

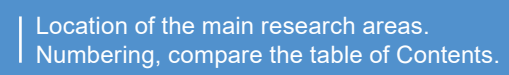


ADAM MICKIEWICZ
UNIVERSITY
POZNAŃ



Treasures of Time

Research of the Faculty of Archaeology
of Adam Mickiewicz University in Poznań





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POZNAŃ



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of Adam Mickiewicz University in Poznań

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ISBN 978-83-946591-9-6

DOI: 10.14746/WA.2021.1.978-83-946591-9-6

The Volume is available online at the Adam Mickiewicz University Repository (AMUR):
<https://repozytorium.amu.edu.pl/>

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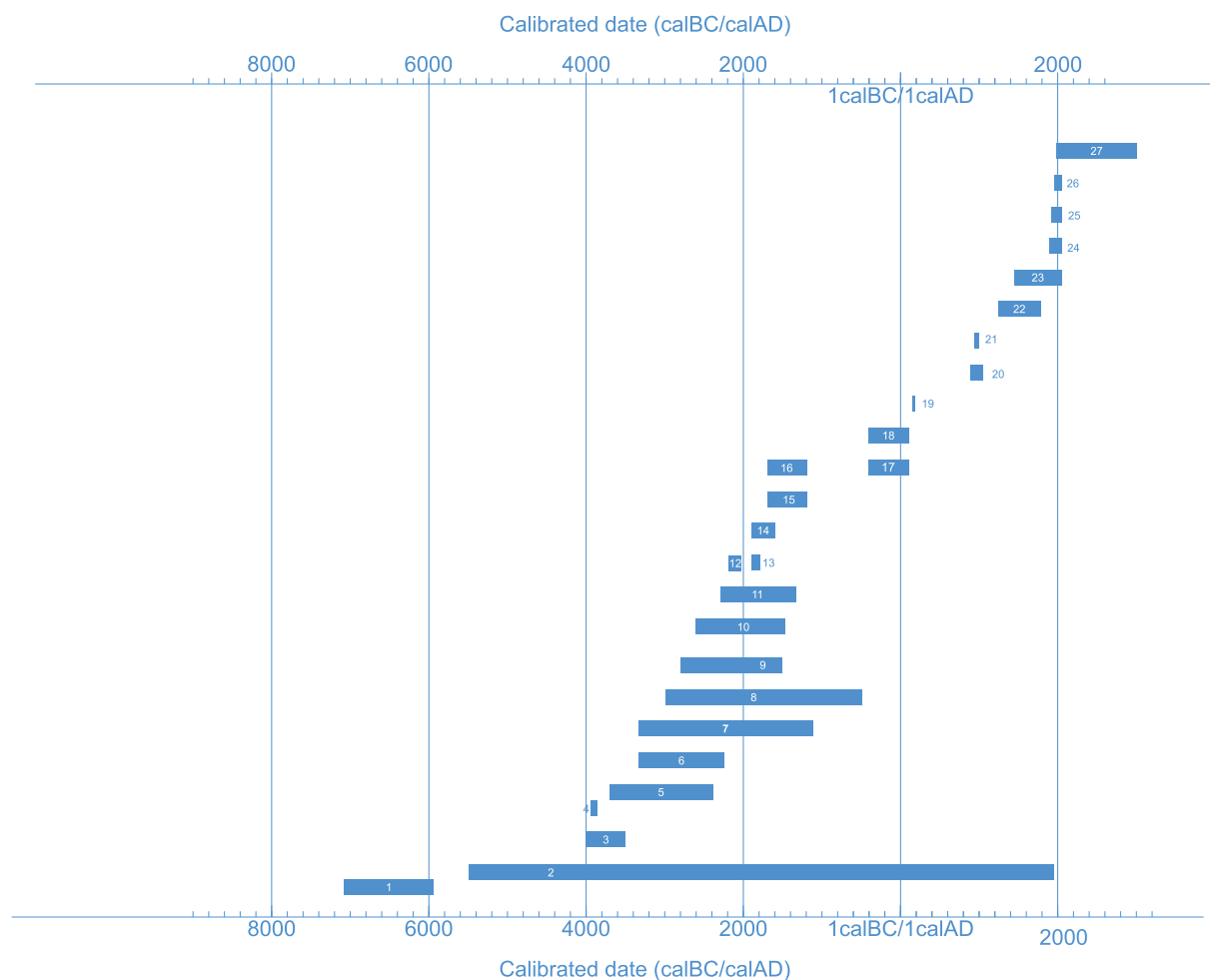
Treasures of Time: Research of the Faculty of Archaeology of Adam Mickiewicz University in Poznań

Introduction

In 2019, archaeology at the Adam Mickiewicz University in Poznań celebrated its honourable 100th anniversary! The establishment of archaeology at this university was associated with the strong influence of the authority of Prof. Józef Kostrzewski and a succession of eminent scholars, many of whom we today call Masters.

The year 2019 was a real breakthrough. We started the second century of existence within the Alma Mater Posnaniensis with a new structural independence and quality that the academic archaeology of Poznań had not yet known for its one hundred years of existence. This change, the formation of the first Polish Faculty of Archaeology, has opened new chances and possibilities of which we are now taking advantage.

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Currently, the Faculty of Archaeology of Adam Mickiewicz University is formed by a number of teams, each with their own leaders. In the majority of cases, these teams are united by interdisciplinarity, which integrates within selected projects the experience of many so-called 'auxiliary' sciences of archaeology. This trend is paralleled by the development of specialised laboratories armed with the latest equipment in the Faculty of Archaeology.

This publication presents the current scientific interests creatively developed by such teams at the Faculty of Archaeology of Adam Mickiewicz University. The research of these teams covers vast areas in time and space, summing up at least the last 9,000 years of prehistory. The following articles, arranged in chronological order, allow us to explore the prehistory of various areas.

The adventure begins around 7100 BC, in the Neolithic settlement of Çatalhöyük located in Turkey. Then, we move on to the loess uplands near Krakow, where the first farmers from the south of Europe had just arrived (5500 BC). A little later (4000-3500 BC), and a little farther north, in the area of Greater Poland, some of the first megalithic constructions in this part of the world were built. Around the same time, about 800 km to the southeast, a settlement

of the Trypillia culture remains in the phase of development (3950 BC). The end of the Stone Age in Poland was described in the history of Late Neolithic communities on a hill in the center of Kujawy region (3700-2400 BC). Farther east, in the forest-steppe area of Ukraine, significant cultural and social changes resulted in the formation of the Yamnaya culture (3350-2250 BC), beginning the Bronze Age.

Intense elements of this era can be traced in the area of southern Europe in the Greek Anthemous Valley (3350-1150 BC), in Attica (3000-500 BC) on the plains of the Hungarian Lowlands (2600-1450 BC) and to the Upper Dniester Valley, where numerous burial mounds were formed (2800-1500 BC). A similar chronological range is presented in the articles devoted to a unique site in Bruszczewo, Greater Poland (2300-1350 BC), which not only accumulates valuable metal artefacts, but is also the subject of interest of an interdisciplinary team focused on reconstructing its environmental context.

The next text take us far to the east, to the area of Iraqi Kurdistan, where we can appreciate the importance of Mesopotamian influences in shaping the picture of the Early Bronze Age (2200-2150 BC).

Subsequent texts describe the discoveries of Poznań scientists in Syria (1906-1787 BC) and in Greater Poland (1900-1600 BC). These two distant points describe various aspects of life in contemporary communities in the Middle and Early Bronze Age.

The characteristic archaeological materials of the later centuries of the Bronze Age (1800-1200 BC) reveal an intensification of military conflicts and migration processes (1700-1200 BC). The turn of the eras is illustrated in this volume by texts on the interpretation of representations on ancient Greek and Roman sculpture (400 BC-100 AD), as well as the cultural situation in the Polish lands (400 BC-100 AD).

We are introduced to the new era by an article on the funerary customs of communities from the Polish lowlands describing discoveries at the site of Mirosław (160-175 AD). Moments of the formation of elements of Polish statehood are referred to in texts describing towns at Grzybowo (919-1050 AD) and Poznań in the early Middle Ages (950-1000 AD).

Later parts of the Middle Ages are described by sacral monuments located also in the area of the contemporary city of Poznań: the Collegiate Church of St Mary Magdalene (1263-1802 AD) and the still extant Church of the Blessed Virgin Mary on Ostrów Tumski, founded around 1431 AD in the immediate vicinity of the previously described early medieval site of the 'origin' of the city of Poznań.

The final texts of the volume do not refer directly to a particular period of prehistory, but present the history of Polish archaeological research on the Iberian Peninsula, the contemporary perception of prehistoric art by the inhabitants of present-day Canada and Siberia, and the development of methodological thought among Poznań archaeologists.

The volume closes with a text describing one of the many perspectives currently faced by the staff of the Faculty of Archaeology of Adam Mickiewicz University in Poznań: the new ArchaeoMicroLab.

We look to the future with great hope that the Staff of the Faculty will provide ideas for many more volumes of Treasures of Time. We trust that this set of articles will present archaeology at the Adam Mickiewicz University in Poznań in its new structure as a Faculty and show its potential. We would thus like to encourage you to get acquainted with our Poznań perspective on archaeological studies, and to reflect on ways of exploring the past.

Andrzej Michałowski

Danuta Żurkiewicz



Location of the main research areas.
Numbering, compare the table of Contents.

3350-2250 BC



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DOI 10.14746/WA.2021.7.978-83-946591-9-6

Between the East and the West of Europe: The Eneolithic and the Beginning of the Bronze Age in Light of Studies on Bio-Cultural Borderlands

Aleksander Koško, Piotr Włodarczak, Danuta Żurkiewicz

Abstract

The barrows of the Yamnaya culture located along the middle Dniester River (southern Ukraine, Yampil region) became a matter of concern for a Polish-Ukrainian archaeological expedition. As a result of this joint effort, a series of earlier studies of the barrows were published and additional excavations were conducted. A total of seven barrows located at four archaeological sites were excavated. Consequently, a variety of new materials were obtained, which made it possible to perform extensive specialist analyses (radiocarbon, isotope, and aDNA, among others). The results of this research show a broader picture of local Yamnaya culture communities, allowing a comparison with Central European Corded Ware culture communities and contributing immensely to the discussion regarding the relations between these groups.

Keywords: Yamnaya culture, Middle Dniester area, Corded Ware culture

Introduction

The history of research on the relationship between Eastern and Western Europe at the junction of the late Eneolithic and Early Bronze Ages (3500-2000 BC) conducted by researchers from Poznań has a particularly long tradition based more or less on formal research projects. It was instigated by Professor Józef Kostrzewski, who in 1925 conducted research in the eastern borderlands of the Second Republic of Poland, in the catchment area of the middle Dniester River at the site located in Biały Potok (Kostrzewski, 1928; Koško, 1998; Szmyt, 2016).

The post-war years and the new political reality, which also affected the city of Poznań, did not favour research interests in the bio-cultural borderland between Eastern and Western Europe. The archaeological focus on the study of the beginnings of Polish statehood, which was associated with the thousandth anniversary of the Baptism of Poland, resulted in an intensification of research predominantly within the western areas of the country. As evident in the journal *Slavia Antiqua*, research in the eastern area emerging from Poznań academic circles at that time presented the achievements of the researchers who delved into the Middle Ages rather than earlier periods.

It was only after the jubilee year of 1966 that systematic growth of research interest in earlier epochs became possible. This was particularly intense within the Kuyavia region, where the then Department of Archaeology at the Adam Mickiewicz University established the Kuyavia Expedition, later known as the Kuyavia Research Team. The programme, headed by Professor Aleksandra Cofta-Broniewska, developed dynamically in the 1970s and 1980s. In the 1980s and 1990s it resulted in a number of inspiring monographs on the Neolithic and Early Bronze Age communities in Kuyavia. Much of this work highlighted the importance of contact with Eastern Europe for the development of local communities and indicated an urgent need to study interactions between these regions.

Unfortunately, the possibility to communicate with archaeologists from Eastern Europe was adversely affected by the political barrier that existed at that time and it was only during the political transformations in Poland of the 1980s and 1990s that the barrier was brought down. The year 1992 was a symbolic date of 'opening up to' working together, when an agreement on mutual cooperation between Adam Mickiewicz University in Poznań and the Institute of Archaeology of the National Academy of Sciences of Ukraine was signed. Since 2010 (but officially beginning in 2013), researchers from the Centre for Mountain and Upland Archaeology in Cracow joined the team of researchers studying the bio-cultural borderlands of Eastern and Western Europe as a result of a scientific cooperation agreement between the Institute of Archaeology and Ethnology of the Polish Academy of Sciences and Adam Mickiewicz University. This beneficial 'merger' gave rise to numerous initiatives aimed at bringing research centres together, agreeing on joint research plans, and, finally, their implementation in the field and subsequent research activities (Kośko, 2011, 2014). This all resulted in the creation of several research teams focused on different sections of prehistory and different border zones between Eastern and Western Europe. The effects of the activities of one of these teams is the subject matter of the present text.

Yampil

The research project aiming to study the biocultural south-eastern borderlands between Eastern and Western Europe focused on the diagnostics of contact between the Corded Ware Culture (CWC) and local barrow cultures. The research area was the eastern part of the Podolian Upland, located in the catchment area of the middle course of the Dniester River (i.e., the Middle Dniester area). This was where communities of the Globular Amphora culture (GAC) emerged in the early third millennium BC, forming the eastern limit of their range, and entered into intensive relations with local communities of the late Trypillia culture (TC) and the

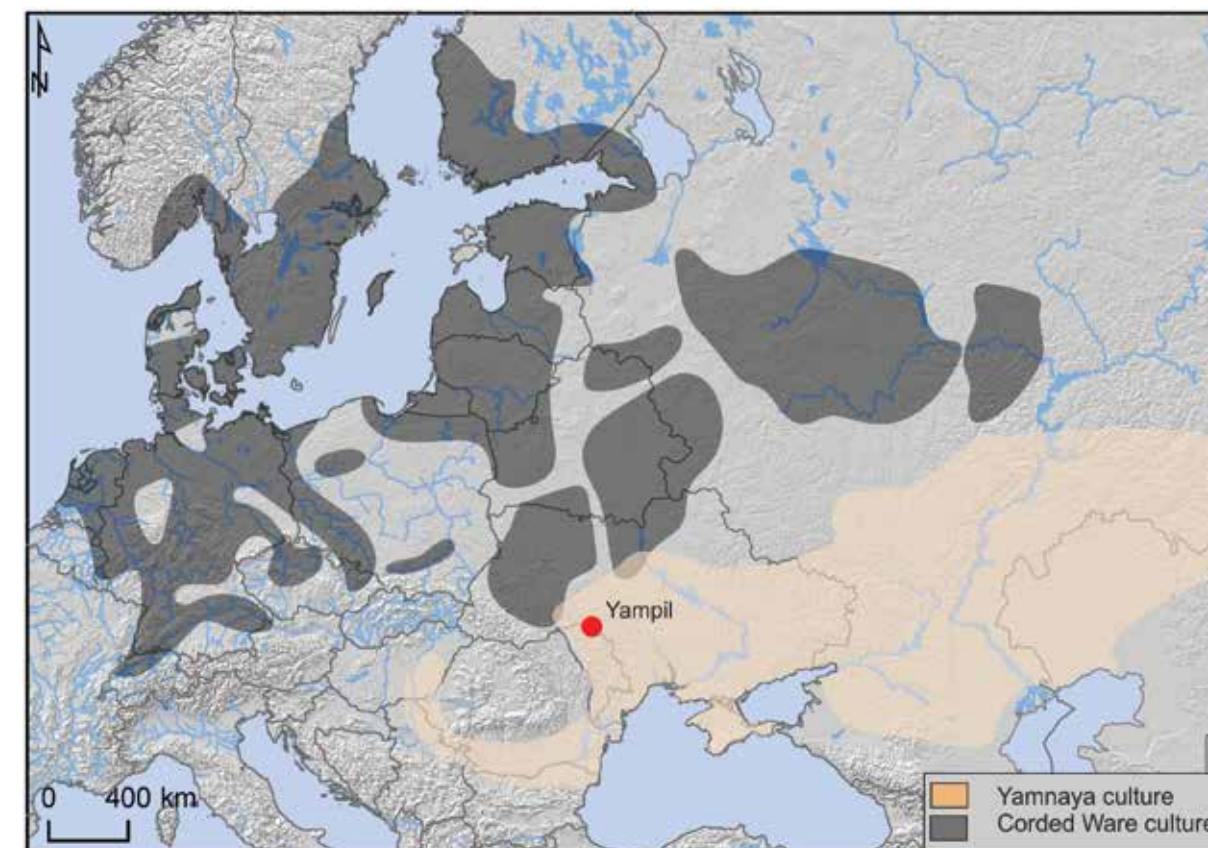


Figure 1. Map of the extent of the Corded Ware culture and the Yamnaya culture (modified from Müller et al., 2009).

Yamnaya culture (YC) (Szmyt, 1999, 2014). The next develop stage of the East-West European borderland in the area of central Transnistria was the emergence of CWC communities in this zone (Figure 1).

In the Podolia area, there was a borderland between two communities building a comparable cultural picture of 'nomadic' Europe from the Rhine Valley to the Upper Volga River region. Following the adoption of concepts, the unification of the funerary rites throughout such vast territories was caused by the westward expansion of East European steppe communities into Central Europe (Gimbutas, 1979). The interrelations present in the origins of the CWC and the YC and their subsequent interactions are the basis for an inspiring discussion on the origin of cultural and biological world-building patterns that are completely different from the existing patterns created by Indo-Europeans – the ancestors of the majority of today's inhabitants of Europe.

Sources from eastern Podolia obtained within the region of Yampil in the Vinnytsia Oblast located in southern Ukraine on the border with Moldova, are particularly important for studying the outlined issues. A museum query carried out in the 1990s by Poznań researchers helped to uncover their potential. As a result, in the Vinnytsia Regional Museum, an amphora

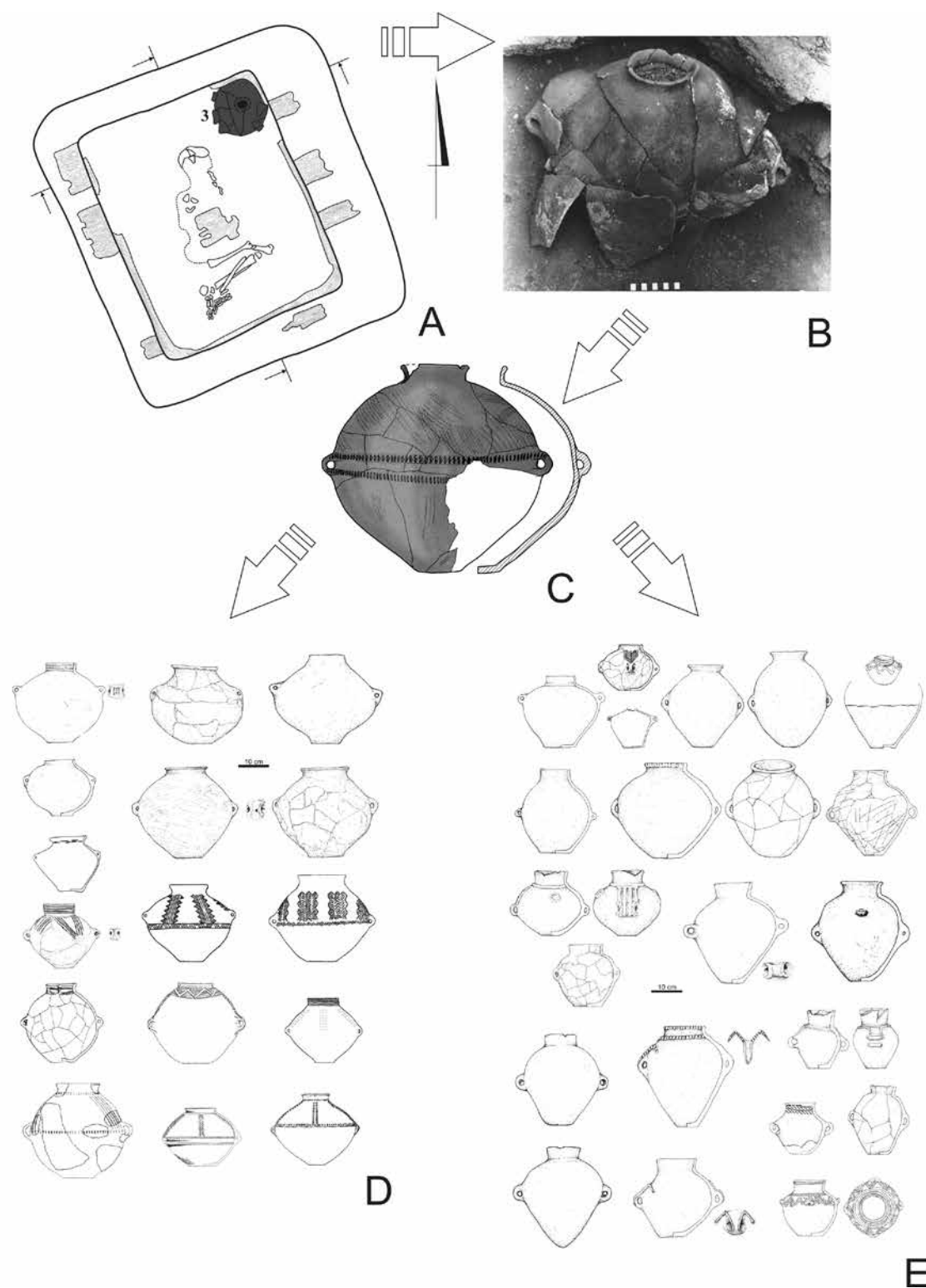


Figure 2. Porohy, Yampil Region, Barrow 2: A. Plan of Feature 6; B. Amphora in the moment of discovery; C. Drawing reconstruction of the amphora; D. Amphorae from graves of the Corded Ware culture in the zones of the Upper Dniester zone and the Lublin Upland; E. Amphorae from the graves of the Yamnaya culture in the Dniester-Danube zone.

corresponding to the stylistic characteristics of the earliest phase of the CWC in Central Europe was recorded in the YC inventory found under the barrow mounds in the village of Porohy (Yampil region) (Iwanowa et al., 2014). This discovery initiated a series of interlinked projects aimed at examining the interactions between these neighbouring communities in detail (Figure 2).

Catalogue of barrows from the Yampil region

At the start of this project, a detailed inventory of all barrows from the Yampil area was made and information on the excavations carried out to that time was collected (Harat et al., 2014). The first investigations of the YC barrows in this zone took place as early as the second half of the nineteenth century. After a long break, in the 1980s and 1990s, the Yampil mounds were the target of rescue and conservation research led by archaeologists from Vinnytsia. Also, a detailed inventory of the mounds visible in the landscape was made at that time. The collection of all available information about the barrows located in the vicinity of Yampil and resulting publications became the first stage of the project (Koško et al., 2014). From 2010 to 2014, a Polish-Ukrainian expedition carried out excavations of seven more mounds in this region. As a result, around 156 burial mounds were recorded within an area of c. 790 km² (Jachimowicz & Żurkiewicz, 2017) (Figure 3). At the time the project was implemented, 16 barrows had already been excavated. Unfortunately, the obtained osteological material was not available for research as it was destroyed in an earlier fire in the repository containing the museum's collection. Based on the reports from these studies, it may be concluded that all the sites investigated in the initial phase were related to the YC, whereas the later stages can be associated with subsequent cultures up to the Middle Ages.

To verify these assessments and acquire new chronometric and biological data from the analysed community, new research was initiated – both non-invasive and excavation. Thus, from 2010 to 2014, seven barrows located at four sites were investigated: Pidlisivka, Porohy, Klembivka, and Prydnistryanske (Klochko et al., 2015a, 2015b, 2015c; Klochko et al., 2015; Przybyła et al., 2017).

Research results and discussion

The data obtained from the 2010 to 2014 excavations helped to reconstruct a new picture of the local communities that built barrows in the Yampil area. An important discovery was linking the earliest phases of building of the structures to Eneolithic communities, earlier than previously assumed, rather than directly associating them with the YC. The assumption was confirmed by an extensive series of over 60 radiocarbon dates, which was the first attempt to create an absolute chronological scale for this region (Goslar et al., 2015) (Figure 4).

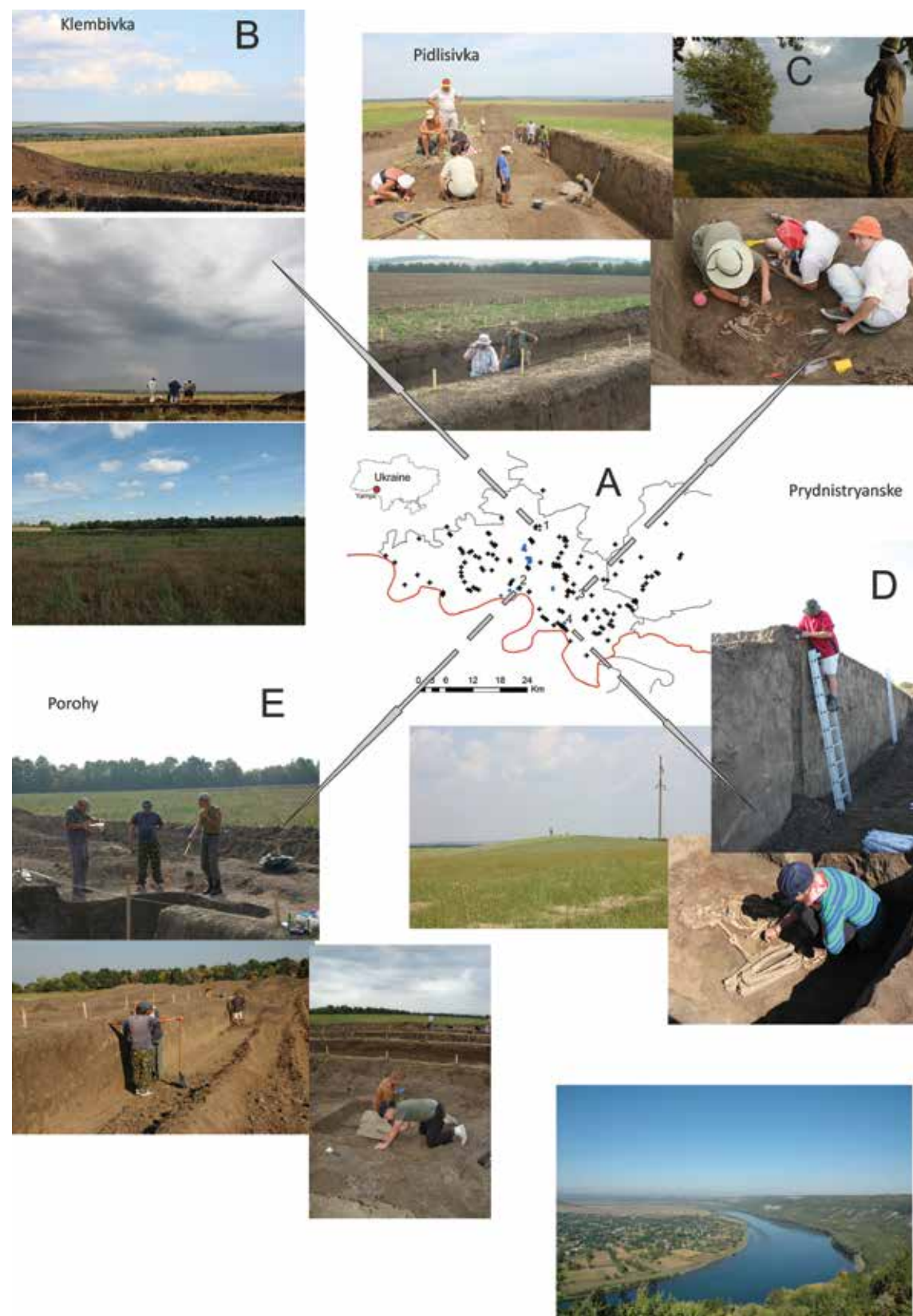


Figure 3. Barrows in the Yampil region. A. Administrative map of the Yampil area indicating the presence of barrows (marked with black crosses) and excavated barrows (marked with blue points). Sites under excavations in the years 2010-2014; B. Klembivka; C. Pidlisivka; D. Prydnistrianske; E. Porohy.

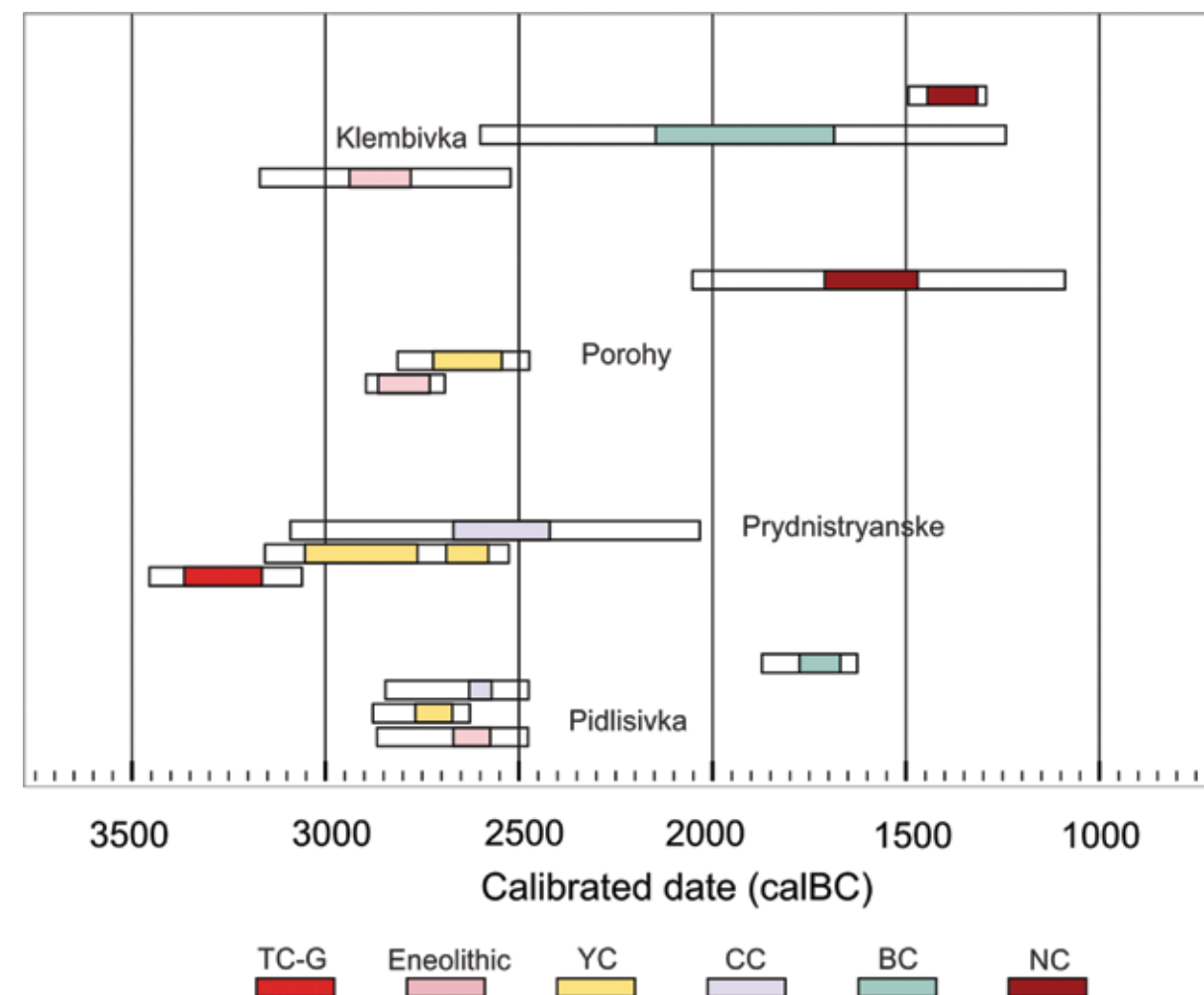


Figure 4. Chronological diagram of barrows from the Yampil area based on absolute dating (modified from Goslar et al., 2015).

The oldest sites (i.e., barrow burials), were constructed by late TC communities (Grordninești/Kasperovtsy group) and date to c. 3350-3200 BC. The horizon connected with the YC communities in this region is dated to c. 3100/3000-2500 BC. This period also reveals the presence of specific activities connected with the appropriation of burial sites by new groups. For example, within the Prydnistrianske cemetery, deliberate removal of late TC burials and their replacement with early YC burials is clearly evident. Throughout the entire region, a slightly different funeral ritual functioned concurrently with the early horizon of the YC, which was associated with Eneolithic communities, including Nizhnaya Mikhailovka/Černavoda I and Zhivotilovka-Volchansk traditions, which date to c. 3000-2800 BC (Figure 5). However, no traces indicating the youngest phases related to the YC were recorded in the vicinity of Yampil (Włodarczak, 2017). Only one grave from the barrow cemetery at Prydnistrianske was related to the early phase of Katakombnaya culture.

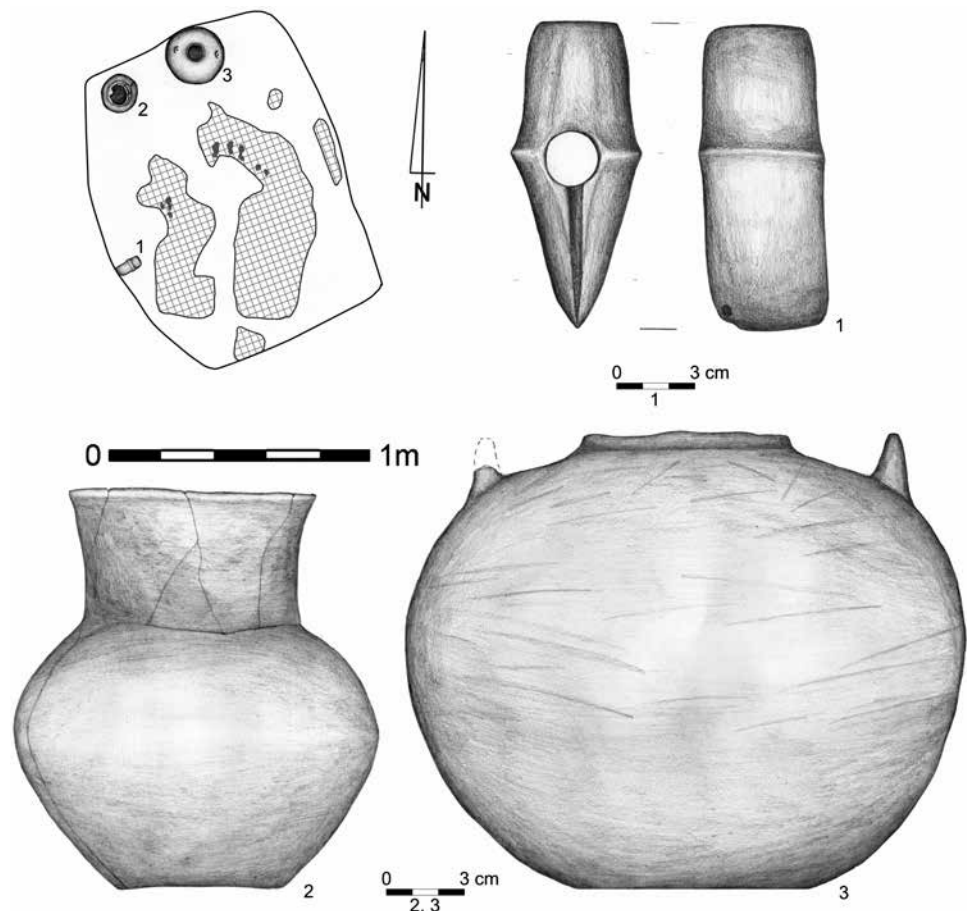


Figure 5. Prydnistrianske Yampil Region. Zhivotilovka-Volchansk grave from Barrow III (Drawing by M. Podsiadło; after: Włodarczak, 2017).

To date, 20 burials in the seven most recently excavated burial mounds in the Yampil area have been assigned to the Eneolithic horizon. The osteological data obtained from earlier studies are unverifiable/impossible to reinterpret for the reasons already described earlier in this text. However, the YC burials remain the most numerous from the Yampil area. To date, 61 graves have been documented from all excavation sites (Table 1), including 21 from the latest excavations. An analysis of these finds has provided valuable information about the funerary rituals performed by these communities.

Cultural Affiliation/Chronology	Female	Male	Adult	Child	Total
Eneolithic	0	3	5	5	13
Yamnaya culture	2	12	2	5	21
Katakombnaya culture	1	2		1	4
Babyno culture	1	2	1	0	4
Noua Culture	1	7	1	1	10
Iron Age	2	2	2	1	7
Unidentified				2	2
Total	7	28	11	15	61

Table 1. Number of individuals excavated from barrow burials in the Yampil area by sex, age, and cultural affiliation and chronology.

The Yamnaya culture in the Middle Dniester Area

A characteristic feature of the YC in the Middle Dniester area was the largescale standardisation of ritual activities (Włodarczak, 2017). Placing the central burial within a barrow signalled the time for it to come into operation. Sometimes several burials were considered central at a given stage of a barrow’s use. After the body was placed (usually in the supine position with flexed legs and the head to the west) in the central feature – a rectangular pit – other graves were built in the immediate vicinity (Figure 6). In addition to the placement of another central grave during the new phase of use of such a cemetery, there was also the procedure of enlarging the mound itself. There were also probably stelae (i.e., pieces of worked, local deltoid-shaped stones) placed at the top of these artificial ‘small hills’.

The rectangular burial pits occurred in various sizes – the smallest were created for burying children and juveniles. The largest, intended for adults, ranged from 1.5 to 3.7 m² at the bottom of the trench (Włodarczak, 2017, p. 252). A characteristic element of their construction was a narrow section, forming a kind of step placed before the burial chamber and, commonly, a wooden grave cover was located in that place.

Most of the burial pits of the YC were equipped with wooden constructions in the form of the aforementioned cover or casing of the burial pits (Stępnik et al., 2017). These structures were mostly made of oak planks laid along the longer side in the central structures and dated to the earlier phase of the YC. In the later phases and in the graves surrounding the central burial, the timbers were arranged transversely along the longer axis of the grave.

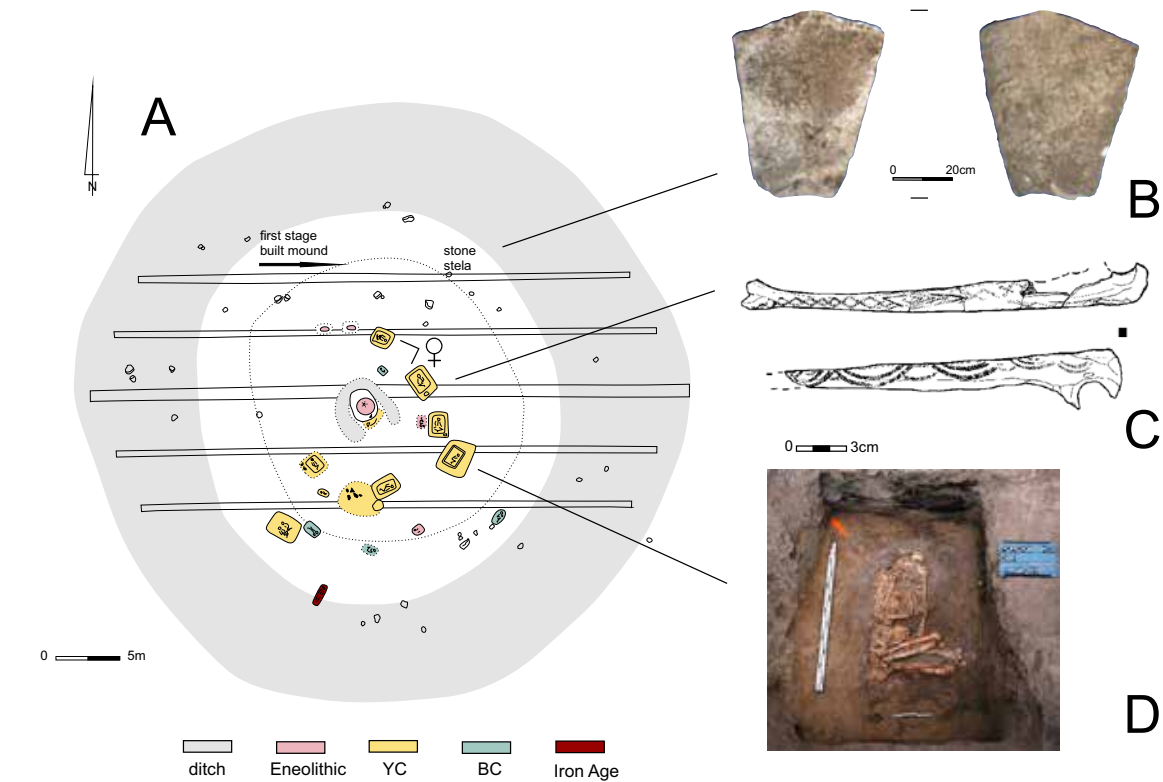


Figure 6. A. Plan of Barrow 3A from the village of Porohy with burials from different use phases; B. Stone stela; C. Bone with postmortem ‘tattoo’; D. Grave from the Yamnaya culture.

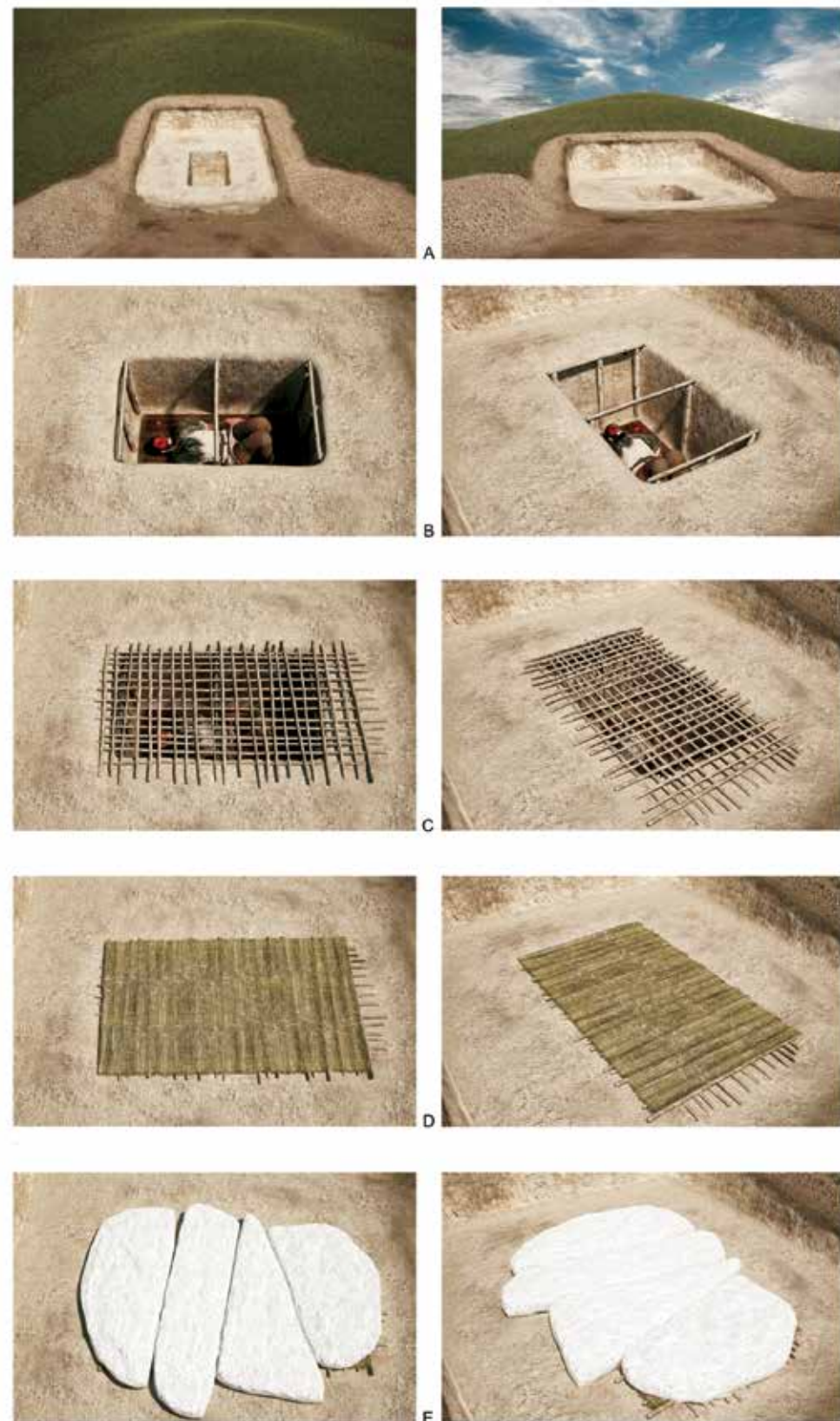


Figure 7. Prydnistrianske Yampil Region. Reconstruction of stages of grave IV/3 construction (Drawing by M. Podsiadło; after: Włodarczak, 2017).

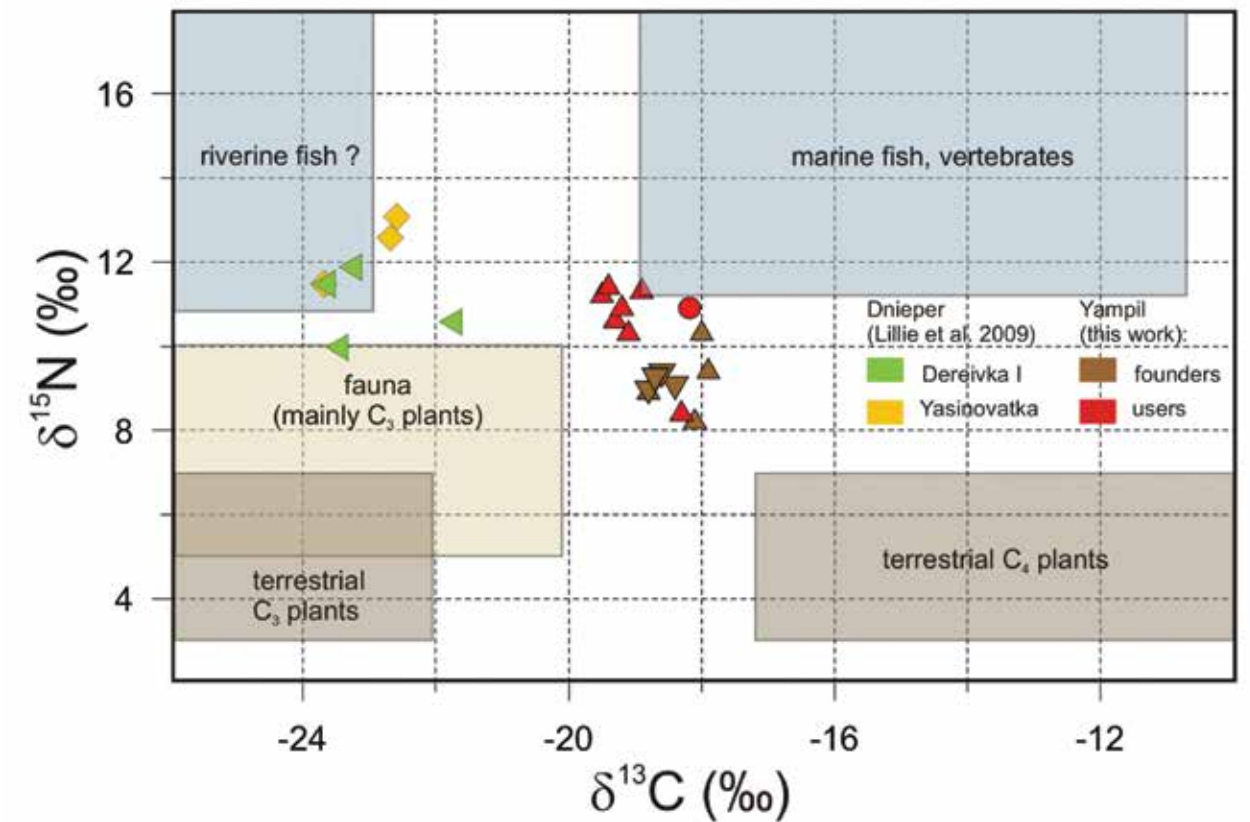


Figure 8. Reconstruction of the potential diet of the builders and users of the Yampil mounds based on the analysis of carbon and nitrogen stable isotopes from the bones of the deceased (after: Goslar et al., 2017).

Considering construction of the burial chamber, Grave 4 from Barrow IV at Prydnistrianske stood out (Klochko et al., 2015). The rectangular-shaped burial chamber was covered with four fragments of well-fitted limestone slabs, forming a cover measuring c. 2.8 x 2.0 m and covered from below and above by matting indicated by impressions and an organic layer that were highly visible (Figure 7). The interior of the grave had an additional wooden roof, supported by eight posts with a diameter of 5-6 cm, sunk below the level of the burial. The whole structure was made of ash wood. The anthropological investigation of the well-preserved skeleton found within and dated to c. 3050- 2950 BC found it belonged to a male who died between the ages of 35 and 50 years. He was very tall (c. 187 cm) and suffered from rheumatic lesions in the upper extremities and degeneration of the spine. The pathological conditions recorded prove that this adult male was extremely physically active and his body was exposed to sustained mechanical loading related to the nature of the work he performed (Litvinova et al., 2015).

An anthropological analysis of all available human remains from the Yampil region dating from the Eneolithic to the Late Bronze Age, with a predominance of representatives of the YC, indicates these communities were in a good state of health. The assessments were made on the basis of such determinants as the presence of stress and disease, including linear enamel hypoplasia (LEH), cribra orbitalia, porotic hyperostosis, as well as tooth decay. In addition, the latter determinant was characterized by a particularly low frequency of occurrence in the investigated population and may be indicative of a diet low in sugars and carbohydrates, based largely on food of animal origin (Litvinova et al., 2015).

Slightly different information about the diet of prehistoric communities from the vicinity of modern Yampil was obtained from stable carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotope analyses of the bones of 16 humans (Figure 8). On this basis, it is possible to conclude the diet of these communities was based on plant foods with variable amounts of terrestrial animal protein at different times. High $\delta^{13}\text{C}$ values suggest the consumption of C_4 plants in the diet, possibly represented by millet. Also, the isotopic composition of the oldest burials belonging to the investigated Yampil barrows (i.e., the 'founders' of the individual barrows), were compared with the remains of people buried under their mounds during the subsequent, later stages of barrow 'use' (Goslar et al., 2017). The higher $\delta^{15}\text{N}$ values of users compared to founders may reflect an increase in the consumption of animal or freshwater fish protein. Interestingly, this increase took place at different times in particular clusters of barrows. Thus, the increase in the consumption of animal or fish protein was the result of the stabilisation of the local economy of a particular centre rather than an effect of climatic or culturally conditioned regional transformations.

As it turned out, it was particularly difficult to obtain data describing the natural environment of the third and early second millennia BC for the Yampil region, as the specific natural conditions were not conducive to the preservation of vegetal pollen, making palaeobotanical reconstructions impossible (Makohonienko & Hildebrandt-Radke, 2014). However, it was feasible to perform some palaeoenvironmental reconstructions based on the analyses of soil from the profiles obtained from the excavated barrows (Jankowski et al., 2017) (Figure 9). Based on the results of these analyses, it was concluded that in the third millennium BC the Yampil area, formally classified as a less open forest-steppe, was covered by soils characteristic of steppe areas with rich grassy vegetation, where trees were found mainly in the river valleys.

There is not much information available about the economy of the YC in the Yampil area. The modest burial goods found with the remains of the local deceased include animal remains discovered in Eneolithic and Bronze Age burials; however, it is difficult to decide whether those animal species were of economic or, perhaps, only of symbolic importance. No more than about a quarter of all graves discovered in the Yampil region yielded animal remains (Marciniak et al., 2017). Apart from a few artefacts made of bones and teeth – such as tools and ornaments – most were elements of sacrifices made for the deceased, either intended for consumption or in the form of non-consumable parts of animals (skulls and limbs) (Figure 10). These goods were deposited at the level of the burial – either by the deceased or within the wooden grave cover. Among the identified species, the remains of cattle dominated in Eneolithic burials. In the graves of the YC, remains of goats and sheep/goats definitely predominated. No remains of cattle were recorded in the Yampil funeral contexts of the YC; however, they do occur later in the developed stage of the Bronze Age in the burials of the Babyno culture.

Ancient DNA (aDNA) studies have provided additional information that might help to depict the social structure of the Yampil community of the YC. Until recently, it was assumed that men played the main role in the wave of migration that led to the creation of the CWC and the cultural transformations identified with 'nomadisation' of vast areas of Europe. aDNA analyses of human remains buried in barrows in the Yampil area and their comparison with representatives of the neighbouring CWC communities from Lesser Poland not only confirmed their kinship, but also indicated a large share of women from the steppe in the migration wave

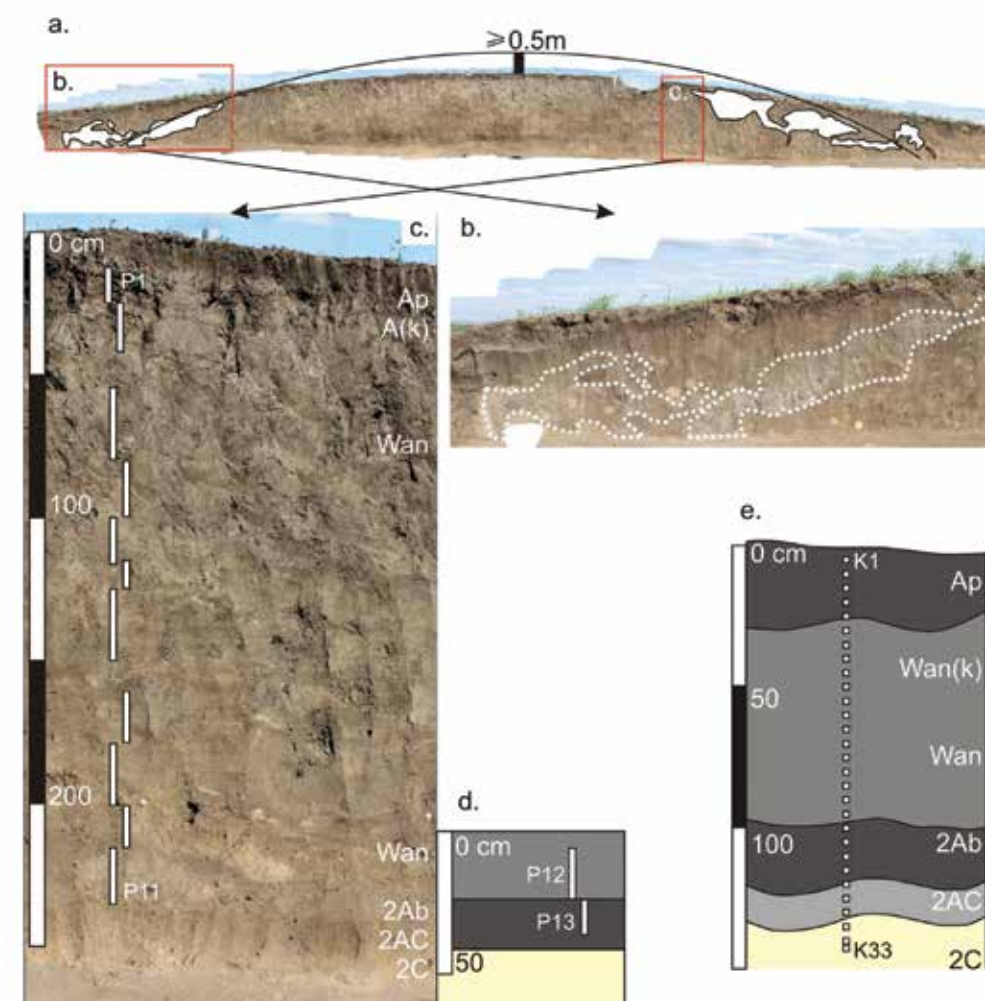


Figure 9. Morphology of barrows: Prydnistrianske 1-IV: A. Cross-section N-S, with secondary calcic horizon and probable former barrow height marked; B. Closer view of secondary calcic horizon; C. Scheme of Core 1 sample (section N-S); D. Scheme of Core 2 sample (section S-N); E. Scheme of Klembivka 1 barrow sampling (after: Jankowski et al., 2017, Figure 3).

(Juras et al., 2018). This conclusion was based on the recorded higher frequencies of mitochondrial DNA haplogroups (mtDNA) representing the maternal lines of steppe origin in the population from Lesser Poland, and a greater share of local maternal lines in the more westerly populations.

However, it was mainly male individuals who were buried in the Yampil barrows. This preponderance is evident throughout nearly all chronological phases connected with the use of these barrows. The men mostly died between the ages of 35 and 45 years and above this age range (Litvinova et al., 2015, Table 2-5) (Table 1). The only two burials of women representing the YC were found in a single cemetery under the mound of Barrow 3A in Porohy. The first woman was between the ages of 22 and 25 years at death and may have died in childbirth as she was buried with an unborn child (Figure 10). The other female's grave formally did not differ from other standard YC funerary structures. A rectangular pit dated to c. 2650-2550 BC, dug into the mound of a barrow and covered from above with oak timbers, contained the remains of a woman who at the time of death was 25 to 30 years old (Klochko et al., 2015b) (Figure 11).

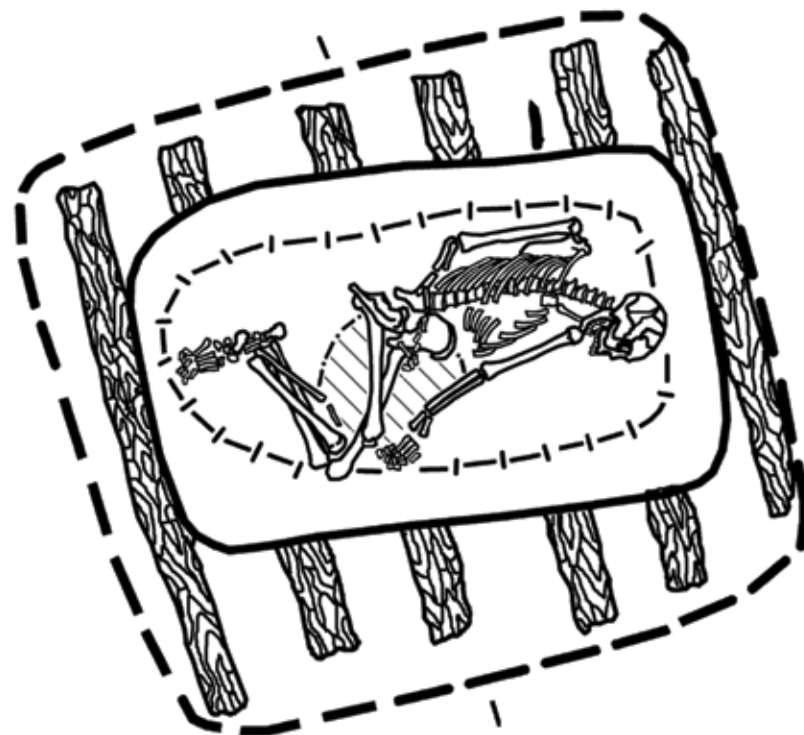


Figure 10. Porohy, Yampil Region, Barrow 3A. Plan of Feature 3A/12. Burial of a woman who died around 2550 BC, aged 22-25 years at death, along with her unborn child (Modified from Klochko et al., 2015b modified).

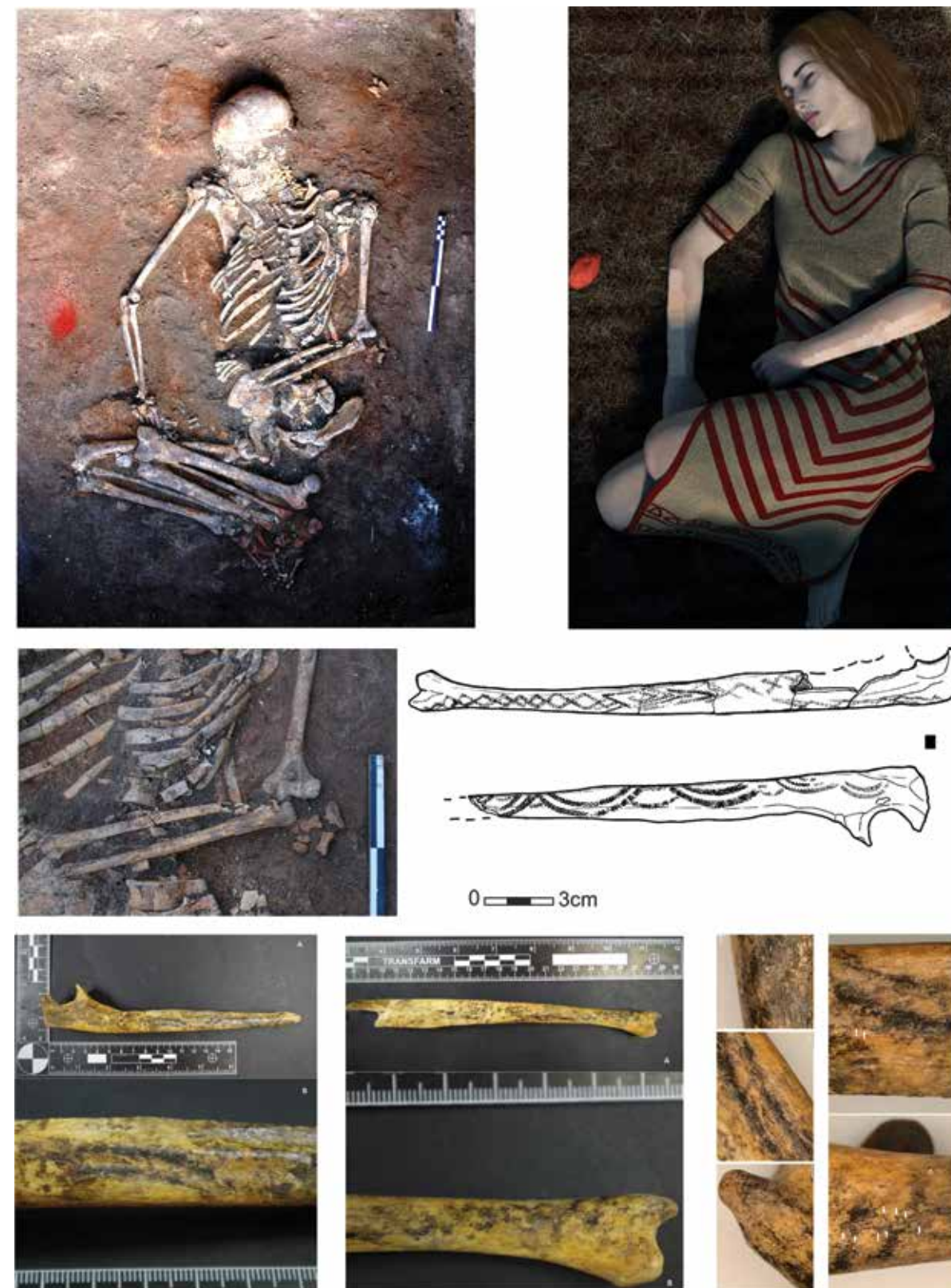


Figure 11. Porohy, Yampil Region, Barrow 3A. Plan of Feature 3A/10. Burial of a woman with postmortem "tattoos" on her forearm, who died around 2650 BC at the age of 25 to 30 years (Modified from Klochko et al., 2015b).

While collecting the field data of the second female burial (Grave 10), attention was drawn to some regular patterns discovered on the bones of both of her elbows. They were interpreted as traces of a tattoo, but could also be caused by postmortem animal or plant activity (i.e., taphonomy). Chemical, microscopic, and forensic analyses revealed that the patterns were clearly man-made and, indeed, after the woman's death. There are many indications that these are traces of painting with some black substance – probably tar. It is probable that the procedure of 'decorating' the bones was performed postmortem, after the body had decomposed. Additionally, the assumption is supported by the location of the pattern (i.e., upon the bone surface), as well as through the manner in which the pigment was applied. In the foregoing studies, similar (albeit few) discoveries like this one were interpreted as traces of a tattoo, but none have been investigated using the interdisciplinary suite of multiple specialist analyses employed here (Lorkiewicz-Muszyńska et al., 2017). The sparse grave goods buried with the deceased included a fragment of a bone tool, a lump of ochre, and fragments of sheep/goat limb bones. The bottom of the grave was covered with an organic layer interpreted as a mat on which the deceased was lain. These particular 'furnishings' were common for most YC graves from the Yampil area. The results of the specialist analyses of the remains provided additional information about these artefacts as well as about the impressions of wattle products and woven materials preserved within them (Kałużna-Czaplińska et al., 2017).

Characteristic layers were visible near the covers of the graves and under the human skeletons (Figure 12). Microscopic and chemical analyses of, *inter alia*, fatty acids and infrared spectroscopy of the samples indicate that the mats were made of raw material of plant origin. Most probably it was seagrass or some other aquatic plant (i.e., seaweed). For bactericidal purposes, the mats or bodies of the deceased were covered with beeswax. Also, chemical compounds characteristic of crocus or flax plants were detected. Among the impressions analysed microscopically, wattle 'mats-biers' (rather thick) were recorded – they were probably used for transporting the deceased and for facilitating the body placement in the grave. Also, traces of more delicate, decorative fabrics, which used to be elements of the clothes of the deceased or a kind of shroud in which the corpse was wrapped, were identified. The impressions of wattle products and woven materials testify to the great manufacturing sophistication of these communities. Furthermore, these studies point to a clear continuation of elements of funeral rituals, linking the Eneolithic and the YC communities.

New hope

Podolia, as an area where many cultural traditions from the end of the fourth and beginning of the third millennia BC met, gains particular importance for discussions of the genesis of barrow burial rites in the circles of the YC and the CWC. It is also a vast zone of cultural contacts between the East and West of Europe (Ivanova & Toshev, 2015). The significant contribution of the Eneolithic communities to the formation of specific funerary rites of the barrow cultures in this region, proven through the realisation of the framework of this project, makes it necessary to focus the next research stages on this period of prehistory (Ivanova et al., 2015; Włodarczak, 2014). The research that is currently being undertaken in the Eastern Podolia zone aims to investigate the role of the GAC in the local and also the supra-regional picture of that epoch.



Figure 12. Mats made of organic materials used in the Yampil region for lining the bottom of the grave and wrapping the dead (A) and reinforcement of the top part of the grave (B, C). A. Porogy, Yampil 3A/3 and 3A/7, Noua culture; B. Prydnistrianske IV/4, Yamnaya culture; C. Porohy 3A/17, Yamnaya culture (modified from Klochko et al., 2015b, 2015c).

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ISBN 978-83-946591-9-6