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TRIPOLYE CULTURE CHRONOLOGY IN VOLHYNIA. REMARKS BASED ON MATERIALS FROM OSTROG- *ZEMAN* AND MEZHRYRICH-*MISTECHKO*

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ABSTRACT

Authors present results of analysis of the collection of pottery from pit no. 4 in Mezhyrich-*Mistechko* and pit no. 4 in Ostrog-*Zeman*. Both sites are located in the middle Horyn basin. The analyzed complexes are important due to the fact the relative chronology of the Malice culture and Lublin-Volhynia culture within western Volhynia and their possible connections with later communities represented by the Funnel Beaker culture and especially the Tripolye culture.

Keywords: Volhynia, Malice culture, Lublin-Wolhynia culture, Tripolye culture, Funnel Beaker culture, 5th and 4th millennium BC

INTRODUCTION

The analysis of relative and absolute chronology is an important element in attempting to understand the cultural changes that took place between the 5th and the 3rd millennium BC in the development of agricultural communities in south-eastern Poland and western Ukraine. Beginning with the first remarks, in order

to research periodisation and determine mutual cultural influences in that region [Kamieńska, Kozłowski 1970; 1990], the possibility of southern and western relations, influences that contributed to the development of the post-Danubian cultures were emphasized [Kadrow, Zakościelna 2000: 187]. In this paper we would like to present results of our analysis of the collection of pottery from pit no. 4 in Mezhyrych-*Mistechko* and pit no. 4 in Ostrog-*Zeman*. Both sites are located in the middle Horyn basin. The analyzed complexes are important due to the fact the relative chronology of the Malice culture (MC) and Lublin-Volhynia culture (LVC) within western Volhynia and their possible connections with later communities represented by the Funnel Beaker (FBC) culture and especially the Tripolye culture (TC).

CULTURAL FLUCTUATIONS IN THE REGION

According to the observations made by Sławomir Kadrow and Anna Zakościelna [2000: 194], the post-Linear communities in the territory between Moravia and Upper Silesia were under Transcarpathian influences [cf. Kozłowski 1988: 48-49]. As a result, a separate culture cycle can be pointed out with some references to the Lengyel and Polgár cultures, as well as the influence of the Linear-Stroke Pottery culture. In the context of interest, this proportion has changed over time and has led to the emergence of new cultural units – MC and LVC. As Kadrow and Zakościelna noted: *the post-Linear cultural unit, namely the MC, developed on the basis of the populations of the LBPC of the early Źeliezovce phase as an effect of the intensifying process of their internal diversification and reorientation of traditional cultural ties. The cultural change was then – which must be stressed again – of a purely superficial character. It concerned the sphere of pottery production, whereas the most important segments of the material and social culture remained intact.* [Kadrow, Zakościelna 2000: 244].

The analysis of materials, focused mainly on the Rzeszów region, led to the determination of a detailed periodisation of the MC characterised by Transcarpathian references in pottery ornamentation and vessel forms [Kadrow 1988: 22]. The relative chronology presented by Kadrow is an important reference point for further analysis of MC materials and their context. Already at the beginning of the 5th millennium BC during the classic phase (i.e. Ib and Ic) the MC reaches its largest area, expanding from the area of crystallization on the loess near Rzeszów and Sandomierz, extending its range from northern Moravia, through Upper Silesia, Kujawy, to the Lublin Upland, northern Slovakia and western Ukraine [Zakościelna, Gurba 1997b: 201-202; Bandriwski 2004].

The formative stage of the LVC was synchronized with the classic phase and the beginning of the MC Rzeszów phase (Ic/IIa) [Kadrow, Zakościelna 2000: 208]. It most likely is also directly related to it. In the opinion of Zakościelna [2007], the impulses of the Tiszapolgár culture from the Carpathian Basin influenced the late-classical MC communities. As a result, the MC Rzeszów phase as well as the LVC were formed [see also: Pozikhovskiy 2010: 38]. The formative area for the LVC was the basin of the Stry River in western Volhynia [Kadrow, Zakościelna 2000: 208].

The results of Vitalii Konopla's research [1990; 1995] allow to determine the intensity of MC and LVC settlements. While the presence of the MC may be observed in Roztocze and in the vicinity of Lviv, there is a visible lack of their settlement by the LVC [Zakościelna 2007]. A different situation prevails in the Volhynia Uplands, where numerous clusters of the MC and LVC were noted [Rybicka 2017: 18]. The most intensive inhabitation of Western Ukraine by the classical phase of the LVC is dated approximately to 4200-3800 BC [Starkova, Zakościelna 2018: 68] and is strictly connected with the control over the natural resources of high-quality Volhynian flint [Zakościelna 1996]. Kadrow also stressed that MC communities occupy then a relatively strongly consolidated area of the western part of the Rzeszów Uplands [Kadrow 2005: 10-13] with at the same time, a lack of classical LVC presence. This situation is all the more problematic due to the presence of materials of the LVC and early FBC phases on the Nałęczów Plateau. According to the above mentioned scholar, the chronological sequence expressed by replacing the LVC with the variant of the FBC south-east group confirms the coexistence of the communities of both types at the same time independently [Kadrow 2005: 10-13; 2009: 176].

The disappearance of the MC and LVC communities in western Volhynia is currently difficult to define precisely. Undoubtedly, radiocarbon samples from Gródek and Zimne indicate that the LVC community is in the process of disappearing before 3650 BC [Bronicki *et al.* 2003; 2004; Kadrow 2005]. According to Tkachuk's thesis, it is possible to migrate the LVC groups further to the east, where, due to direct contact with TC and LVC communities they are subjected to acculturation and assimilation by the TC communities [Tkachuk 2007: 334; *cf.* Rybicka 2017: 19].

The TC appeared in Volhynia in the BII stage in the form of short-lasting settlements and cemeteries in the vicinity of Ostrog. Without a doubt the permanent settlements of the TC culture could be dated later in the CII stage. Most research assumes that the concordance of the TC in Volhynia is an effect of migration from the Dnieper-Prut interfluvium [Dergachev 1980: 132; Tkachuk 2002: 112; 2005: 48]. The research questions examine the characteristics and chronology of migration, and remarks on the absence of CI, as well as cultural interactions with other communities, including the MC and FBC that prevent interpreting the cultural fluctuations in the Volhynia region.

During the 1980s numerous archaeological surveys took place in the Middle Horyn area. Pozikhovskiy discovered a series of sites with materials relating to the MC, as well as for stage B of the TC. Clay vessels were made of a dense mass with a significant admixture of fine sifted sand, with a surface of grey or brown colour, decorated with imprints of various shapes. The typology of ware forms was quite broad: bowls, vases, cups, amphorae, vessels and storage wares referred to the TC. An important feature of this group was the concordance of cups painted white, representing the type with a low-placed spherical main part, a high concave neck and a curved edge. However, ornamental schemes and techniques differ significantly. The most common ornamental scheme was the rhombus formed by ribbons of various widths. The paint was prepared by mixing chalk mass based on fat, applied with a fairly thick layer. The aforementioned technique, as is known, is an outstanding feature of the LVC.

The analysis of research results could be described as complicated. Materials were found on the cultural layer of multilayer sites or objects. Based on the classical approach, they would have belonged to various archaeological cultures – the MC, LVC and TC. Nevertheless, comprehensive studies, including micro-region cultural fluctuations, became possible after the discovery and complete study of the cremation cemetery in *Ostrog-Zeman* in 2006 [Pozikhovskiy, Samolyuk 2008].

EVIDENCE FROM OSTROG-ZEMAN

In 2013 (the 2011 documentation was mistakenly indicated), on the upper, more flat terraces, pit 4, measuring 4.9 x 2.4 m and 0.3-0.5 m in depth, was discovered. A large number of finds were found inside: pottery, flint and scrap products, pieces of plaster and osteological material. Although for the analysis of the object all categories of finds are an important source, we nonetheless will focus on the ceramics. In total, 110 fragments of vessels were found in the object, of which 68 belong to the TC culture and 42 to the MC (Figs 1 – 5).

Traditionally TC pottery could be divided into two groups: kitchen wares and table ones. Its statistical analysis shows that kitchenware (47) was more numerous than table ware (21). In respect to kitchen pottery technology we have distinguished three varieties: dishes with an admixture of crushed shell (27), pottery with admixtures of fine sand and solid mass (18) and one fragment with admixtures of sand and lumps of dried clay. In this group only one type of vessels is represented: pots. One of the pots has a conical lower part with straight walls, high convex main part and curved edge. At the edge small nail impressions were made, below two lines with arches (Fig. 2: 1).

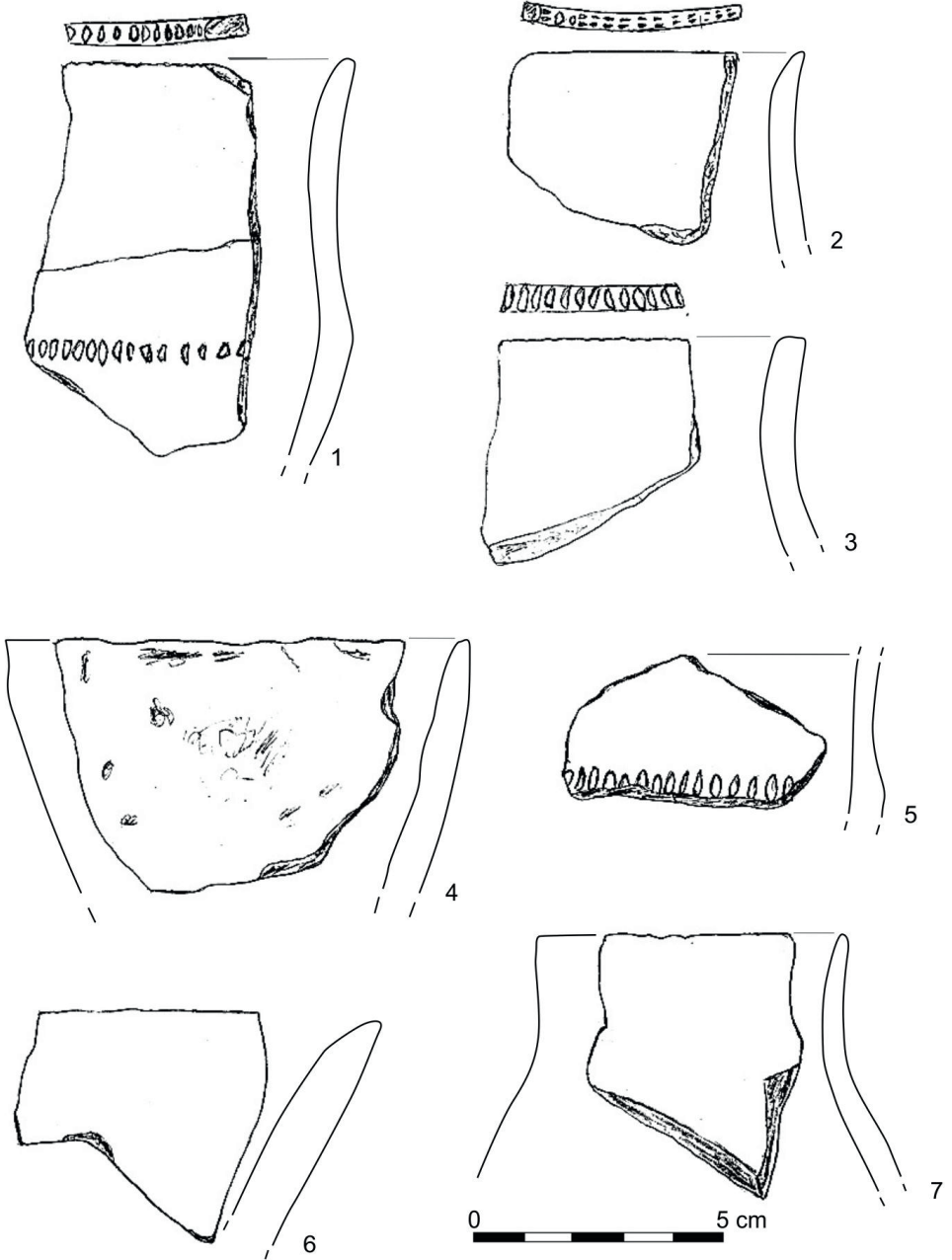


Fig. 1. Ostrog-Zeman, Rivne Province, pit 4. Pottery: 1-3, 5 – vases; 4 – bowl for paint preparation; 6 – bowl; 7 – cup. Drawn by O. Pozikhovskiy

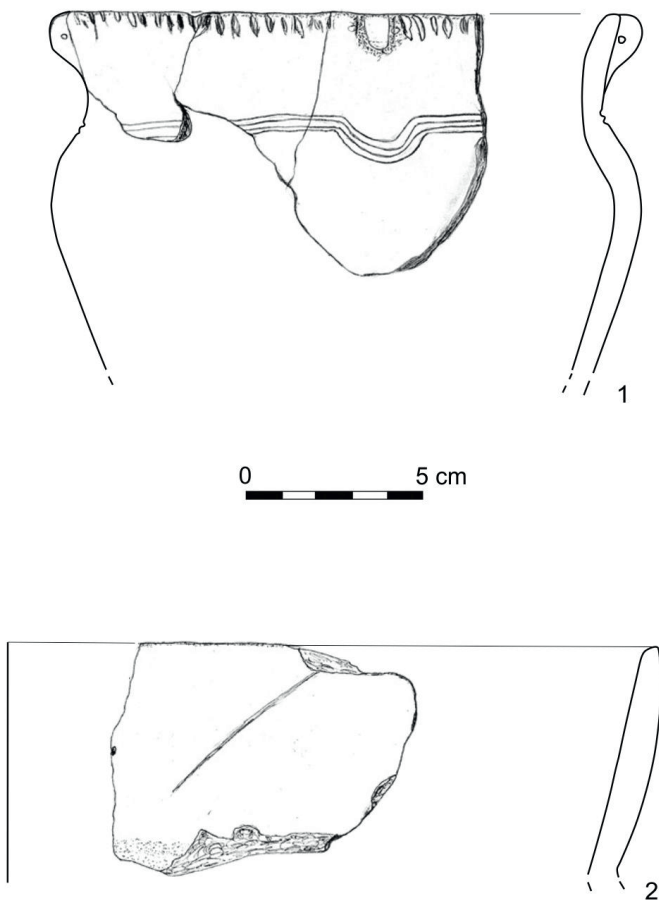


Fig. 2. Ostrog-Zeman, Rivne Province, pit 4. Pottery of the Tripolye culture: 1 – pot; 2 – amphora. Drawn by O. Pozikhovskiy

Tableware has a well-prepared mass, in which there are natural impurities of fine sand and pyrite, the surface is of brick or beige colour, the outer surface is often highly damaged. In this group, the number of types is insignificant: conical bowls (Fig. 1: 6) and cups (Fig. 1: 7). The first are quite thick, conical in shape and with a rounded edge.

The specified types of wares, in particular cups, are typical for the cemetery in Ostrog-Zeman [Pozikhovskiy, Samolyuk 2008: Fig. 4:6; 5:3], and for the nearby settlement. Some analogies for TC pottery (primarily for cups) are known in many

sites from the BII stage, in particular, from the closest Bodaky [Starkova 2009: Fig. 2; Cynkałowski 1969: Fig. between p. 226-227: a-b]. They are also common in Trasnistria (e.g. in Nezvyska III) [Chernysh 1982: Fig. 27-29; Tkachuk 2002: Fig. 1], Southern Bug–Dnieper interfluves, such as in Volodymirivka [Ryzhov 2015: Fig. 2:22, 26, 28].

Among the pottery, a rather representative group is technologically and typologically distinguished. By way of forming pottery mass, two varieties are distinguished. The first kind is characterised by the fact that small amounts of sand are

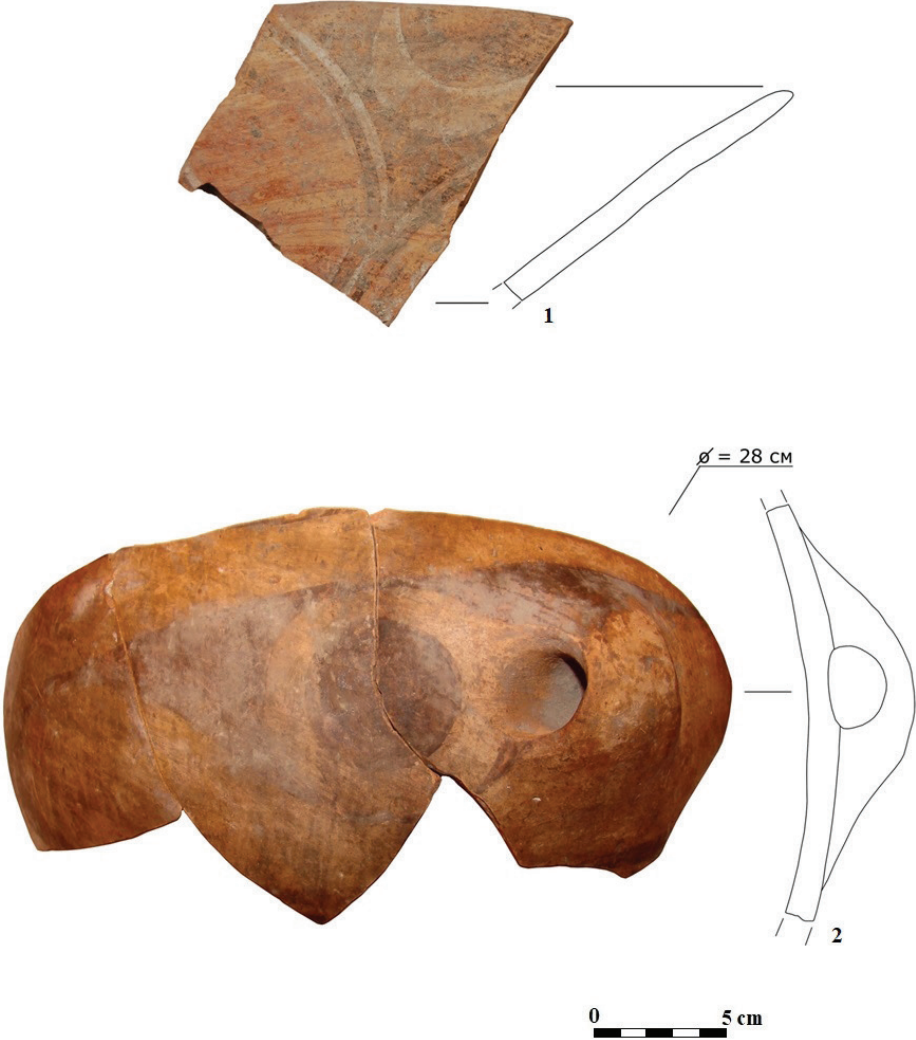


Fig. 3. Ostrog-Zeman, Rivne Province, pit 31. Pottery of the Tripolye culture: 1 – bowl; 2 – amphora. Photo D. Verteletskyi

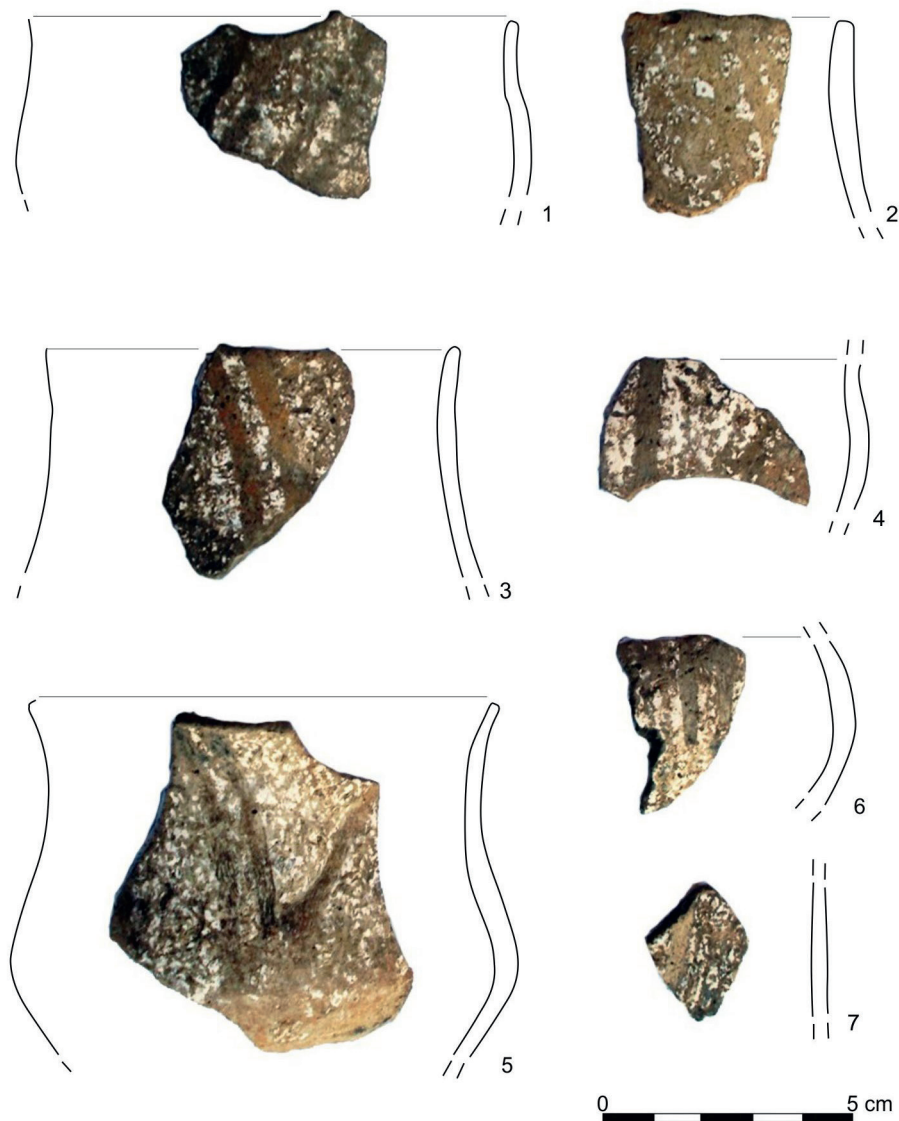


Fig. 4. Ostrog-Zeman, Rivne Province, pit 5. Cups of the Lublin-Volhynia culture. Drawn by O. Pozikhovskyi

used in admixtures, a mass is solid, the surface is lush or even smooth, usually dark grey. In the second variety, as an impurity, fine sand is used as are pieces of dried clay and the surfaces are moulded by hand.

In total, 20 pieces represent the first group, while only one (a fragment of a conical bowl) represents the second group. Other fragments could be assigned to vases, amphorae and one special vessel (perhaps for the paint preparation). Vases have a sharp or rounded edge, thinned or even cut from the inside. On the edge there are imprints of a rectangular shape, one or two rows of similar stamps (Fig. 1: 1-3, 5). Some pieces need special attention: like one of the amphorae with a high upper part (Fig. 2: 2) and painted fragment in a conical shape and a humpy surface (Fig. 1: 4).

The greatest number of analogies come from the Middle Horyn region and in particular on the synchronous necropolis in the same village [Pozikhovskiy,

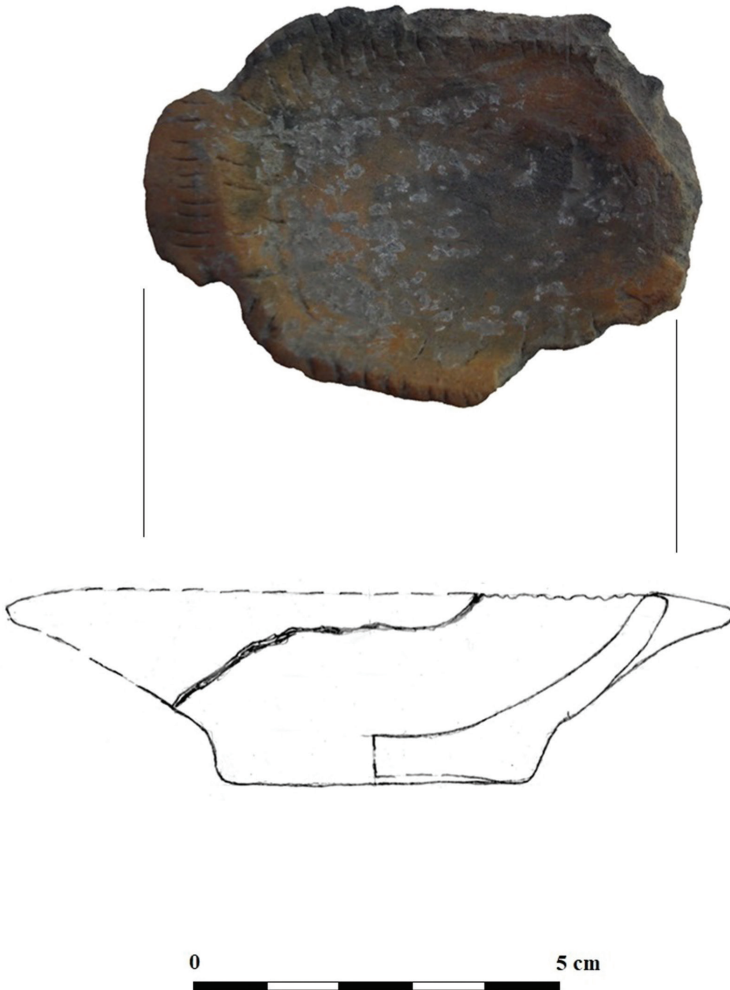


Fig. 5. Ostrog-Zeman, Rivne Province, pit 8. Vessel of the Malice culture. Drawn by O. Pozikhovskiy

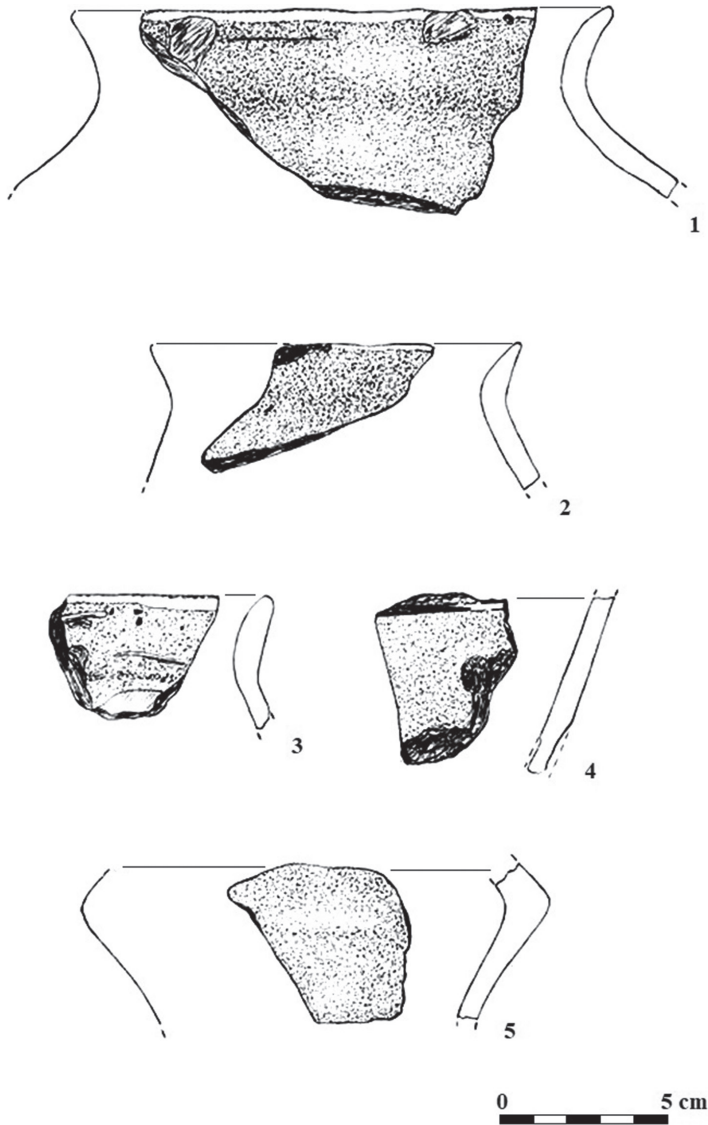


Fig. 6. Mezhyrich-*Mistechko*, Rivne Province. Pottery of the Tripolye culture. Drawn by O. Pozikhovskiy

Samolyuk 2008: Fig. 4:8; 5:8; 6:12]. A significant number of vases come from Rozvazh-Koshary (unpublished materials). Such pottery assemblages are also known from the settlement in Bodaky [Starkova 2009: Fig. 2] and are typical for the BII stage and belong to the TC [Skakun *et al.* 2005: 5].

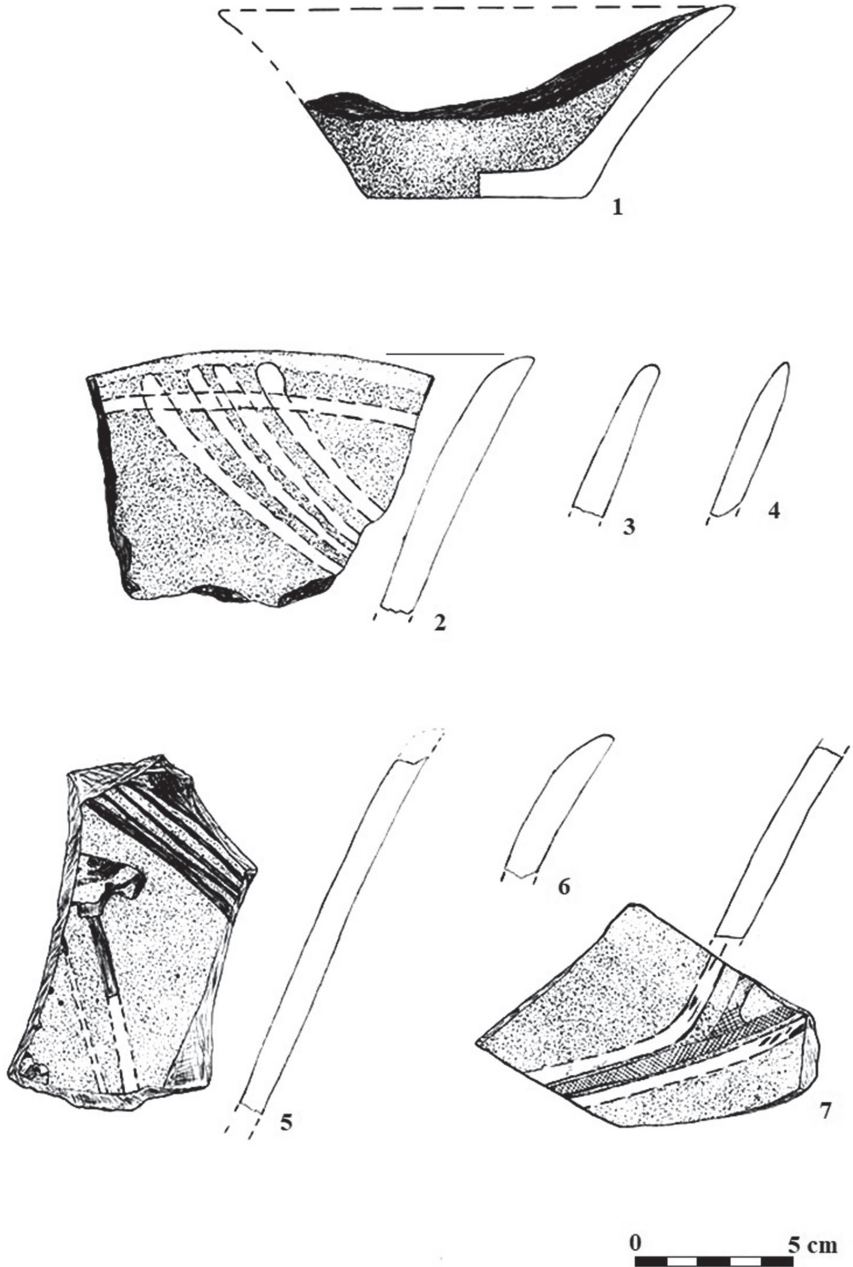


Fig. 7. Mezhyrich-Mistechko, Rivne Province. Pottery of the Tripolye culture. Drawn by O. Pozikhovskyi

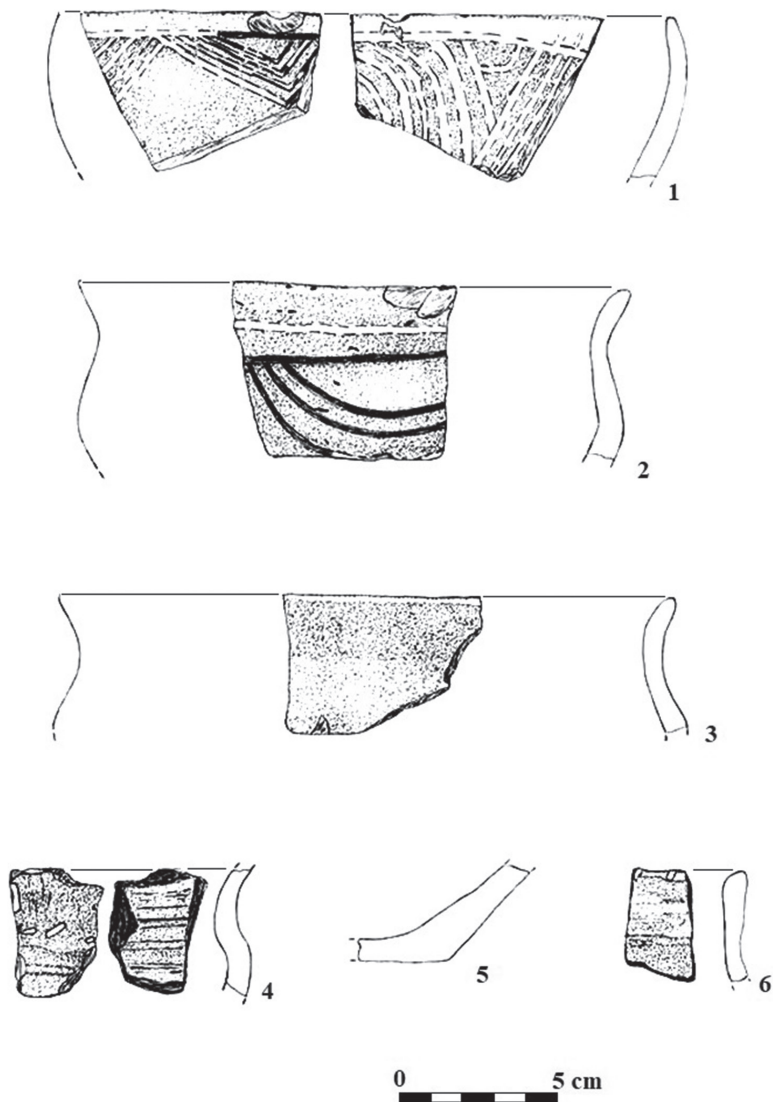


Fig. 8. Mezhyrich-Mistechko, Rivne Province. Pottery of the Tripolye culture. Drawn by O. Pozikhovskiy

As mentioned above, pit no. 4 provides a small but rather impressive collection of pottery of significance importance. Not only the technology, but also the morphology of pottery testifies to belonging to one chronological section. So, for example, a typical pot of the TC culture is made from a dense ceramic mass, to which a significant amount of small sifted sand is added (Fig. 2: 1). This feature is

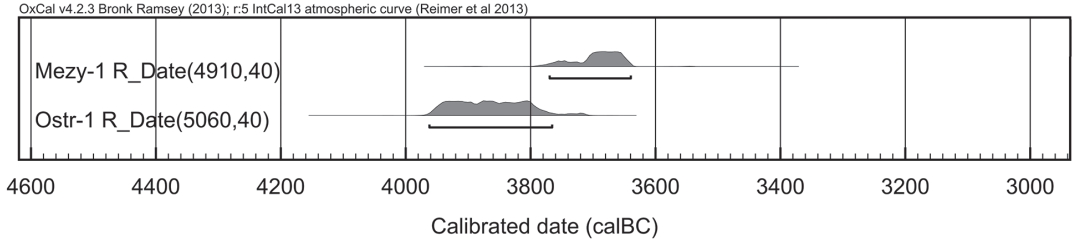


Fig. 9. Radiocarbon dates from Mezhyrich-Mistechko and Ostrog-Zeman, Rivne Province. Calibration in OxCal v4.2.3 [Bronk Ramsey 2013], r5 IntCal atmospheric curve [Reimer et al. 2013]

typical also in pottery of the MC and LVC. Also shards (Fig. 2: 2) made in a similar way, have many analogies among the tableware of the BII stage of the TC and are characteristic of this time [Tkachuk 2002: 103; Skakun *et al.* 2005: Fig. 42].

As we can see, even a relatively small selection of pottery from pit no. 4 allows us to confidently speak of its homogeneity. A similar situation with the “borrowing” of technological techniques is visible on many investigated sites, not only in Ostrog-Zeman complexes, where similarities between pottery of the TC as well as LVC (cups painted white) have been observed (Fig. 4: 5).

During the elaboration of materials from the necropolis in Ostrog-Zeman, the authors had decided to mark the period between 4100 and 3600 BC [Pozikhovskiy, Samolyuk 2008: 40]. The reasons were the concordance of painting wares and morphology of the cups, bearing numerous analogies on the left and right banks of the Middle Dniester and belonging to the BII stage of the TC (e.g. sites in Bodaky and Nezvytska III) [Cynkałowski 1969; Chernysh 1982: Fig. 27-29].

Tkachuk assumed the possibility of the existence of a group between the BII-C stages in the area of the Upper Dniester. According to him its chronology should be described by three phases. The early phase began in the middle of the BII stage and was represented by sites in the Middle and Upper Dniester and Prut region; within the same group of Shypintsy population, which settled in Bodaky [Tkachuk 2002: 96-114].

The analogies of BII stage pottery are much wider. Similar vessels are known also in the Southern Bug-Dniester interfluves and in particular, in the Volodymirivka local group [Ryzhov 2015: Fig. 2-3]. The origin of the above mentioned group from the Dniester region is not a matter of controversy [Tkachuk 2002: 100; Ryzhov 2015: 163].

In the context of TC fine pottery, two groups of dishes are more modest. The first includes profiled vases, bowls, cups, amphorae and storage vessels covered by paint. Typically, this group of pottery is made out of a dense mass with a big amount of fine sand added. The surface of the vessels is lined, dark grey or brown in colour, decorated with imprints of various shapes. Analogues of the described

wares are unknown in western Volhynia and the south-eastern part of Poland. However, for morphology, profiled bowls and vases are close to the wares of the MC Rzeszów phase [Kadrow, Zakościelna 2000], but technological features are not inherent. Instead, in the middle of the TC BII stage, there is a small number of vessels made of the clay mass with an admixture of crushed stones. This pottery was recorded both in the settlement and graves [Pozikhovskiy, Samolyuk 2008: Fig. 5:9; 4:6].

Spatial analogies could be considered to that of Lystvyn [Peleshchyshyn 1997a: Fig. 7]. Interestingly, a similar pottery assembly was found in Bodaky [Skakun *et al.* 2005: Fig. 46; Starkova 2009: Fig. 2]. In the same settlement there were found vessels for storage and manufacturing of paint [Skakun *et al.* 2005: Fig. 43].

EVIDENCE FROM MEZHRYCH-MISTECHKO

Mezhyrich is located in the Volhynian Upland, southward of Ostrog. The rescue excavations there took place in 2016-2017. The site could be considered as a flint workshop, used during the Eneolithic (pits no. 1, 4). The collection of acquired pottery fragments are connected with the TC, with visible traditions and influences of both the MC and LVC. It should be stressed that in the quantitative aspect the pieces of TC pottery absolutely dominate and moreover, the excavated pits belonging to the wider workshop context in this site are still not excavated.

In the presented paper we would like to examine the collection from pit no. 4 (Figs 6-8). The amount of pottery from it is relatively small (41 pieces), but in contrast to pit no. 1, the painted fragments are well preserved. 40 shards belong to the TC, of which 36 are fragments of tableware, the rest kitchen ones. The table vessels are characterised by a well-stripped mass, which contains a natural addition of good quality admixtures – sand and pyrite, in some cases also lumps of dried clay (8 pcs.). The surface of pottery is mostly in beige with lines and traces of smoothing and narrow groove visible on the inner surfaces.

Most of the pieces are parts of conic shaped bowls with straight or concave walls. Edges are usually thinned from the inside, rarely from the outside too (Fig. 6: 1-2). The preserved paintings were performed in brown, in one case, in combination with red in the series of elongated strands, from which short lines appear in the upper part. Similar decorations are known from many Volhynia sites: Khoriv-Pidluzhzhya [Peleshchyshyn 1997b: Fig. 7:5], Khoriv-Brodivshchyna [Pozikhovskiy 2005: Fig. 9:2], Novomalin-Podobanka [Rybicka 2017: Fig. 36:5], Korzhivka-Selysko 2 [Kruts, Ryzhow 2000: Fig. 4:1-2].

Only one fragment represents a semi-spherical bowl. The preserved painting on its inner side is similar to the painting of conical bowls. Instead, a zigzag of

four lines is placed on the outer surface in the upper part under the horizontal strip (Fig. 8: 1). The zigzag motif on the materials of the TC from the Horyn River area is rare, nevertheless a hemispherical bowl is known from Khoriv-*Pidluzhzhya* [Peleshchysyn 1997: Fig. 5:3]. Another vessel is known from Khoriv-*Polyany* [Peleshchysyn 1998: Fig. 13:1]¹. It should be noted that such an ornament is quite common on beakers of the FBC: Khoriv-*Pidluzhzhya* and Khoriv-*Zaozerom* [Peleshchysyn 1998: Fig. 14:1,3,11], Vilbivne-*Gorohvysko* [Peleshchysyn 1998: Fig. 15:1], Novomalin-*Podobanka* [Rybicka 2017: Fig. 40:1-2,20-22], Mezhyrich-*Vigin-Fermi* [Pasterkiewicz *et al.* 2013: Fig. 13], Brodiv-*Obolon* [Pasterkiewicz *et al.* 2013: Fig. 16:1].

Although this ornament is made by using another technique (the so-called stab-and-drag technique, *Furchenstich*), but the similarity is obvious. It is quite possible that this specific decoration was transferred from the TC to FBC, especially since beakers with such ornamentation are absent in the south-eastern FBC group [Peleshchysyn 1998: 58; Rybicka 2017: 67].

Also some fragments of spherical wares with expanded edges and maximum convexity in the lower part of the wares could be noted (Fig. 8: 1-2,4-5). Unfortunately, the paintings are not preserved. Only one fragment from the lower part of the ware retains a horizontal line, made of brown paint. Similar artefacts in various quantities are known from the Horyn area: the Ostrog-*Kaplitsa* [Verteletskyi 2013: Fig. 2: 8], Novomalin-*Podobanka* [Verteletskyi 2016: Fig. 32-33, 34:3-10, 35:1-11].

Finally, the third type of tableware is a bowl with an S-shaped profile (Fig. 7: 2, 8: 3). One is decorated with a festoon ornament (Fig. 8: 2). These vessels are widely distributed both in the Horyn area: Khoriv-*Pidluzhzhya* [Peleshchysyn 1997b: Fig. 8:7; Pozikhovskiy 2005: Fig. 2:1], Novomalin-*Podobanka* [Verteletskyi 2016: Fig. 39:9] and in eastern Volhynia, e.g. in Korzhivka-*Selysko 2* [Kruts, Ryzhov 2000: Fig. 4:22].

The group of kitchenware is not numerous and contains only four pieces. However, in spite of this, in technology it is heterogeneous. There are two technological groups: the first has a well-clogged clay, a significant admixture of crushed shell and a dusty surface and the second group is characterised by surface solids, also with sand admixtures. Only a fragment of a pot with a concave neck (Fig. 7: 4) and a flat bottom of the pot (Fig. 8: 5) were found. One pot fragment has a horizontal comb imprints on the inner surface and some prints of the die are oval in shape.

In the presented collection, a fragment of the edge of a vase, made of a dense mass with a significant admixture of fine sand was identified (Fig. 8: 6). Such wares found in feature no. 1 [Pozikhovskiy in print] are typical of the syncretic

¹ The author of the publication mistakenly referred it to Khoriv-*Dubov*, whereas in truth it belongs to the initial phase of the Gordinești group in Western Volhynia [Pozikhovskiy 2017: 81-86].

group in the middle Horyn basin. Such vessels are known from the cremation cemetery in *Ostrog-Zeman* [Pozikhovskiy, Samolyuk 2008: Fig. 9:2] and settlement in *Rozvazh-Koshary* (unpublished materials).

The analysed pottery has analogies in the Horyn basin, eastern Volhynia, as well as in more distant sites in Moldavia [Dergachev 1980]. The researchers of the TC CII stage, in particular its northern periphery, clearly marked the similarity of pottery from the above mentioned territories to the Brinzeni local group's materials from the beginning of the late TC sites, excavated in the Middle Dniester area [Dergachev 1980: 132; Peleshchysyn 1990: 26].

The primary result of research allows to distinguish issues crucial for understanding the role of the contact zone in Volhynia in respect to the TC's contribution. The earliest influences could be noted according to the results of research from the past few years. The BII stage of the TC was identified in Kazenna Hromada and *Korzhyvka-Pasichishko* [Kruts, Ryzhov 2000: Table 1]. Similar sites are also known in the middle Horyn basin: *Khoriv-Dubov*, *Rozvazh-Koshary* settlement and a cemetery in *Ostrog-Zeman* [Pozikhovskiy, Samolyuk 2008]. The third group is located in the vicinity of Kremenets-Sapaniv and Stovpets. Settlements of the TC CI stage were also found in *Slobidka-Berezina* and *Mezhyrich-Vigin-Fermi* [Kruts, Ryzhov 2000: Table 1]. Thus, we see the continuous development of the TC communities in Volhynia, which began in the last quarter of the 5th and first quarter of the 4th millennium BC.

The remarks on chronology and its relation should be preceded by the question if the collection from pit. no. 1 in *Mezhyrich-Mistechko* is homogeneous. As we mentioned, above pit no. 4 there was a part of a large workshop complex, which includes also pit no. 1. However other pottery fragments are made of a dense mass with significant impurities of fine sand, which is typical of the research also for the cremation cemetery in *Ostrog-Zeman* [Pozikhovskiy, Samolyuk 2008]. In this technological group from pit. no. 1 the use of crushed shells as an admixture was identified, which is a hallmark of kitchen wares.

The pottery forms have some analogies in the Middle Horyn basin. For example, in the settlement of *Khoriv-Pidluzhzhya*, among the materials of the TC a fragment of a deep conical bowl edge typical for the LVC was found, while in nearby *Khoriv-Zaozerom* that of a bottom part of ware on a narrow circular tray made by using technology typical for TC tableware [Pozikhovskiy in print]. Such pottery was also found in the settlement of *Velbivno-Dachmyr* (unpublished materials).

The situation with dating the initial phase of the TC CII stage is complicated, as several radiocarbon dates were acquired [Rybicka 2017: Table 3]. Most of these results are published without any context, which in our opinion is unjustified and does not allow for the evaluation of certain periodisation schemes. Without full publication and analysis of all categories of finds, attempts to create periodisation schemes are useless. An example of this may be the dates from Gorodsk. On the

base of Tamara Passek's periodisation, it should be related to the very end of the development of the TC with calibrated dates between 3520-3350 BC with a probability of 95.4%, which indicate dates for the Brînzeni phase of the TC CII stage [Rybicka 2017: 128]. For western Volhynia there are only two radiocarbon dates for this stage. One comes from Novomalin-*Podobanka* – Poz-55979 4670±40 BP, 3526-3363 BC with a probability of 95.4% [Rybicka 2017: Table 3] and the other from Kurgany-*Dubova* – Poz-77974 4500±35 BP, 3355-3091 BC, 95.4% [Król, Rybicka 2016: Fig. 6]. The last date, in our opinion, refers to the final phase of the Brînzeni group and marks the transition to the Gordinești group, while materials from Novomalin-*Podobanka* are characterised by the dominance of painted pottery over kitchenware and the strong presence of materials of the FBC [Verteletskyi 2016: 39-54; Rybicka 2017: 62-73].

FINAL REMARKS ON TRIPOLYE CULTURE CHRONOLOGY IN THE HORYN REGION

In our opinion, the above details can indicate the exchange of pottery manufacturing technology and in particular, its fast reception by the local population.

Cups painted in white are important for understanding the processes that took place in Volhynia. Formal analysis shows that all the ones known belong to the same type: they have a low placed spherical torso and a concave neck. On the necks, also occasionally at the bottoms, a thick layer of white chalk paste was applied, covering the ornament, which forms the motif of the rhombus. Pottery of this type was found in the form of grave goods [Pozikhovskyi, Samolyuk 2008: Fig. 9:6, photo 2], as well as in the settlement in Ostrog-*Zeman* (Fig. 4). Usually, the cups are similar to the BII and CI stages of the TC, but are known also from MC sites in western Volhynia, e.g. in Kostyanets or Lystvyn [Peleshchysyn 1997a: Fig. 13:3].

The MC cups were covered completely with a red mineral pigment [Konopla 1990: 8]. On the other hand, white-painted wares are noteworthy for the LVC, the origins of which relate to 4200 BC [Kadrow, Zakościelna 2000: 245-246]. However, the morphology of the cups of the LVC is completely different: such vessels have a low placed spherical body, a conical neck and rounded bottom [Pozikhovskyi 2006: Fig. 2]. Moreover, their ornaments are more varied: triangles, the motive of a star and rhombi, which was noted in Ostrog-*Zeman*.

The settlement and cemetery in Ostrog-*Zeman* is not a single episode of BII stage of the TC. Synchronous settlements are recorded in Ostrog-*Zamkova Gora*, Rozvazh-*Koshary* and Khoriv-*Dubov*. They are not the earliest sites here. In the vicinity of sites Luchin-*Bilya Nazara* and Luchin-*Polyanka* both kitchen and ta-

ble pottery of the BII stage was found. In turn, separate finds of table wares of the MC Rzeszów phase are known from the settlement in *Lystvyn-Protereub* [Peleshchyshyn 1997a: 112-113]. In this context of particular note is a fragment of a binocular vessel from the same site stored in the Archaeological Museum of Ivan Franko National University in Lviv (unpublished).

Finally, the following questions arise: What are the chronological frames of this marked phenomenon in the Middle Horyn region? Was the TC in this area only a short-lived episode?

At the beginning of the publication, we presented a chronological range for the site in *Ostrog-Zeman*. In the chronological system proposed by Mikhailo Videiko this site is assumed for the BII stage of the TC [Videiko 2003]. Even then it was clear that the dates for this stage were too broad. The critical analysis of radiocarbon dates [Rassamakin 2012] gave the opportunity for further discussion in this area. Another chronology system for the TC was built on the basis of calendar dates of fluctuations in Black Sea levels as proposed by Aleksandr Diachenko. In his opinion, the BII stage should be dated between 4300?/4200-3800 BC [Diachenko 2010: Table 3]. The answer to the question of how much this proposal is consistent with the realities can only be done after complex studies, which include full publication of materials, taking into account critical approaches to the radiocarbon dates.

Thus, for the *Ostrog-Zeman* site we know only one radiocarbon date from the Poznań Radiocarbon Laboratory: Poz-109780 5060±40 BP. The analyzed sample contained an animal bone from pit no. 4. The data shows 95.4 % probability for the range of 3963-3766 BC and 68.2% for 3942-3800 BC (Fig. 9), which fully correspond to Diachenko's BII stage chronology and remove from the agenda considerations about the later chronology of *Ostrog-Zeman* [Diachenko, Kyrylenko 2016: 126]. At the same time, we are aware that this is only the first date for the Middle Horyn area, if we do not take into account younger determinations from *Novomalin-Podobanka* (Poz-81715 4965±35 BP, 3905-3655 BC, 95.4% and 3782-3702 BC, 68.2%) and *Kurgany-Dubova* (Poz-77975 4820±50 BP, 3705-3385 BC, 95.4% and 3656-3527 BC, 68.2%) [Król, Rybicka 2016: Table 1].

Was the settlement and cemetery in *Ostrog-Zeman* a single episode of the TC? Taking into account the stage of research on the Eneolithic in the Horyn area, we can state that the first groups of the TC appeared here in the last century of the 5th millennium BC. The first interaction should be dated back to the end of the classic phase and the beginning of the MC Rzeszów phase and could be observed in *Lystvyn-Protereub*, *Luchin-Bilya Nazara* and *Luchin-Polyanka*. It ought to be noted that *Lystvyn-Protereub* remains the only site within the Volhynia Plateau, where such early TC finds occurred. In the period 4000-3800 BC the number of sites with mixed elements of TC, MC, LVC increases (*Ostrog-Zeman*, *Ostrog-Zamkova Gora*, *Rozvazh-Koshary*, *Khoriv-Dubov*). In the final phase of development the

syncretic group was formed in Volhynia and part of Polesie (Mezhyrich-*Mistechko*, Mezhyrich-*Vigin Fermi*, Slobidka-*Berezina*, and Khoriv-*Pidluzhzhya*). A significant feature of this phase was the existence of some communities in the vicinity of Mezhyrich, where three flint workshops dated to 3800/3700-3500 BC were found.

The morphology and ornamentation of TC pottery from Mezhyrich-*Mistechko* is similar to other sites in the region. However, there are a number of details that distinguish it in the context of Novomalin-*Podobanka* and Khoriv-*Pidluzhzhya*. One of them is the lack of FBC pottery and the presence of LVC forms, typical for the syncretic group (pottery made of dense mass, with significant admixture of small sifted sand). In addition to the above differences, we pointed out that in the analysed collection, there are some semi-spherical wares and that at the mentioned sites they constitute a significant percentage [Peleshchysyn 1997b: 52; Verteletskyi 2016: 46]. There is also a difference among kitchen wares: in the Mezhyrich complex there are vessels, decorated with rivets, imprints of triangular and oval stamps, and also certain differences in morphology.

Radiocarbon dates of the Brînzeni local group (and the fact that the mentioned sites in Middle Horyn relate to it and its northern periphery) suggest putting the beginning of interaction between 3400-3100 BC [Rybicka 2017: 136]. In our opinion, the earlier date for the Brînzeni group should be changed to 3700-3600 BC. The proposed time correlates well with the radiocarbon sample from Novomalin-*Podobanka* [Król, Rybicka 2016: 119-120]. Moreover, it would allow to specify it between 3500-3400 BC. Additional evidence in this context are kitchen wares (pots and bowls), entirely painted in red from Kurgany-*Dubova* [Verteletskyi 2016: 71-72].

Nevertheless there is also a possibility to establish absolute chronology for the described materials. The radiocarbon date was obtained for one sample of animal bone from pit no. 4 in Mezhyrich-*Mistechko*. The analysis was performed in the Poznań Radiocarbon Laboratory: Poz-109781 4910±40 BP, 3770-3640 BC, 95,4% and 3710-3674 BC, 68,2% (Fig. 9). The dating fits into the interval of about 3800-3700 BC, i.e. the period linked to the TC CI stage. It seems it could be another example for cultural interactions in Volhynia.

As can be seen from the proposed scheme of development of the syncretic group in the middle Horyn region, its duration should be estimated around 500 years. The end is connected with the migration of the Shypintsy group to the north – most probably formed along the Vilia River route. The changes of the TC settlement and move to the north was aimed not only at the development of new territories, but also access to high-quality outcrops of western-Volhynian flint often used by MC communities in the Rzeszów phase. Moreover, it should be noted that the TC peoples not only controlled natural resources, but also produced their own tools (*Lystvyn-Sharp Gorb*, *Lystvyn-Protereub*, and *Kostyanets-Lityanskaya*). At the

turn of 3600/3500 BC the communities of the above described group disappeared. Others TC communities appeared in the context of Brînzești influences and the FBC settlement arose, which brings a new quality of sources and requires further studies.

ACKNOWLEDGMENT

The article is a part of the project *Funkcjonowanie osadnictwa trypolskiego w północnej Mołdawii pomiędzy 3450/3300-3000/2900 cal. BC. Próba rekonstrukcji dynamiki czasowej kontaktów kulturowych*, financed by the Polish National Science Centre (no. DEC-2016/23/N/HS3/00254).

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