşti)
SlA	Slovenská Archeológia (Bratislava)
SMK	Somogyi Múzeumok Közleményei (Kaposvár)
Specimina Nova	Specimina Nova. Dissertationum ex Instituto Historiae Antiquae et Archaeologiae Universitatis Quinqueecclesiensis (Pécs)
SSz	Soproni Szemle (Sopron)
StComit	Studia Comitatensia (Budapest)
SzIKMK	A Szent István Király Múzeum Közleményei (Székesfehérvár)
Terra Sebus	Terra Sebus. Acta Musei Sabesiensis (Sebes)
Tisicum	Tisicum. A Jász-Nagykun-Szolnok Megyei Múzeumok Évkönyve (Szolnok)
UF	Ugarit-Forschungen. Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas (Kevelaer – Neukirchen– Vluyn)
UPA	Universitätsforschungen zur prähistorischen Archäologie (Bonn)
VAH	Varia Archaeologica Hungarica (Budapest)
VetZoot	Veterinarija ir Zootechnika. A scientific journal and the Official Organ of the Veterinary Academy, Lithuanian University of Health Sciences (Kaunas)
VKT	Várak, kastélyok, templomok. Történelmi és örökségturisztikai folyóirat (Pécs)
VMMK	A Veszprém Megyei Múzeumok Közleményei (Veszprém)
VýP	Východoslovenský Pravek (Košice)
WMMÉ	A Wosinsky Mór Múzeum Évkönyve (Szekszárd)
ZalaiMúz	Zalai Múzeum (Zalaegerszeg)
ZbSNM	Zborník Slovenského Národného Múzea. Archeológia (Bratislava)
Ziridava	Ziridava. Studia Archaeologica (Arad)
ZSNM	Zbornik Slovenského Národného Múzea (Ljubljana)

FOREWORD FROM THE EXECUTIVE EDITOR

As with the previous (37th) issue of the Antaeus (Yearbook of the Institute of Archaeology), the present volume brings together a selection of research papers addressing a certain time period; the Bronze Age on this occasion. The current volume, despite containing fewer studies than the previous issues, is in line with the editorial board's ambition to publish a new volume at regular – annual – intervals, even at the expense of the overall length of the publication. With the aim to assemble a broad spectrum of Bronze Age research studies from the territory of Hungary, the current issue touches upon a wide range of themes stretching across the many hundreds of years of the Bronze Age period: from the facial reconstruction of an Early Bronze Age woman, to the domestication of horses and Middle Bronze Age dress ornaments, to the study of the large, Late Bronze Age fortified settlements. These topics cover the key issues of current European Bronze Age research, including the archaeological application of DNA analyses, and the theoretical approaches of political economies, therefore the outcomes presented here will hopefully be of wide international interest. Some of the research was carried out within the framework of the Lendület/Momentum Mobility Research Group launched in 2015, supported by the Hungarian Academy of Sciences at the Institute of Archaeology, Research Centre for the Humanities.

The paper by Ágnes Kustár and her colleagues presents the facial reconstruction of an Early Bronze Age female burial. The work serves as the first facial reconstruction study where DNA data was also considered regarding the pigmentation (eye and hair colour, skin tone) of a Bronze Age individual from present-day Hungary.

The two studies put forward by Eszter Melis and Gabriella Kulcsár as main authors, both discuss the results of micro-regional settlement investigations aimed to explore Early and Middle Bronze Age settlement structures using non-destructive methods. The settlement investigations conducted by Eszter Melis and her team focussed on the region of Nagycenk, nearby Lake Neusiedl. The data published here represents a significant piece of archaeological research as information from the region occupied by the Gáta–Wieselburg culture has been lacking in the past three decades. Furthermore, the site of Nagycenk-Kövesmező is one of the few Gáta–Wieselburg settlements investigated by a modern archaeological excavation.

Gabriella Kulcsár and her team discuss the Middle Bronze Age pit burial of a mature adult female with evidence for multiple physical trauma, from Central Hungary. The study touches upon the interpretation of pit burials in the context of the settlements of Bronze Age communities who otherwise practiced inhumation and cremation as their nominal mortuary tradition.

Géza Szabó's paper examines the so-called Tolnanémedi-type hoard horizon comprised primarily of dress ornament assemblages across to the Middle Bronze Age along with a newly discovered hoard from Mucsi in Tolna county. The publication includes the reconstruction of a costume worn by high status female members of the Transdanubian Encrusted Pottery culture and provides an interpretation of the symbolism of such ornaments.

The study by Gábor Ilon provides an overview of Bronze Age moulds and their distribution in the Carpathian Basin. The paper considers the assemblage as important evidence for local metallurgy, and sheds new light on the organisation and specialisation of bronze production.

Róbert Bozi and Géza Szabó explore the question of horse domestication within the context of Bronze Age cultures in Central and Eastern Hungary, based on the evidence of horse gear made of antler appearing first during the 2nd millennium in the Carpathian Basin. The study relies on newly discovered horse remains and their associated absolute dates.

The paper by Vajk Szeverényi and his colleagues discusses the results of their most recent excavation programme conducted at Csanádpalota; a prime example of a so-called 'mega fort' or large-scale fortified settlement typical in the Late Bronze Age in Southeast Europe. Anna Priskin in her study gives a detailed insight into the production and use of grinding stones recovered at the site.

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ESZTER MELIS – VIKTÓRIA KISS – GABRIELLA KULCSÁR –
GÁBOR SERLEGI – BENCE VÁGVÖLGYI

BRONZE AGE MICROREGIONAL SETTLEMENT INVESTIGATIONS IN THE LOCALITY OF NAGYCENK (NORTHWESTERN HUNGARY)

Zusammenfassung: In der Grenzregion Ostösterreichs, der Südwestslowakei und Westungarns sind relativ viele, auf die Zeit zwischen 2200/2100 und 1600/1500 v. Chr. datierbare Körperbestattungen, beziehungsweise Gräberfelder bekannt. Anhand der Riten und Beigaben, doch in erster Linie anhand der Keramiktypen dieser Bestattungen isolierte man am Anfang des 20. Jahrhunderts diese bronzezeitliche archäologische Kultur, die in der ungarischen Fachliteratur Gáta-Kultur, in der internationalen Fachliteratur Wieselburger Kultur genannt wird. Aufgrund der terminologischen Unterschiede wird diese Epoche in Österreich und in der Slowakei in die frühe, und in Ungarn in das Ende der frühen und in die mittlere Bronzezeit datiert. Der sogenannten Gáta–Wieselburg-Kultur können auf dem Gebiet des heutigen Österreichs über 1000, in Ungarn insgesamt 220 Gräber zugeordnet werden. Im Vergleich mit den Bestattungen und Streufunden sind in der Region weniger Siedlungen aus der frühen und mittleren Bronzezeit bekannt. Deshalb gilt der am Rande Nagycenks (Großzinkendorf) gelegene Fundort, den János Gömöri während der Kurvenkorrektur der Eisenbahngleise untersuchte, als herausragend, die Mitarbeiter des Soproner Museums deckten hier nämlich 150 m nordwestlich von 27 Körperbestattungen der Gáta–Wieselburg-Kultur Siedlungsspuren aus womöglich demselben Zeitalter auf. Die Forschungsgruppe Lendület/Momentum Mobilität des Archäologischen Instituts im Geisteswissenschaftlichen Forschungszentrum begann 2018 mit der Analyse der zum Gräberfeld und der Siedlung gehörenden Mikroregion. Das in vorliegender Studie aufgearbeitete Siedlungsmaterial deuten wir in breiterer Umgebung unserer mikroregionalen Forschungsarbeit und in Verbindung mit den bronzezeitlichen, im Tal des Arany-Bach beobachteten Niederlassungen, darüber hinaus widmen wir uns weiteren siedlungsgeschichtlichen Daten des Verbreitungsgebiets der Kultur.

Keywords: settlement, microregion, Early and Middle Bronze Age, Gáta–Wieselburg culture, Northwestern Hungary

Inhumation burials and even entire cemeteries dating to between 2200/2100 and 1600/1500 BC have long been known from the regions bordering Eastern Austria, Southwestern Slovakia and Western Hungary. From the beginning of the 20th century archaeological research came to refer to these assemblages as remnants of the Gáta (Hungary) or Wieselburg (Austria and Slovakia) cultural complex, characterised by inhumation burial traditions, and distinctive grave goods, particularly ceramic vessels *(fig. 1)*.[1] Since each country employed its own chronological terminologies, the duration of the cultural complex falls to the Early Bronze Age in the territories of Austria and Slovakia, and to the Middle Bronze Age in Hungary.[2] Today, over a 1000 burials

[1] *Miske 1917; Menghin 1921.*

[2] *P. Fischl et al. 2015; Kiss et al. 2019* 17–176. In this study, unless otherwise stated, the chronological classification developed by István Bóna specifically for the Hungarian Bronze Age (*Bóna 1975* 23–27) is being used.

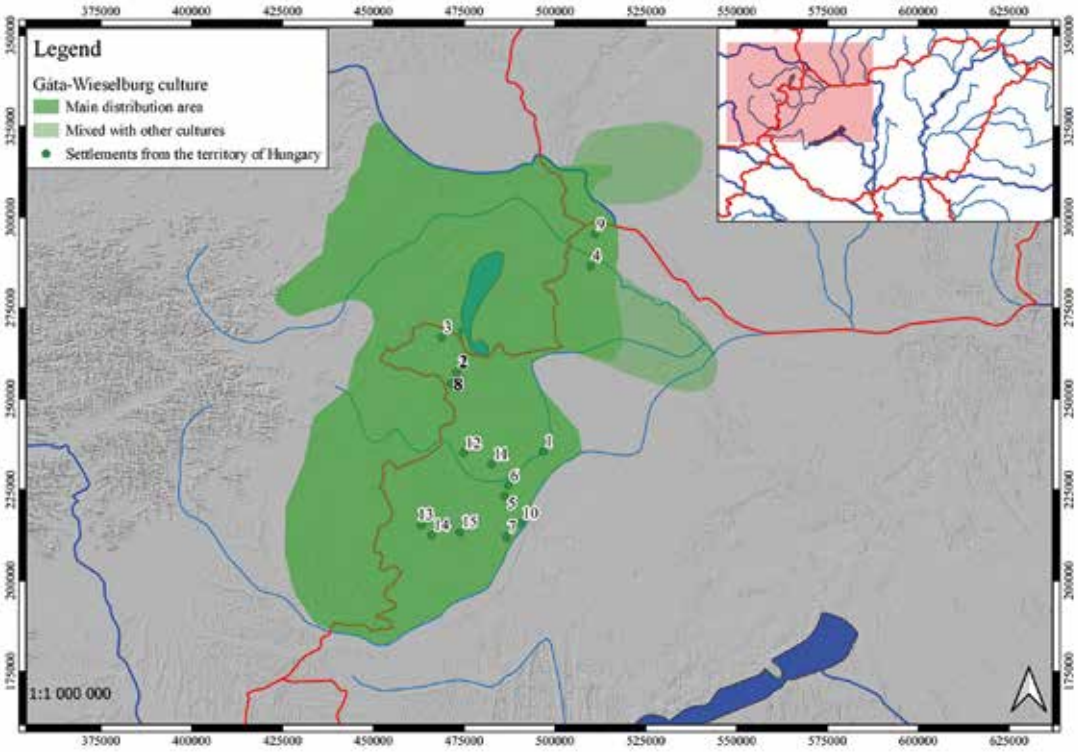

Fig. 1. The distribution of the Gáta–Wieselburg culture (after *Krenn-Leeb 2011* Abb. 1, *Nagy 2013* Abb. 1 and *Melis in prep.*) and its known settlement sites in Hungary (see *Table 1* the sites of the research area are in bold)

associated with the Gáta–Wieselburg culture are known from Austria,[3] while there are about 220 graves documented from Hungary.[4] As opposed to burials, however, Early and Middle Bronze Age settlement sites are less well explored in the region. Therefore, the occupation site examined by János Gömöri during the correction of the nearby railway track in the vicinity of Nagycenk is particularly significant, especially that about 150 m to the northwest from here, 27 inhumation burials along with evidence for prehistoric occupation were documented by representatives of the Museum of Sopron.[5] In 2018, the Nagycenk settlement site and mortuary features were investigated by the Momentum Mobility Research Group in detail within the framework of a microregional research project.[6] The current study presents the interpretation of the settlement data placed in the broader context of the Arany Stream microregion and considers its role within Bronze Age networks of occupation.

Where might be the settlements linked to the Gáta–Wieselburg burial grounds located?

The issue presented here, as it was touched upon in the introduction, is the lack of archaeological evidence for Bronze Age settlements from the region of Eastern Austria and Western Transdanubia. The site inventory collated in 1987, refers to several occupation sites linked directly to the Gáta–Wieselburg culture: e.g. Fischamend, Großhöflein/Föllik (Nagyhöflány, Austria), Leithaprodersdorf (Lajtapordány, Austria), Mannersdorf an der Leitha, Parndorf (Pándorfalu,

[3] *Krenn-Leeb 2011* 12; *Aspöck 2018.*
[4] *Melis 2020a* 77–79.
[5] *Gömöri – Melis – Kiss 2018.*
[6] *Melis et al. in print.*

Austria), Schwechat, Sommerein (Lajtasomorja, Austria), unfortunately, however, these sites remain unpublished.[7] Although non-destructive investigations have been carried out on an area of 600 km² along the Austrian course of the Leitha River, the data has limited relevance from the perspective of Central European Early Bronze Age settlement networks.[8]

The only recently published so far is Bratislava-Rusovce (Oroszvár, Slovakia). Here, pits and a few postholes were discovered within a 1 km radius north and south of the Gáta–Wieselburg culture's cemetery.[9] Archaeological investigations were limited to the construction sites of residential buildings, therefore, larger prehistoric structures and their layout could not be fully observed.[10]

From the territory of county Vas in Hungary, Marcella Nagy mentions settlement features associated with the Gáta–Wieselburg culture present at altogether five archaeological sites.[11] More recent excavations and the re-assessment of already existing collections increased the number of Gáta–Wieselburg settlements in county Vas and Győr-Moson-Sopron in Hungary. At present, there are around 15 settlement sites recorded from the two counties together *(fig. 1, Table 1)*.[12] In most cases, these sites were indicated by the presence of stray finds (e.g. at hilltop occupations),[13] or domestic features dating to the transition period between the Early and Middle Bronze Age.[14] The identification of such remains is difficult due to multiple phases of occupations spanning across several Bronze Age periods (e.g. Tumulus culture, *Litzenkeramik*, Věteřov). For example, 800 m southeast from the burial ground of Hegyeshalom-Újlakótelep, the settlement features of the Gáta–Wieselburg culture were discovered alongside refuse pits associated with the Tumulus culture.[15] Furthermore at Hegyfalu, mixed Gáta–Wieselburg and Tumulus culture assemblages came to light during the excavation of a building structure.[16] Although it has been observed at confirmed Gáta–Wieselburg sites in Austria that the Bronze Age settlements were located farther away from cemeteries.[17] Examples from Rusovce (Oroszvár, Slovakia), Nagycenk, Hegyeshalom and Szakony indicate that the burial grounds were established within a 1 km radius of the settlement, sometimes even closer, only a few hundred metres away.

The lack of information regarding Gáta–Wieselburg occupation sites is not unusual from the period of the Early and Middle Bronze Age. There are numerous settlement sites known from the territories of the contemporary Kisapostag-Early Encrusted Pottery culture and the Transdanubian Encrusted Pottery culture, however, most of these sites have also been inventoried

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7 *Leeb 1987* 236–237.

8 *Doneus – Griebl 2015.*

9 *Kőszegi 1958; Bóna 1975* 237–241; *Bazovský – Šefčáková 1999.*

10 *Bartík et al. 2016.*

11 *Nagy 2013* 79–80, Abb. 1.

12 *Melis in prep.* The site of Fertőszéplak-Téglagyár has been inventoried based on the presence of a single settlement feature (clay quarry – *Bóna 1975* 232; *Leeb 1987* 277). Ceramic vessels and animal bones came to light from an uncertain context when sourcing clay at the same location *(Nováki 1956)*, these have also been classified as stray finds.

13 Fertőboz-Gradinahegy: *Nováki 1975* 328, fig. 4; Fertőrákos-Kecskehegy: *Nováki 1997* 29–32. These two fortified settlements were dated to the Gáta–Wieselburg period by previous research, however the assemblages collected from here are still being processed, therefore it is yet to be confirmed if these could indeed be considered as Gáta–Wieselburg settlements. The radiocarbon date from the site made the Bronze Age dating of the fortification questionable, therefore it is more likely that the site functioned as a hilltop settlement during the Middle Bronze Age.

14 E.g. Hegyfalu-Kőris-patak mente: *Mladoniczki – Mrenka 2019* 51.

15 *Aszt 2008; Melis 2020b; Melis in prep.*

16 *Károlyi 1984* 133–143.

17 *Krenn-Leeb 2011* 19.

No.	Site name	Reg. no.	Site type	Archaeological investigation	Reference
1	Dénesfa-Szikes-dűlő	1678	settlement (surface scatter)	1975. Field survey by Sándor Faragó	Central Official Archaeology Database
2	**Fertőboz-Gradinahegy**	**1704**	**hilltop settlement, stray finds**	**1963–1964. Excavation by Gyula Nováki**	***Nováki 1964a; Nováki 1964b; Nováki 1965a; Nováki 1965b***
3	Fertőrákos-Kecskehegy	47593	hilltop settlement	1948. Excavation by Gyula Nováki	*Nováki 1952; Nováki 1997* 118–134
4	Hegyeshalom-Országúti-dűlő	53597	settlement	2007. Excavation by Ágnes Aszt, 2014–2015. Krisztina Pesti and Róbert Herbály, 2016. András Hargitai	*Aszt 2008; Melis 2020b* 357
5	Hegyfalu-Kőris-patak mente	67183	settlement	2012. Excavation by Réka Mladoniczki and Attila Mrenka	*Mladoniczki – Mrenka 2019* 51
6	Hegyfalu-Tehenészet	42979	settlement	1972. Excavation by Mária Károlyi	*Károlyi 1984; Nagy 2013* 79; *Kolonits 2020* Table 1
7	Ikervár-Pinkóci-dűlőtől É-ra	77109	settlement, ceramic hoard?	2010. Excavation by Marcella Nagy	*Nagy et al. 2012* 99, personal communication; *Kolonits 2020* Table 1
8	**Nagycenk-Kövesmező**	**61358**	**settlement, burial, ceramic hoard**	**2004–2005. Excavation by János Gömöri**	***Zoffmann 2008; Gömöri 2012* 12–13; *Gömöri 2016; Gömöri – Melis – Kiss 2018***
9	Rajka-Hosszú-szántók	54025	settlement	1996. Excavation by András Figler	Central Official Archaeology Database
10	Sárvár-Szaput-dűlő and Móka-dűlő II.	34889, 34894	settlement	2002. Excavation by Péter Kiss and Ildikó Katalin Pap	*Békei 2007; Nagy 2013* 79–80; *Kolonits 2020* Table 1
11	Simaság-Kavicsbánya and Kavicsbányától Ny-ra	43147 (49118)	burial, settlement remains (surface scatter)	1962. Field survey by Terézia Buócz	*Károlyi 1975* 186–187; *Ilon 1996* 27; *Nagy 2013* 80; *Kolonits 2020* Table 1
12	Szakony-Kavicsbánya	34028	burial, settlement	1964. Excavation by Gyula Nováki	*Nováki 1965c; Ilon 1996* 27
13	Szombathely-Reiszig erdő alatti dűlő	67939	settlement	2002. Excavation by Gábor Ilon	*Horváth – Wild 2017* 105
14	Szombathely-Romkert	22816	settlement	1980. Excavation by Terézia Buócz	*Károlyi 2004* 179, fig. 135; *Nagy 2013* 80; *Kolonits 2020* Table 1
15	Vép-Mejc földek	43104	settlement	2007. Excavation by Ottó Sosztarits	*Nagy 2013* 80; *Kolonits 2020* Table 1

Table 1. The settlement sites of the Gáta–Wieselburg culture in Hungary (the sites of the research area are in bold)

based on preliminary field survey reports.[18] In the majority of cases, these are horizontal, single-layer occupation sites surrounded by a ditch. However, hilltop settlements and fortified settlements situated in mountainous areas also occur.[19] Similarly, from the territories of Austria, Germany, the Czech Republic and Slovakia inhumation cemeteries and burials of the contemporaneous Únětice culture complex have been dominating in the archaeological publications.[20] Thanks to large-scale and targeted investigations there are now considerable amount of information available regarding the construction of buildings and settlement layout of the Únětice culture complex.[21]

The archaeological sites at Nagycenk and its the microregion

The archaeological record testifies to that the region of Lake Neusiedl/Fertő had always been a significant meeting zone for populations settled between the Carpathian Basin and the western territories of Central Europe. This area corresponds with the distribution of the Gáta–Wieselburg culture stretching between the Rába River and the Vienna Basin dating to the late Early Bronze Age and to the entire period of the Middle Bronze Age (2200/2100–1600/1500 BC) *(fig. 1).*[22] In 2004–2005, during the course of an archaeological investigation led by János Gömöri at Nagycenk-Lapos-rét and at Nagycenk-Kövesmező two, previously unknown Gáta–Wieselburg sites (a settlement and a cemetery) were documented.[23] The eastern shores of Lake Fertő (today in the territory of Hungary) and the fields surrounding modern villages in the closer region are rich in archaeological finds, many of these are Bronze Age assemblages.[24] Therefore the boundaries of our microregional study have been drawn along the southern fringes of the Fertő Basin, marked by the Middle Bronze Age hilltop settlement of Fertőboz-Gradinahegy excavated by Gyula Nováki.[25] The study region covers an area of 14 km², stretching from the Arany Stream, through the Ikva Valley to the peripheries of the Fertő Basin; our aim was to provide a cross-section of the region's archaeological topography, focusing primarily on Bronze Age remains *(fig. 2).*

Environment and geography

The microregion under study is situated within the so-called Western Hungarian periphery region, stretching across the Sopron–Vas plain, covering the territories of the Ikva floodplains, the Arany Stream Valley, the Fertő Basin and the areas northwest between the Fertőmellék hills and the Sopron Basin. Administratively it is located in the county of Győr-Moson-Sopron, more precisely in the vicinity of Nagycenk and Fertőboz, including the neighbouring areas of the Hidegség, Pereszteg, Kópháza and Sopron to a smaller extent. Its southern boundary is marked by a 1 km wide strip that runs along the now regulated Hungarian course of the Arany Stream; its northern fringes are represented by the Kisalföld and the Western Hungarian periphery region.[26] The exact perimeters of the study area correspond with current boundaries of fields under cultivation.

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[18] *Bándi 1967; Csányi 1978; Torma 1972; Nováki 1979; Honti – Kiss 1996; Honti – Kiss 1998; Vadász 2001; Kiss – Somogyi 2004.*

[19] *Kiss 2003; Kiss 2012a* 205–216.

[20] E.g. Rebešovice (Czech Republic): *Ondráček 1962;* Grossbrembach (Germany): *Ullrich 1972.*

[21] *Meller et al. 2019.*

[22] *Leeb 1987; Gömöri 2012* Abb. 108; *Nagy 2013* Abb. 1; *Melis 2017* fig. 1.

[23] *Gömöri 2011; Gömöri 2012; Gömöri 2016; Gömöri – Melis – Kiss 2018.*

[24] *Gömöri 2012* 272–276.

[25] So far, there has been a single preliminary site report available from here *(Nováki 1964a; Nováki 1964b; Nováki 1965a; Nováki 1965b).* The Bronze Age assemblages are currently being processed by Katalin Jankovits within the remit of the Momentum Mobility Research Project *(Jankovits in prep.).*

[26] *Dövényi 2010* 370.

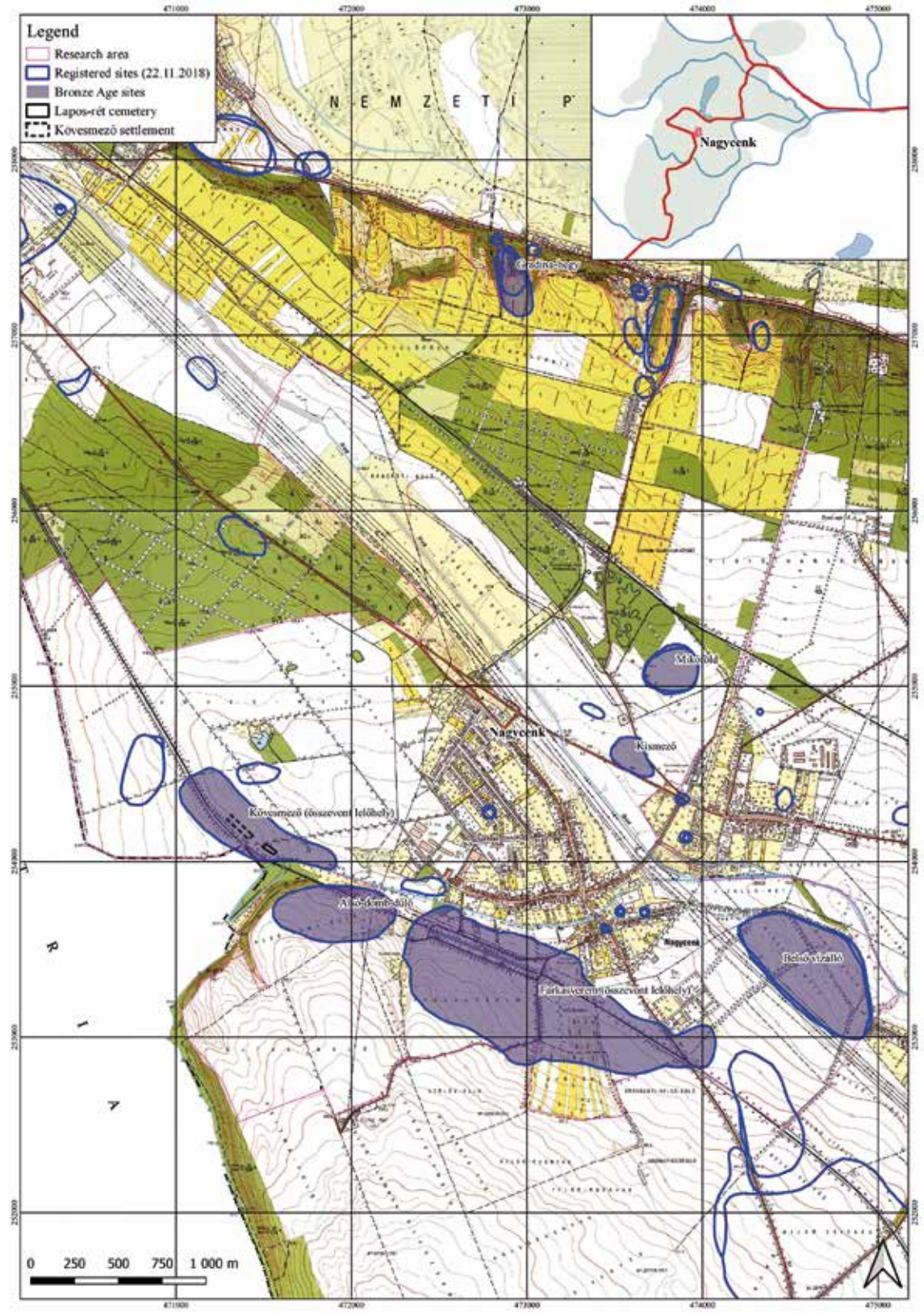

Fig. 2. The study area showing the inventoried sites (data collected by 22.11.2018), with the location of the Nagycenk-Kövesmező and the Nagycenk-Lapos-rét excavations

At present, the alluvial plains of the Ikva River consisting mainly of gravel have eroded away. The alluvial gravel deposits remain intact only along the southern edges of the Fertő Basin, from Balf to Hegykő. The river bed consists of layers of the so-called Sopron mica, its depth varies measuring approx. 2.5 km in the Nagycenk depression. The Ikva floodplain is surrounded by the Sopron Hills, the Fertő Basin and the Répce River plain. The landscape is enveloped by a variety of alluvia deposited at different chronological periods shaped into terraces by erosion.[27]

The entire microregion represents the water catchment area of the Ikva River; its longest tributary, the Arany Stream (19 km, 135 km²) joins the main flow of the Ikva at Nagycenk – however, only 20 km² of the water catchment lies currently within the administrative boundaries of Hungary. Depictions on historical maps indicate[28] that the Kiscenk section of the Ikva was regulated in the first half of the 19th century. Maps produced for the First Military Survey of the Habsburg Empire (Kingdom of Hungary 1782–1785) show the confluence of the Arany and Ikva Streams before regulation *(fig. 12. 2)*. The Ikva plain consists primarily of alluvial gravel formed into terraces by later erosion events, covered by mixed deposits of fine glacial clays, sands, and loesses sitting in the lower lying areas. Farther away the Arany and the Ikva Streams are fringed by Holocene riverine deposits and Pleistocene sand-gravel alluvia. Along the southern shores of the Arany Stream and the southern peripheries of the Fertő Basin tertiary clay and aleurite formations dominate.[29] On top of these deposits covering the Ikva Plain forest soils (82%) and brown soils (52%) developed. Brown forest soils with the occasional clay inwash frame the microregion from the south (18%), the soils developed dominantly on thin (40–60 cm) gravel alluvia blanketed by riverine clays in places, and only in the area surrounding Nagycenk were the soils established on tertiary glacial deposits. These latter consist of aquitard clayey loames. Across the floodplains of the Ikva riverine deposits and alluvial soils dominate.[30]

Archaeological investigations

Although the county of Győr-Moson-Sopron and the territories of Nagycenk and Fertőboz were not included in the surveys carried out for the volumes of the Hungarian Archaeological Topography,[31] thanks to the efforts of the Museum of Sopron's staff, the region can now be considered archaeologically well-evaluated. János Gömöri has been playing a key role in these projects, both on the field and in the publication of the data as well.[32] According to his observations the archaeological assemblages (of various periods) seem to occur most densely along the shores of the Arany Stream, indicating that the Arany Valley could have been used for occupations throughout a number of different time periods. Furthermore, it is likely that an important route of communication ran through the valley since prehistory. The assemblages collected from here show similarities with sites located along the southern shores of Lake Fertő.

The pioneering works of Gyula Nováki represent an important step in the research of fortified settlements along Lake Fertő. Nováki established the dating of the Fertőrákos-Kecskehegy and Fertőboz-Gradina-hegy settlements to the Early and Middle Bronze Age. The site of Gradina-hegy – which lies within our study area – was investigated by Nováki in 1963–1964, confirming

[27] *Dövényi 2010* 370.

[28] The planned regulation of the Ikva River, the Arany Stream and their artificial courses between Nagycenk and Kiscenk in 1805. (https://maps.hungaricana.hu/hu/OSZKTerkeptar/631/ [last accessed: 13.06.2022])

[29] *Gyalog 2005.*

[30] *Dövényi 2010* 371–372.

[31] *Bondár 2017; Jankovich 2010.*

[32] *Gömöri 2012; Gömöri 2016.*

its classification to the period of the Gáta–Wieselburg culture, although a few fragments of *Litzenkeramik* also came to light from the location.[33]

In the early 2000s, track correction works were carried out on the railway line connecting Sopron and Szombathely; including the section at Nagycenk on the northern shores of the Arany Stream, right next to the Austrian border. The construction affected the southwestern sector of the archaeological site, therefore it was possible to investigate an area of 100×60 m at Lapos-rét dűlő, northwest of the Arany Stream. The excavation was led by János Gömöri and representatives of the Museum of Sopron in 2004–2005. On the southern slopes of the largely waterlogged field towards the Arany Stream refuse pits of the Late Neolithic Lengyel culture came to light,[34] while the southern sector of the Gáta–Wieselburg cemetery was discovered between remains of Árpádian-period *Tóthczenk*[35] buildings. Between March and April in 2005, settlement features[36] were unearthed at Nagycenk-Kövesmező on an area approx. 3700 m², 150–200 m north of the Bronze Age cemetery; the archaeological assemblages discovered from here correlate well with the finds from the associated burial site *(fig. 2)*.[37]

Between 2015 and 2019 a range of different investigations were carried out prior to the construction of Road M85; field surveys, geophysical examinations, trial trenching and excavations were all conducted along the southern shores of the Arany Stream, making it possible to gain a detailed insight into the archaeological topography of the area. As a result, the number of identified archaeological sites increased, and multi-period occupation sites were observed in more detail across a large area. The investigations identified a section of a settlement associated with the *Litzenkeramik* and the Maďarovce–Tumulus culture at Nagycenk-Alsó-domb-dűlő, and an outstandingly rich Bronze Age burial ground of the Gáta–Wieselburg culture at Nagycenk-Farkasverem.[38] In the study area covering 14 km² altogether 20 archaeological sites have been identified, equating to the density of 1.43 site/km² which is considered high in the context of Hungary.[39]

In 2018, the Momentum Mobility Research Group coordinated by the Institute of Archaeology at the Research Centre for Humanities began a microregional project focusing on the area surrounding Nagycenk following the investigations in 2004–2005 which unearthed Bronze Age burials and part of a settlement.[40] The first step in our methodology was to carry out systematic field surveys covering a large area in order to establish the extent and outline the boundaries of sites belonging to different periods. Although there were several large sites located within the study area, these usually represented a palimpsest of different occupations both in terms of time and also of type. Therefore in the heritage inventory these sites are referred to as 'site-complexes'[41] (e.g. Nagycenk-Lapos-rét and Nagycenk-Kövesmező were inventoried as one site-

[33] *Nováki 1964a; Nováki 1964b; Nováki 1965a; Nováki 1965b; Bándi 1972* 42, Map 1, 16a; *Nováki 1975* 328, fig. 4; *Gömöri 2012* 16.

[34] *Gömöri 2007; Gömöri 2011.*

[35] *Gömöri 2016.*

[36] A few shallower pits and find concentrations documented between regular grave-pits might represent the decayed burials of the Gáta–Wieselburg culture.

[37] Archaeological investigations carried out by János Gömöri at Nagycenk-Kövesmező: 27.10.2004. – 24.03.2005: Nagycenk-Lapos-rét: a cemetery of the Gáta–Wieselburg culture, a settlement of the Lengyel culture, and a village dating to the Árpádian period *(Gömöri 2007, Gömöri 2011, Gömöri 2012, Gömöri 2016, Gömöri – Melis – Kiss 2018),* 30.03.2005. – 02.05.2005: Nagycenk-Kövesmező: traces of a Bronze Age settlement, 05.–06.2005: Observation of the most recent riverbed of the Arany Stream, Bronze Age find concentrations.

[38] *Savanyú 2020a; Savanyú 2020b;* Bálint Savanyú and Attila Mrenka, personal communication.

[39] C.f. *Stribányi – Mesterházy – Padányi-Gulyás 2012* 9, fig. 19.

[40] *Melis et al. in print.*

[41] *Reményi – Stibrányi 2011* 190.

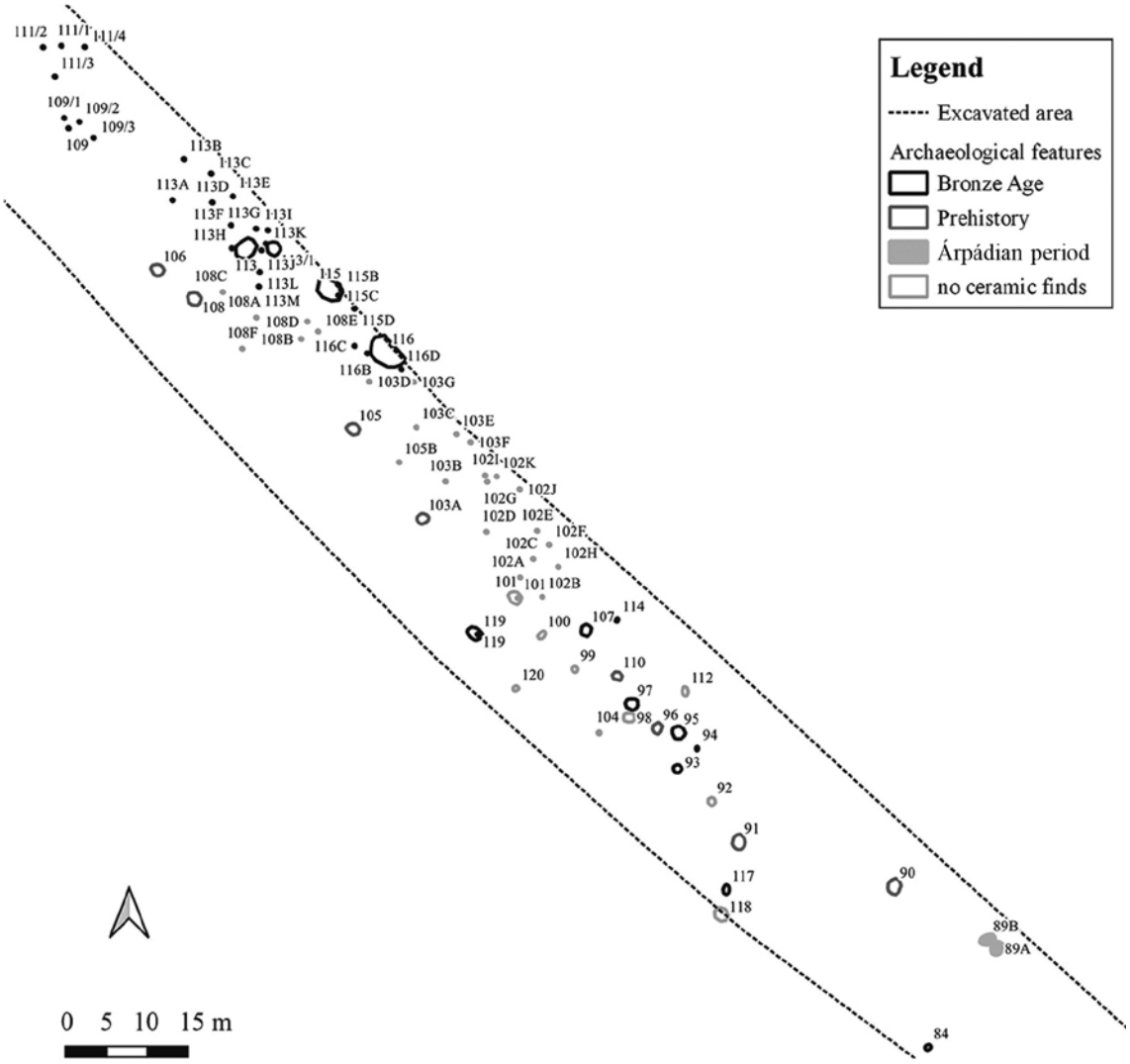

Fig. 3. Features discovered at Nagycenk-Kövesmező in 2005
(after the documentation plan by KÖH 600/2575/2009)

complex: Nagycenk-Kövesmező). During the field surveys conducted at these multi-period site-complexes, our primary aim was to identify Bronze Age settlement features, along with the identification of so far unknown sites based on ceramic surface collections.

Over half of the study area (approx. 750 ha) was under modern cultivation. On these areas we carried out systematic field surveys specifically developed for regional projects.[42] Field walking was conducted in grids of 25 metres in alignment with the EOV coordinates. Archaeological material was collected by walking each grid in strips from north to south. The exact location of each find was documented by a hand-held GPS and the material was bagged every 50 metres. Therefore these 50×50 m grids (aligned with the EOV coordinates) formed the basic units of our surface collections.[43] Later, the finds were being processed and classified according to these units, before the information was entered and plotted using a geoinformatics software (QGIS) *(fig. 12. 1).*

[42] *Mesterházy 2013.*
[43] *Neumann et al. 2014; Füzesi et al. 2015.*

The systematic surface collections conducted on an area of nearly 500 ha in 2018–2019 produced 521 units containing 2028 ceramic fragments which have been identified and processed. This method made it possible to investigate large areas in detail located in the southern half of the microregion along the Arany Stream.[44] This was supplemented by review of the archaeological material excavated at the Bronze Age settlement site of Nagycenk-Kövesmező in 2005, and the preliminary results of the investigations conducted prior to the construction of Road M85.

The settlement features and archaeological assemblages of Nagycenk-Kövesmező

In 2005, about a 150 m north of the Gáta–Wieselburg burials[45] at Nagycenk-Lapos-rét a number of settlement features were discovered during railway track correction works *(fig. 3)*. The excavation was carried out by the staff of the Sopron Museum under the supervision of János Gömöri. The area was investigated in a 22–24 m wide strip which contained evidence of occupation in a length of 165 m. Domestic refuse pits and postholes (apart from one – pit no. 107) did not contain much archaeological material. However, the archaeologist documented and collected the material from so-called 'find concentrations' as well which became visible right after stripping away the top soil. With the aid of the small amount of ceramic fragments the majority of settlement features could be classified as prehistoric, apart from refuse pits located in the southeast (pit nos 89A–B) which were identified as Árpádian-period. Some archaeological features lacked material completely, and in most cases ceramic pieces were poorly preserved which made their classification difficult. The next section will provide the description of Bronze Age domestic features and the archaeological material these contained.[46]

Pit no. 84 *(fig. 3. 84; fig. 4. 1–9)*

It first appeared as a concentration of ceramics on the stripped surface. The feature turned out to be a refuse pit of 60–70 cm in diameter.

Ceramics[47] (81 pieces), 7 vessels for serving or consumption, 12 vessels for cooking or storage.

Diagnostic pieces:

1. Body sherd of a jug/cup with erdoded exterior. Impressed or stamped double zig-zag pattern on the side (created by a comb-like implement) to which incised line bundles join. Brownish grey in colour, the clay fabric is rich in sand and quartz inclusions. Wth: 0.6 cm, 3.5×3.1 cm *(fig. 4. 2).*
2. Fragment of a jug with a bulging belly. It is decorated with a pair of incised and striped triangles. Reddish brown in colour, the clay fabric is rich in sand and mica. Wth: 0.5 cm, 3.9×3.9 cm *(fig. 4. 4).*
3. Truncated-cone shaped bowl. Its rim is outcurving. The exterior is uneven, fired to a patchy reddish brown colour. The clay fabric is rich in small quartzite and grog. Wth: 0.4–0.6 cm, Rd: 9 cm, Bd: 6 cm, H: 3 cm *(fig. 4. 3).*
4. Fragments of an ovoid cooking pot with short, outcurving neck. Grey in colour with reddish spots. Clay fabric is rich in small quartzite and grog. Wth: 0.5 cm, H: 6 cm, Rd: 16 cm *(fig. 4. 5).*
5. Fragments of a cooking pot with long outcurving neck. Light greyish brown in colour with grey patches. Exterior was burnished originally. Clay fabric is rich in quartzite inclusions and grog to a lesser extent. Wth: 0.4–0.7 cm, Rd: 20 cm, Bd: 9 cm *(fig. 4. 6).*

[44] *Melis et al. in print.*

[45] *Gömöri – Melis – Kiss 2018.*

[46] Abbreviations: Wth: wall thickness, Rd: rim diameter, Bd: base diameter, H: height, L: length, W: width, Th: thickness.

[47] The fragment pieces collected are in brackets, followed by the estimated number of consumption or cooking vessels.

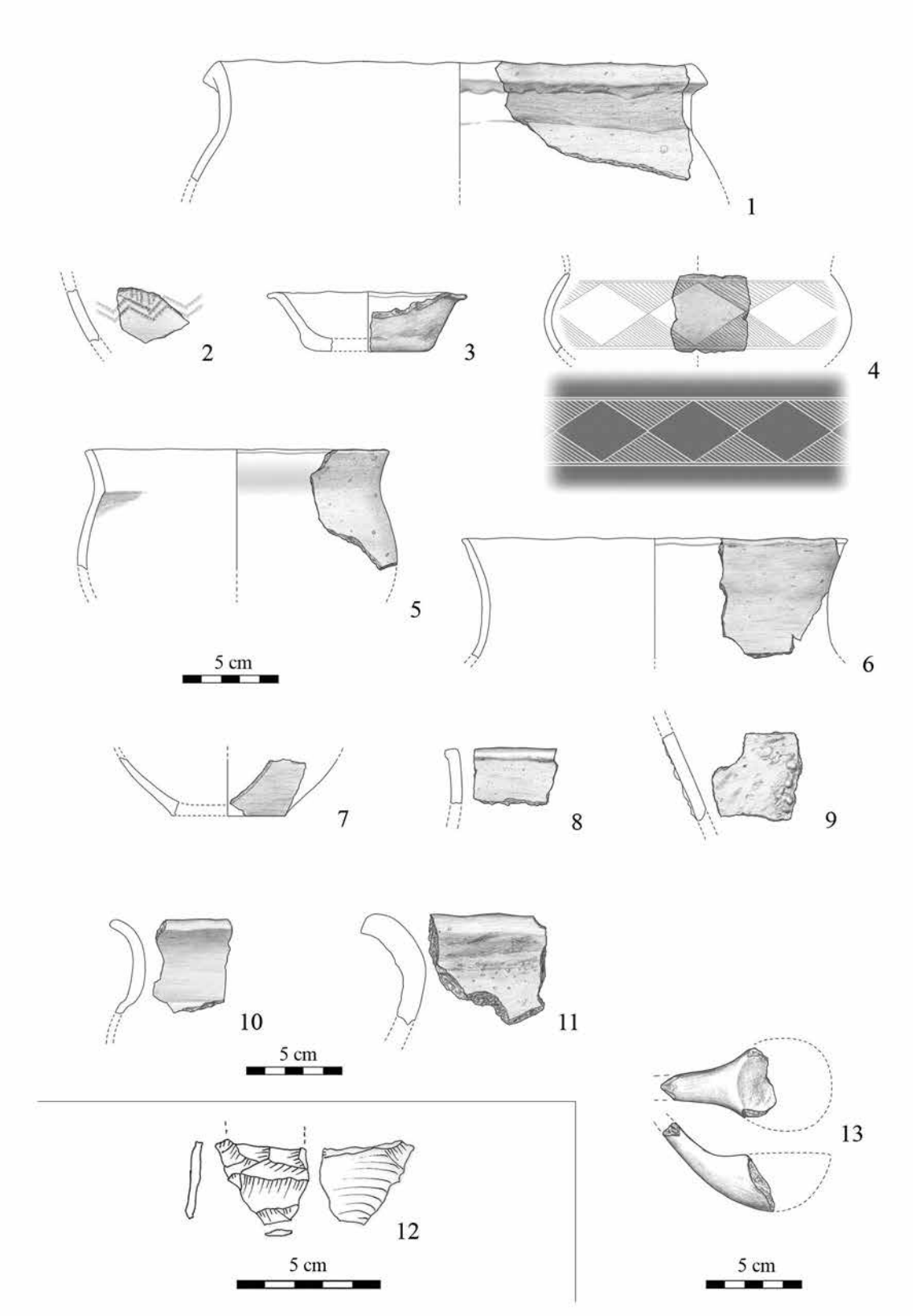

Fig. 4. 1–9. Ceramic fragments from pit no. 84 and its surroundings; 10–11. Ceramic sherds from 'find concentration' no. 97; 12. Stone tool from 'find concentration' no. 97; 13. Ceramic spoon found alongside pit no. 95 (1–11, 13: ©László Gucsi; 12: ©Anna Priskin)

6. Fragment of a large cooking pot with horizontally cut and thickened rim. Its exterior is moderately burnished, light brown in colour. The clay fabric contains sand and small quartzite inclusions. Wth: 0.6 cm, 2.9× 4 cm *(fig. 4. 8).*
7. Base fragment of a cup with burnished exterior which is light brown in colour with grey patches. Fabric contains mica and grog. Wth: 0.4 cm, H: 4 cm, Bd: 3 cm *(fig. 4. 7).*
8. Lower body fragment of a large pot. With splashed, uneven exterior. Reddish brown in colour, clay fabric is rich in sand and small quartzite. Wth: 0.7 cm, 4,2×4,3 cm *(fig. 4. 9).*
9. Fragments of a storage vessel found north of pit no. 84. It has a collared rim and an impressed channel on its shoulder. Dark grey in colour, the clay fabric is rich in small-medium quartzite inclusions. Wth: 0.6–0.9 cm, H: 6.5 cm, Rd: 24 cm *(fig. 4. 1).*

Animal bones:

Fragment of a cattle's right *maxilla* (with 2nd upper molar *in situ*).

Pit no. 93 *(fig. 3. 93)*

Round, shallow pit that became visible right under the plough soil. Diameter: 82–92 cm, depth: 7–10 cm.

Ceramics (21 pieces), 3 vessels for serving or consumption, 3 non-diagnostic fragments of vessels used for cooking or storage.

Posthole no. 94 *(fig. 3. 94)*

Posthole with straight vertical sides and ovoid in plan. Depth: approx. 10 cm, D: 43 cm. In the section the gravel layer embedded in the clay matrix is discontinued at this point.

Ceramics (60 pieces), 5 vessels for consumption or serving, 7 vessels for cooking or storage.

Diagnostic pieces:

1. The lower section of a medium-sized cooking pot with rusticated exterior. Wth: 0.6 cm, 3.9×3.1 cm.

Pit no. 95 and its surroundings *(fig. 3. 95; fig. 4. 13)*

The feature consists of two small find concentrations sitting in a shallow depression.

Ceramics (30 pieces), 4 vessels for consumption or serving, 4 vessels for cooking or storage, 1 ceramic object of some kind.

Diagnostic pieces:

1. Body sherds of a grey amphora with biconical belly. The exterior is uneven, the clay fabric contains small and medium sized quartzite inclusions. Wth: 0.8–0.9 cm, H: 6.7 cm.
2. A neck fragment collected north of pit no. 95. from an area of 10×10 m. The sherd is burnished, reddish brown in colour with a lightly impressed channel. The clay fabric is rich in sand and small quartzite inclusions. Wth: 0.5 cm, H: 3.5 cm.
3. A ceramic spoon collected north of pit no. 95. from an area of 10×10 m. It is yellowish brown in colour, the handle and the root of the handle present. Wth: 0.6 cm, 6.4×3.4 cm *(fig. 4. 13).*

Feature no. 97 'find concentration' *(fig. 3. 97; fig. 4. 10–12)*

According to the plan the find concentration appeared above the subsoil.

Ceramics (26 pieces), 7 vessels for consumption or serving, 2 vessels for cooking or storage.

Diagnostic pieces:

1. Deep bowl with channelled neck and outcurving rim. Dark grey in colour, its clay fabric is rich in small quartzite inclusions and mica. Wth: 0.7 cm, 4.8×3.8 cm *(fig. 4. 10).*
2. Fragments of a thick walled storage vessel with strongly outcurving rim. Light brown in colour, its clay fabric contains small quartzite. Wth: 1–1.4 cm, H: 2.1–5.8 cm, Rd: 25 cm *(fig. 4. 11).*

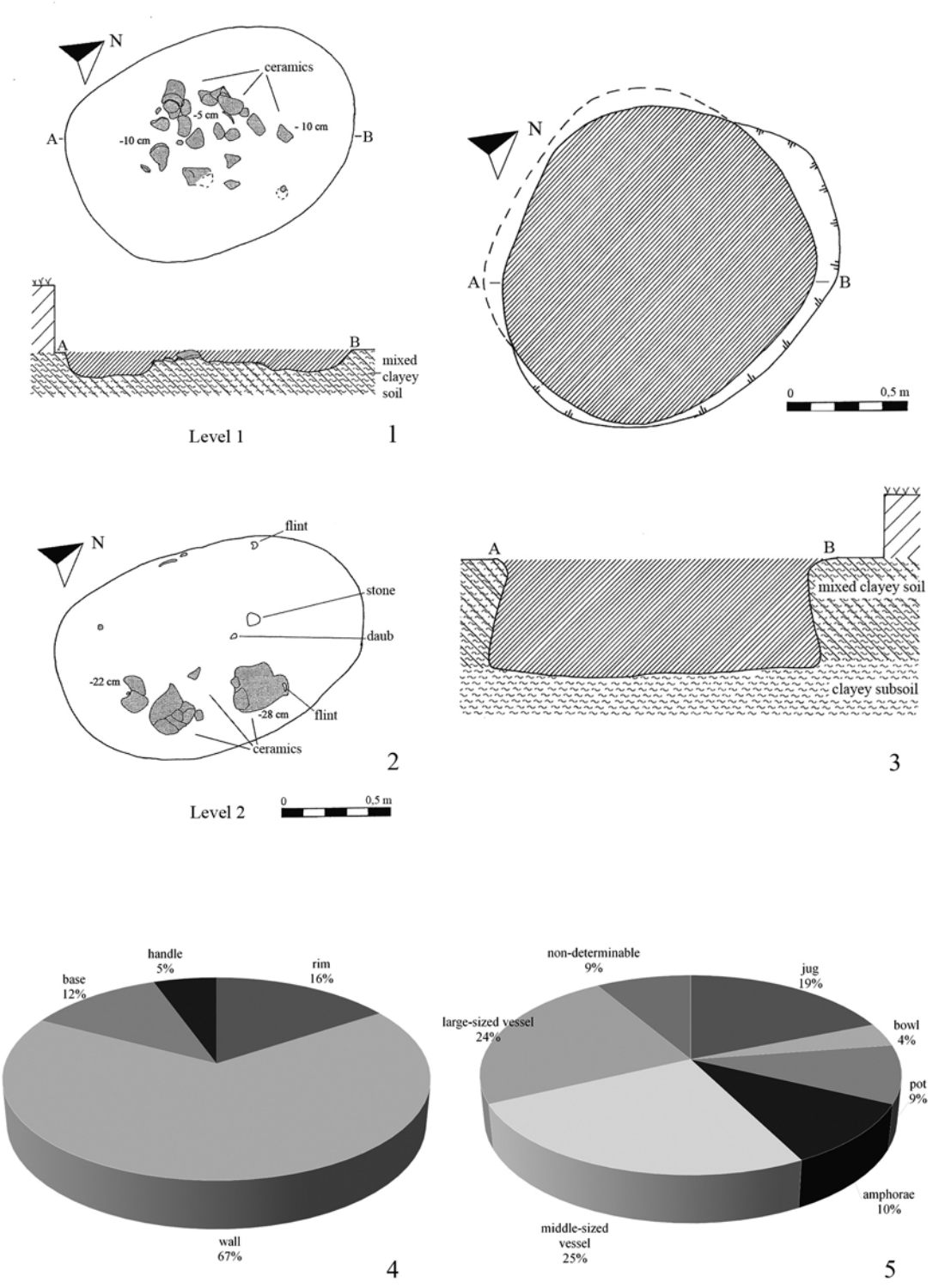

Fig. 5. 1. Context no. 1 in plan and in section of pit no. 107; 2. Context no. 2 in plan of pit no. 107; 3. The plan and section of pit no. 107; 4. Proportion of ceramic fragments from pit no. 107; 5. Proportion of ceramic vessel types from pit no. 107

Stone:

1. Proximal fragment of a shaping flake. It is trapezoidal in cross-section, bulb of percussion is large, the striking platform is faceted. Its sides become broader towards the middle section of the flake. On the ventral side there is evidence for the removal of several flakes. Raw material: radiolarite from Szentgál. L: 1.97 cm (incomplete), W: 2.47 cm, Th: 0.29 cm *(fig. 4. 12).*

Pit no. 107 *(fig. 3. 107; figs. 5–7; fig. 8. 1–4)*

It appeared as an oval patch following the removal of the top soil. Its diameters are 94 and 127 cm. Depth: 45 cm. Larger ceramic fragments were documented *in situ* in two of the fills: 1) at the depth of -10 cm *(fig. 5. 1)* and 2) at 22–28 cm *(fig. 5. 2)*. The second fill context contained the fragments of three larger vessels (Vessel nos. 18–20). After the pit was emptied, it turned out to be a rounded, beehive-shaped feature which was utilised secondarily as a domestic refuse pit *(fig. 5. 3).*

Ceramics (632 pieces), 59 vessels for consumption or serving, 39 vessels for cooking or storage *(fig. 5. 4–5).*

Diagnostic pieces:

1. Small-sized cooking pot with curved body, an oval knob attached to its neck. Greyish brown in colour, the burnishing on the exterior eroded. Clay fabric is rich in small-medium sized quartzite inclusions. Wth: 0.8 cm, 4.9×5.5 cm *(fig. 7. 3).*
2. Body sherds of an ovoid cooking pot with rusticated exterior. It is dark grey and light brown in colour, with clay residue sitting in the rusticated cravices. Wth: 0.7 cm, 5.2×13.5 cm *(fig. 7. 5).*
3. Body sherds of an ovoid cooking or storage vessel with deeply rusticated exterior. Reddish brown in colour, clay fabric is rich in small quartzite and mica. Wth: 0.7–1 cm, H: 1.8–6.9 cm *(fig. 7. 8).*
4. Body sherds of a large, cylindrical cooking pot with rusticated exterior. Brownish grey in colour, clay fabric is rich in small quartzite and mica. Wth: 0.6–0.8 cm, H: 1.9–5.8 cm *(fig. 7. 6).*
5. Truncated-cone shaped bowl with thick, diagonally cut inwards turning rim. It has a burnished exterior and patchy grey colour. Its clay fabric is rich in small-medium quartzite inclusions. Traces of smoothing present on the interior of the rim by some kind of plant stem. Wth: 0.6–0.7 cm, 11.4×8.7 cm, Rd: 24 cm *(fig. 6. 1).*
6. Small fragment of a truncated-cone shaped bowl with thick, diagonally cut inwards turning rim. It has a burnished exterior and light brown colour. Its clay fabric is rich in sand and small quartzite inclusions. Wth: 0.6 cm, 2.1×1.9 cm *(fig. 6. 2).*
7. Shoulder fragments of a dark grey ovoid amphora. Unevenly smoothed exterior, triangular ribs below the neck. Its clay fabric rich in small-medium quartzite inclusions. Wth: 0.6 cm, 11.3×5.5 cm *(fig. 7. 1).*
8. Fragments of a dark grey coloured amphora. Its exterior is burnished, the fracture surfaces are reddish in colour. There is a plastic rib running on the shoulder. Its clay fabric is rich in sand and small quartzite. Wth: 0.7–0.8 cm, H: 1.4–4.5 cm *(fig. 6. 4).*
9. Shoulder fragement of a dark grey amphora with a triangular rib below. The burnished exterior is eroded. The clay fabric is rich in sand and small quartzite inclusions. Wth: 0.6 cm, 3.8×3.3 cm *(fig. 6. 5).*
10. Fragments of a biconical jug. Grey in colour, the burnished exterior is eroded. Lightly insiced line on the upper half of the belly. Its clay fabric is rich in sand and small quartzite. Wth: 0.6–0.8 cm, H: 1.5–7.6 cm *(fig. 6. 7).*
11. Body sherd of a dark grey amphora with a curving neck. A small rib is visible at the root of the neck. Good quality vessel. Its clay fabric is rich in small quartzite and mica. Wth: 0.7 cm, 7.2×4.5 cm *(fig. 6. 6).*
12. Outcurving rim fragment probably belonging to an amphora. Reddish brown in colour, its clay fabric rich in small-medium quartzite inclusions. Wth: 0.6 cm, H: 3.9 cm, Rd: 17 cm *(fig. 6. 9).*
13. Fragment of a cooking pot with outcurving rim. It is reddish brown in colour with grey patches. Its clay fabric is rich in sand and small quartzite inclusions. Wth: 0.7 cm, H: 4.7 cm, Rd: 15 cm *(fig. 6. 8).*

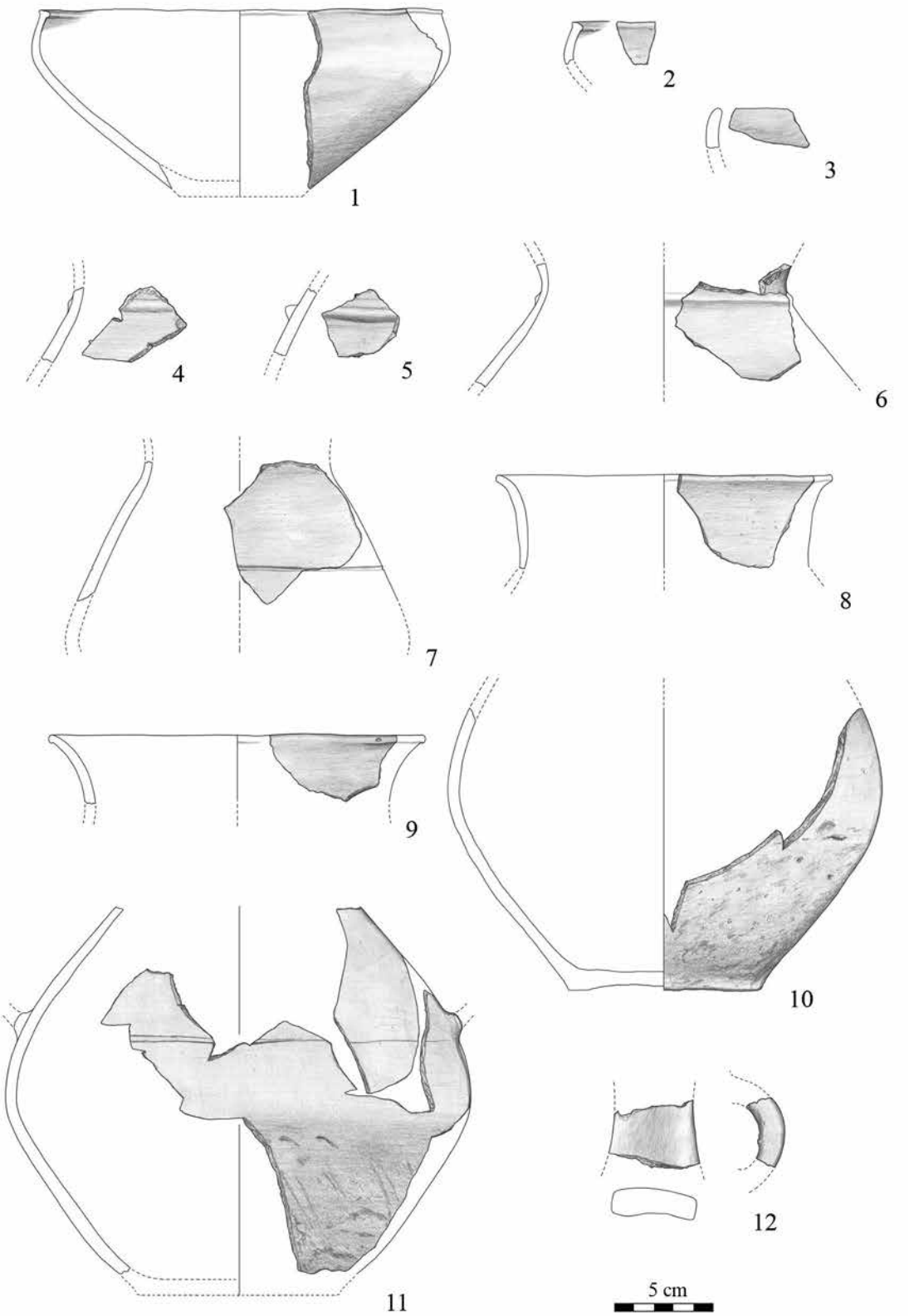

Fig. 6. Ceramic fragments from pit no. 107 (©László Gucsi)

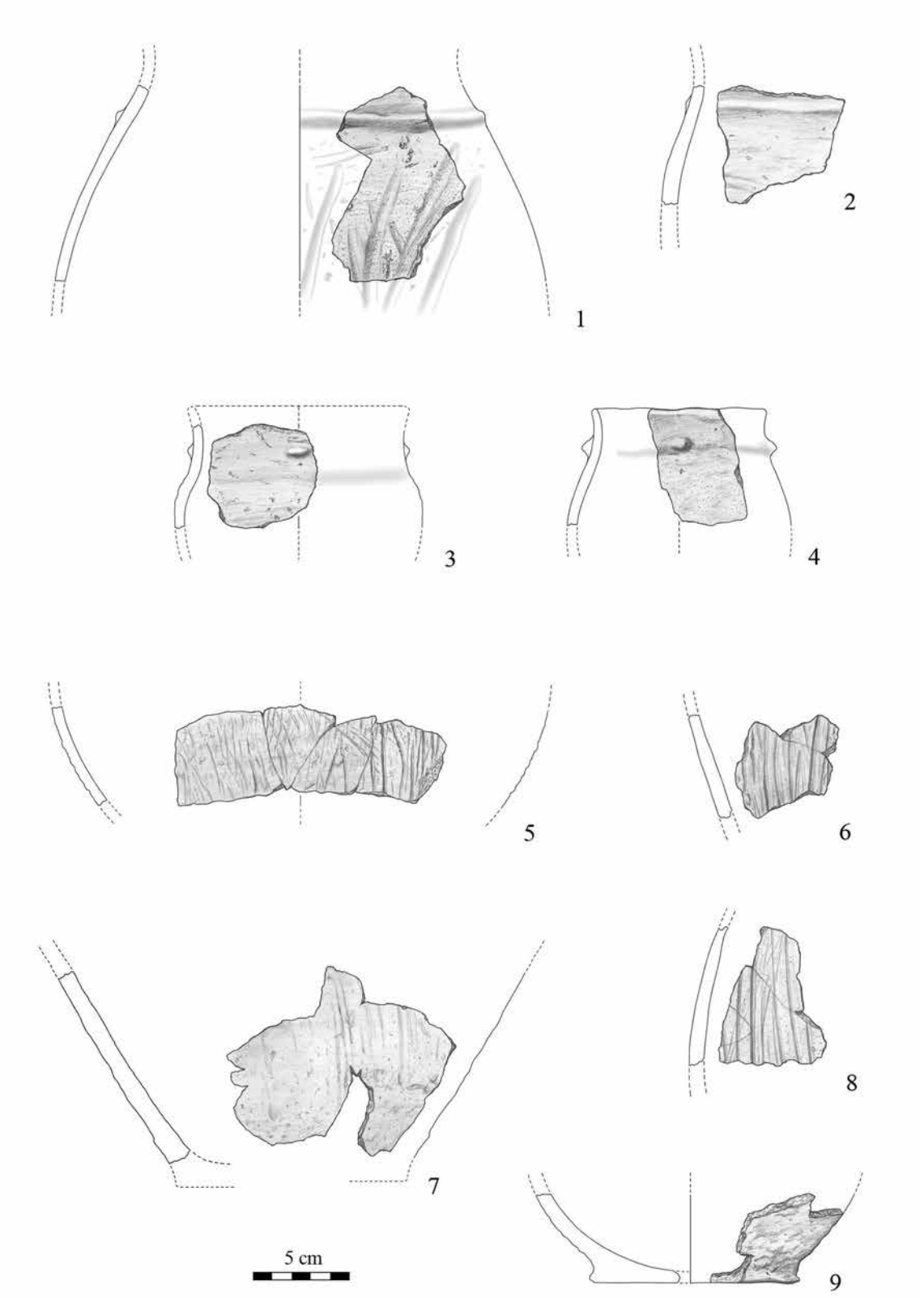

Fig. 7. Ceramic fragments from pit no. 107 (©László Gucsi)

14. Fragment of a bowl with inwards turning rim. Grey in colour, its clay fabric is rich in sand and mica. Wth: 0.6 cm, 1×1.8 cm *(fig. 6. 3).*
15. Fragment of a wide strap handle, probably belonged to an amphora. Dark grey in colour with light brown patches. Its clay fabric is rich in small-medium sized quartzite. W: 1.5 cm, 4.3×3.3 cm *(fig. 6. 12).*
16. Fragments of an ovoid amphora. The burnishing on its exterior eroded, there is a plastic rib running along its shoulder. Its clay fabric is rich in small-medium sized quartzite. Wth: 0.7–0.9 cm, H: 2.6–6.4 cm *(fig. 7. 2).*
17. Base fragments of a simple grey cooking pot with uneven exterior. Its clay fabric is rich in small-medium sized quartzite. Wth: 0.8–0.9 cm, H: 2.9–4.3 cm, Bd: 12 cm *(fig. 7. 9).*
18. Vessel fragments from the second fill context (-22–28 cm). Base and body sherds of a globular amphora. Brownish grey in colour with eroded burnishing on its exterior. Its clay fabric rich in sand and quartzite. Wth: 0.6–0.7 cm, 14.8×19.5 cm *(fig. 6. 10).*
19. Vessel fragments from the second fill context (-22–28 cm). Body sherds of a globular amphora with two strap handles. There are horizontal incised lines on the belly below the strap handles. Dark grey in colour with burnished exterior. The stumps of the handles and sherds belongig to the lower half of the vessel show traces of polishing suggesting that the vessel was repurposed in some way (perhaps used as a bowl) at a later stage. Wth: 0.5–0.8 cm, 15×17 cm *(fig. 6. 11).*
20. Vessel fragments from the second fill context (-22–28 cm). Larger, biconical cooking pot with a funnel neck and four pointy, vertical knobs at the root of the neck. The vessel is light brown in colour with dark grey patches. The exterior on the neck is burnished, on the upper body is rusticated, and unevenly smoothed and on the lower body. Wth: 0.7–0.8 cm, H: 1–25 cm, Rd: 21 cm *(fig. 8. 1).*
21. 1 metre north of pit no. 107 fragments of a cooking pot were found. The lower half of the body is unevenly smoothed and rusticated on the exterior. Light brown in colour, clay fabric is rich in small-medium quartzite inclusions. Wth: 0.9 cm, H: 1.2–9.2 cm *(fig. 7. 7).*
22. Small ovoid cooking pot found at the bottom of pit no. 107. The vessel is light grey in colour, and shows signs of secondary burning. It has a curving neck and a triangular plastic knob at the root of the neck. Its clay fabric is rich in sand and small quartzite inclusions. Wth: 0.8 cm, 6×4 cm, Rd: 10 cm *(fig. 7. 4).*

Bronze: A small amount of bronze crumbs (size of a few mm) from the fill of the pit.

Stone:

1. A core rejuvenation flake. There is a median rib visible on its dorsal side. The flake is triangular in cross-section. The striking platform is point-like, the bulb of percussion is small. The right edge is thinning, along the left edge and on the left side of the dorsal surface there traces of the cortex visible. Its distal end is step-like. Raw material: mustard yellow radiolarite with manganite spots. L: 3.754 cm, W: 1.283 cm, Th: 0.865 cm *(fig. 8. 4).*
2. A core rejuvenation flake. The striking platform is wing-shaped, with a large bulb of percussion. Several flakes have been struck off its dorsal surface. Its two edges are parallel lengthways on the proximal end before it widens on the left side towards the distal end, where the cortex is still visible. Raw material: dark brown radiolarite with manganite spots. L: 3.452 cm, W: 3.485 cm, Th: 1.075 cm *(fig. 8. 2).*
3. The distal fragment of a microblade, with two parallel ribs on its dorsal surface. Trapezoidal in cross-section. The distal end is oblique and rounded. Its right edge slightly curved, the left is straight, sickle gloss visible on both. Raw material: radiolarite from Szentgál. L: 0.856 cm, W: 0.691 cm, Th: 0.109 cm *(fig. 8. 3).*

Animal bone:

1 fragment of a diaphysis of a cattle *tibia*.

1 fragment of a right *proximal metatarsus* of a sheep/goat.

1 fragment of a pig *incisor* from the mandible.

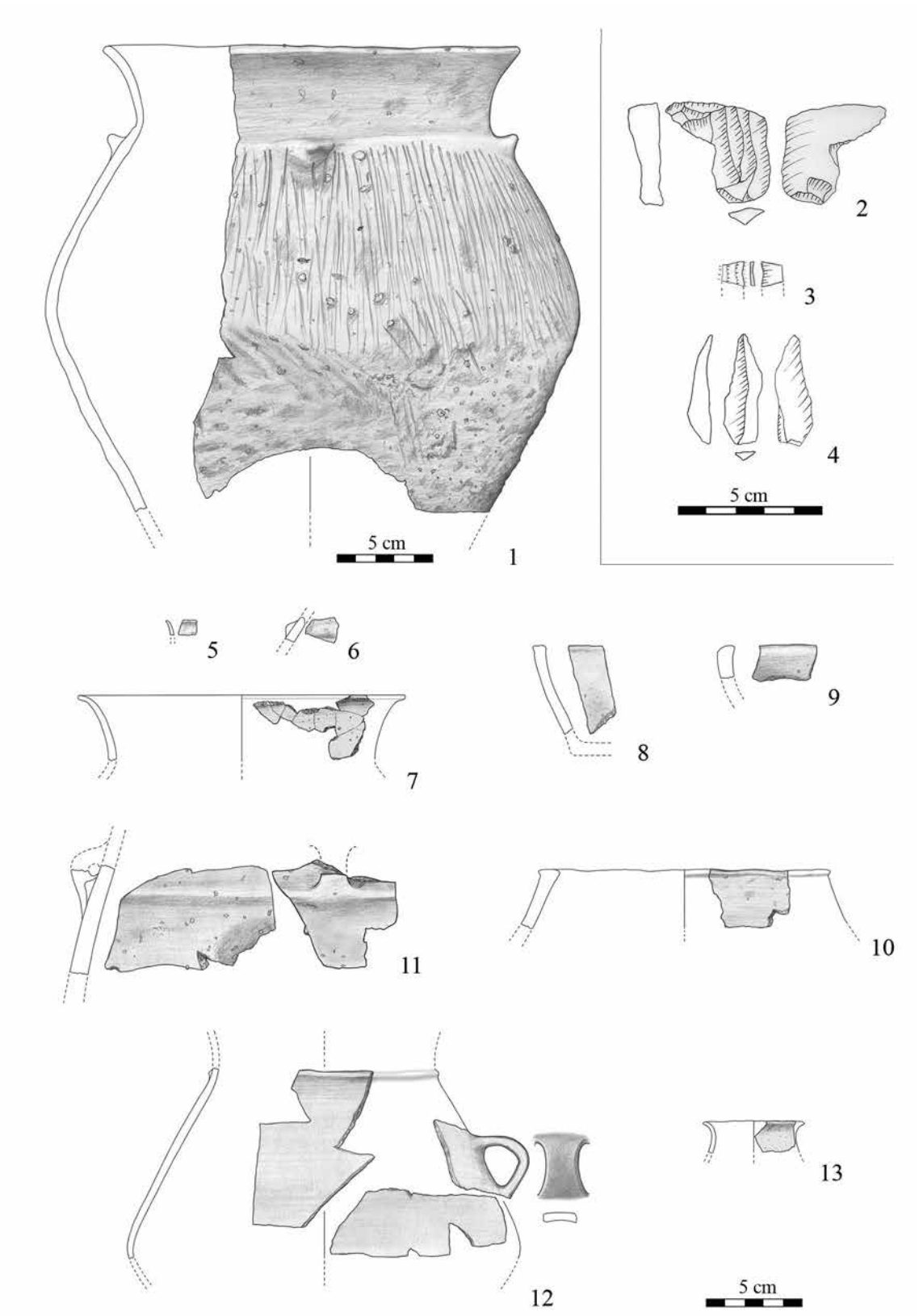

Fig. 8. 1. Ceramic vessel from pit no. 107; 2–4. Stone tools from pit no. 107; 5–7. Ceramic sherds from feature no. 111; 8–10. Ceramic fragments from feature no. 113; 11. Ceramic sherds from 'find concentration' no. 114; 12. Ceramic fragments from feature no. 109; 13. Ceramic sherd from pit no. 119 (1, 5–13: ©László Gucsi, 2–4: ©Anna Priskin)

Feature no. 109 *(fig. 3. 109/1–3; fig. 8. 12)*
According to the site plan the features represent 3 postholes situated 2–3 m away from each other (109/1–3). The three postholes surrounded fragments of a jug, under which another posthole came to light (109).
Ceramics (19 pieces), 1 vessel for consumption or serving.

1. Body sherds of a jug with biconical belly, and a strap handle. The root of the neck is decorated with plastic ribs. It is dark grey in colour, its clay fabric is rich in small-medium quartzite inclusions. Wth: 0.5–0.7 cm, H (partial): 10.5 cm *(fig. 8. 12).*

Feature no. 111/1–4 *(fig. 3. 111/1–4; fig. 8. 5–7)*
Three postholes aligned in an E–W direction unearthed in the northern sector of the excavation area. Later on one more posthole was found slightly south of the previous three (these were numbered: 1–4). Fragments dating to the Neolithic Lengyel culture and the Árpádian period (7 pieces) were found in the nearby area. From the postholes Bronze Age ceramic sherds were documented, and larger amounts of charcoal was recorded in posthole 111/1.
Ceramics (135 pieces), 23 vessels for consumption or serving, 18 vessels for cooking or storage.

Diagnostic pieces:

1. Fragment of a deep bowl with outcurving rim. The burnishing on its exterior eroded. Its clay fabric is rich in small-medium quartzite inclusions. Wth: 0.6–1.1 cm, 7.5×11.5 cm, Rd: 20 cm *(fig. 8. 7).*
2. Outcurving rim fragment of a small cup. Its clay fabric contains sand and small quartzite. Wth: 0.4 cm, 1.6×1.9 cm *(fig. 8. 5).*
3. Fragments of a greyish brown cooking pot found on a 5×5 m area near the postholes no. 111. A rib is running along the shoulder, the vessel's lower half is rusticated. Its clay fabric tempered with grog and mica. Wth: 0.6–0.9 cm, H: 1.3–4.1 cm *(fig. 8. 6).*

Feature no. 113 *(fig. 3. 113, 113/1, 113A–H; fig. 8. 8–10)*
Posthole no. 113A came to light 6-7 m north of measurement point 435 + 00, containing large amount of charcoal. East of this posthole, further 12 postholes were found (B–H) associated with feature no. 113. The shallower, smaller postholes were aligned in rows running from the southeast to the northwest. In between the rows in the southeast, two groups of find concentrations were identified (113, 113/1).
Ceramics (142 pieces), 23 vessels for consumption or serving, 16 vessels for cooking or storage.

Diagnostic pieces:

1. Body sherds of a cooking pot with a narrow neck, thick but straight cut rim. It is dark grey and reddish brown in colour, its clay fabric is rich in sand and quartzite. Wth: 0.7 cm, H: 1.6–3.2 cm, Rd: 12 cm *(fig. 8. 10).*
2. Fragments of a flowerpot shaped bowl with straight cut rim. It is light brown and grey in colour, clay fabric is rich in small quartzite. Wth: 0.5 cm, 5.1×2.2 cm *(fig. 8. 8).*
3. Rim fragments of a globular bowl with inwards turning rim, found next to the 'find concentration' of no. 113. It is grey in colour, its clay fabric is rich in small quartzite. Wth: 0.8 cm, 1.8×2.8 cm *(fig. 8. 9).*

Daub:
2 pieces, Reddish on the outside, greyish black on the inside, tempered with chaff. Conical in shape. 3.4×2.9 cm, 2.3×1 cm.

Feature no. 114 'find concentration' *(fig. 3. 114; fig. 8. 11)*
4-5 m away from pit no. 107, fragments of a larger Bronze Age vessel were observed on the surface.
Ceramics (18 pieces), 1 vessel for consumption or serving.

1. Fragments of an amphora with thick walls. In the upper section of the belly a plastic rib is visible (with triangular cross section). The strap handle attaches to this point. It is orange and grey in colour with eroded burnishing on the exterior. Its clay fabric is rich in sand, small quartzite and mica. Wth: 0.9–1 cm, H: 1.6–5.5 cm *(fig. 8. 11).*

Feature no. 115 *(fig. 3. 115, 115B–D)*
Feature no. 115 represented a 'find concentration' around which three postholes were identified (115B–D). Bronze Age ceramic sherds were documented in relatively large numbers from the nearby area.
Ceramics (80 pieces), 21 vessels for consumption or serving, 13 vessels for cooking or storage.

Diagnostic pieces:

1. Fragments of a small cooking pot with curving neck and outcurving rim. Well-made vessel, light brown and grey in colour, with slightly eroded exterior. Its clay fabric is rich in small quartzite inclusions. Wth: 0.6 cm, H: 2.6–3 cm.
2. Base fragment of a small dark grey coloured cup. Its clay fabric is rich in sand and small quartzite. Wth: 0.4 cm, 2.6×2.4 cm.

Feature no. 116 *(fig. 3. 116, 116B–D)*
Feature no. 116 represented a 'find concentration', right next to a row of three postholes running in NW–SE direction (116B–D). Bronze Age sherds were collected in relatively large numbers from the nearby area.
Ceramics (40 pieces), 7 vessels for consumption or serving, 6 vessels for cooking or storage.

Diagnostic pieces:

1. Fragments of a globular bellied small cup. Grey in colour, its clay fabric is rich in sand and small quartzite. Wth: 0.3–0.4 cm, H: 1.7–2.7 cm, Rd: 10 cm.

Pit no. 117 *(fig. 3. 117)*
Round (diameter approx.: 150 cm), shallow (depth: 40 cm) pit with a charcoal-rich fill.
Ceramics (6 pieces), 2 vessels for consumption or serving.

Diagnostic pieces:

1. Fragments of a jug with a biconical belly. Light brown in colour, its clay fabric is rich in small quartzite. Wth: 0.6–0.7 cm, H: 1.4–3.7 cm.

Pit no. 119 *(fig. 3. 119; fig. 8. 13)*
Ovoid, shallow pit with a posthole in its eastern section. The fill contained ceramic sherds and charcoal.
Ceramics (3 pieces) 2 vessels for consumption or serving, 1 vessel for cooking or storage.

Diagnostic pieces:

1. Fragments of a cup with outcurving rim and truncated-cone shaped neck. Light brown in colour with grey patches, its clay fabric is rich in small quartzite. Wth: 0.5 cm, H: 2.8 cm, Rd: 8 cm *(fig. 8. 13).*

Interpretation of the archaeological material from the settlement of Nagycenk-Kövesmező

Ceramics
The excavations carried out at the Nagycenk-Kövesmező site yielded altogether 1293 pieces of Bronze Age ceramic sherds, which likely to represent at least 165 vessels used for consumption or serving and 121 vessels used for cooking or storage. Half of the fragments were documented from pit no. 107, the rest of the sherds collected from elsewhere – these were generally small in

size and poorly preserved. Only a couple of these fragments were identified to have belonged to the same vessel.

Pit no. 84 represented the second richest feature at the site in terms of ceramic sherds, located 30 m to the southeast from the rest of the Bronze Age features *(fig. 3. 84).* The ceramic assemblage from here turned out to be distinct from the rest of the finds. The zigzag and line bundle motifs visible on a body sherd *(fig. 4. 2)* – created by using a comb-like flat implement – are most likely belonged to a Bell Beaker style vessel. Similar, impressed patterns can be found on ceramics associated with the Bell Beaker complex and its communities located around Budapest and Moravia.[48] The fragment with an incised triangle *(fig. 4. 4)* represents a pattern occurring characteristically on the so-called Dřevohostice-type jugs,[49] which are the typical vessels of Corded Ware graves in Moravia.[50] The triangle motif with a striped line pattern inside is a frequently occurring decoration element placed on the bellies of jugs, however, in the Western territories of the Corded Ware complex it was created by using the cord-impression technique instead of incisions.[51] Similarly decorated jugs are known from the burials of Slaný from Bohemia, with associated radiocarbon dates.[52] The triangle motif with a striped line pattern (with or without white encrustation) became a widely employed decoration style at the beginning of the Early Bronze Age (Phase 1–2), occurring mainly on pedestalled bowls with decorated interiors[53] and on Bell Beaker style vessels.[54] Therefore, the reconstruction here depicts a pattern with encrustation, despite the lack of white inlay present in the grooves (*fig. 4. 4* below). The broader, globular belly fragment from Nagycenk resembles the vessel shapes occurring in the Somogyvár–Vinkovci culture,[55] some of which representing the clear influences deriving from Southeastern Europe.[56] However, these latter are generally without decoration, or only with scarce zigzag motifs on their bellies.[57] The style and decoration of the Nagycenk vessel therefore corresponds well with the ceramic traditions of the Somogyvár–Vinkovci/Bell Beaker circle in the Carpathian Basin during the second phase of the Early Bronze Age.

Similar vessels to a small, conical bowl (with complete profile fragment – *fig. 4. 3*) were widespread in the Early Bronze Age. They occur among the burial furniture and on the settlements of the Bell Beaker groups occupying the area around Budapest, representing local ceramic variants *(Begleitkeramik).*[58] They also appear in the distribution of the Makó–Kosihy–Čaka and the Somogyvár–Vinkovci culture complexes and the Moravian group of the Corded Ware population.[59] Cooking pots with curving necks *(fig. 4. 5, 6)* and a base fragment of a cup *(fig. 4. 7)*

[48] *Ondráček – Dvorák – Matějíčková 2005* Taf. 44. 4, 11, 15, Taf. 55. 35, Taf. 57. 6, 9, Taf. 60. 15; *Endrődi – Reményi 2016* fig. 100.

[49] *Buchwaldek 2002* Abb. 1. 1; *Peška 2013* fig. 82.

[50] Dřevohostice I. group 7 barrow 15: *Šebela 1999* Pl. 16. 3, 7, 10; Marefy IV, burial 6: *Šebela 1999* Pl. 57. 6; Prízaky: *Šebela 1999* Pl. 64. 3; Sivice I, 1. burial: *Šebela 1999* Pl. 96. 6; Tovačov I, burial 2: *Šebela 1999* Pl. 110. 4.

[51] *Šebela 1999* Pl. 32, 10, Pl. 36. 1.

[52] KlA-11798: 3854 ±3 9 BP, 2447–2209 cal BC (68.3%), 2460–2203 cal BC (95.4%). *Furholt 2003* Taf. 107. 1.

[53] *Kulcsár 2009* fig. 27. 4–5, 7–8, fig. 28. 2–3, fig. 29. 2, 6–7, fig. 30. 3–4, 6–10, fig. 58. 1, 3, fig. 59. 1–9, fig. 60. 2, 5–6, 9, fig. 61. 1.

[54] *Endrődi 1992* fig. 85. 5, 6.

[55] *Kulcsár 2009* 290–292, fig. 52. II/9–10.

[56] *Buchwaldek 2002; Kővári – Patay 2005* fig. 28. 2, fig. 29. 3; *Peška 2013* 129–131, fig. 82.

[57] *Kulcsár 2009* 98, fig. 20. II/1.

[58] *Endrődi 1992* fig. 19. 5, fig. 22. 7, fig. 45. 2, 4, fig. 62. 8; *Patay 2013* fig. 12. 6, fig. 21. 6; *Endrődi – Reményi 2016* fig. 91.

[59] *Kalicz 1984* Taf. XXIII. 11; *Šebela 1999* Pl. 3. 12, Pl. 5. 4, 8, 9, Pl. 15. 2, Pl. 20. 4, Pl. 45. 4, Pl. 196; *Aszt 2001* 217, Pl. I. 3; *Kulcsár 2009* 120–121, 307, fig. 25. VIII/1–5, fig. 56. VIII/3–6.

are generic Early Bronze Age pieces, only distinguished by their grog tempering from the rest of the ceramic assemblage documented both at the Nagycenk settlement and the cemetery.[60] Analogues of a cooking pot with thick, but horizontally cut rim *(fig. 4. 8)* are well known from the site east of Szombathely-Bogáca Stream, found alongside a Bell Beaker fragment.[61] A fragment of the so-called 'thickened rim with triangular cross-section' came to light north of pit no. 84, probably belonged to a large cooking ot storage pot *(fig. 4. 1)*. Similar elaboration of the rim is common in the Makó–Kosihy–Čaka culture complex,[62] and in the Moravian group of the Corded Ware.[63] It also occurs in the assemblages of the Bell Beaker groups nearby Budapest,[64] and in the Oggau- and Leithaprodersdorf assemblages in Western Transdanubia, which could be considered as representatives of late or post-Bell Beaker populations.[65]

The archaeological material from pit no. 107 is outstanding both in its quality and quantity compared to the rest of the settlement features *(fig. 5).* The clay fabric of these vessels were rich in sand, mica and/or small quartzite pebbles, while their exteriors were burnished originally (this in most cases had eroded away) and were fired dark grey. Fragments of jugs *(fig. 6. 7)* and their larger variants, the amphorae *(fig. 6. 4–6, 9–11; fig. 7. 1)* represented the consumption vessels. They were often decorated with a plastic rib either at the root of the neck or running along the shoulder;[66] a choice of decoration that also occurs on ceramics from Rusovce.[67] Furthermore the emphasis of the upper segment of the belly by an incised line or lines appears frequently on the vessels both from the Nagycenk occupation site *(fig. 6. 7, 11)* and the cemetery, and on fragments of jugs and amphorae known from sites in Austria.[68] The most complete amphora from pit no. 107 *(fig. 6. 11)* shows close similarities with the amphora documented in burial (no. 66) at Nagycenk-Lapos-rét.[69] Bowl fragments collected from pit no. 107 in most cases have inwards turning rims *(fig. 6. 1–3),* which occur only in a couple of cases in Gáta–Wieselburg assemblages.[70] The analogues of truncated-cone shaped bowls with inwards turning and profiled rims can also be found among the material of the Makó–Kosihy–Čaka culture complex, more precisely at its sites in Northwestern Transdanubia,[71] and among the assemblages of the Bell Beaker groups in Moravia.[72] The truncuted-cone shaped bowl with inwards turning rim is also a characteristic vessel type of the Leithaprodersdorf group.[73] The absence of this bowl type in Gáta–Wieselburg assemblages could be explained by the small amount of published archaeological material and,

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[60] From the assemblages of the cemetery of Nagycenk-Lapos-rét and the settlement site of Nagycenk-Kövesmező, altogether 54 ceramic fragments were selected and sampled to undergo petrographic analyses. The examinations were carried out in the Laboratory for Applied Sciences at the Hungarian National Museum by Attila Kreiter and Péter Skoda. We would like to express our thanks here for their contribution. The outcome of this research will be published in detail in a separate study.

[61] *Ilon 2004* 46–47, Tab. XXV. 3.

[62] Abda-Hármasok: *Figler 1996* Pl. I. 5; Táp-Borbapuszta: *Figler 1994* Abb. 5. 1–2; Üllő site 5: *Kővári – Patay 2005* fig. 27. 2, fig. 30. 8; *Kulcsár 2009* 152–154, fig. 34. XIII/3.

[63] *Šebela 1999* Pl. 5. 6, Pl. 7. 6, Pl. 10. 3, 4, Pl. 26. 3, 6, Pl. 34. 3, Pl. 35. 3, Pl. 37. 5, Pl. 70. 2, Pl. 105. 5; *Peška 2013* fig. 65. 15, fig. 87. 11.

[64] *Kalicz-Schreiber 1976* Abb. 15. 4; *Kulcsár 2009* 152.

[65] *Károlyi 1975* fig. 11b–c, fig. 12, fig. 14.

[66] *Gömöri – Melis – Kiss 2018* fig. 38. 4, 5, 7, 12, 13, 14, 16, 20, 21.

[67] *Mellnerová Šuteková et al. 2015* fig. 5. 5, 7; *Bartík et al. 2016* Tab. 1, 2, 3, 18.

[68] *Hicke 1987* 102, TA 1, TA 4, 103, THG 2, THG 3; *Leeb 1987* Abb. 3. A2, A3, B3, C1, C3, D3; *Gömöri – Melis – Kiss 2018* fig. 38. 8, 9, 10, 13, 17–24.

[69] *Gömöri – Melis – Kiss 2018* fig. 38. 16.

[70] A variant with a plastic rib decoration: *Leeb 1987* Abb. 4. E1; and a rim with applied knobs: *Neugebauer 1994* Abb. 30. 12; bowl with a handle: *Krenn-Leeb 2011* Abb. 19.

[71] Abda-Hármasok: *Figler 1996* Pl. II. 7; Táp-Borbapuszta: *Figler 1994* Abb. 6. 18.

[72] Česká I.-1/83 (Czech Republic): *Ondráček – Dvorák – Matějíčková 2005* Taf. 37. 2.

[73] *Hicke 1987* 99, L SCH 1, Inv. no. 23.185, 100, L SCH 2, Inv. no. 9266.

considering the chronological classification of these analogues, it is probable that style continued on from the previous period (Early Bronze Age 2) into the subsequent Gáta–Wieselburg culture.

Cooking pots and their variants were also represented in relatively large numbers in the fill of pit no. 107. Vessels similar to small jars with plastic knobs applied onto their necks and shoulders *(fig. 7. 3–4)* occur in the cemetery of Nagycenk-Lapos-rét, but in slightly better quality.[74] This particular type can be identified as variant 'J' according to the published Gáta–Wieselburg vessel typology.[75] A single analogous vessel to the large, biconical cooking pot *(fig. 8. 1)* is known from a Gáta–Wieselburg burial at Iván,[76] however, a further two similar pieces came to light from Rusovce with plastic knobs applied onto the shoulder.[77] The exterior of the cooking pots is often rusticated *(fig. 7. 5–8, fig. 8. 1);* a surface treatment that also occurs on small cooking pots and deep bowls documented in the Nagycenk-Lapos-rét cemetery,[78] and on vessels at the settlement of Rusovce.[79] A fragment of a wide rimmed, good quality cooking pot *(fig. 6. 8),* is almost identical to a piece discovered in burial no. 65 at Nagycenk-Lapos-rét.[80]

The material represented by the 'find concentrations' of nos. 97, 109, 111 and 114 is directly corresponding with the contents of pit no. 107 and the grave goods of Nagycenk- Lapos-rét. The assemblages recovered from the 'find concentrations' were poorly preserved, and lacked larger, diagnostic pieces. 'Find concentration' nos. 97 and 111 yielded fragments of deep bowls[81] with outcurving rims *(fig. 4. 10, fig. 8. 7).* The shoulder profile of a sherd identified from no. 97 is analogous to a bowl from burial no. 51 at Nagycenk-Lapos-rét,[82] while a more eroded piece from no. 111 is similar to a vessel documented in burial no. 78.[83] A biconical jug identified in 'find concentration' no. 109 *(fig. 8. 12)* is analogous to the jug decorated with ribs from burial no. 79 at Nagycenk-Lapos-rét.[84] The jug with short handles and with its centre of gravity close to the base can be correlated with variant 'C3' of the Gáta–Wieselburg ceramic typology.[85] The fragment of an amphora from 'find concentration' no. 114 *(fig. 8. 11)* could belong to a characteristic Gáta–Wieselburg type: an amphora with short or assymetrical handles, with an applied horizontal rib on the upper half of the belly.[86]

Less diagnostic sherds came to light from pits nos. 93, 95, 117 and 119, furthermore from posthole no. 94. The clay fabric of these pieces was rich in sand and small quartzite pebbles, similar to the material collected from pit no. 107. Fragments of small grey cups or jugs, rusticated body sherds of cooking pots and pieces of amphorae with unevenly smoothed exteriors were also identified. The outcurving rim fragment recorded from pit no. 119 *(fig. 8. 13)* is similar to the cup found in burial no. 74 at Nagycenk-Lapos-rét and a piece documented from one of the two burials at Iván.[87] Fragment of a round ceramic spoon was discovered nearby pit no. 95 *(fig. 4. 13)* which could be dated to the Copper Age given the occupation of the Lengyel culture present at the

[74] *Gömöri – Melis – Kiss 2018* fig. 39. 15, 18, 19.
[75] *Leeb 1987* Abb. 4. J1–J2.
[76] *Melis 2019* 151, fig. 9. 7.
[77] *Mellnerová Šuteková et al. 2015* fig. 3. 2; *Bartík et al. 2016* Tab. 2. 7.
[78] *Gömöri – Melis – Kiss 2018* fig. 39. 13, 14, 15, 23, 26.
[79] *Bartík et al. 2016* fig. 8. 1–4, Tab. 2. 1–3.
[80] *Gömöri – Melis – Kiss 2018* fig. 16. 3.
[81] *Leeb 1987* Abb. 4. G1–2.
[82] *Gömöri – Melis – Kiss 2018* fig. 5, Grave 51, 2.
[83] *Gömöri – Melis – Kiss 2018* fig. 23, Grave 78, 2/A.
[84] *Gömöri – Melis – Kiss 2018* fig. 24. 3.
[85] *Leeb 1987* Abb. 3. C3.
[86] *Leeb 1987* Abb. 3. D1–D3.
[87] *Melis 2019* 150–151, fig. 9. 5; *Gömöri – Melis – Kiss 2018* fig. 20, Grave 74, 2.

site. Ceramic spoons are well-known from both the Bell Beaker complex,[88] and from the Makó–Kosihy–Čaka culture from the Early Bronze Age – although the spoons associated with the latter tend to be more oval in shape. Round ceramic spoons can be found among the assemblages of the Kisapostag culture from Ménfőcsanak-Széles-földek,[89] and from the Únětice burials of Bernhardsthal (Austria),[90] which correspond chronologically with the Gáta–Wieselburg culture, therefore it is possible that the piece from Nagycenk can also be dated to the later period of the Early Bronze Age or to the early Middle Bronze Age.

The material recovered from 'find concentrations' situated between postholes (feature nos. 115, 116, and 113) was even more fragmented. Small vessel rims were documented from feature no. 113, amongst them a thickened, inwards turning rim of a bowl *(fig. 8. 9)*. Analogous vessels are known from Gáta–Wieselburg graves from Szakony-Kavicsbánya (burial no. 3) and from Ménfőcsanak (burial no. 10695).[91] Furthermore, a straight cut rim belonging to a truncated-cone shaped bowl *(fig. 8. 8)* was also documented from 'find concentration' no. 113, with examples among Bell Beaker assemblages[92] and the material of the Oggau–Wipfing–Ragelsdorf group.[93] The truncated-cone shaped neck and the thickened rim of a cooking pot *(fig. 8. 14)* appears to be similar to the ovoid cooking pots of the Leithaprodersdorf group.[94] Comparable pieces occur on settlement sites during the preceding Oggau–Ragelsdorf–Wipfing group, with thickened rims. Jars with narrowing necks from the Gáta–Wieselburg culture have two published analogues from earlier excavations.[95]

In sum, while the ceramic material documented from pits can be directly associated with the Gáta–Wieselburg culture, and in one instance (pit no. 84), with the preceding Makó/Somogyvár–Vinkovci/Bell Beaker horizon, out of the postholes and the 'find concentrations' only the feature nos. 109 and 111 can unequivocally be linked with the period of the Gáta–Wieselburg culture. Although the rest of the postholes and 'find concentrations' also contained ceramics with the characteristic Gáta–Wieselburg clay fabrics – rich in mica, sand or small quartzite pebbles – the formal analogues of quite a few vessels were already being used by the second phase of the Early Bronze Age.

Stone tools

Altogether four pieces of chipped stone tools or their fragments were documented from Bronze Age features. A piece of surface debitage found in 'find concentration' no. 97, two core flakes and a microblade fragment from pit no. 107. The raw material used was in all cases of regional origin; a radiolarite variant from the Transdanubian Hill region. The presence of flakes and debitage suggests that the manufacture of stone tools took place at the site. The microblade fragments came to light from one of the richest burials of the cemetery of Nagycenk-Lapos-rét, from the grave of an adult male (no. 55), were also made of Szentgál radioralite.[96] So far a single knapped

[88] Szigetszentmiklós-Üdülősor: *Endrődi 1992* fig. 47. 8a–b; Bořitov VII, 1/76 (Czech Republic): *Ondráček – Dvorák – Matějíčková 2005* Taf. 6. 3–17.

[89] *Figler 1996* Pl. III. 10; *Melis in prep.*

[90] *Neugebauer 1994* Abb. 58. 2 (22) 8.

[91] *Melis 2015* Tab. IV. 5; *Melis 2019* 149–150, Abb. 9. 1.

[92] Békásmegyer: *Kalicz-Schreiber 1984* Taf. XXXII. 4; Budakalász: *Czene 2017* fig. 9. 5, 6.

[93] *Neugebauer 1994* Abb. 19. 1, 2; Wildendürnbach-Pottenhofen (Austria): *Pittioni 1954* Abb. 185. 3.

[94] *Hicke 1987* 101 L T 1.

[95] Mosonszentjános (Jánossomorja): *Bóna 1975* Abb. 24. 5; Arbersthal (Göttlesbrunn-Arbesthal, Austria)*: Pittioni 1954* Abb. 224. 4.

[96] *Gömöri – Melis – Kiss 2018* 62.

arrowhead variant characteristic to the Bell Beaker complex is known from Szombathely-Reiszig forest from a deposit that could tentatively be linked to the Gáta–Wieselburg culture.[97]

Detailed studies of chipped stone tools from Early and Middle Bronze Age settlement sites are largely limited to the territories of Central Hungary, where the most utilised raw material was the Buda hornstone.[98] In Transdanubia the dominant raw material type in the Middle Bronze Age was radiolarite and flint from Sümeg as the stone tools from Zalaegerszeg-Ságod-Bekeháza and Kaposvár-Toponár testify.[99]

Settlement layout and building structures at Nagycenk-Kövesmező

Features dated to the Middle Bronze Age concentrated in the central segments of the investigated area. Pit no. 84 dating to the second phase of the Early Bronze Age was an exception as it was found 30 m to the southeast (aligned with the Árpádian-period pits, nos. 89A–B) farther away from the rest of the settlement features *(fig. 3).* Pits associated with the Gáta–Wieselburg culture concentrated on an area of 650 m², around 150 metres away from the burials of Nagycenk-Laposrét. In the northwestern segment of the trench in a 150 m strip evidence for building structures constructed on the surface were documented, represented by 'find concentrations' and postholes. Therefore, it is feasible to assume that functions of habitation and the containment of domestic refuse was kept separate at the site.

The postholes in most cases situated on the eastern sector of the 22–24 m wide strip, only posthole nos. 109 and 111 were located about 10 metres away from the primary cluster. As the 44 postholes concentrated towards the edge of excavation in an approx. 6 m radius, a range of different building structures could be considered for reconstruction. Based on the observations made during the excavation and similar building structures described in the section below, we would like to present the possible reconstruction of a Bronze Age building found at Nagycenk.

Early and Middle Bronze Age building structures in Transdanubia and the nearby regions

The largest number and the broadest variety of buildings dating to the Hungarian Early Bronze Age is associated with the Bell Beaker complex (2500/2400–2200/2100 BC). The structures linked to the Budapest group of the Bell Beaker population were typically 8–16 m long, and 4–6 m wide, with sides curving to form a characteristic boat shape. These buildings were constructed onto the surface, strengthened by a post-structure and oriented to the southeast *(fig. 9. 1).*[100] Similar boat-shaped domestic buildings occur at the settlement sites of the Oggau–Wipfing–Ragelsdorf group in county Vas in Hungary, and in Lower Austria.[101] Apart from the boat-shaped buildings, other types of building constructions are also known from the Bell Beaker distribution. At Albertfalva, two building structures of a rectangular layout came to light, similar in their sizes to longhouses, furthermore buildings supported by post-structures with square and/or oval layout were also documented.[102] A building structure with a square plan recorded at the site east of Szombathely-Bogáca Stream can be associated with the Bell Beaker culture as well.[103] At the site of Vát-Rátka

[97] *Horváth – Wild 2017* 105, fig. 6. 2.
[98] *Cs. Balogh 1992; Horváth 2004.*
[99] Reports by Tünde Horváth: *Kvassay – Kiss – Bondár 2004* 142; *Kiss – Somogyi 2004* 108–112.
[100] *Endrődi – Reményi 2016* 71–73, fig. 66, fig. 69, fig. 72.
[101] Bucsu: *Ilon 2011* 97–98, figs. 47–48; Vát: *Reményi – Dobozi 2012* fig. 2; Walpersdorf (Austria): *Kern – Pentz– Schmitsberger 2019* 721–725, Abb. 6, Taf. 1–3.
[102] *Endrődi – Reményi 2016* fig. 66.
[103] *Ilon 2004* 46, fig. 35; *Ilon 2011* 96–97.

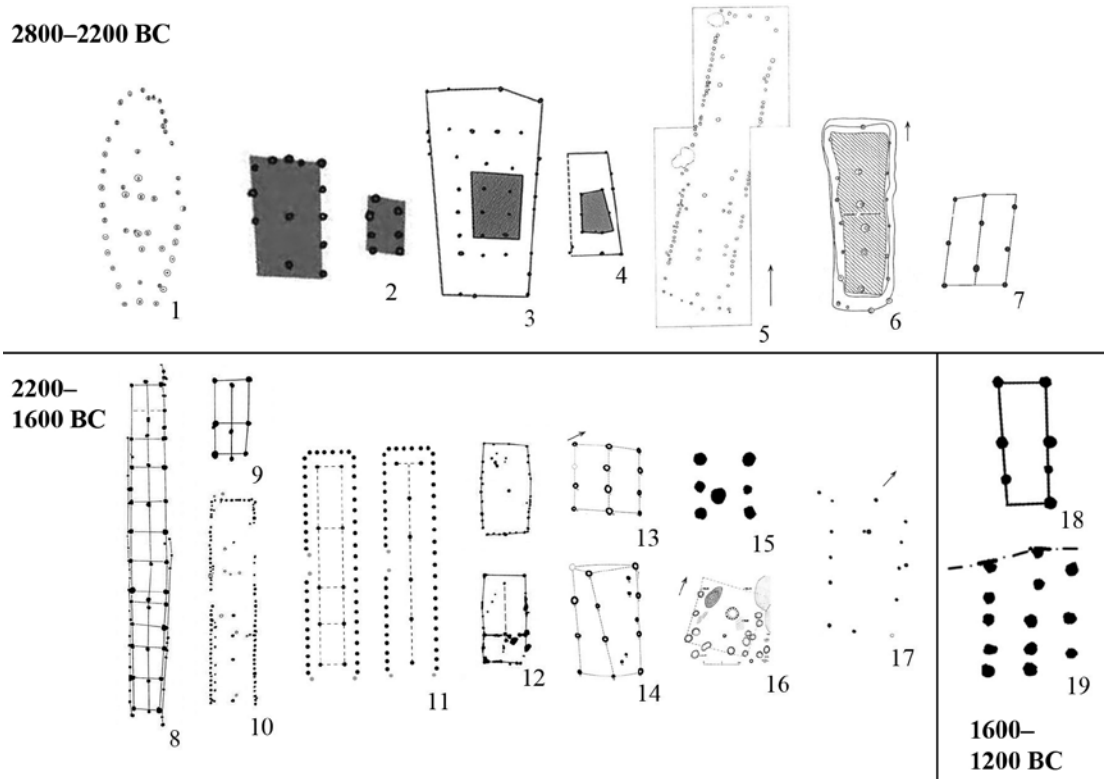

Fig. 9. Early and Middle Bronze Age buildings with post-structures from Central Europe: 1. Szigetszentmiklós-Üdülősor (Bell Beaker complex, *Endrődi 1992* fig. 10); 2. Vát-Rátka-patak keleti oldala (Bell Beaker complex, *Reményi – Dobozi 2009* fig. 2); 3. Wennungen (Corded Ware complex, *Friedrich 2019* Abb. 3. 13); 4. Gimritz (Corded Ware complex, *Friedrich 2019* Abb. 3. 6); 5. Csongrád-Vidresziget (Makó–Kosihy–Čaka complex, *Kalicz 1984* 95, Taf. XXIII. 1); 6. Abda-Hármasok (Makó–Kosihy–Čaka complex, *Figler 1996* fig. 1); 7. Wien-Oberlaa (Makó–Kosihy–Čaka complex, *Kern – Pentz – Schmitsberger 2019* 718–720, Abb. 2); 8. Eching-»BMW Lager« (Straubing culture, *Schefzik 2010* Abb. 9. 1); 9. Eching- »Kleiststraße« (Straubing culture, *Schefzik 2010* Abb. 9. 3); 10. Brežno (Únětice culture, *Schefzik 2010* Abb. 9. 4); 11. The two sub-variants of the Zwenkau type buildings (Únětice culture, *Schunke – Stäuble 2019* Abb. 5); 12. Aschheim (Straubing culture, *Schefzik 2010* Abb. 9. 8–9); 13. Holubice (Únětice culture, *Stuchlík 2000* fig. 4); 14. Velešovice (Únětice culture, *Stuchlík 2000* fig. 7); 15. Győr-Ménfőcsanak-Széles-földek (Únětice/Veteřov transitional phase, *Melis 2014* fig. 3. 1); 16. Nitriansky Hrádok (Mad'arovce culture, *Točík 1978–1981* Plan 46. 1); 17. Jelšovce-Nitriansky kraj (Únětice culture, *Bátora 2019* fig. 30); 18. Ordacsehi-Bugaszeg (Tumulus culture, *Kiss 2011* fig. 3 right); 19. Kóny-Barbacsi-tó (Tumulus culture, *Egry 2002* Map 3)

Stream shore, two 7×10 m rectangular buildings were found along with a number of smaller post structures with a square floor plan – both linked to the Oggau–Wipfing–Ragelsdorf group *(fig. 9. 2)*. Additionally, a sunken featured building was also documented here, which is quite unique in the territory of the Eastern Bell Beaker complex.[104]

More recently, from the distribution of the Corded Ware (2800/2700–2300/2200 BC) in Central Germany, numerous building structures came to light, among them a so far unknown type identified with a trapezoidal layout. The buildings were around 10–20 m long, oriented to the NNW–SSE, and could reach the size of 200 m². Inside the external wall structure was supplemented by a grid network of smaller posts, supporting an approx. 35 m² second floor above *(fig. 9. 3–4)*.[105]

[104] *Reményi – Dobozi 2012* 123–124.
[105] *Friedrich 2019.*

Sunken featured buildings were much more common in the distribution of the Makó–Kosihy–Čaka complex (2600/2500–2300/2200 BC) in Transdanubia, although their interpretation in terms of function is less clear.[106] An example of these came to light from Abda-Hármasok, where a large (15×5 m) sunken featured, rectangular building was excavated, oriented N–S, with three internal post structures *(fig. 9. 6)*.[107] At the same time evidence for buildings constructed on the surface are well-known, the largest of such buildings (37×7 m) was rectangular in plan excavated at Csongrád-Vidre-sziget *(fig. 9. 5)*.[108] Smaller, 4×5–6 m post-structured buildings were documented at Wien-Oberlaa (Austria) as well *(fig. 9. 7)*.[109] Furthermore, a couple of preliminary archaeological reports mention post-structured buildings from Transdanubia, associated with the Makó–Kosihy–Čaka complex.[110]

The number of building structures published from the distribution of the Somogyvár–Vinkovci complex (2500/2400–2200/2100 BC) is much lower, and the construction of these structures indicate sunken featured buildings.[111] At the site of Szombathely-Liget Hotel sunken featured buildings supported by post structures were unearthed dating to the second phase of the Early Bronze Age.[112] The situation is similar within the distribution of the Kisapostag culture (transition from the Early to the Middle Bronze Age: the Earliest Transdanubian Encrusted Pottery culture: 2200/2100–1900/1800 BC) and the Transdanubian Encrusted Pottery culture (1900/1800–1500/1450 BC), the number of currently available published building structures is very limited. In some instances, the intact surfaces situated in between elongated domestic refuse pits could indicate the presence of buildings constructed on beam footings.[113] Evidence for plastered floors was documented at Süttő-Nagysánctető and Mosonszentmiklós-Akasztódomb.[114] Preliminary reports mention a few buildings with post-structures from northwest Transdanubia associated with the Encrusted Pottery culture:[115] from the site of Veszprém-Kádárta a building of a size of 8.4×3.4 m was recorded,[116] from Dör a structure of 7×10 m was documented,[117] while from Bakonytamási only partial building was found.[118] Sunken featured buildings with uneven layout identified by Late Kisapostag and Encrusted Pottery culture sherds were most likely associated not with domestic habitation but with agriculture, animal husbandry or craft production.[119]

From the sites of Gattendorf (Gáta, Lajtakáta, Austria) and Schwarzenbach in Austria building structures linked to the Gáta–Wieselburg culture (2200/2100–1600/1500 BC) have been published. At these sites the narrow foundation trenches of buildings could be documented which imply the existence of buildings of 17.5×7.5 m constructed onto beam footings. Since there was no evidence for daub, the structures can be reconstructed as log-buildings.[120] In contrast, in 1980

[106] Nyergesújfalu-Józsefpuszta, Budakeszi-Szőlőskert, Kánya: *Kulcsár 2009* 63; Schwechat (Austria): *Kern – Pentz – Schmitsberger 2019* 718.
[107] *Figler 1996* fig. 1.
[108] *Kalicz 1984* 95, Taf. XXIII. 1.
[109] *Kern – Pentz – Schmitsberger 2019* 718–720, Abb. 2.
[110] Tatabánya-Dózsakert: *Cseh – Vékony 2002* 253–254; *Kulcsár 2009* 63; Mosonszentmiklós-Gyepföldek: *Aszt 2001* 214–215, Map 1; *Kulcsár 2009* 63.
[111] Keszthely, Csepreg: *Károlyi 1975* fig. 9; Tamási, Kánya, Pécs: *Kulcsár 2009* 263–268, fig. 45.
[112] *Ilon 2004* 45, fig. 33, Tab. XXIII. 4–5.
[113] Kaposvár-Toponár, Road no. 61/site 1: *Kiss – Somogyi 2004* fig. 2; Győr-Ménfőcsanak, Szeles-dűlő: *Figler 1996* 11.
[114] *Kiss 2012a* 210.
[115] *Bándi 1967; Honti – Kiss 1996; Vadász 2001; Kiss 2012a* 210–211.
[116] *Ilon 2012; Kiss 2012a* 210.
[117] *Egry – Szőnyi – Tomka 1997.*
[118] *Ilon 1995* 74.
[119] *Kiss 2012a* 210–211, fig. 60, fig. 61.
[120] *Krenn-Leeb 2011* 15–16.

at the site of Szombathely-Romkert, a long, rectangular building with wattle-and-daub walls was unearthed.[121] The archaeological report describe sunken featured buildings from the site of Szakony-Kavicsbánya.[122] Although neither the previously described Gáta–Wieselburg buildings nor their material have been published, it can be assumed that both wattle-and-daub structures and log-houses existed simultaneously.

From the distribution of the Unterwölbling (2200/2100–1700/1650 BC) and Únětice (2100/2000–1700/1600 BC) cultures in Austria, there are published examples for longhouses with post structures and/or with foundation trenches, which are similar in their construction to the buildings known from the territories of Moravia and Germany.[123] The so-called Březno-type structure for example was widespread in the Traisen and Morava valleys *(fig. 9. 10)*. These rectangular buildings were generally 20–30 m long, and 7–8 m wide, oriented N–S. Their external walls were constructed of larger posts, supported by a row of smaller stakes on both sides.[124] Long buildings with foundation trenches also occur in Central Germany.[125] However, in this region the so-called Zwenkau-type buildings were more characteristic: these were 20–57 m long and 5.5–7 m wide with one end of the house finishing in a rounded apsis. The houses could have had two or even three aisles with two weight bearing posts to support the hipped roof on the western side *(fig. 9. 11)*.[126] In the territory of southern Germany the so-called Eching/Öberau-type buildings were common during the Central European Early Bronze Age (2100/2000–1600/1500 BC). These could be as long as 75 metres with a double row of postholes supporting the external walls *(fig. 9. 8)*.[127] Another building variant characteristic in the Southern German regions was the so-called Zuchering-type house: a smaller building (15–20 m in length), with foundation trenches and curved external walls *(fig. 9. 12)*. Aside of these, numerous other building variants co-existed at the time.[128] Apart from longhouses, smaller buildings with post-structures also occur on settlements dated to the Early Bronze Age in Germany. The so-called Poing-type building for instance with its length of 10 metres and altogether nine posts arranged into three rows *(fig. 9. 9)* could be considered as the simplified version of the Eching/Öberau-type buildings.[129] Among the long building constructions (12.4–16 m) with post structures there are ones with rounded apsides and ones with curved external walls were in use simultaneously around 2000–1300 BC in the territory of Germany.[130]

In contrast to the examples from Moravia and Germany, smaller buildings (10–15 m long, 6–8 m wide) with post-structures and wattle-and-daub walls were documented from the region of Slovakia, associated with the Únětice culture (2000/1900–1800/1700 BC) *(fig. 9. 17)*.[131] In addition to Únětice culture's longhouses with multiple aisles, evidence for the existence of small huts (4–8 m long, 3.5–5 m wide) was documented from Moravia *(fig. 9. 13–14)*.[132]

From Győr-Ménfőcsanak a small-sized, almost square building (4×4 m) was excavated consisting of seven postholes which could have supported a pyramid roof *(fig. 9. 15)*. The Únětice type cup and loaf-of-bread idol fragments discovered in the fill of the postholes here date the

[121] Remains unpublished, the site mentioned by: *Ilon 2004* 47; *Károlyi 2004* 179, fig. 135; *Nagy 2013* 80.
[122] *Nováki 1965c; Ilon 1996* 27.
[123] *Lauermann 2003* 472–499.
[124] *Neugebauer 1994* Abb. 57; *Schefzik 2010* 339–340, Abb. 7.
[125] *Schefzik 2010* Abb. 2, Abb.7.
[126] *Schunke – Stäuble 2019.*
[127] *Schefzik 2010* 334–335, Abb. 1. A, Abb. 2; *Schefzik 2019* 686–689, Abb. 9, Abb. 10, Abb. 11.
[128] *Schefzik 2010* Abb. 2, Abb. 9; *Schefzik 2019* 689–694, Abb. 13, Abb. 17, Abb. 20.
[129] *Schefzik 2010* 335, Abb. 6, Abb. 9. 3.
[130] *Schefzik 2010* 336, Abb. 3.
[131] *Bátora 2019* 842–844, fig. 31, fig. 34.
[132] *Stuchlík 2000* 249, figs. 5–7.

building to the Late Únětice – Early Věteřov period.[133] The closest analogue of this structure is known from the site of Nitriansky Hrádok/Kisvárad in Slovakia, associated with the Mad'arovce culture (1750/1700–1600/1500 BC) *(fig. 9. 16)*.[134] Similarly, smaller buildings (8 m long, 3–7 m wide) with two or three rows of posts are known from the distribution of the subsequent Tumulus culture in Transdanubia towards the end of the Middle Bronze Age (1600/1500–1300/1200 BC) *(fig. 9. 18, 19)*.[135] Given the daub-rich debris of the building excavated at Hegyfalu, the wattle-and-daub technique could have continued to be used until the beginning of the Late Bronze Age in the region.[136]

A possible reconstruction of the buildings discovered at Nagycenk-Kövesmező

During the archaeological investigation of the Nagycenk-Kövesmező site in 2005, altogether eight posthole clusters were identified (feature nos. 111, 109, 113, 108, 115, 116, 103, 102). Out of the four postholes arranged in a right angle and identified as to have belonged to the same feature no. 111, posthole nos. 111/2 and 111/3 were aligned according to a NE–SW axis, and were located only 5 metres away from the postholes discovered underneath the 'find concentration' nos. 109/1 and 109. There were two clusters of postholes (feature nos. 109 and 111) which lay farther to the north, seemingly separate from the rest of the postholes, and could have belonged to a single building structure. The eastern side of this structure did not survive, but despite of this a building of a size of 12×5.3 m could be assumed supported by seven posts (their postholes found *in situ*) *(fig. 10)*.

In a 100 m long and 20 m wide strip along the eastern edge of the excavation a concentration of altogether 44 postholes was observed, among which 13 belonged to feature no. 113. Around posthole no. 113G even the Bronze Age walking surface could be observed. Postholes 113A, 113H, 113L could represent the remains of the building's western, while postholes 113C, 113E, 113I the eastern external walls. The central axis of the house consisted of postholes 113J, 113F, 113D and possibly 113B. Feature no. 113G could be interpreted as the supporting post for 113I, similarly to feature 113K associated with 113J. Whether posthole 113M belonged to the building is unclear. Based on these, the building structure could be reconstructed as a 16.5 m long and 4.5–5.7 m wide construction consisting of at least 12 postholes arranged in three rows, oriented in a NW–SE direction *(fig. 10)*.

Postholes 108A, 108B and 108C were arranged in a line oriented NW–SW. 4 m west of posthole 108A lies posthole 108F, while 2 metres from 108B in each direction postholes 108D and 108E were located in a triangular arrangement. It is possible that along with posthole 113M to the northeast these postholes were part of a trapezoidal structure (7×9 m) with a pyramid roof *(fig. 10)*.

Right next to and beneath 'find concentration' no. 115 the postholes of 115B, 115C and 115D came to light forming a triangle of a size 2.5×0.7 m. Nearby 'find concentration' no. 116. the postholes of 116B, 116C and 116D were aligned in a NW–SE direction. Postholes of 116B and 115D were of similar depths (15–20 cm) and arranged parallel with postholes 116C and 115C oriented NE–SW. It is feasible to assume that postholes 115 and 116 were part of the same building, however given their location close to the edge of excavation, multiple possible reconstructions can be considered. One of these might be that the postholes were part of a 6 m long and 6 m wide southwestern end of a rectangular building oriented to the SW–NE *(fig. 10)*.

[133] *Melis 2014* 57–59, fig. 3.
[134] *Točik 1978–1981* 70–73, Plan 25. 2, Plan 38. 1, Plan 46. 1, Plan 47.
[135] Kóny-Barbacsi-tó: *Egry 2002* 9–10, no. 4, Map 3; Ordacsehi-Bugaszeg: *Kiss 2011* 101–102, fig. 2. 2, fig. 3 right.
[136] *Károlyi 1984* 133–143.

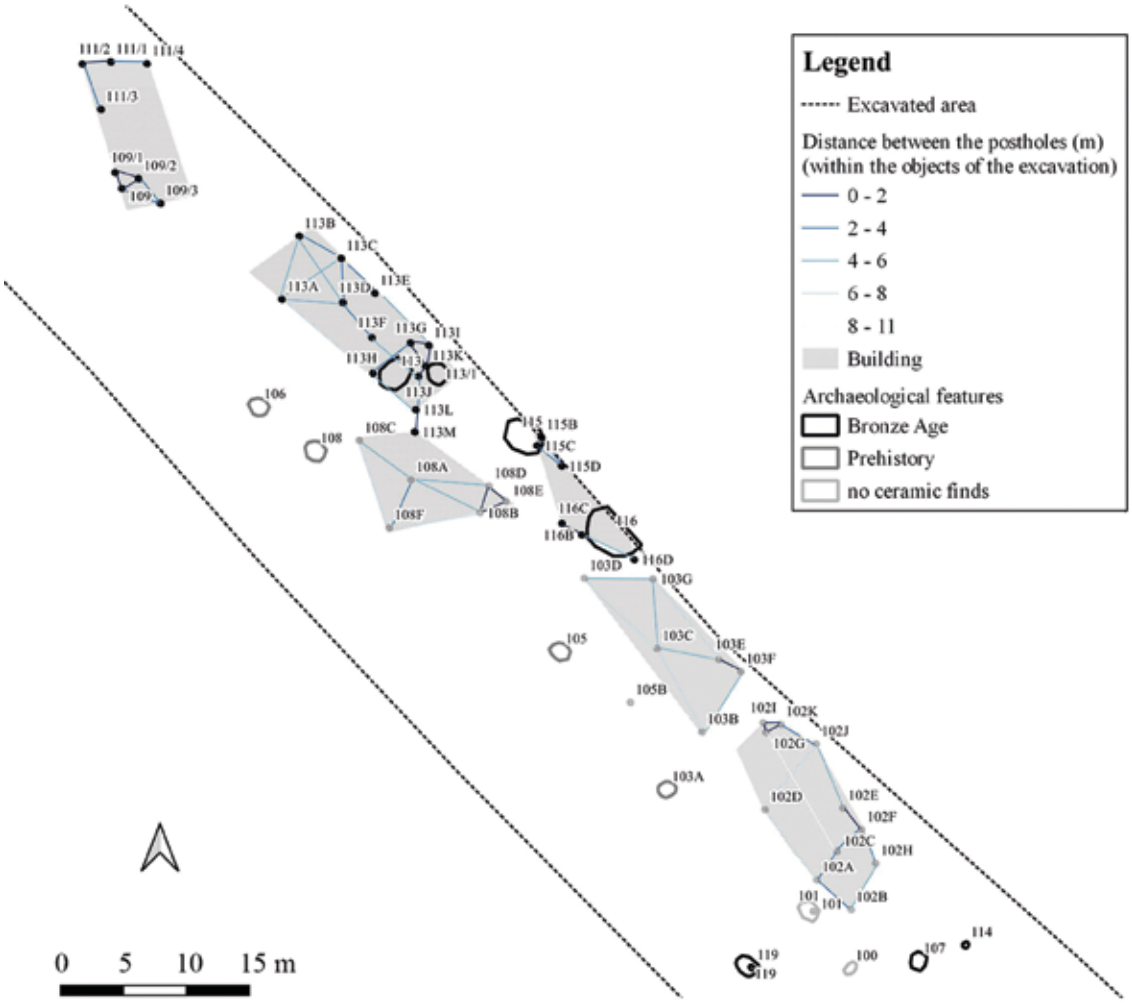

Fig. 10. A possible reconstruction of the post-structures at Nagycenk-Kövesmező

Postholes 103B, 103C, 103D, 103E, 103F and 103G were located on a trapezoidal area of 15×5 m, in between feature nos. 116 and 102. The postholes – with one exception – situated relatively far from each other and formed uneven rows running in a NW–SE direction *(fig. 10).*

The postholes of 102A, 102F, 102J and 102D associated with feature no. 102 were arranged in a more or less rectangular layout, with posthole 102E on the eastern, and 102C on the southern side. To the southeastern side of the rectangular construction joined postholes 102B and 102H forming a trapezoidal layout. Northeast of these and 3 m to the northwest from posthole 102J there was a cluster of postholes consisting of 102I, 102G and 102K. The postholes associated with feature 102 form a 15 m long and 7 m wide layout structure with a square end on the southeast and with a rounded apsis end on the northwest *(fig. 10).*

In sum, on average buildings of 11–16 m in length and 5 m in width could be reconstructed, built directly on the Bronze Age surface, supported by a post structure and a row of internal posts bearing the weight of a gable roof. Fragments of daub discovered among the fill of the postholes suggest wattle-and-daub walls. Similar buildings are known from the distributions of the Bell Beaker complex's Budapest and Oggau–Wipfing–Ragelsdorf groups.[137] In the Únětice

[137] *Reményi – Dobozi 2012; Endrődi – Reményi 2016* fig. 66.

complex building structures with two aisles and length less than 20 m represent the medium-sized constructions in the territory of Germany, while buildings of similar dimensions could be considered average in the region of Slovakia.[138] Examples for buildings with a pyramid hipped roof – as it is assumed feature no. 108 might have been – are known from Ménfőcsanak (Hungary) and from Nitriansky Hrádok/Kisvárad (Slovakia).[139] In the case of feature no. 102, a building structure could be reconstructed with one, apsis end, however the exact size and layout of this construction remains unclear.

The relative and absolute chronological classification of the Nagycenk-Kövesmező settlement

The material of pit no. 84 contained ceramics with the characteristics of the Bell Beaker, Somogyvár–Vinkovci and Makó–Kosihy–Čaka complexes, dating to the second phase of the Early Bronze Age. Given the relative proximity of the Bell Beaker culture's Leitha group,[140] and the increasing dominance of local communities during the late Bell Beaker period,[141] the earlier, Bronze Age component of the Nagycenk-Kövesmező settlement can be dated to the late phase of the Bell Beaker culture. Radiocarbon dates from Hungary indicate that sites linked closely with the Bell Beaker complex were established around 2550/2500 cal BC, could have remained in use until around 1950/1900 cal BC in a gradually shifting cultural environment.[142] The most recent radiocarbon dates classify the Makó–Kosihy–Čaka complex's early phase to ca. 2550–2300 BC, while the late phase to ca. 2300–2150 BC.[143] Most recent radiocarbon dates yielded by sites associated with the Somogyvár–Vinkovci complex in Hungary place the span of the culture between 2500/2400 and 2300/2200 BC.[144] The three radiocarbon dates derived from analogous Corded Ware sites from the territories of Moravia and Bohemia range between 2450 and 2200 cal BC.[145] Based on this data, the most probable absolute dating for pit no. 84 can be assumed to fall between 2400/2300 and 2200/2100 cal BC.

The ceramic material documented from the rest of the pits (located more than 30 metres north of pit no. 84) can be identified as the assemblages of the Gáta–Wieselburg culture. The existence of the Gáta–Wieselburg complex spans from the end of the Hungarian Early Bronze Age throughout the entire period of the Middle Bronze Age (which is also parallel with the period of the Central European Early Bronze). In the region of Transdanubia Gáta–Wieselburg communities were contemporaneous with the sites of the Kisapostag (Earliest Encrusted Pottery) and the Encrusted Pottery culture.[146] In the neighbouring territories of Eastern Austria, the complexes of the Unterwölbling and Únětice cultures dominated at this time.[147] The region of southwestern Slovakia was occupied by the communities of the Nitra, Únětice and Věteřov

[138] *Schefzik 2010* 336, Abb. 3; *Bátora 2019* 842–844, fig. 31, fig. 34.
[139] *Točik 1978–1981* 73, Plan 6, 7, 23–24; *Melis 2014* 57–59, fig. 3.
[140] *Neugebauer 1994* 35–48.
[141] *Károlyi 1975* 172; *Károlyi 2004* 176–178; *Reményi – Dobozi 2012.*
[142] *Kulcsár 2011* fig. 5; *Patay 2013* fig. 19; *P. Fischl et al. 2015* 503, 506, fig. 6a–b; *Endrődi – Reményi 2016* 221–227; *Czene 2017* fig. 18; *Kiss et al. 2019* 177–180, fig. 4.
[143] C.f. *Kővári – Patay 2005; Kulcsár – Szeverényi 2013* fig. 3; *Dani et al. 2019* Table 1; *Szabó 2017a* fig. 3, Table 1; *Staniuk 2021.*
[144] E.g. *Kulcsár 2013* Table 1; *Kulcsár – Szeverényi 2013; Gál 2017* Appendix 1; *Szabó 2017a; Szabó 2017b.*
[145] Slaný (Czech Republic): KlA-11798: 3854 ± 39 BP, 2447–2209 cal BC (68.3%), 2460–2203 cal BC (95.4%) (*Furholt 2003* Taf. 107. 1); Hulín-Pravčice (Czech Republic): UGAMS-9500: 3880 ± 20 BP 2453–2301 cal BC (68.3%), 2461–2291 cal BC (95.4%) Oloumuc-Řepčín (Czech Republic): Poz-14919: 3890 ± 35 BP, 2458–2310 cal BC (68.3%), 2469–2211 cal BC (95.4%) (*Peška 2013* fig. 65, fig. 87).
[146] *Kiss 2012b* fig. 3; *P. Fischl et al. 2015* fig. 1b.
[147] *Neugebauer 1994* 69–118.

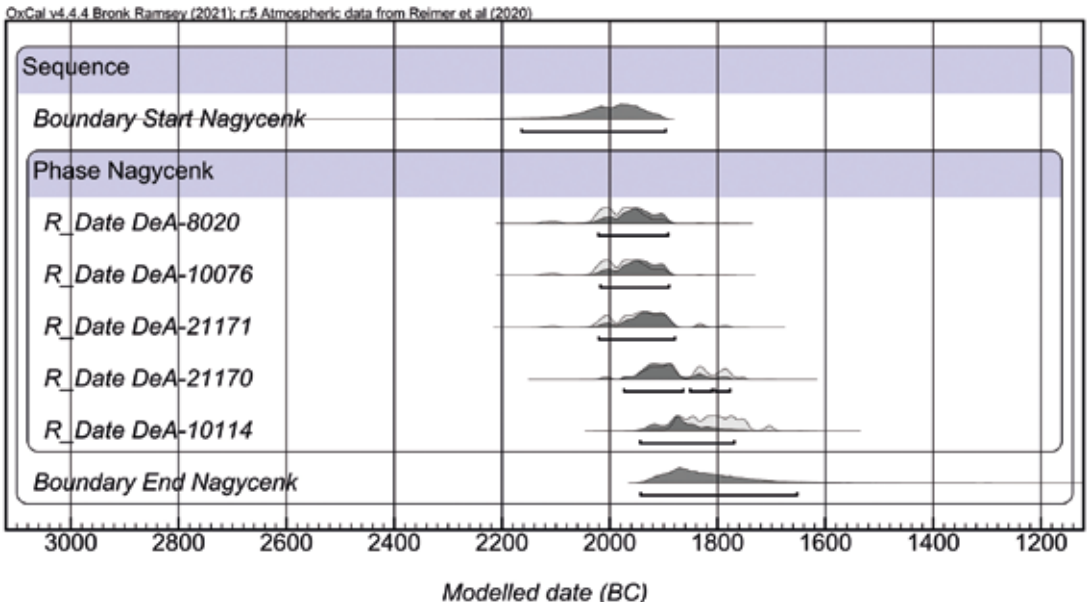

Fig. 11. Bayesian modelling *(Reimer et al. 2020; Bronk Ramsey 2009)* of the ^{14}C dates from Nagycenk-Lapos-rét and Nagycenk-Kövesmező (see *Table 2*)

cultures in the period between 2200 and 1600 BC,[148] showing signs of intermingling with Gáta–Wieselburg materials.[149]

The available radiocarbon data directly associated with the Gáta–Wieselburg culture is worth mentioning here. Altogether ten radiocarbon dates have been published deriving from Gáta–Wieselburg burials in Hungary: four from Zsennye,[150] three from Nagycenk,[151] two from Ménfőcsanak[152] and one from Szakony.[153] The published and calibrated raw dates scatter with and plot between 2110 and 1560 cal BC. The combined value of two radiocarbon dates yielded by a secondary burial from Neusiedl am See (Nezsider) in Austria fall a little later, to 1690–1520 cal BC.[154] By the combination and the visual wiggle-matching of the dates produced by samples from an inhumation burial and a consecutive burial discovered at Weiden am See (Védeny, Austria) place the first burial to 1900 cal BC, and the second to around 1860 cal BC.[155] The radiocarbon dates yielded by burial nos 55 and 51 from Nagycenk-Lapos-rét could therefore be considered as one of the earliest representatives associated with the Gáta–Wieselburg complex *(Table 2)*.[156] The individual data derived from the recently analysed burial no. 1 from Nagycenk ranges too broadly (2034–1782 cal BC [95.4%]), but it is more likely to fall to the earlier period, while the data from burial no. 61 (1894–1697 cal BC [95.4%]) suggests a later dating. A sample taken from animal bone from pit no. 107 further indicates an earlier date (2012–1768 cal BC [95.4%]). If these five dates are considered and modelled within a single typological phase, then the beginning of this period falls to around 2164–1897 (95.4%) cal BC, and ends around 1943–1653 (95.4%) cal BC *(fig. 11)*.

[148] *Bátora 2018* fig. 65.
[149] *Leeb 1987* Abb. 1; *Benkovsky-Pivovarová – Chropovský 2015* 126–144, Abb. 90.
[150] *Nagy 2013* 110–114.
[151] *Gömöri – Melis –Kiss 2018* 70–71, fig. 41.
[152] *Melis 2015* fig. 2; *Melis 2017* Table 1.
[153] *Melis 2019* 151.
[154] *Stadler 2002*.
[155] *Aspöck – Banerjea 2016* fig. 10.
[156] *Gömöri – Melis –Kiss 2018* 70–71, fig. 41.

Site	Feature no.	Feature type	Sample type	Laboratory no.	BP date	Cal BC (95.4%)	Cal BC (68.3%)	Reference
Nagycenk-Lapos-rét	1	inhumation burial	human bone	DeA-21171	3589 ± 33	2034–1782	2011–1895	unpubl.
Nagycenk-Lapos-rét	51	inhumation burial	human bone	DeA-10076	3612 ± 27	2111–1889	2023–1934	*Gömöri – Melis – Kiss 2018*
Nagycenk-Lapos-rét	55	inhumation burial	human bone	DeA-8020	3617 ± 25	2112–1893	2025–1940	*Gömöri – Melis – Kiss 2018*
Nagycenk-Lapos-rét	61	inhumation burial	human bone	DeA-10114	3489 ± 31	1894–1697	1879–1751	*Gömöri – Melis – Kiss 2018*
Nagycenk-Kövesmező	107	pit	animal bone	DeA-21170	3545 ± 32	2012–1768	1940–1779	unpubl.

Table 2. ^{14}C dates from Nagycenk-Lapos-rét and Nagycenk-Kövesmező

Larger, characteristically Gáta–Wieselburg ceramic fragments discovered in posthole nos 109 and 111 can be associated with the later phase of the Nagycenk-Kövesmező settlement. In contrast, small sherds coming from the rest of the postholes and 'find concentrations' had less diagnostic potential, although forms associated with the preceding period, the second phase of the Early Bronze Age also occur. The majority of these pieces had a clay fabric rich in mica, sand and small quartzite pebbles – a characteristic trait of Gáta–Wieselburg vessels. The location of postholes and the spatial separation of pit no. 84 from the rest of the settlement features suggests that the building structures constructed on the prehistoric surface represent the Middle Bronze Age Gáta–Wieselburg culture, however an earlier (Early Bronze Age 2) dating of these structures cannot be excluded either. Furthermore, Early and Middle Bronze Age surface ceramics were collected from an area of 40 ha surrounding the settlement of Nagycenk-Kövesmező, on the northern shores of the Arany Stream *(fig. 12. 1, 2).* As a result, the boundaries of the settlement site had been revised as the occupation seems to have extended farther to the east than previously thought. This indicated the presence of a less intensive but more sprawling occupation of the area. The dating of the settlement material implies that the site was established during the second phase of the Early Bronze Age (2400/2300 cal BC) and continued to be utilised until the second or third phase of the Middle Bronze Age (1650/1600 cal BC).

Bronze Age occupation in the Arany Stream Valley

The Bronze Age occupation in the Arany Stream Valley was outlined based on the systematic collection of surface finds in 2018–2019, before plotting them by using a geoinformatics software (QGIS) supplemented by the data acquired through excavations in 2004–2005 and 2017–2019. The Bronze Age ceramics collected in 50×50 m grids partially overlapped with previously known Bronze Age sites, and their presence only indicated certain segments of site-complexes *(fig. 12. 1).* In the vicinity of Nagycenk it was possible to investigate a more extensive area, located on the southern peripheries of the microregion. About half of this area, approx. 1147.25 hectars (assessed in 4589 grids of 50×50 m) was surveyed in 2018 (the rest was either under cultivation or under

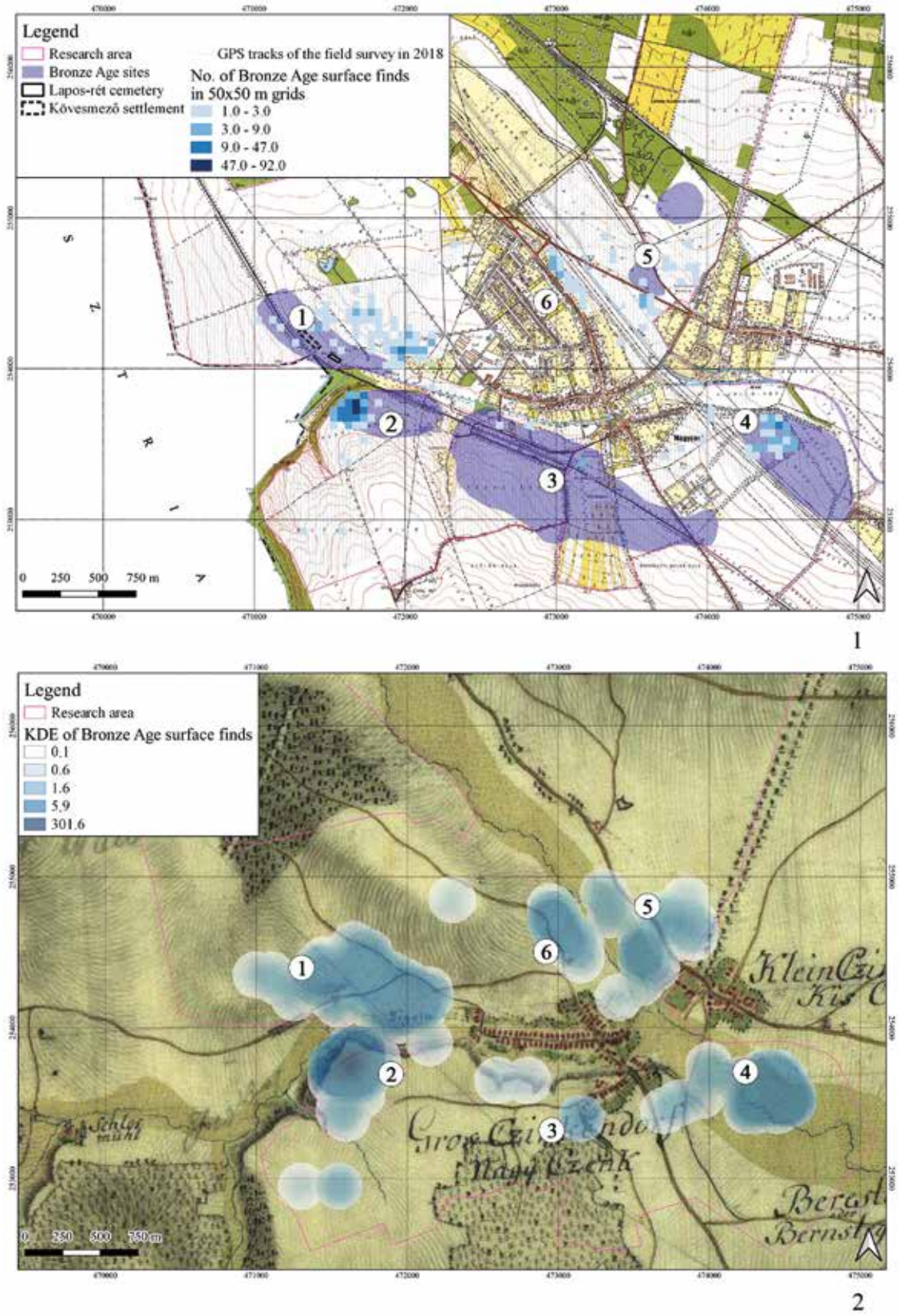

Fig. 12. 1. The assessment of the Bronze Age material collected in 50×50 m grids during the systematic field survey in 2018; 2. Kernel Density Estimation of the Bronze Age finds collected in 2018 on the First Military Survey of the Habsburg Empire (1782–1785). Legend to the numbers of Bronze Age find concentrations: 1. Nagycenk-Kövesmező; 2. Nagycenk-Alsó-domb-dűlő; 3. Nagycenk-Farkasverem; 4. Nagycenk-Belső Vízálló; 5. Nagycenk-Kismező; 6. Nagycenk-Soproni út–Ikva között

modern occupation). In the southern territory of the study area heatmaps were created to estimate the density of Bronze Age surface finds *(fig. 12. 2)* achieved by Kernel Density Estimation (KDE) included in QGIS package. Out of a variety of Kernel estimations, the regular (Gauss) plotting method was selected. To identify the optimal bandwith for the Kernel we applied the $h_{opt}=[2/3n]^{1/4}$ σ formula and arrived at the value of 157 m.[157]

Both the preliminary grid data and the KDE based on Early and Middle Bronze Age surface scatters suggested the presence of an extensive occupation site north of the Arany Stream, which in light of the previously investigated settlement Nagycenk-Kövesmező could be interpreted as one large Bronze Age settlement site *(fig. 12. 1, 2).*

Although east of Nagycenk-Kövesmező around the site of Nagycenk-Farkasverem only a few Bronze Age surface scatters were identified *(fig. 12. 1, 2),* during the excavations carried out prior to the construction of Road M85 a new, outstandingly rich cemetery of the Gáta–Wieselburg culture came to light containing 31 burials.[158] Both Nagycenk burial grounds (Lapos-rét and Farkasverem) were rich in bronze ornaments and were located approx. 1.5 km from each other, implying that the communities utilising these sites possessed exceptional wealth in the context of Middle Bronze Age Transdanubia.

On the eastern shores of the Ikva River, north of Kiscenk, surface ceramics similar to the material (i.e. fabrics rich in mica and sand) of Kövesmező site were collected. The surface scatters were successfully dated by a few diagnostic pieces (such as bowl with decorated interior) to the first and second phase of the Early Bronze Age (2600/2500–2300/2200 BC) (Nagycenk-Kismező site; *fig. 12. 1, 2*). At this site a less intensive Early Bronze Age occupation can be assumed, heavily disturbed by later (Iron Age, Roman- and Árpádian-periods) features. At the site of Nagycenk-Belső Vízálló *(fig. 12. 1, 2)* the presence of multiple archaeological periods were identified, ceramic sherds suggest that the site was occupied by the Late Copper Age Baden culture and by Early Bronze Age populations.

The number of Late Bronze Age ceramics (417 pieces) however, exceeded the amount of sherds collected from earlier periods. This material was gathered from the site of Nagycenk-Alsó-dombdűlő, south of the Arany Stream dating to the subsequent period of the Gáta–Wieselburg culture, to the transition of the Middle to Late Bronze Age *(fig. 12. 1, 2).* Here, on the flat hilltop flanking the Arany Stream, features associated with the *Litzenkeramik* and the Maďarovce–Tumulus culture, the Early Copper Age and the Early Iron Age were investigated by Bálint Savanyú.[159] During our extensive survey we were able to reassess and extend the boundaries of the site to the south. The steep hillside on the north facing the curve of the stream could have provided adequate protection for past occupants.

Southwest of the Ikva River, on the gentle slopes directly opposite the site of Nagycenk-Kismező Late Bronze Age ceramics were collected along with Roman- and Árpádian-periods fragments. This surface scatter indicates the presence of a so far unknown site (Nagycenk-Soproni út–Ikva között; *fig. 12. 1, 2*). However, its investigation could prove difficult as the area to the west (towards Road 84) is currently being occupied.

There were a few areas in the vicinity of Nagycenk which due to agriculture and vegetation could not been surveyed in 2018 – some of these fields investigated during the course of late 2019, the identification of the material collected from here is in progress. It is also possible that the outcome of these assessments may modify the extent of sites and their interpretation described above.

[157] https://kdepy.readthedocs.io/en/latest/introduction.html [last accessed: 22.06.2022]. *Berta 2022* 99–104.
[158] *Savanyú 2020a.*
[159] *Savanyú 2020b.*

In the near future, we are planning to concentrate our efforts on the northern territories of the microregion; towards the meeting point between the Fertő Basin and the Western Hungarian peripheries. Our key aim is to establish the exact boundaries of the hilltop settlement of Fertőboz-Gradinahegy as in the next phase of our research project we would like to draw up and distinguish different types of occupations and their connections within the microregion; potentially shedding more light on the organisation of Bronze Age societies in Western Transdanubia.[160]

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