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YAMPIL BARROWS FROM THE FOURTH AND THIRD MILLENNIA BC IN THE LIGHT OF POLISH-UKRAINIAN INVESTIGATIONS 2010-2014

ABSTRACT

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In the vicinity of Yampil (Vinnytsia oblast, Ukraine), there exists a cluster of barrows dating back to the Eneolithic and Early Bronze Age. Nestled upon the Podillia Upland, this concentration lies at the crossroads of two cultural spheres: the Eastern European steppe and Central European region. The exploration of the Yampil barrows began during the 1980s by archaeologists from Vinnytsia. This endeavour was enriched by a Polish-Ukrainian expedition that conducted fieldwork from 2010 to 2014. Seven barrows were then examined. Today, an abundance of radiocarbon data allows the construction of a precise chronological framework for the Yampil barrow graves. We can now discern four principal stages in this sequence: (1) Late Eneolithic, (2) early Yamna, (3) late Yamna era, and (4) Catacombna. During the first two periods (3350-2800 cal BC), these barrows were meticulously constructed, sometimes evolving in multiple phases. In the latter two stages (2800-2400 cal BC), cemeteries took shape, marked by graves deliberately dug into the fully formed mounds.

Keywords: late Eneolithic, Early Bronze Age, Podolia, barrows, Yamna culture, Yampil

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1. INTRODUCTION

For more than a century, research on the prehistory of Central Europe has delved into the migration patterns of mobile (nomadic or semi-nomadic) peoples originating from the North Pontic region. This research explores their role in driving cultural and technological innovations, ultimately leading to the emergence of a new form of Eneolithic societies in the 4th millennium BC. This investigation also encompasses the origins of Early Bronze Age European civilization. Over the past 15 years, considerable attention has been dedicated to examining the expansion of populations exhibiting new genetic characteristics. This attention is rooted in the striking genetic similarities between the people of the Yamna culture (YC) and the Corded Ware culture (CWC; Allentoft *et al.* 2015; Haak *et al.* 2015).

A significant part of this research has focused on reconstructing prehistoric events that occurred in the border regions between the East and the West, where human groups first made contact and new societies began to take shape. One of these critical crossroads connecting two worlds is the region of Podillia, which is currently part of Ukraine, and to a lesser extent, Transnistria. The environmental boundary separating Central and Eastern Europe runs through Podillia (*e.g.*, Makohonienko 2009). Historically, this region served as a frontier for the settlement of steppe communities in the North Pontic zone during the 4th and 3rd millennia BC. It also acted as an ecological barrier, restricting the expansion of Central European settlements during the Neolithic and early Eneolithic periods.

Nevertheless, as far back as the beginning of Neolithization in the 6th millennium BC, this barrier was traversed by migrating communities seeking favourable settlement areas and engaging in expeditions for trade and raw material procurement. Throughout the millennia, convenient communication routes traversed Podillia (Koško and Klochko 2009; Makohonienko 2009). In the 4th millennium BC, the population of the Funnel Beaker culture expanded eastward in this region (Rybicka 2017, 152, fig. 86). The existence of Podillian contact routes is further substantiated by the presence of Trypillia culture features in artefacts found in Central European areas (Koško 1981; Koško and Szmyt 2009). In the latter half of the 4th millennium, there was an observable westward expansion of settlements from phase C/II of the Trypillia culture (Rybicka 2017). This period also marked the emergence of the first barrow cemeteries in the Podillia region. In the early 3rd millennium BC, two expansive movements converged in this area: the Globular Amphora culture in the east (Szmyt 1999) and the YC in the west (Włodarczak 2017).

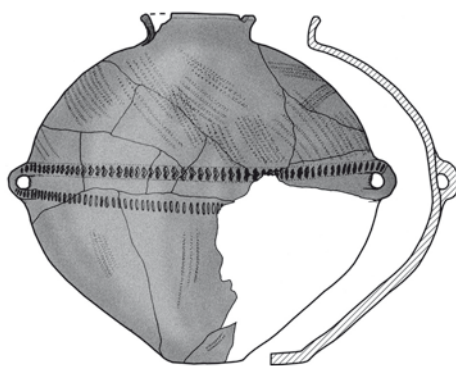
Moreover, around 2900-2800 BC, CWC communities appeared in the western part of Podillia, along with the introduction of funerary practices involving the construction of barrows. The easternmost barrows associated with the CWC are situated along the Zbruch River, a tributary of the Dnister. The origins of barrow communities in this region have become an intriguing issue in the context of research on the genesis of the CWC and the advent of the Bronze Age in Central Europe (this work follows the primary archaeological period divisions commonly used in studies of the North Pontic region).



1



2



3

Fig. 1. Poroht, Yampil rayon, Barrow 2, Grave 6.
Burial of YC (1) equipped with a Corded Ware amphora (2, 3). After Harat et al. 2014

One vital region for investigating the aforementioned issues of intercultural relations during the late 4th and the first half of the 3rd millennium BC is the territory surrounding the town of Yampil, located in the middle Dnister region (Vinnytsia Oblast). This area encompasses the westernmost cluster of YC burial mounds within the Podillia Upland. Grave inventories from this region include amphorae with stylistic and technological connections to Central European cultures (Koško 2011, 184, 185, 188, fig. 6). Notably, a vessel from Grave 6 in Barrow 2 in Porohy (Fig. 1) exhibits an undeniable resemblance to the amphorae from the A-horizon of the CWC (Ivanova *et al.* 2014). This evidence strongly suggests that the Podillia region along the middle Dnister basin served as a hub of extensive interactions between Eastern and Western communities. It might also have been a place where communities with new cultural features, characteristic of the Central European Final Eneolithic (CWC), began to take shape.

Recognizing the significance of this issue in prehistoric studies, the Yampil barrows became the focus of research for a Polish-Ukrainian field expedition conducted from 2010 to 2014. This article aims to provide a summary of chronometric data and a review of taxonomic findings concerning grave materials excavated during that period.

2. YAMPIL BARROW COMPLEX

The Yampil rayon area lies within the forest-steppe zone, situated in the middle Dnister basin on the fringes of the Podillia Upland. The landscape is profoundly influenced by its loess subsoil, currently covered by chernozem, resulting in a terrain characterized by deep, branching gorges and plateau-like watershed areas (Makohonienko and Hildebrandt-Radke 2014). This topography offers expansive vistas, with sweeping views extending for tens of kilometres across gentle hills. In contrast, the deep valleys of rivers and streams in the Podillia Upland remain hidden from view due to the elevated plateaus. These visual attributes are shaped by the prevailing vegetation, predominantly meadows of a steppe nature, although many have now transformed into arable fields and pastures. Historically, these areas were favoured by nomadic herding communities.

Thanks to the efforts of the archaeological heritage services in Vinnytsia, 156 burial mounds have been documented within the administrative boundaries of the Yampil region, covering approximately 790 square kilometres (Jachimowicz and Żurkiewicz 2017, 11, 12). It is important to note that this picture represents only the mounds identified during field inspections, as they stand out in relief against the landscape (Fig. 2). Further analysis of satellite images suggests the existence of hundreds of more eroded mounds, now only discernible as dark patches in cultivated fields.

Within the Yampil cluster, one finds individual mounds as well as compact groups and chains of barrows. A spatial analysis indicates that these mounds are strategically situated on elevated terrain (Fig. 3), usually facing south and southwest, highlighting the impor-

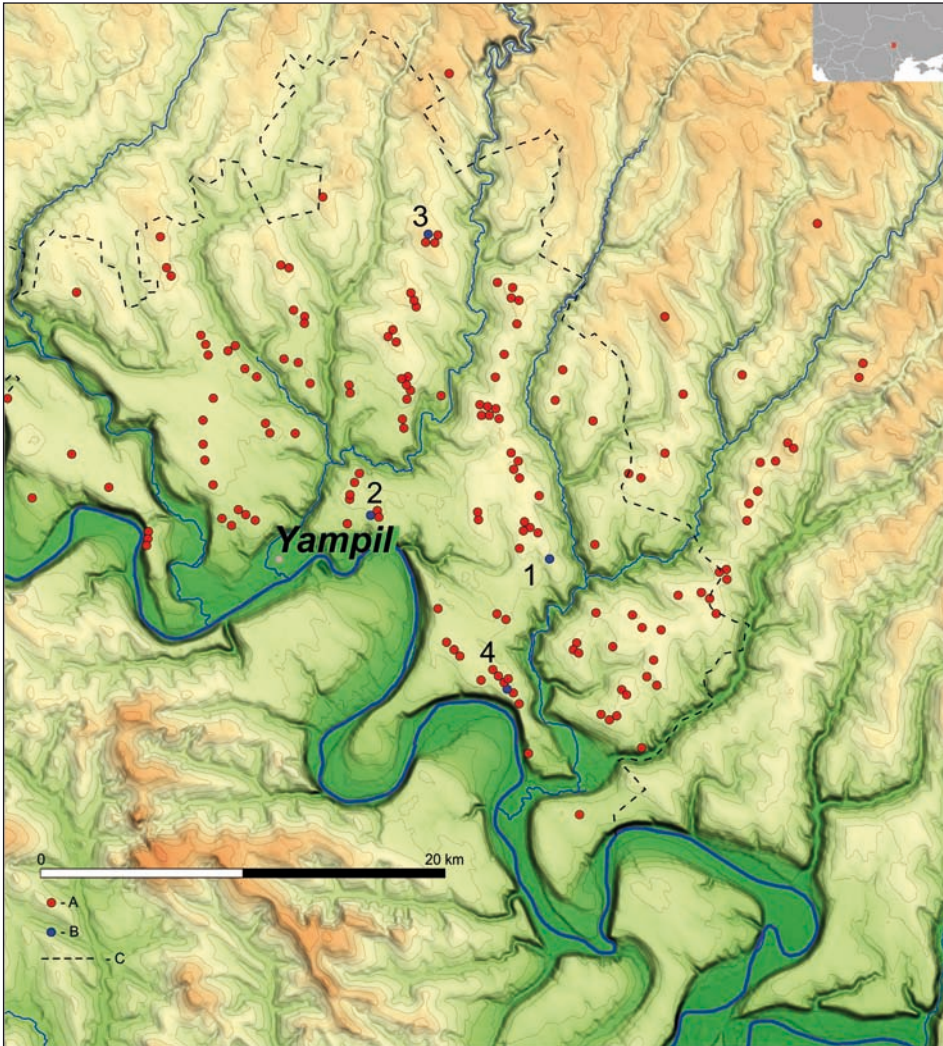


Fig. 2. Yampil barrow complex. A – barrows, B – barrows excavated by Polish-Ukrainian expedition in 2010-2014 (1 – Pidlisivka, 2 –Porohy, 3 – Klembivka, 4 – Prydnistryanske), C – borders of the Yampil rayon. Illustrated by R. Skrzyniecki

tance of visibility for the builders in establishing a network of relationships throughout the region (Jachimowicz and Żurkiewicz 2017).

Sixteen burial mounds in the Yampil rayon were excavated between 1984 and 1993 during various rescue operations. Among them, three barrows in Porohy were explored, where three graves containing amphorae with stylistic connections to Central European pottery were discovered (Iwanowa *et al.* 2014). Unfortunately, a fire in the archaeological



Fig. 3. Barrow IV from Prydnistryanske, Yampil rayon (excavated in 2014 by Polish-Ukrainian expedition). Photo by D. Żurkiewicz

storage facilities has resulted in the loss of bone materials gathered during that time, which could have otherwise been valuable subjects for a variety of analyses. An important accomplishment of the Polish-Ukrainian project was the collection, preparation, and publication of the research results from the years 1984-1993 (Harat *et al.* 2014). The primary aim was to gather as much evidence as possible about the barrow complexes, providing a clear understanding of their chronology and attributes. Nevertheless, in order to obtain appropriate material for specialized analyzes (including chronometric and bioarchaeological ones), new excavations of the barrows from the Yampil cluster were carried out.

3. EXCAVATIONS OF YAMPIL EXPEDITION (2010-2014)

Between 2010 and 2014, the Yampil expedition conducted excavations on seven barrows at four different sites: Pidlisivka (Klochko *et al.* 2015a), Porohy (Klochko *et al.* 2015b), Klembivka (Klochko *et al.* 2015c), and Prydnistryanske (four burial mounds; Klochko *et al.* 2015d). This extensive project was made possible through agreements established between the Institute of Archaeology of the National Academy of Science of Ukraine in Kyiv and the Adam Mickiewicz University in Poznań, Poland, with the collaboration of the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in Kraków. Leading the

Ukrainian team during the years 2010-2012 was Sergey Razumov, and in 2014, Viktor Klochko took the helm. On the Polish side, Aleksander Koško managed the expedition, with contributions from Piotr Włodarczak and Danuta Żurkiewicz. Mykhailo Potupchuk from the heritage office in Vinnytsia, a researcher of the Yampil barrows in the 1980s and 1990s, also participated in the fieldwork.

The excavations involved the use of mechanical equipment and the application of a methodology developed by Ukrainian researchers for the exploration of burial mounds (Koško and Razumow 2014). The barrow layers were systematically examined within trenches oriented along the west-east axis, with widths ranging from 4.5 to 7 metres. Efforts were made to document the vertical sections of the barrow, both in the central area and on the outskirts of the mound. A comprehensive description of the investigated features, materials, and analytical work carried out can be found in two volumes of the “Baltic-Pontic Studies” journal (issues 20 and 22) and in volume 6 of the “Archaeologia Bimaris” series (Koško ed. 2015; 2017; Koško *et al.* eds 2014). Genetic research results on prehistoric Yampil populations within the broader context of Central Europe are discussed in a separate paper (Juras *et al.* 2018).

A significant objective of the project was to obtain chronometric data for determining the ages of individual cultural phenomena in Yampil, particularly those from the Late Neolithic and Early Bronze Age periods. A total of over 60 radiocarbon (^{14}C) dates were obtained for 40 archaeological features, initially at a laboratory in Kyiv and later at the Poznań Radiocarbon Laboratory. The dated materials primarily included human bones, alongside wood samples, animal bones, and charcoal. Previous publications have on multiple occasions presented the dating results and discussions regarding the chronology of the barrow cemeteries in the Yampil region (*e.g.*, Goslar *et al.* 2014; Goslar *et al.* 2015; Włodarczak 2017). Expanding the ^{14}C dating database and conducting new taxonomic studies offer opportunities to validate earlier findings.

The summary of research results presented below for individual burial mounds takes into account several revisions in taxonomic and chronological definitions compared to the previous presentations. These observations pertain solely to burials from the 4th and 3rd millennia BC. More comprehensive excavation results are published in volume 20 of “Baltic-Pontic Studies” from 2015 (Koško ed. 2015).

Pidlisivka, Barrow 1 (2010)

Barrow 1 was situated on the plateau of the right bank of the Yalanka River, near its confluence with the Markivka, approximately 7 km north of the Dnister valley. At the outset of the 2010 research, the barrow’s diameter was approximately 30 metres, and its height did not exceed 1 metre due to extensive ploughing. It had also suffered partial destruction during World War II as it was dug into to create artillery positions. A 4.5-7 metre wide ditch, resulting from soil extraction, delineated the original boundary of the barrow (Koško *et al.* 2014; Klochko *et al.* 2015a).

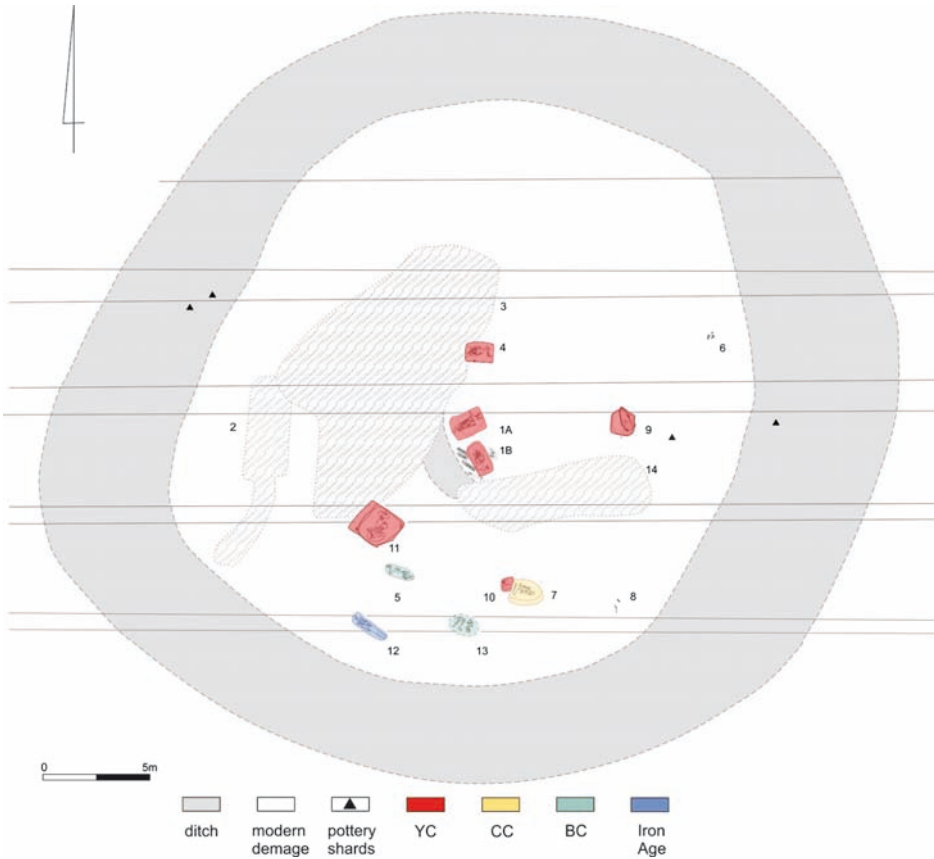


Fig. 4. Pidlisivka, Yampil rayon. Plan of Barrow 1.

YC – Yamna culture, CC – Catacombna culture, BC – Babyno culture. Illustrated by D. Żurkiewicz

The extensive damage to the barrow makes it challenging to reconstruct its chronological phases. The arrangement of the graves suggests that the mound was constructed in two stages, associated with Graves 1A and 1B located in the central portion (Fig. 4). The primary burial for the earlier stage was Grave 1B (Fig. 5), where an adult male was interred. This was classified as Late Eneolithic based on the arrangement and orientation of the chamber, as well as the absence of ochre usage in the burial ritual (Klochko *et al.* 2015a). However, radiocarbon dating of the bones from this burial points to a date in the first half of the 3rd millennium BC (2846-2577 cal BC, 68.3% probability).

A similar age range was established for Grave 1A, which was probably dug into a small mound constructed over Grave 1B (Goslar *et al.* 2014, 308, fig. 4.1:1). An adult man was buried in a rectangular pit, with his head facing west. The skeleton of a child aged 7-8 was also found approximately 20 centimetres above this burial in the same pit. The man's burial



Fig. 5. Pidlisivka, Yampil rayon, Barrow 1. Grave 1B – the primary burial of the first barrow phase.
Photo by D. Żurkiewicz



Fig. 6. Pidlisivka, Yampil rayon, Barrow 1. Grave 1A – the primary burial of the second (?) barrow phase.
Photo by D. Żurkiewicz

exhibited early YC characteristics due to the arrangement, head orientation, and use of ochre (Fig. 6). Presumably, this grave was connected with the second phase of barrow construction, although the precise stratigraphic relationship between Features 1A and 1B remains uncertain.

Burials from the Early Bronze Age (Nos 4, 7, 9, 10, and 11), the Babyno culture (Nos 5, 7, 13, and possibly 8), and the early Iron Age (No. 12) were placed within the body of the mound. Beneath the mound, a cluster of cattle bones deposited in a basin-shaped depression was discovered (Feature 6, possibly a sacrificial pit). It was probably associated with the barrow's construction phase. The Early Bronze Age burials varied in terms of burial construction features, the positioning of the deceased, and the use of ochre.

Porohy, Barrow 3A (2011)

Barrow 3A was situated on a prominent promontory at the confluence of the Dnister and Rusava rivers. On the southern part of this headland, there were four mounds in a linear north-south arrangement, including Mound 2, which had been examined in 1984 (Potupczyk and Razumow 2014, 37, fig. 1.2: 2). There, two royally equipped burials from the Sarmatian period had been discovered (Simonenko and Lobay 1991), along with a YC grave containing an A-amphora of the CWC (Fig. 1; Harat *et al.* 2014, 84-87). Barrow 3A, the northernmost in this group, had a diameter of about 40 metres. When the research commenced in 2011, its height was 1.2 metres, with a 1933 topographic map noting a height of 3.6 metres. Therefore, the barrow had undergone significant damage, mainly due to ploughing. The mound's boundary was marked by a ditch up to 10 metres wide and an average depth of 0.5 metres (Klochko *et al.* 2015b).

The central grave (No. 14) had been destroyed by a substantial modern trench dug by treasure hunters (Fig. 7). This intrusion also obliterated most of Grave 2 (YC), potentially the central burial for the second phase of barrow construction. Taking into account the presence of a stone cromlech, a stele (subsequently used to build the circle – Fig. 7: B), and two large post-holes, the oldest phase of the barrow in Porohy was dated to the Late Eneolithic period (Klochko *et al.* 2015b). Regrettably, an attempt to date the bone remains found in a secondary position in the destroyed Feature 14 was unsuccessful (the obtained age corresponds to the Babyno culture; Poz-74396: 3675±35 BP). Nonetheless, the Eneolithic age of Barrow 3A appears likely.

Grave 2 (YC) was situated in the central part of the mound, and its discovery depth (0.5 metres) implies that its floor was originally approximately 3 metres below the mound's summit. Hence, it was most likely that the central grave was linked to the expansion of the barrow's size. Nevertheless, due to the destruction of the central part, it is impossible to ascertain whether it was related to the second phase or any subsequent phases (given the depth of discovery, the latter is more plausible).

In addition to Feature 2, eleven other YC graves were discovered (Nos 1, 3, 7, 10-12, 15, 17-20), most of which formed an curved zone encircling the centre of the mound at a distance of roughly 5-7 metres. Outside this area, only graves 18 and 20 were found.

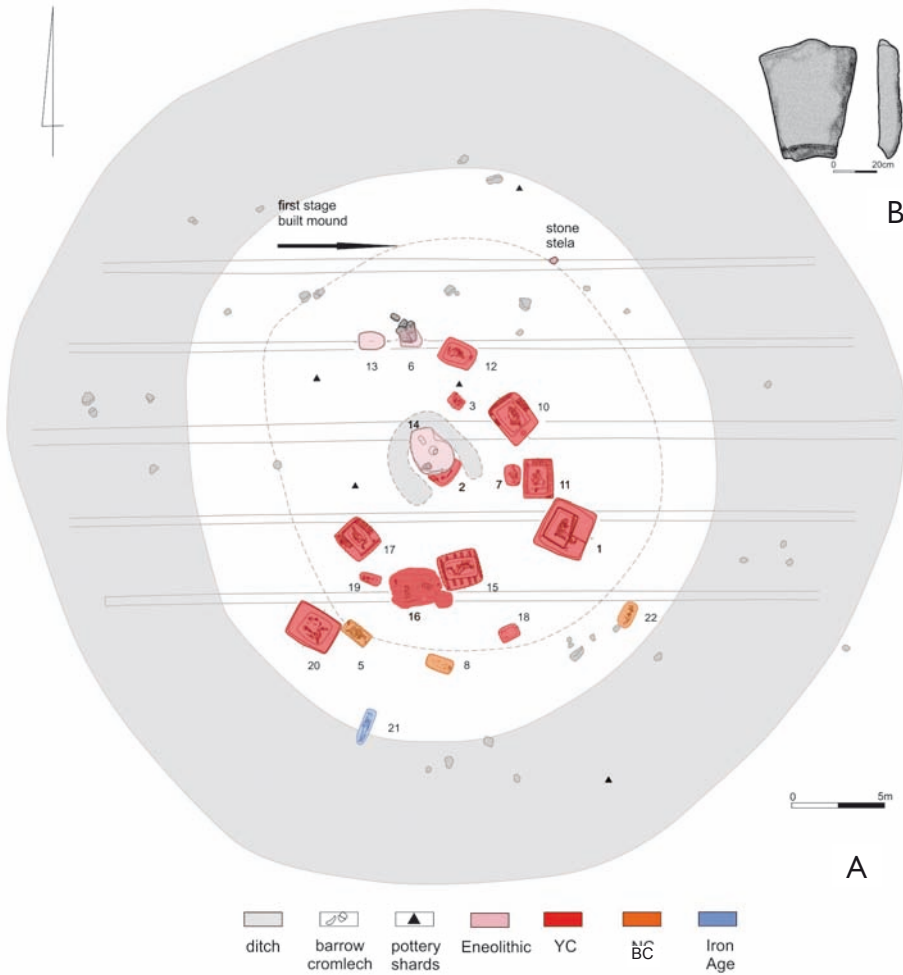


Fig. 7. Porohy, Yampil rayon. A – plan of Barrow 1, B – stone stele, YC – Yamna culture, BC – Babyno culture. Illustrated by D. Żurkiewicz

In the Late Bronze Age, three Babyno culture graves were excavated in the southern part of the barrow (Nos 5, 8, and 22). In the Sarmatian period, grave 21 was dug into its southern edge.

Porohy's burials stand out due to the distinctive nature of the YC funeral rituals (Klochko *et al.* 2015b; Włodarczak 2017). The deceased were placed in a semi-supine position (Graves 1, 10, and 20) or on their sides (Graves 3, 7, 12, 15, and 17), with only occasional instances of a supine position (Grave 11). No burials featuring early YC characteristics were found. Typologically, the Porohy burials represent the late YC phase (though not the



Fig. 8. Porohy, Yampil rayon, Barrow 3A, Grave 10. Barrow of adult woman (late Yamna culture). Photo by P. Włodarczak

latest, as seen in the mounds on the Budzhak steppe), a conclusion supported by the radio-carbon dating discussed in subsequent sections.

A unique discovery in Barrow 3A was Grave 10, belonging to a woman aged 25-30 years (Fig. 8). Traces of pigment on the forearm bones of both limbs were documented and interpreted as either paintings (Lorkiewicz-Muszyńska *et al.* 2017) or being from tattoos preserved due to the corpse's mummification (Włodarczak 2021).

Klembivka, Barrow 1 (2012)

Barrow 1 was located on the northern edge of the Yampil cluster, on a high watershed running along the north-south axis between the Rusava and Korytna rivers, about 15 km from the Dnister Valley. It had a diameter of 40 metres and a height of 1.2 metres. The barrow was encircled by a ditch up to 6 metres wide and 0.5 metres deep. During the excavations, three graves dating back to the 3rd millennium BC were discovered, along with two sacrificial deposits of animal bones from the same period (Fig. 9). In addition, ten graves from the Late Bronze Age, associated with the Babyno and Noua cultures, were found (Klochko *et al.* 2015c).

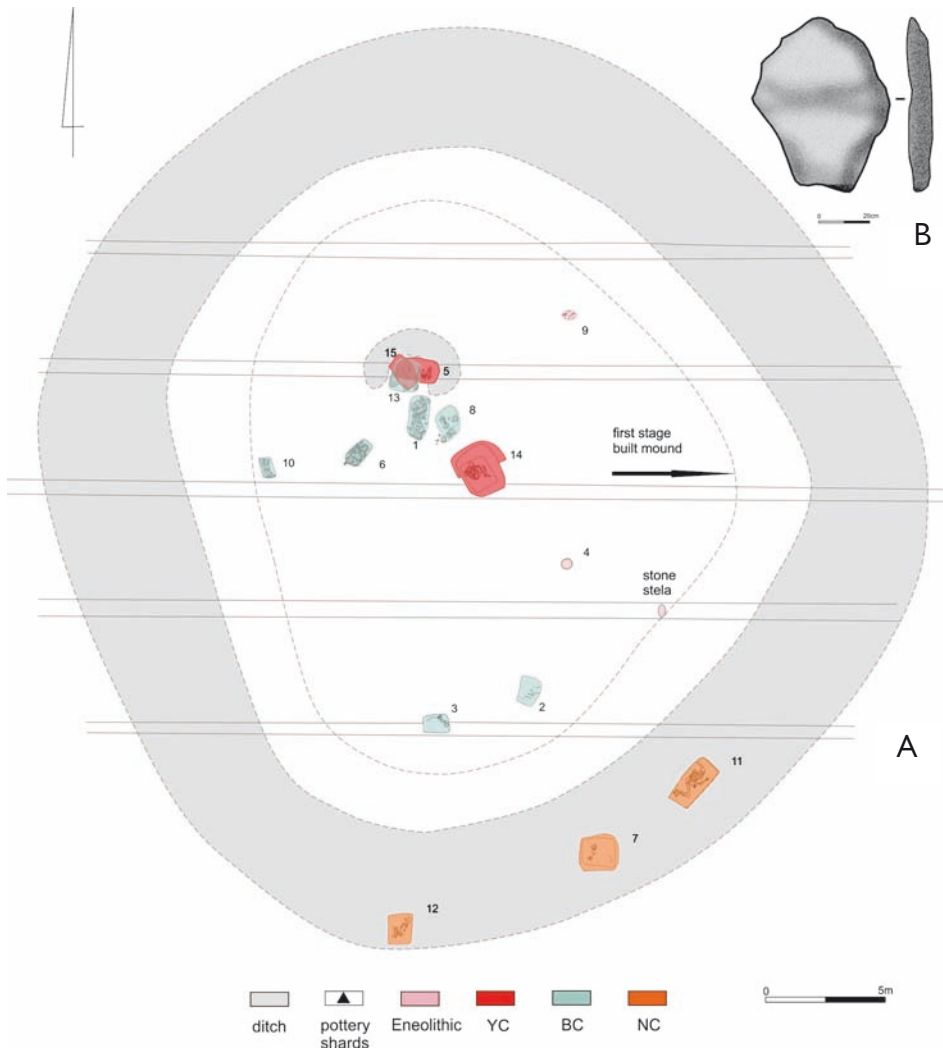


Fig. 9. Klembivka, Yampil rayon. A – plan of Barrow 1, B – stone stele.

YC – Yamna culture, BC – Babyno culture, NC – Noua culture. Illustrated by D. Żurkiewicz

Due to significant erosion, it is challenging to accurately reconstruct the stratigraphic sequence of Klembivka. There appear to have been two stages of barrow construction. Grave 15 was the primary burial for the earlier phase. In a non-regular pit, the poorly preserved remains of a person aged 15-20 years were discovered (Fig. 10). The deceased was placed in a supine position with the lower limbs bent, and the head was oriented to the northwest. The position of the preserved proximal parts of the forearm bones suggests that the upper limbs were extended along the body. A lump of ochre was found near the left



Fig. 10. Klembivka, Yampil rayon, Barrow 1. Grave 15 – primary burial of the first barrow phase.
Photo by P. Włodarczak

shoulder. The remains of the mat on which the deceased was placed were also documented. However, no wooden roof construction was found. In general, most aspects of the funeral ritual for Grave 15 point to early YC trends. The only exceptions are the irregular shape of the burial pit and the absence of traces of a wooden roof.

Grave 5 was excavated in the central part of the mound constructed above Grave 15. It was probably associated with the second phase of the mound's construction. The third grave from the Early Bronze Age was Feature 14, also dug into the oldest burial mound (Fig. 11). It is possible that Grave 14 was linked to a second layer of barrow construction, which went unrecorded due to erosion. In a deep square pit, a man (25-30 years) was buried in a tightly contracted position on his left side. The burial was considered Eneolithic (Klochko *et al.* 2015c, 175), corresponding to type IIIC (Rassamakin 2004, 55-59), typical of the Zhivotilovka-Volchansk group and similar cultures. However, its absolute dating to the beginning of the 3rd millennium BC contradicts this interpretation.

On the southeast edge of the older barrow, at an approximate depth of 0.6 metres (*i.e.*, at the original ground level), an anthropomorphic stele made of limestone measuring 0.7 x 0.7 x 0.1 metres was discovered (Fig. 9: B). Moreover, two small concentrations of animal bones were found in two places, potentially related to sacrificial deposits made during the barrow's construction. A domestic horse bone was uncovered on the eastern edge of the



Fig. 11. Klembivka, Yampil rayon, Barrow 1. Grave 14. Photo by P. Włodarczak

younger layer of the barrow, and the bone of a small ruminant was found on the eastern edge of the older mound. Additionally, two sacrificial pits with animal bones were associated with the older mound's construction phase (Features 4 and 9).

Subsequently, seven graves of the Babyno culture were dug into the fully formed barrow (Nos 1-3, 6, 8, 10, and 13), with ^{14}C dates indicating a range from 1880 to 1771 BC. Three Noua culture graves (Nos 7, 11, and 12) are dated to a slightly later period (1443-1311 BC), forming a cluster in the southern zone, in the barrow ditch.

Prydnistryanske, Barrows I-IV (2014)

On a lengthy promontory situated between the Dnister and Markivka rivers, a series of barrows is aligned along a north-south axis. This collection includes four mounds that underwent examination in 2014, as reported by Klochko *et al.* in 2015. Among them, we



Fig. 12. Prydnistryanske, Yampil rayon, Barrow I. Grave 4 – burial of Catacombna culture.
Photo by M. Podsiadło

find three smaller, significantly eroded mounds (designated as Nos I-III) closely aligned in a row. In addition, there is a larger, better-preserved barrow (No. IV) located approximately 60 metres to the north (Fig. 3).

Barrow I: This barrow, with a diameter of about 20 metres and a remaining height of just 0.3 metres (Klochko *et al.* 2015d, 188, fig. 5), is encircled by a ditch (a result of soil extraction). Notably, no traces of burial were found in the primary grave (I/1). The fill contained only two fragments of pottery from the late phase of the Trypillia culture, as well as a fragment of a wooden object. In the eastern part of the barrow, a double burial of the Catacombna culture (I/4) was discovered (Fig. 12), and later, two features, including a grave, from the Sarmatian period (I/2 and I/3).

Barrow II: This mound, with an oval shape and dimensions of approximately 23 by 20 metres, maintains a height of no more than 0.2 metres (Klochko *et al.* 2015d, 196, fig. 11). Like Barrow I, no burial traces were identified in the primary grave (II/2), but a few wood fragments were discovered in its fill. Radiocarbon dating of one of these fragments places it in the Late Eneolithic period. In the vicinity of Grave II/2, a hearth (Feature II/1) was found, marked by a cluster of charcoal and burnt earth lumps. In the southern section of the mound, a pit with an unknown purpose (Features II/3) contained limestone rocks, as

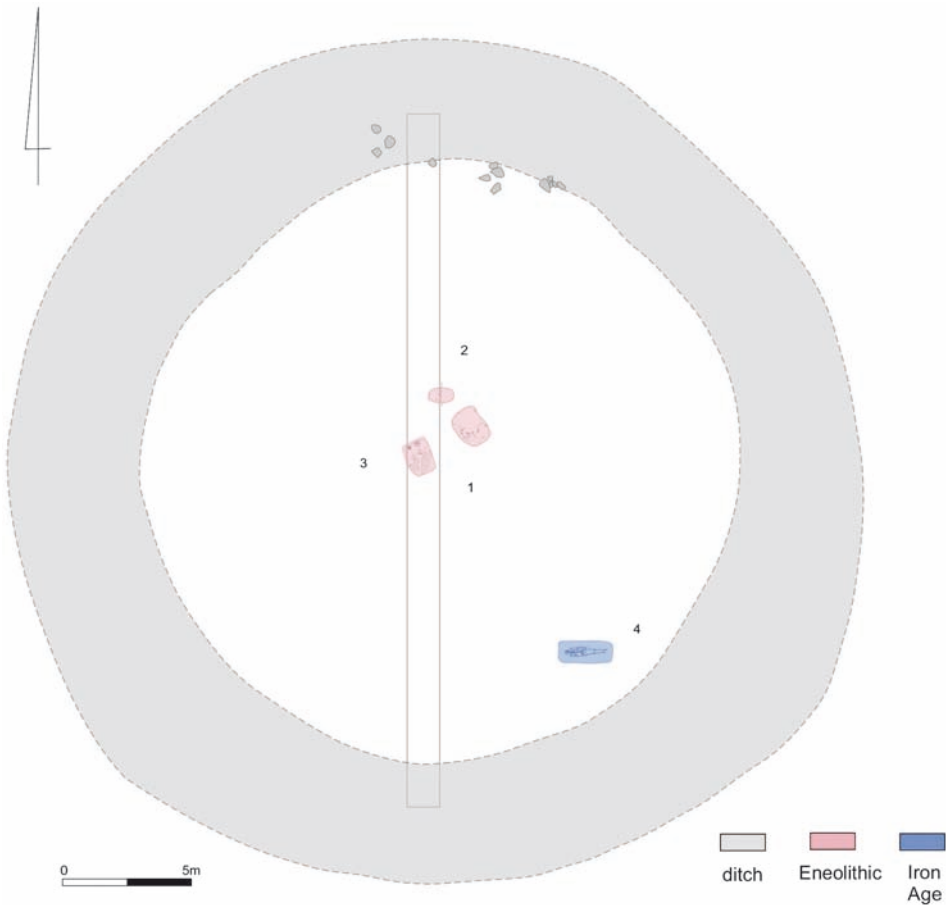


Fig. 13. Prydnistryanske, Yampil rayon. Plan of Barrow III.
Illustrated by D. Żurkiewicz

well as nine human bone fragments in its lower layers. Radiocarbon dating of Feature II/3 indicates a modern age.

Barrow III: This circular mound, approximately 24 metres in diameter and with a remaining height of about 0.15 metres, was enclosed by a basin-shaped ditch (Fig. 13). Limestone pieces were discovered on the border of this ditch and the mound, with a greater concentration on the northern edge. Under the mound's central part, two pits were uncovered. Feature III/1 held disturbed remains of an adult individual and fragments of a Gordinești-type vessel (Klochko *et al.* 2015d, 205, fig. 18). At the bottom of Feature III/3, an amphora, a beaker (of the Gordinești group pottery type – Fig. 14: 2, 3), and a stone battle-axe (Fig. 14: 1) were found. In the upper part of the barrow, a concentration of human



Fig. 14. Prydnistryanske, Yampil rayon, Barrow III. Grave 3 and its inventory. Illustrated by D. Żurkiewicz and M. Podsiadło

remains (an adult and a child in Feature III/2) was observed, possibly originating from the disturbed Grave III/1. In the southeast part of the mound, a human burial dating back to the early Middle Ages was located (Feature III/4).

Barrow IV: This mound, boasting a diameter of 35 metres and a height of 2.5 metres, was encircled by a circular ditch up to 15 metres wide (Fig. 15). Regrettably, the eastern edge of the barrow had to remain unexcavated due to the presence of a powerline pole. Stratigraphic analysis revealed three construction phases of the barrow. The oldest phase, dating to the second half of the 4th millennium BC, involved the creation of a small mound with a diameter of 17-19 metres above Grave IV/10, featuring a catacomb construction. Radiocarbon dating of this feature places it in the Late Eneolithic period. The oldest barrow suffered disturbance through an extensive, irregular trench (Feature IV/11), which obliterated a significant portion of its central area, possibly due to animal burrows. Subsequent construction phases of the barrow are connected to the YC. A complex grave, associated with the early YC, known as Grave IV/4, was excavated in the eastern part of the Eneolithic barrow (Fig. 16). This elaborate construction, including stone block covering and additional wooden elements, signifies the high status of the interred individual. This burial led to the expansion of the mound, primarily on the eastern side, increasing its diameter to approximately 25 metres. A second grave from the YC (Feature IV/6) was exca-

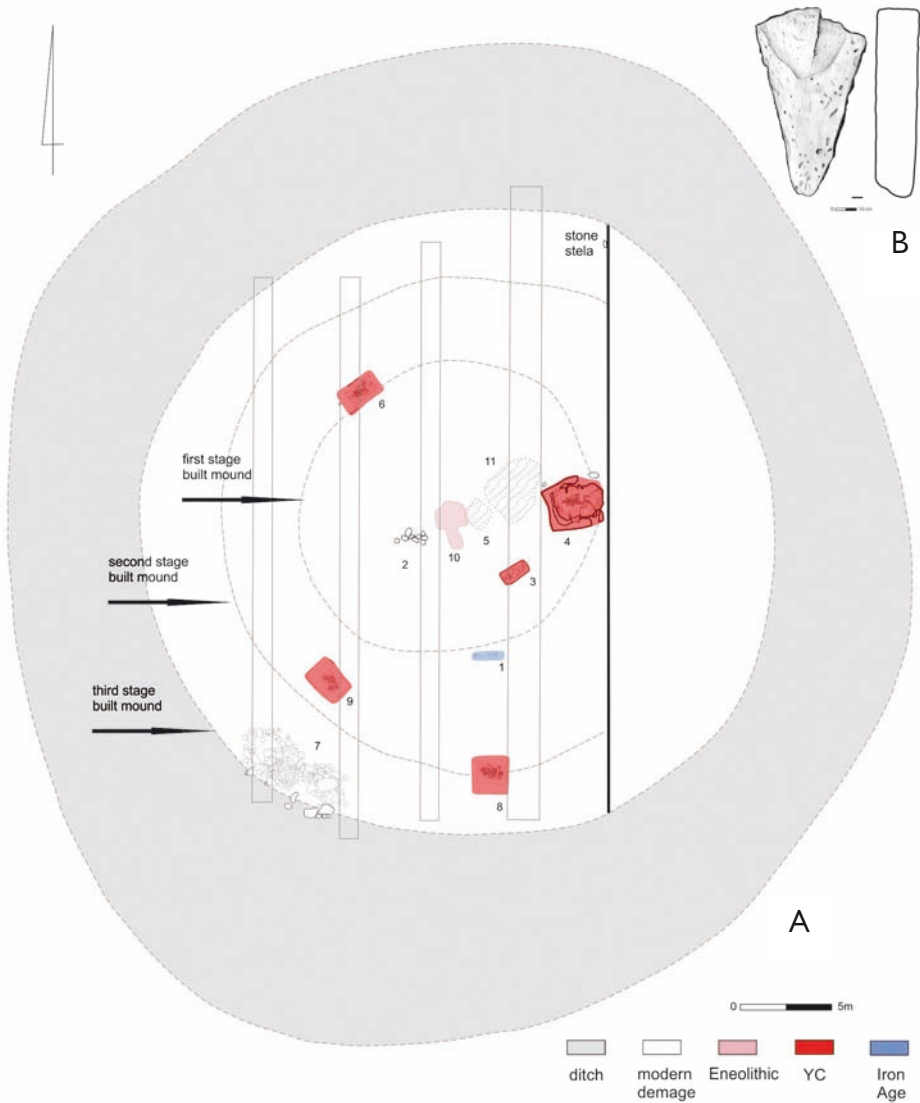


Fig. 15. Prydnistryanske, Yampil rayon. Plan of Barrow IV. YC –Yamna culture. Illustrated by D. Żurkiewicz

vated in the mound, around two hundred years later. The final stage of the barrow's construction, marking its ultimate dimensions, is associated with this burial, also from the early YC. Subsequently, three late YC graves were inserted into the southern side (designated as IV/3, IV/8 - Fig. 17, and IV/9). Much later, a Sarmatian period grave (IV/1) was discovered on the southern slope of the barrow.



Fig. 16. Prydnistryanske, Yampil rayon, Barrow IV. Grave 4 – burial of the early Yamna culture.
Photo by M. Podsiadło



Fig. 17. Prydnistryanske, Yampil rayon, Barrow IV. Grave 8 – burial of the late Yamna culture.
Photo by P. Włodarczak

4. CHRONOMETRY OF THE YAMPIL BARROWS

The list of radiocarbon dates for the Yampil barrows, as published by Goslar *et al.* in 2015, has been expanded with additional results obtained for Barrow 3A in Porohy and one for Pidlisivka. These findings provide an opportunity to propose a new chronology for the Podillian barrow communities. Previous research had primarily relied on results from four burial mounds in Prydnistryanske to establish the periodization of the Yampil barrows, marking the Late Eneolithic stage, late Trypillia Gordinești, or Zhivotilovka-Volchansk groups, followed by the Early and Late/Classic YC phases. Now, a more extensive series of dates from Porohy allows us to refine the chronology of the late YC. Additionally, the taxonomic and chronological assessments of the burials in Klembivka need to be partially revised. The following dating lists of the Yampil barrows take into account the results obtained at the Poznań Radiocarbon Laboratory. The dates obtained at the Kyiv laboratory were previously compiled in a publication by Goslar *et al.* in 2015. While some of these dates confirm the results presented below, in other cases, they deviate from our expectations.

Stage I – Late Eneolithic

For the central graves in all four barrows at Prydnistryanske, we obtained similar absolute ages, suggesting years around 3350-3150 cal BC (Table 1; Goslar *et al.* 2015). These dates represent the oldest horizon of barrow graves in Podillia to date (Fig. 18). Determining the taxonomic relationships of the Eneolithic burials from Prydnistryanske proved challenging. The presence of characteristic pottery in Features III/1 and III/3 suggested a connection with the Gordinești group (Klochko *et al.* 2015d). Some researchers also associated the barrow ritual observed at various Moldovan sites with this Late Trypillia cultural phenomenon (Larina 2003). However, burials from the Zhivotilovka-Volchansk group exhibited similar features, frequently featuring pottery from the Gordinești group

Table 1. Radiocarbon dates of late Eneolithic graves from barrows nos I-IV in Prydnistryanske, Yampil rayon

Barrow	Grave no.	Dated material	Lab code	Age BP	Calendar age BC (68.2%)*
Prydnistryanske I	1	Wood	Poz-66214	4640 ± 40	3504-3365
Prydnistryanske II	2	Wood	Poz-66222	4655 ± 35	3507-3370
Prydnistryanske II	1	Charcoal	Poz-66221	4485 ± 30	3331-3100
Prydnistryanske III	1	Human bone	Poz-66224	4540 ± 35	3363-3109
Prydnistryanske III	2	Human bone	Poz-66225	4530 ± 35	3359-3107
Prydnistryanske III	3	Wood	Poz-71367	4510 ± 40	3346-3104
Prydnistryanske IV	10	Human bone	Poz-66234	4520 ± 40	3355-3105

* OxCal calibration program v4.4.4 (Bronk Ramsey 2021)

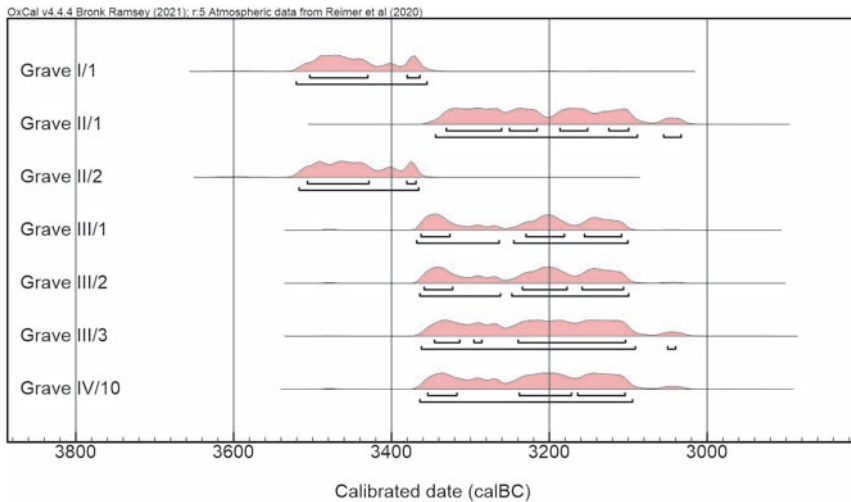


Fig. 18. Calibration results of ^{14}C ages of samples from Barrows I-IV at Prydnistryanske (late Eneolithic phase). For the calibration, the Oxcal v4.4.4 software (Bronk Ramsey 2021) was used

(Rassamakin 2004, 126). No inhumation burials with preserved body positioning were discovered in the graves at Prydnistryanske. The pits were oriented along the NW-SE axis, and in the case of Features III/1 and III/3, it can be suggested that the deceased were placed with their heads facing SE. This orientation aligns with the Zhivotilovka-Volchansk group's burial ritual (Dergachev 2022, 161). On the other hand, secondary interventions in burial chambers, leading to the decomposition or removal of human remains, are characteristic of the Gordinești group's ritual and have been documented at sites in northern Moldova near Prydnistryanske (Larina 2003; 66). The ^{14}C dating of Eneolithic features from Prydnistryanske aligns with the results obtained for the Zhivotilovka-Volchansk group graves in Bursuceni (Petrenko and Kovaliukh 2003) and Cimișlia (Popovici and Ciobanu 2021), as well as for settlements of the Gordinești group (Rybicka *et al.* 2020).

Stage II – Early Yamna

The marker for the early YC in the Podillia region is Grave 4 from Barrow IV in Prydnistryanske. It was excavated in the eastern part of the Eneolithic mound and was associated with a significant extension of the barrow. This grave featured a monumental construction, including a wooden chamber casing and stone slabs, probably reused stelae, as well as mats and wooden poles forming a roof (Fig. 19). The chamber had a rectangular shape with vertical, straight, and carefully finished walls. The deceased, a man aged 35-50 and approximately 187 cm tall, was placed on a mat in a supine position with the lower limbs curled up and the upper limbs stretched along the body. The body was oriented



Fig. 19. Reconstruction of Grave IV/4 from Prydnistryanske, Yampil rayon.
Illustrated by M. Podsiadło

along the W-E axis, with the head facing W. The bones were adorned with ochre in several places, and the upper part of the skull exhibited an intense coloration. A separate lump of bright red ochre was found near the head. This ritual is characteristic only of male burials from the older phase of YC and has strong parallels in graves from the burial mounds of this culture in the steppe zone, especially along the lower Dnister, Inhul, Inhulets, and the

Table 2. Radiocarbon dates of graves from the early-Yamna period

Barrow	Grave no.	Dated material	Lab code	Age BP	Calendar age BC (68.2%)*
Klembivka 1	15	Human bone	Poz-77470	4290 ± 35	2920-2884
Klembivka 1	14	Human bone	Poz-52422	4260 ± 40	2916-2782
Klembivka 1	14	Wood	Poz-52605	4135 ± 35	2862-2630
Klembivka 1	5	Human bone	Poz-70670	4225 ± 35	2898-2707
Pidlisivka 1	1Aa	Wood	Poz-52423	4190 ± 35	2883-2700
Pidlisivka 1	1A	Human bone	Poz-38529	4195 ± 35	2885-2701
Pidlisivka 1	1A	Human bone	Poz-39214	4080 ± 40	2843-2500
Pidlisivka 1	1A	Wood	Poz-52424	4085 ± 35	2842-2504
Pidlisivka 1	1B	Human bone	Poz-102979	4100 ± 35	2846-2577
Prydnistryanske IV	4	Human bone	Poz- 66230	4455 ± 40	3327-3026
Prydnistryanske IV	4	Wood	Poz-66229	4380 ± 35	3024-2921
Prydnistryanske IV	6	Human bone	Poz-70673	4090 ± 40	2846-2505
Prydnistryanske IV	6	Wood	Poz-66231	4185 ± 35	2882-2698

* OxCal calibration program v4.4.4 (Bronk Ramsey 2021)

lower Southern Buh (see, *e.g.*, Shaposhnikova *et al.* 1986, 15; Rychkov 2001, 45). The two radiocarbon dates for this grave differ significantly (Table 2; Fig. 20). A typical result for early YC was obtained for a sample of wood (ash) from the grave construction, indicating the transition from the 4th to the 3rd millennium BC, similar to most western YC results (*e.g.*, Preda-Bălănică *et al.* 2020, 87; Alexandrov and Włodarczak 2022). The date obtained for the bone sample from Grave IV/4 is earlier (3327-3026 cal BC), although the younger part of the range allows reconciliation, suggesting an age around the last century of the 4th millennium BC. This is currently the only such early dating for a YC grave in the Yampil region. Another early YC burial from Prydnistryanske, Grave IV/6, shares similarities with Grave IV/4 in terms of grave construction and body arrangement. However, its ¹⁴C dates indicate a later period, approximately 2850-2600 cal BC.

The early YC rite also extends to Grave 1A from Barrow 1 in Pidlisivka, which was considered primary for the second phase of the barrow's construction. In terms of arrangement, orientation, and the use of ochre, this burial exhibits characteristics typical of YC. Grave 1B, probably older than 1A, differs in its orientation, with the burial at a slightly lower level. Despite the suggested chronology, the arrangement of the deceased aligns generally with the tradition of the early YC. The skull also shows signs of ochre staining. Based on these features and the radiocarbon dating results, it is necessary to revise previous proposals and classify Graves 1A and 1B within the early YC period. Another early YC burial, Grave 15 in Barrow 1 in Klembivka, presents an exception in terms of the irregular shape of the grave pit. This may partly result from the poor preservation condition. Nevertheless,

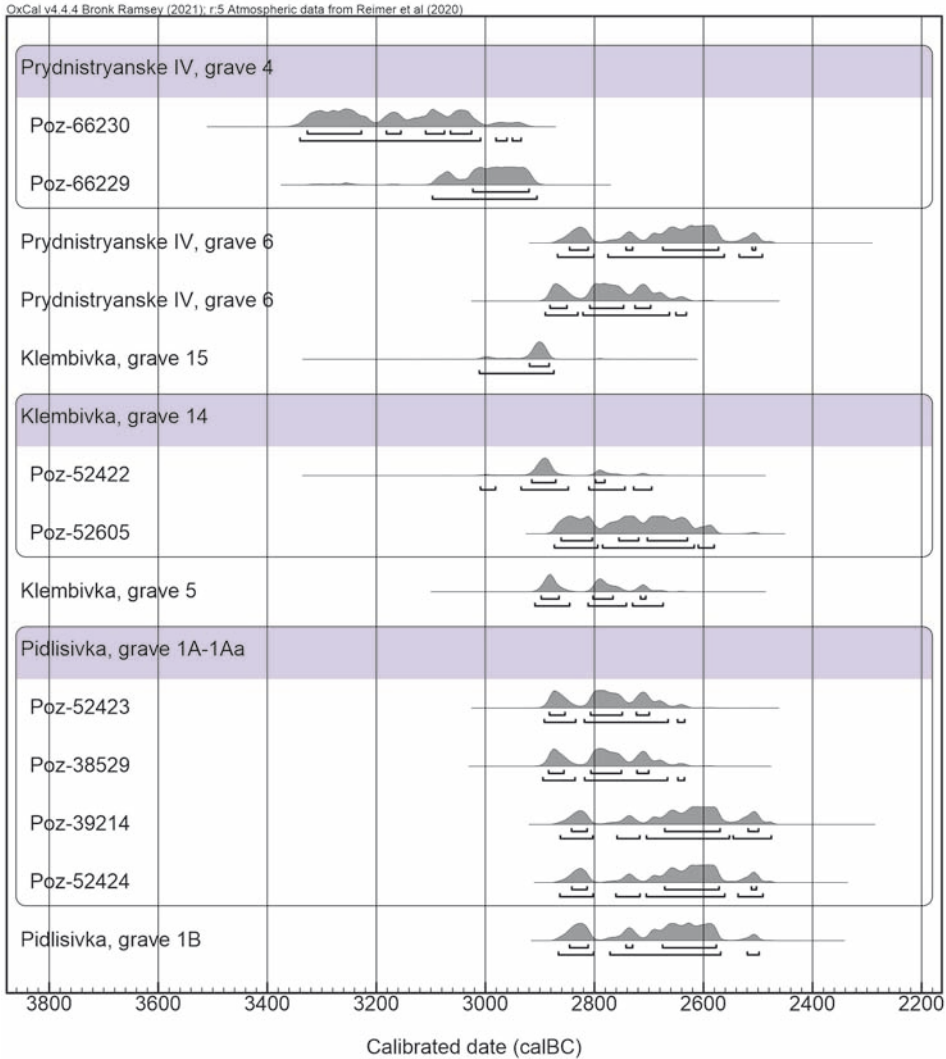


Fig. 20. Calibration results of ¹⁴C ages of samples from the early Yamna graves. For the calibration, the Oxcal v4.4.4 software (Bronk Ramsey 2021) was used

the position, orientation of the deceased, and the presence of an ochre lump near the head indicate a typical early YC burial. This assessment is confirmed by its absolute dating, placing it in the period of 2920-2884 cal BC. However, two subsequent burials from this mound, Nos 5 and 14, were previously considered Eneolithic. Radiocarbon dating, however, suggests an early YC period. The position of the deceased in Grave 14 is particularly characteristic of the Zhivotilovka-Volchansk group and the rite in phase C/II of the Trypillia culture.

Accepting the obtained absolute age, the burials from Klembivka should be considered an example of the preservation of older traditions (Eneolithic funeral rites) into the 3rd millennium BC. Similar exceptions to the dominant YC ritual are known from other Podillia barrows, such as Grave 7 in Barrow 3A in Porohy (Klochko *et al.* 2015b, 99, fig. 18), or Grave 2 from Barrow 2 in Kuzmin (Bubulich and Khakheu 2002, 130, fig. 10: A).

Stage III – Late Yamna

Burials from the later YC phase were discovered in Pidlisivka, Porohy, and Prydnistryanske (Barrow IV). In Prydnistryanske, these features (Nos 3, 8, and 9) were stratigraphically younger than graves from an earlier phase (Nos 4 and 6). Stratigraphic observations confirm the characteristics of the grave construction and burial arrangements. It is possible that Grave 3, located near the top of the barrow, represents a slightly older chronological position, with the same body arrangement and W-E orientation characteristic of the older phase. Features 8 and 9, on the other hand, were dug into the outskirts of the

Table 3. Radiocarbon dates obtained for graves dated to late YC period

Barrow	Grave no.	Dated material	Lab code	Age BP	Calendar age BC (68.2%)*
Pidlisivka 1	11	Human bone	Poz-81793	4085 ± 30	2839-2573
Porohy 3A	1	Human bone	Poz-70668	3760 ± 35	2276-2065
Porohy 3A	1	Wood	Poz-103120	4095 ± 35	2846-2576
Porohy 3A	2	Human bone	Poz-74392	4140 ± 35	2866-2632
Porohy 3A	3	Wood	Poz-103052	4105 ± 30	2846-2580
Porohy 3A	7	Human bone	Poz-70667	4115 ± 35	2852-2584
Porohy 3A	7	Human bone	Poz-102978	3925 ± 35	2470-2346
Porohy 3A	10	Human bone	Poz-74393	4105 ± 35	2847-2580
Porohy 3A	10	Human bone	Poz-81824	4040 ± 35	2622-2488
Porohy 3A	11	Human bone	Poz-47741	4075 ± 35	2837-2500
Porohy 3A	11	Bone of goat	Poz-101625	4070 ± 35	2835-2497
Porohy 3A	12	Human bone	Poz-47742	3985 ± 35	2568--2467
Porohy 3A	17	Human bone	Poz-47743	4050 ± 35	2627-2492
Porohy 3A	17	Human bone	Poz-74394	3930 ± 35	2472-2347
Porohy 3A	18	Bone of goat	Poz-101626	4115 ± 35	2852-2584
Porohy 3A	19	Human bone	Poz-70665	4185 ± 35	2882-2698
Porohy 3A	20	Human bone	Poz-47744	4190 ± 35	2883-2700
Porohy 3A	20	Human bone	Poz-74397	4175 ± 35	2879-2680
Prydnistryanske IV	3	Human bone	Poz-66228	4090 ± 35	2845-2573
Prydnistryanske IV	8	Human bone	Poz-66232	4090 ± 35	2845-2573
Prydnistryanske IV	9	Human bone	Poz-66233	4120 ± 35	2856-2585

* OxCal calibration program v4.4.4 (Bronk Ramsey 2021)

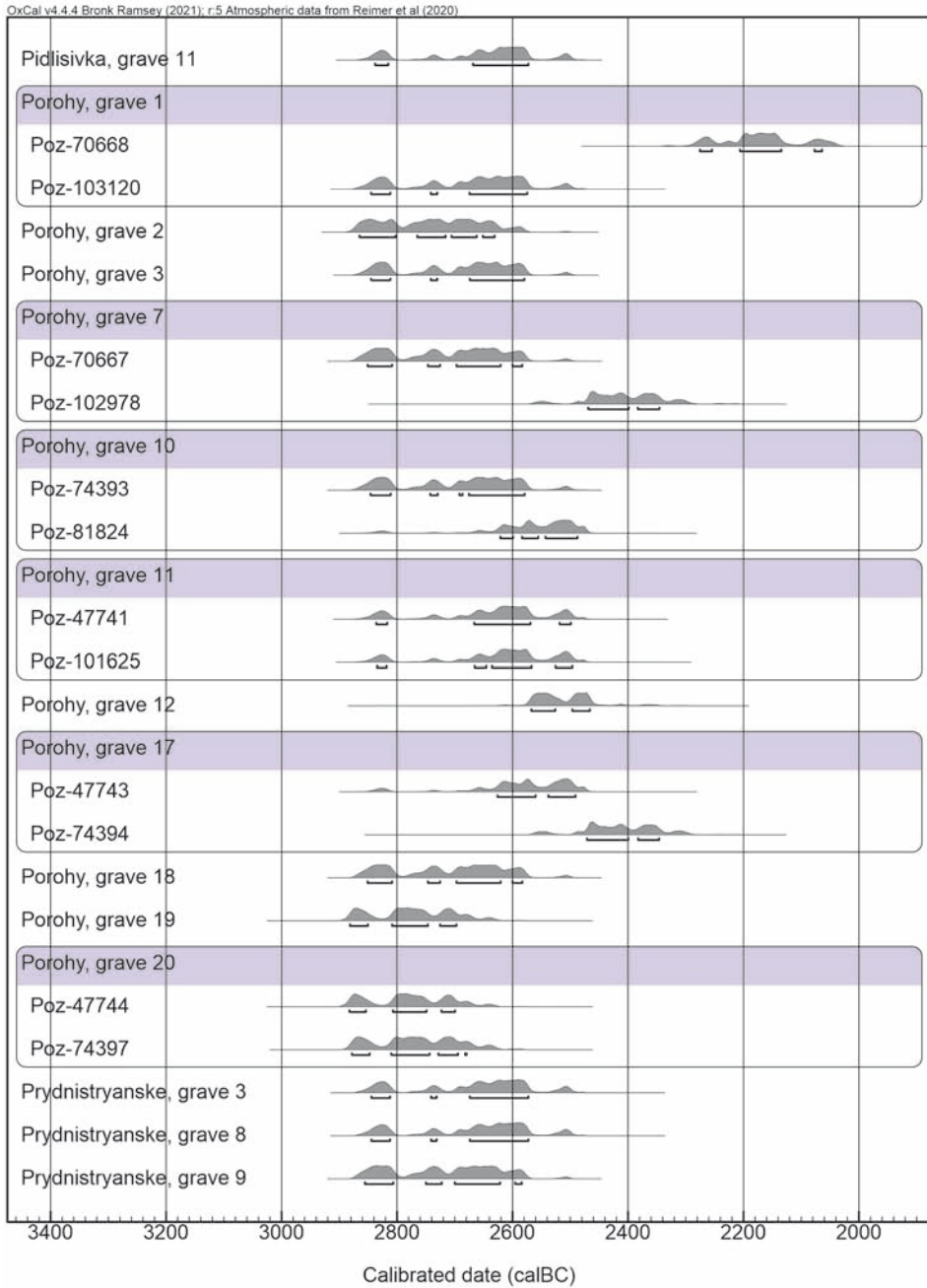


Fig. 21. Calibration results of ¹⁴C ages of samples from the late Yamna graves. For the calibration, the Oxcal v4.4.4 software (Bronk Ramsey 2021) was used

mound, marking a younger phase. Barrow IV in Prydnistryanske provides an example of clear stratigraphy, demonstrating patterns in the northwestern Pontic region. In Barrow 3A in Porohy, a cemetery from the late YC phase was discovered, consisting of 11 graves. Such a significant accumulation of burials is rarely found in the forest-steppe zone of the Podillia Upland and was not observed in the other four burial mounds examined in Porohy. In the Yampil cluster, only Barrow 2 in Severynivka exhibits a similar arrangement of eleven YC graves to that in Porohy 3A (Harat *et al.* 2014, 173, fig. 2). In the neighbouring Kamenka cluster, numerous late YC graves were discovered in Barrows 3 and 6 in Ocnîța, situated around the centre of the mound (Manzura *et al.* 1992, 109, 121, figs 7 and 19). This method of organizing the cemetery reflects a model from the Budzhak steppe (see Yarovoy 1985, 52-61; Dergachev 1986, 36-42). The Podillian sites lack pottery equipment typical of the latest (= Budzhak) YC period. An interesting and challenging issue in this context is the chronological relationship between the dated Yampil graves and features with Budzhak-style pottery. The latter may belong to a later period than the cemeteries of the Porohy 3A type (*cf.* Dergachev 1986, 82-87). The primary grave in Mound 3A in Porohy (No. 14) was unfortunately destroyed by modern treasure hunters. Due to the barrow's construction, the age of its older phase was determined to be Late Eneolithic (Klochko *et al.* 2015b). The modern intrusion also destroyed a significant part of Feature 2 – the YC burial, probably



Fig. 22. Porohy, Yampil rayon, Barrow 3A. Grave 7 – late Yamna stage.
Photo by P. Włodarczak

associated with the barrow's superstructure phase. It is unknown whether this burial was linked to the early or late YC. The radiocarbon date obtained for it is similar to the results from other YC graves (Table 3; Fig. 21). It can only be assumed that Grave 2 is slightly older than the surrounding features. Radiocarbon dating suggests that the absolute age of the Porohy graves falls within the range of approximately 2800-2600 cal BC. Graves 7 and 12 probably have a slightly younger age (around 2600-2400 cal BC), with two distinct ^{14}C results for Feature 7. The correctness of the younger one is supported by the specific burial arrangement and the presence of a fragment of a vessel, secondarily used as a "zharovnia" (a stand for storing embers), an element characteristic of the Catacombna culture stage (Fig. 22). Three late YC graves (Nos 4, 9, and 11) were discovered in the Pidlisivka barrow. Radiocarbon dating was conducted only for Feature 11, yielding a date of 2839-2573 cal BC (Table 3). This date aligns with the analyses performed for the cemetery in Porohy 3A.

Stage IV – Catacombna culture

The documentation of the Catacombna culture phase in the Yampil region is limited. A grave unequivocally connected with the Inhul Catacombna group (Feature I/4) was found only in Barrow I in Prydnistryanske. The absolute age for this feature (Table 4) was estimated to be around 2550-2450 cal BC (Fig. 23). Although this date is surprisingly early, considering the typological features of the burial, it is slightly younger than the estimated age for the late YC in the Yampil region. Burials displaying features of the Catacombna culture were also uncovered in the barrows in Pidlisivka and Porohy. In the former, the poorly preserved Grave 7 probably had a semi-catacomb construction (Klochko *et al.* 2015a, 57, fig. 13). In horizontal projection, its chamber had an oval shape, unlike the rectangular structures of the YC. However, a relatively early ^{14}C date was obtained for this grave, corresponding to the late YC results (Table 4). Attempting to reconcile the typological and absolute dating, one would need to assume the presence of early Catacombna culture features in the Yampil region, dating to around 2850-2600 cal BC. The coexistence of early Catacombna culture and the YC in the Podillia Upland is supported by the discovery of a typical, early-dated grave with a catacomb construction in Barrow 3 in Ocnïta (Klochko

Table 4. Radiocarbon dates for graves of the Catacombna type from Yampil region

Barrow	Grave no.	Dated material	Lab code	Age BP	Calendar age BC (68.2%)*
Pidlisivka I	7	Human bone	Poz-38531	4120 ± 35	2856-2585
Prynistryanske I	4	Wood	Poz-66218	4105 ± 40	2848-2579
Prynistryanske I	4	Human bone	Poz-66219	4070 ± 35	2835-2497
Prynistryanske I	4	Human bone	Poz-66220	3940 ± 40	2556-2347
Prynistryanske I	4	Human bone	Poz-66732	3940 ± 35	2553-2347

* OxCal calibration program v4.4.4 (Bronk Ramsey 2021)

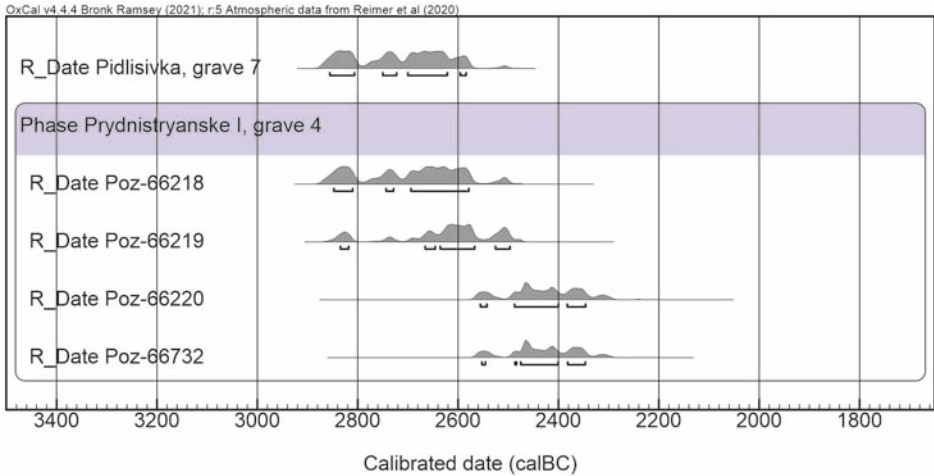


Fig. 23. Calibration results of ^{14}C ages of samples from the Catacombna graves. For the calibration, the Oxcal v4.4.4 software (Bronk Ramsey 2021) was used

1990; Manzura *et al.* 1992, 20, 21). The burial from Grave 7 in Porohy may be an example of a late-dated YC feature with elements of the Catacombna culture's funeral rite. Two distinct ^{14}C dates were obtained for this grave. The younger date – 2470-2346 cal BC (68.3% probability) – appears to align better with the typological assessment of this burial.

5. CONCLUSIONS

During the field research conducted between 2010 and 2014, intriguing sequences of graves were unearthed in four barrow cemeteries located in the Yampil region. The list of 48 radiocarbon dates presented above serves as a crucial reference point for the entire eastern Podillia area, offering valuable insights into the historical context of this region. It is essential to note that the materials collected by the Polish-Ukrainian expedition do not comprehensively represent the taxonomic and chronological diversity of the Yampil barrows, as evident from comparisons with earlier studies in the region, including those in the neighbouring Kamenka region. Chronometric investigations have revealed that the majority of Yampil barrows were constructed during two distinct periods: the late Eneolithic and the early YC. Notably, research on barrows I-IV in Prydnistryanske led to the discovery of the oldest barrow graves in Podillia, marked by pottery from the late Trypillia Gordinești group and dating back to 3350-3150 cal BC. A slightly different Eneolithic tradition may have been represented by Barrow 3A in Porohy, though its precise age remains undetermined. The area also features extended inhumations, including the Post-Mariupol/Kvityan-

natype, and burials reflecting the Cernavodă/Nizhna Mikhailivka tradition, though their absolute chronology is presently uncertain.

A second phase of barrow construction, associated with the early YC, is documented in Klembivka and Pidlisivka. This period also witnessed the utilization of Eneolithic mounds, such as Prydnistryanske IV and probably Porohy 3A. The construction activities commenced around 3100-3000 cal BC (Prydnistryanske IV, Grave 4) and persisted until around 2800 cal BC (Klembivka, Grave 15; Pidlisivka, Graves 1A and 1B). It is probably during this time that distinctive chains of barrows were established, similar to those in the well-identified Pysarivka cemetery from previous research. Between 2800-2600 cal BC, YC graves were predominantly dug into pre-existing mounds, often featuring superstructures associated with early YC burials. Late YC cemeteries typically contain multiple graves, although, in some cases, like Porohy 3A, they exhibit characteristic curved zones with a higher number of graves, akin to the barrows found in the steppe zone. Singular graves confirm the continued use of the Yampil barrow cemeteries approximately between 2600-2400 cal BC. Only one grave from this period exhibits classic characteristics of the Catacomb culture (Prydnistryanske, Grave I/4). Subsequently, there was a hiatus lasting several hundred years until the early 2nd millennium BC when graves of the Babyno culture were incorporated into the mounds.

Based on typological analysis, Yampil graves featuring pottery with Central European characteristics are linked to the late YC stage (approximately 2800-2600 cal BC). These burials were interred within barrows that date back to the Eneolithic and early YC periods. The chronometric findings presented here provide a solid foundation for further research aimed at organizing barrow sequences in the Podillia zone and studying the cultural transformations between the North Pontic steppe and Central Europe.

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