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A FINAL ENEOLITHIC RESEARCH INSPIRATIONS: SUBCARPATHIA BORDERLANDS BETWEEN EASTERN AND WESTERN EUROPE

ABSTRACT

This study explores a Subcarpathian assemblage of Corded Ware funeral materials as evidence obtained over the last decade, with a focus on their research value for studies of the transmission of civilization models embraced by Final Eneolithic/Early Bronze communities settling the border zone between eastern and western Europe. Results of studies on the correspondence among ceremonial traditions that existed in the area between the Dnieper and the Vistula in the third millennium BC are presented, with two stages of adaptation of Black Sea or 'barrow' thanatological belief systems by Corded Ware groups in Lesser Poland being highlighted. Chronometric determinations relating to the development of ceremonial centres of the Rzeszów Foothills (Szczytna) and Lower San Valley (Święte) in the context of 'western intrusions' of late Yamnaya and Catacomb cultures are considered significant, providing the date range of ca. 2550-2400 BC.

Key words: Corded Ware culture, Yamnaya culture, Catacomb culture, Małopolska, Final Eneolithic

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INTRODUCTION

Conducted in the early 21th century, rescue excavations carried out in advance of the construction of the A4 motorway, 'Rzeszów' stretch, provided insight into a rich concentration of Final Eneolithic burial sites [Machnik 2011]. The vast majority of these were identified on loess highlands of the Rzeszów Foothills and nearby Lower San Valley (Figs. 1 and 2). The most important cemeteries are those discovered at sites 5 and 6 at Szczytna [Machnik, Jarosz (Eds) 2017], sites 24 and 27 at Mirocin [Machnik *et al*. 2019], as well as at sites 11, 15 and 20 at Święte [Dobrakowska, Włodarczak 2018; Janczewski *et al*. 2018; Olszewski, Włodarczak 2018]. Moreover, several other locations yielded single graves, settlement features or loose finds associated with the Corded Ware culture (CWC) [Machnik 2011]. The unearthing of settlement and funerary materials attributable to the Globular Amphora culture (GAC) in the Subcarpathian area was also conceptually essential [Sznajdrowska 2013]. Results of all these efforts significantly add to the fine-tuning of interpretations relating to the genesis of Final Neolithic communities of Lesser Poland. New materials, including specifically spectacular finds from Szczytna and Święte, encourage re-examination of the link between changes in the funeral ritual and the expansion of steppe, or northern Black Sea, cultural traits. In addition to the substance of archaeometric determinations, re-interpretation is also possible owing to the informative value of results of new specialist studies, such as chronometric [Włodarczak 2018] and isotope analyses [Belka *et al*. 2018; Werens *et al*. 2018].

1. STEPS TOWARDS ADAPTATION OF BLACK SEA FUNERAL BELIEF SYSTEMS

Two primary stages of change in Late and Final Eneolithic funeral rituals in Lesser Poland (ca. 2800-2300 BC) are linked to the adaptation of various allochthonous models which, in terms of their topogenesis, are generally associated with various Black Sea centres of civilization, datable to the Final Eneolithic/Early Bronze: fourth/third-third millennium BC [Włodarczak 2014a; 2014b]. The reception of models was a two-step phenomenon of drawing thanatological → ceremonial inspirations: (a) early step and (b) late step, which, from the perspective of Lesser Poland, can be described as pre-/early Corded Ware and classic/late Corded Ware, respectively.

Located in the early third millennium BC, the first step brought about two main

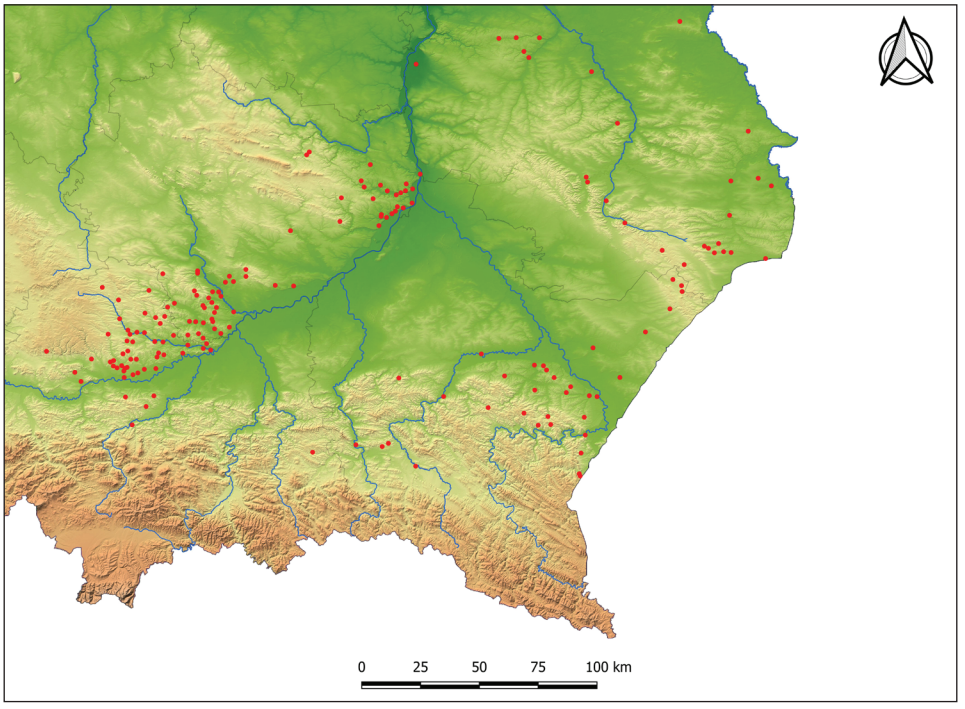

Fig. 1. The grave sites of the Corded Ware culture from south-eastern Poland. Drawing by R. Skrzyniecki

new concepts: a barrow (early CWC phase) and a chamber tomb, including its specific form, i.e. catacomb grave (in the case of Złota culture rituals).

Dating roughly from the mid-third millennium BC, the second step saw the dissemination of a new niche grave type as well as a custom, whereby some male burials were honoured with rich grave goods, including weapons or a wide array of tools. A source of genetic inspirations for all these traits is usually located east of Lesser Poland, with a specific focus on the northern Black Sea circle of steppe and forest-steppe cultures, i.e. Yamnaya culture (YC) and Catacomb culture (CC).

a. The topogenesis of the barrow ritual of the older CWC phase is considered first and foremost with reference to the older YC model (most plausibly dating from ca. 3200/3100-3000 BC). Obvious similarities between rituals practiced within these two cultural systems are unquestionable: the shared concept of a grave underneath a barrow, oriented according to astronomical coordinates (west-east orientation), with a body (most frequently of an adult male) interred in a contracted position, on the back, head pointing west. However, CWC grave construction details and principles governing depositions of grave goods depart from the YC model. Altogether, the CWC funeral ritual should be seen as a separate model that

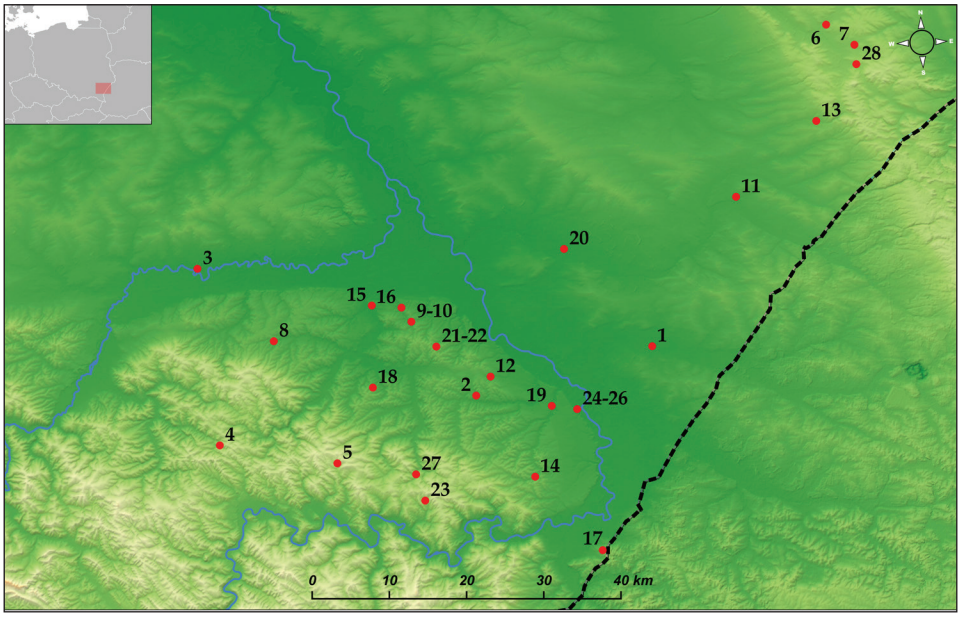

Fig. 2. Cemeteries of the Corded Ware culture in Subcarpathia (together with adjacent parts of Sandomierz Basin and Roztocze): 1 – Chałupki Chotynieckie, 2 – Chłopice, 3 – Czarna, 4 – Dylągówka, 5 – Hucisko Nienadowskie, 6 – Lipie, 7 – Łukawica, 8 – Markowa, 9-10 – Mirocin, sites 24 and 27, 11 – Młodów, 12 – Morawsko, 13 – Nowe Brusno, 14 – Orzechowce, 15 – Przeworsk, 16 – Rozbórz, 17 – Siedliska, 18 – Siennów, 19 – Skołoszów, 20 – Surmaczówka, 21-22 – Szczytna, sites 5 and 6, 23 – Średnia, 24-26 – Święte, sites 11, 15 and 20, 27 – Wola Węgierska, 28 – Wola Wielka

crystallized in Central Europe. The ritual, however, displays clear connections to the northern Black Sea zone, which so far are best visible in the material recovered from lowlands [Kośko 2014; Kośko *et al*. 2017].

The concept which sees the topogenesis of the central European ritual in the east, or in the steppe, incorporates the view that the horizon of crystallised specific traits of the ritual dating from the older CWC phase (horizon A = CWC-A) was preceded by the infiltration of the northern Black Sea barrow ideology most likely linked to migrations of Late Eneolithic ('pre-Yamnaya') 'barrow communities', or what is referred to as pre-Corded Ware horizon (CWC-X) [Kośko 2000]. The horizon has been identified based on observations of the expansive nature of **pre-Yamnaya and early Yamnaya barrow trends** traceable, starting from the late fourth millennium BC in both the Danube-Tisza migration zone [Heyd 2011] and Podolia [Włodarczak 2017b].

Until recently, there were no barrows identified that would manifest the aforesaid belief system in the central European zone. The first piece of evidence for the presence of **pre-Corded Ware barrow trends** was yielded by the mound at

Hubinek, Tomaszów Lubelski District. The mound is plausibly dated with the radiocarbon method to ca. 3000-2900 BC and contains burials characteristic of the northern Black Sea region [relevant material has not been published yet, though it is mentioned in: Juras *et al*. 2018]. It is not unlikely that it is also barrow 1 at site 3, Średnia [Machnik, Sosnowska 1996], which was raised within the period preceding 'horizon A', as indicated by its exceptionally early date (ca. 2900-2800 BC) [Włodarczak 2018].

At present, the number of barrow graves in Lesser Poland, which are linked to the 'pre-Corded Ware' phase, is small. Among indirect indications capable of suggesting an imminent change in this picture, there is information about the presence in the Lviv area of settlements attributable to the Late Tripolye culture/Gordineşti group (site of Vinniki-Zhupan dating from ca. 3300-3100 BC) [Rybicka 2017: 33-40 and latest verbal information][1] identified with one of the carriers of Eneolithic barrow structures [Ivanova *et al*. 2015; Włodarczak 2017b]. Discovered before World War II at Zavyshen (Zawisznia), Ukrainian part of Sokal Ridge, a grave containing vessels of the Gordineşti group is yet another indication [Antoniewicz 1925].

b. Presented in this volume of *Baltic-Pontic Studies*, spectacular discoveries from the Rzeszów Foothills (Szczytna) and Lower San Valley, showing cultural connections between Lesser Poland and the northern Black Sea region, were made at niche-grave cemeteries dating from the younger CWC phase, usually referred to as 'phase of local groups' – ca. 2600/2500-2300 BC (Fig. 2). They are, therefore, linked to the second stage of 'steppe' influences specified herein above. Lately, these relations were primarily highlighted in studies addressing the genesis of CWC niche graves in Lesser Poland [Włodarczak 2008: 563-569; 2014b: 21-27]. The standardized nature of a grave structure was noted and described for the Kraków-Sandomierz zone in the first place [Włodarczak 2006: 53-57]. Newly discovered graves on Sokal Ridge [Machnik *et al*. 2009], Lublin Upland [Jarosz 2016] and in the Carpathian region [first overview: Machnik 2011] point to niches having been a prevailing funeral structure type across Lesser Poland.

Notwithstanding the older genesis of these structures (see structures of the Złota culture), there are indications that allow us to see niche graves of the younger CWC phase as manifestations of a **new wave of eastern influences**. As it appears from most recent chronometric determinations [Goslar *et al*. 2015], in the forest-steppe zone of the Northwest Black Sea Coast, these developments followed the younger phase of the YC barrow cemeteries and probably marked the beginning of the prevalence of the CC ritual. Given these findings, construction similarities between catacomb graves of the younger CWC phase and those of the classic CC (including but not limited to the Donetsk or Ingul types) are essential. These similarities make more credible the eastern genesis (ca. 2600-2500 BC) of the Lesser Poland variant of the funeral ritual: all the more so as the grave structure and general burial concept can also be synchronized with the emergence of both specific

[1] We are greatly thankful to Professor Małgorzata Rybicka for making these details available to us.

principles governing depositions of goods, and artefacts that point to their eastern origin.

In qualitative terms, the rich grave goods accompanying CWC male burials in Lesser Poland (assemblage from grave 4 at Szczytna, discussed below) do not find any close parallels in any other region of central or northern Europe. Their specific nature consists in the presence of archery equipment (several to 30 arrowheads), an extensive set of tools made of bone, antler, copper or stone (including flint), as well as deposits of semi-processed flint. No similar assemblage is known that would come from YC graves. Closer similarities can be found in CC assemblages, including specifically those dating from the 2nd half of the third millennium BC. This is because CC assemblages contain artefacts that suggestively point to craft specialization of the deceased. Clear correspondence can be seen between the assemblages from Lesser Poland and those from the Middle Dnieper culture (hereinafter: MDC). Richly equipped burials come from the Upper Dnieper area, including first and foremost the Ragachov region [Artemenko 1967; Krywalcewicz 2007]. They contain the same artefact categories as those found in Lesser Poland, including extensive sets of flint products (including numerous flint arrowheads), bone tools used for flint knapping, whetstones, polishing plates and ornaments (including copper temple pendants).

The emergence of specialized craftsmen's graves was unique to the ritual practiced in the northern Black Sea zone of the third millennium BC [Bátora 2003; 2006: 55-120]. Particularly telling are burials with metallurgists' equipment that give special importance to the status of copper and bronze production. So far, no bronze item has been found in Lesser Poland. What deserves mention here are, however, sets of tools for flint knapping, such as various indirect percussion tools or retouchers (including copper ones). As emphasized in the CWC ritual in Lesser Poland, these tools seem to have been primarily used in production of weapons, i.e. flint arrowheads [Budziszewski, Tunia 2000]. Emphasized in the funeral ritual, flint-knapping specialization was, therefore, associated with a group of peoples particularly distinguished in funeral ritual, i.e. adult males with warrior attributes [Skrzyniecki 2014].

2. SPECIFICITY OF LESSER POLAND/SUBCARPATHIAN FORMS OF BLACK SEA FUNERAL BELIEF SYSTEM RECEPTION: IMPORT OF RAW MATERIALS, CIRCULATIONS OF ITEMS AND NEW PRODUCTION STYLES

Grave goods dating from the younger CWC phase in Lesser Poland were rich: they were richer when compared to the same from other regions of Central or

Northern Europe. Moreover, they were manifestations of ritual, whereby the diseased was equipped with items of daily life. It is not unlikely that the items were actually those owned by the deceased during life. At the same time, there is a striking selectivity of item types placed in graves. Such selectivity is also observable at the raw-material level: the deceased was equipped with objects made of suitable and desirable raw materials that were sometimes imported from far away [Włodarczak 2017a: 321]. Therefore, the symbolic and prestige-related importance of objects brings together aspects of technology, raw material and style. A dynamic (changing over time) system of particular valorisation of preferred objects encompassed raw materials and finished products circulating across vast areas: insignia (first of all: stone battle-axes), flint axes and knives, metal ornaments and tools, amber, or even some pottery types (e.g., 'Middle Dnieper' beakers). Ties with areas east of Lesser Poland manifest themselves therefore, in the following three ways: (a) through the presence of objects made of raw materials originating there, (b) through the style of objects, which evidences significant cultural connections, and (c) in alignment with the concept of a 'Carpathian-Volhynian metallurgic centre' [Klochko, Kośko 2013]. The first of the analytical aspects above proves direct contacts that manifested themselves through items such as tools made of Volhynian flint or battle-axes made of rock originating in the east (Volhynian basalt), or through east European copper. The second aspect might be indicative of not only importation, but also cultural inspirations that were changing local styles of man-made objects or, more broadly, what was en vogue. The third aspect, just signalled here and based on available sources, continues to be an important avenue for future research.

a. As far as imported raw materials are concerned, circulation of objects made of Volhynia flint, which was used in production of core tools, various types of knife inserts and arrowheads, comes to the fore. Volhynia flint gained a dominant position on the eastern outskirts of Lesser Poland (Sokal Ridge, Roztocze) as well as in the eastern part of Subcarpathia (including but not limited to the Rzeszów Foothills and Lower San Valley). Findings from these areas point to sustainable relationships between CWC communities in Lesser Poland and their Volhynia counterparts, consisting in frequent trips to obtain flint. At the same time, the Volhynia centre had its unique flint-knapping technology culminating in specific (flat, rectangular or bifacial) axes and regular semi-processed blades relatively large in size when compared to what was made in western Lesser Poland. These objects must have been, therefore, produced by a group of specialists other than Lesser Poland ones who relied on Carpathian raw materials, such as flint from the Kraków region, or flint from the eastern border of Świętokrzyskie Mountains.

The literature also signals the eastern provenance of rock material used in production of CWC tools [Gazda 2009; Chachlikowski 1996]. This provenance reflects preferences of Final Eneolithic communities of Lesser Poland for select types of fine-crystalline rock (serpentinite, amphibolite, gabro, basalt) for the production of insignia. Until now, the use of Silesian rocky outcrops has been highlighted,

combined with the popularity of battle-axes belonging to the Ślęża type in western Lesser Poland [Wojciechowski 1988; Włodarczak 2017a: 313]. The drive for Volhynian rock necessitated contacts with eastern CWC and MDC groups, which, in turn, allowed for obtaining sought-after rock for the production of battle-axes as well as for importing other raw materials, such as flint and probably also copper (see item 'c').

b. The CWC niche graves in Lesser Poland contain items that either demonstrate a clear stylistic change versus the previous period, or constitute a new category of artefacts. Most of the artefacts can be associated with cultural trends resulting from relations between Lesser Poland and the northern Black Sea zone.

Stone battle-axes are items of specific value as far as insignia are concerned. Oval pentafacial stocky forms belonging to types G-H-I started to be the most numerous category for the CWC in Lesser Poland sometime around the middle of the third millennium BC [Włodarczak 2006: 35-36]. The battle-axes share some similarities with their contemporary counterparts from the northern Black Sea zone, including specifically CC battle-axes [Włodarczak 2014b: 33-34]. Stylistic inspirations from that circle are particularly clear for sickle-shaped or 'Ingul' battle-axes [Klochko, Kośko 2009: 283-287; Libera, Sobieraj 2016: 433-434]. Local exemplifications of the 'eastern' idea are obviously most abundant in this large group of artefacts. As no petrographic analysis is available, imports are hardly identifiable. However, the fact alone of including Lesser Poland within the zone, in which suitable, stylistically defined artefacts carrying specific symbolic and prestige-related meaning were used, is very indicative.

c. At present, it remains an open issue as to whether CWC communities in Lesser Poland were using copper from 'eastern' deposits in Volhynia or Podolia [Klochko *et al*. 2000; 2003; Klochko, Kośko 2013]. The likelihood of this is supported by stylistic affinities among metal objects from south-eastern Poland, northern Black Sea zone and territories occupied by the MDC. The use of Volhynia copper has been ascertained for the Tripolye culture [Klochko *et al*. 2000; Klochko 2017]. Appropriate specialist studies of relatively numerous copper artefacts from CWC niche graves in Lesser Poland are thus urgently required.

This issue should be dealt with in a broader context of eastern European academic observations on metallurgy, including specifically results of studies inspired by the program of research into the Circumpontic metallurgical province [Chernykh 1977; 1992].

Within the aforesaid civilizational range, the Late Eneolithic (2nd half of the fourth millennium BC and early third millennium BC) saw a broader shift in the manufacturing technology of metal tools and ornaments, with the emergence of two-piece moulds that were primarily used for casting shaft-hole axes and daggers [Primas 2007: 14-15; Heyd 2011: 546]. Technological innovation was coupled with a clear typological and stylistic change affecting the majority of categories of man-made objects. The array of raw materials was broadened, with silver prod-

ucts enjoying large popularity particularly within the YC circle [Nikolova 2007]. Numerous experiments with various metal alloys as well as with the production of multi-layered objects (gold-, and silver-plated) marked a new trend in metallurgy [Chiojdeanu *et al*. 2011; Frînculeasa *et al*. 2015]. Most of all, clearly identifiable are silver-gold and silver-copper alloys [Popescu 2010: 172], or arsenical bronze that should be perceived as a cheaper substitute for silver according to Ryndina [2009: 11-13]. On many territories, the far and wide spread of these new techniques coincided with the emergence of YC communities. At the same time, finds from central and southern Europe often show stylistic affinities to the northern Black Sea zone [Vangorodska 1987; Ivanova 2007]. All of the innovations mentioned here can be found incorporated in YC and then CC metalwork.

In the broadly understood CWC circle, the largest quantities of metal objects are discovered on areas adjacent to territories infiltrated by steppe communities, i.e. those occupied by the MDC as well as by CWC in Lesser Poland and Moravia. In the CWC circle, the percentage of graves containing metal objects is the highest in the Kraków-Sandomierz group, reaching 15% (39 of 275 graves). Copper artefacts have been recovered also from graves unearthed in eastern Lesser Poland, with the aforementioned assemblage from grave 4 at Szczytna bringing a totally new quality. Ornaments are most abundant, including characteristic forms of temple pendants that most often are three-, or four-segment spirals made of 1mm thin wire, with one end flattened and the other end sharpened. This type is just one of the temple pendant variants identified in the YC/CC circle that also offers a quite large group of artefacts made of thick wire (exceeding 4 mm) [Aleksandrov 2009; Nikolova 1999: 303-307; Vangorodska 1987; Klochko, Kośko 2013] that are totally absent in the CWC in Lesser Poland.

Grave goods recovered from grave 4 at Szczytna point to the importance of copper shaft-hole axes that were stylistically new and, at the same time, technologically advanced. As they were probably not readily available, these axes were the inspiration behind new stone battle-axe types that were wedge shaped with their form coming close to their metal prototypes belonging to type I [Włodarczak 2006: 36].

Copper spiral hair-rings were among the leading ornament forms in the CWC in Lesser Poland. Their popularity was coupled with new clothing trends of Final Eneolithic communities. From the fourth millennium BC through historic times, various ornament types were used by various steppe communities for hair adornment (? strand separation) purposes. The beginning of the third millennium BC marks the popularity of the following two temple pendant types: crescents (Zimnicea type similar to the 'Leukas type' in southern Europe), and circles-spirals made of wire. Typical of the CWC in Lesser Poland were spirals made of 1-2 mm thin wire, with their specifications coming close to MDC and CC (or, to a lesser degree, YC) ornaments. Although artefacts from Lesser Poland are stylistically specific, their 'eastern' inspirations can be safely assumed in this context [Carpathian-Volhynian metallurgic centre: Klochko, Kośko 2013].

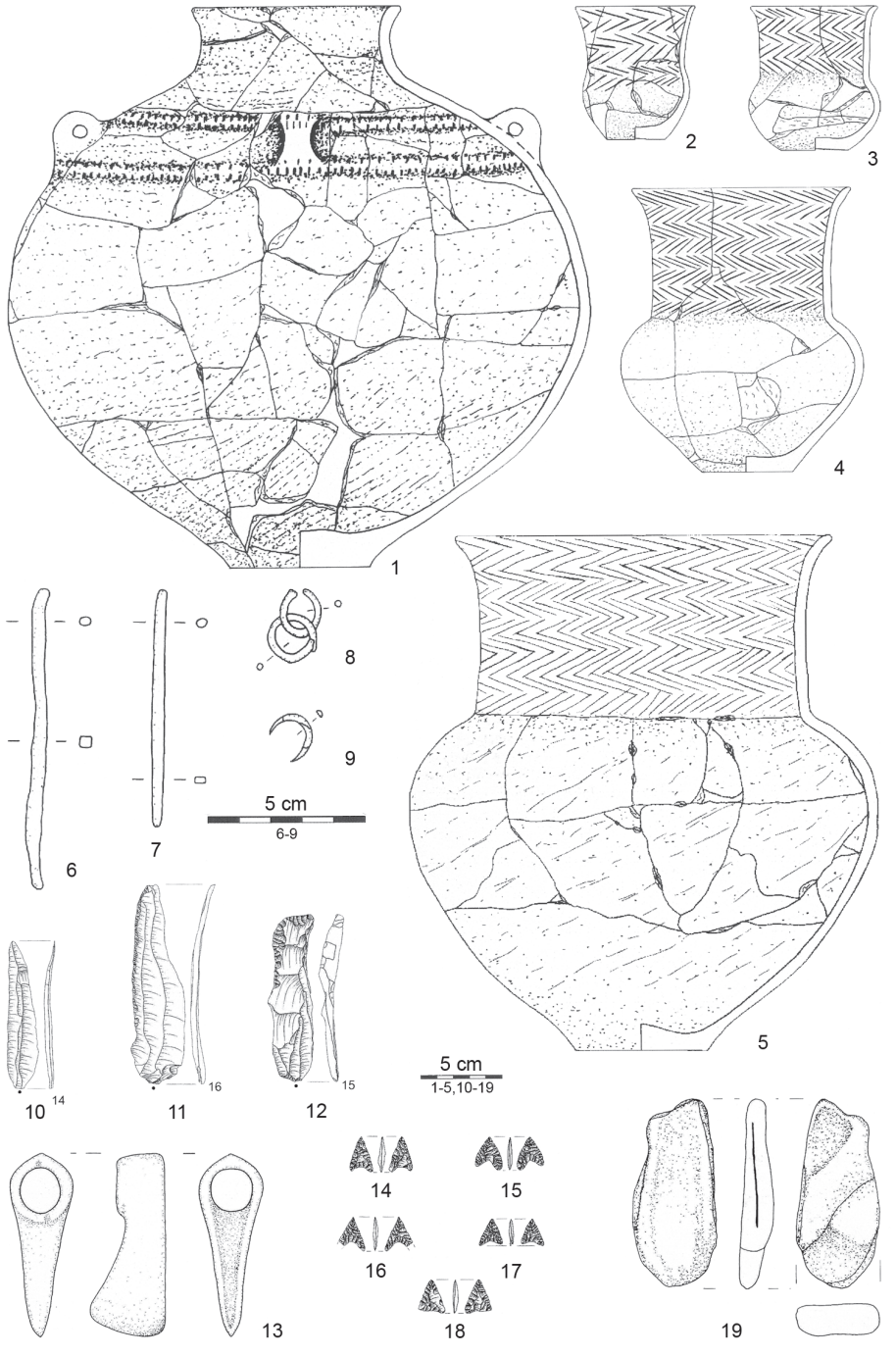

Fig. 3. Inventory of grave no. 4 from site 6 at Szczytna, Jarosław District

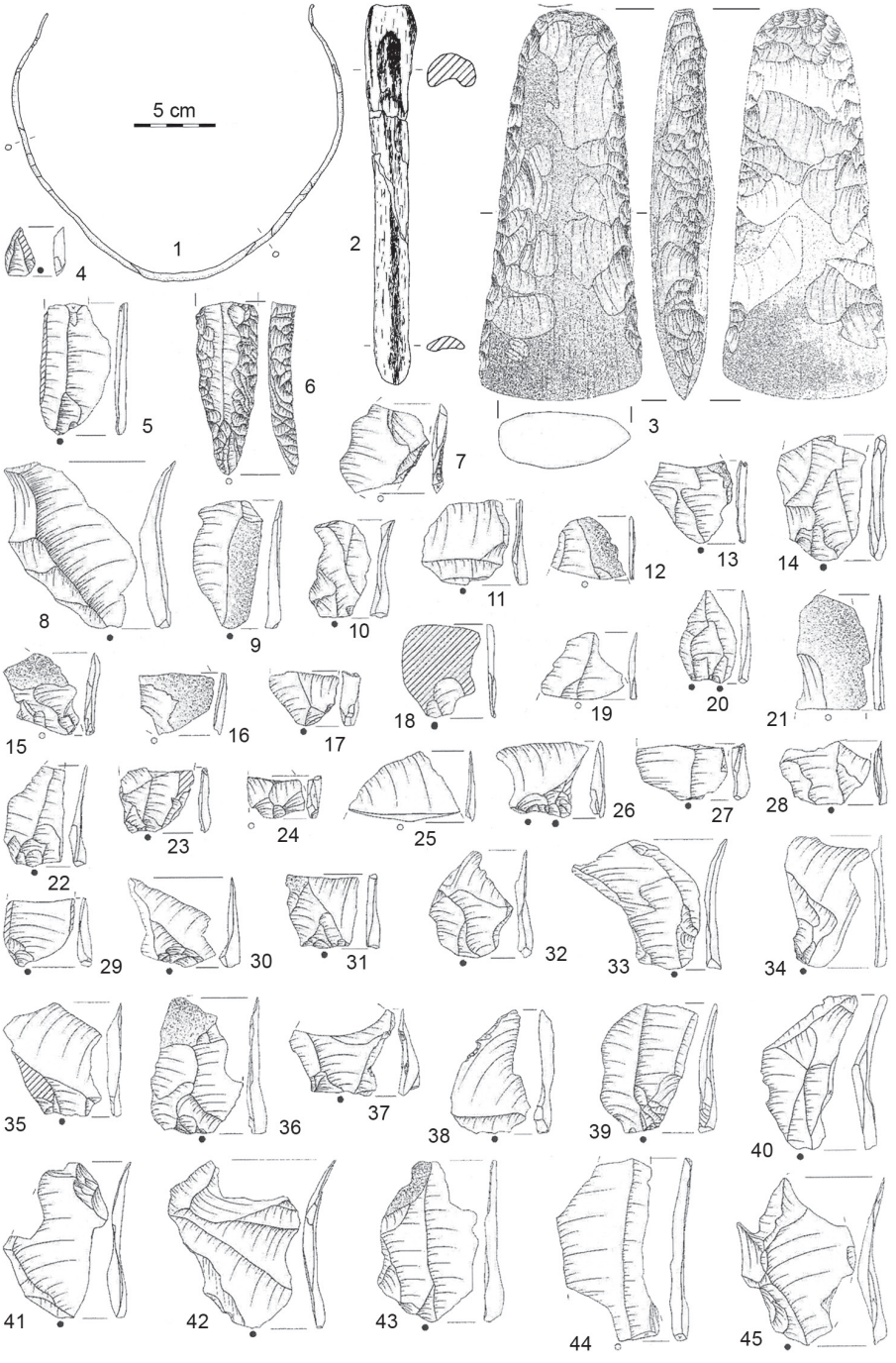

Fig. 4. Inventory of grave no. 4 from site 6 at Szczytna, Jarosław District

3. DIAGNOSTIC ASSEMBLAGES: SZCZYTNA-ŚWIĘTE TYPE

The following two sets of sources are essential to evaluate the weight of scholarly 'Subcarpathian inspirations': (a) grave 4 at site 6, Szczytna, Jarosław District, which is described in greater detail below [Jarosz, Machnik (Eds) 2017]; and (b) feature 1149 at site 11, Święte, Jarosław District, which is more broadly presented in this volume of *Baltic-Pontic Studies* and, as such, is incorporated by reference [Olszewski, Włodarczak 2018; Kośko *et al*. 2018].

a. The discovery of grave 4 at Szczytna, or, more specifically, at site 6, which is a small cemetery comprising mostly niche graves, is notable from the perspective of the Subcarpathian CWC group [Hozer *et al*. 2017]. A planigraphic layout of the graves at the site reveals the presence of barrows, which is further confirmed by stratigraphic documentation showing what are probably bottom layers of mounds and remains of original topsoil. Mounds were raised in the immediate vicinity of presumed Funnel Beaker tombs (dating from the mid-fourth millennium BC) whose only remains are now burials and characteristic longitudinal pits located at the front of tombs belonging to the Niedźwiedź type. Grave 4 dates from the younger CWC phase and, as such, was dug into the barrow that is believed to be substantially older [Włodarczak 2014b: 19]. This chronological relationship cannot be, however, further clarified as a central burial is missing, having been probably intrusively destroyed by a modern cut [Hozer *et al*. 2017: 32-38]. When we look at the structure of, and grave goods from grave 16, which is likely to have contained a central burial associated with a smaller neighbouring barrow, it is likely that it is yet another case in which niche graves postdate the central burial by some 100-200 years. AMS dates for bones recovered from the burial (2 samples tested by different laboratories) gave the estimated date range of ca. 2565-2468 BC for grave 4, whose range falls within the older sub-phase of the younger CWC phase in Lesser Poland (=niche grave phase) and, at the same time, the period of reception of MDC traits [Włodarczak 2018].

Grave 4 at Szczytna has been found containing a burial of an adult man accompanied by a rich assemblage of grave goods (Figs. 3 and 4). Although the deceased was richly equipped, his grave goods were in qualitative terms typical of CWC male burials in Lesser Poland. The goods included all basic categories known from structures of that type: pottery vessels, weapon elements, a diversified set of tools and semi-processed flint [Włodarczak 2006: 143-145]. With such grave goods, typical niche structure and body position of the deceased, grave 4 at Szczytna is currently the best-equipped and, at the same time, a typical burial of a Corded Ware adult male in Lesser Poland. What makes the grave unique is the fact of it containing copper objects, including both tools and ornaments: shaft-hole axe (Fig. 3: 13), necklace (Fig. 4: 1), two hair-rings (Fig. 3: 8, 9), and two indirect percussion tools (Fig. 3: 6, 7).

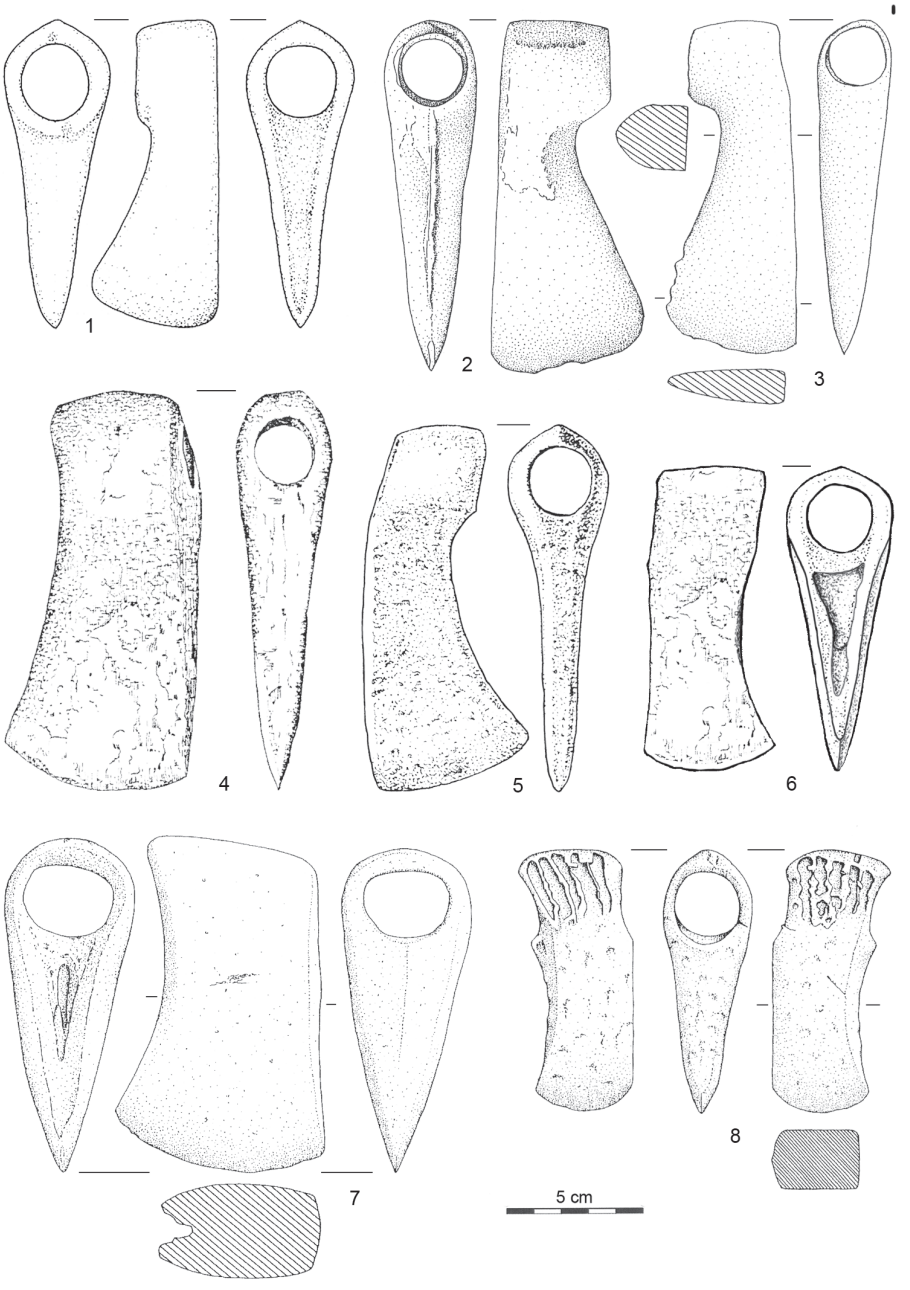

Fig. 5. Copper shaft-hole axes: 1 – Szczytna, site 6, grave 4, 2 – Kwieciszewo, 3 – Radzików, 4 – Pystyn, 5 – Khodosovichi, „Moshka", barrow 10, grave 1, 6 – Pidlissia, barrow 1, grave 2, 7 – Rudna Mała, 8 – Munina. *After* Żaki 1961; Artemenko 1967; Gedl 2000; Klochko 2001; Hozer *et al.* 2017

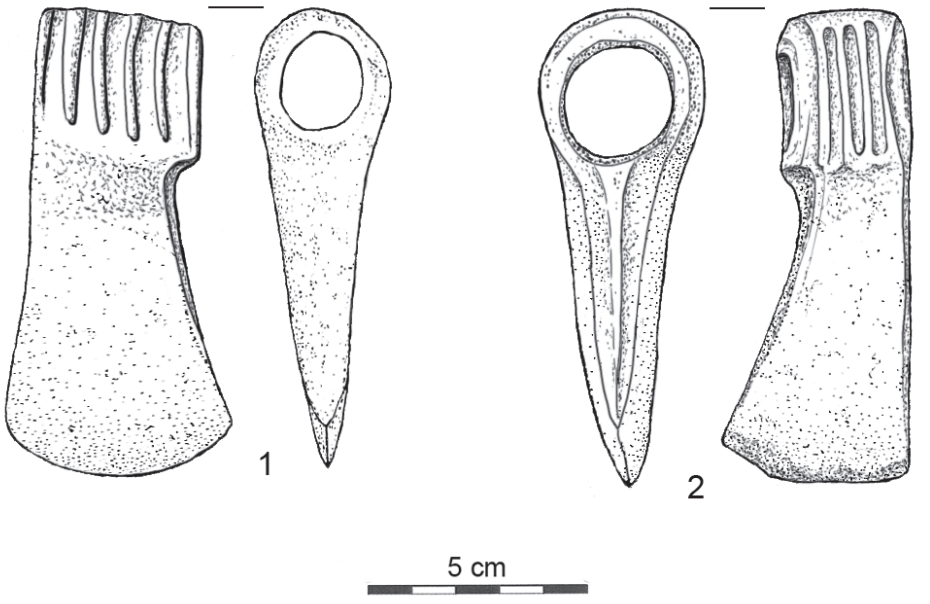

Fig. 6. Copper shaft-hole axes related to Catacomb culture: 1 – Bilousivka, 2 – Smolyhov. *After* Klochko 2001

The only instance of a metal axe being found in the Final Eneolithic grave in central Europe deserves special mention. Certain aspects of the shaft-hole axe form are reminiscent of the early Bányabükk type (Romanian: Baniabic, now Vâlcele) [Bátora 2003; Hansen 2009: 147; Szeverényi 2013: 662]. Similarities with the early Bányabükk type are also shared by two other loose Subcarpathian finds from Rudna Mała, Rzeszów District (Fig. 5: 7), and Munina, Jarosław District (Fig. 5: 8) [Żaki 1961; Gedl 2000][2].

With its well-defined short sleeve shaft-hole, the artefact from Szczytna differs from its older counterparts (which display parallels to shaft-hole axes of Maikop 2 and 3 types from the European steppe) dating from the fourth millennium BC. It, however, harks back to various shaft-hole axe types from both eastern and southern Europe, dating from the third millennium BC. Their specific trait is a straight top surface that makes a right angle to shaft-hole walls. Similar traits can be seen in an axe from YC grave no. 1/2 at Pidlissia, Brovary *raion* (Fig. 5: 6), which however, does not have a well-defined sleeve shaft-hole and, as such, is typologically older

[2] The shaft-hole axe from Munina comes from the Rzeszów Foothills zone where many Final Eneolithic CWC cemeteries have been recently discovered. Munina is located some 8 km east of site 6 at Szczytna, and some 13 km northwest of the sites at Święte. Therefore, it is highly likely that the artefact can be associated with the destroyed CWC grave.

[Bratchenko *et al*. 2000; Klochko 2017: 238, 240]. Closer in terms of their shape are artefacts with fluted shaft walls (as is the case for the axe from Munina – *see* Fig. 6: 1, 2) that Klochko links to the CC [2001: 127, Fig. 53: 6, 7]. Similar loose finds come from areas once occupied by the MDC peoples [Klochko 2001: 127, Fig. 53: 6, 7]. Klochko sees certain likeness between them and the Zók C type from southern Europe [Klochko 2001: 128]. However, robustness is what brings the artefact from Szczytna more into the line with the older Pidlissya type [*see* also a similar artefact from Pistyn, Kosiv *raion*: Żaki 1961: 89, Fig. 1: 3] and, at the same time, distinguishes it from a group of somewhat slenderer shaft-hole axes of the Dunakömlőd-Kozarac-Dumbrăvioara/Sáromberke-Stublo type [Dani 2013: 207]. The group includes, however, also axes similar to the artefact from Szczytna [Durman 1983: Plate 10: 5]. A precise determination of a chronological position of the discussed shaft-hole axe form is difficult and, perhaps, unnecessary given the lengthy use and co-existence of various types in regions, sometimes within assemblages (Stubło hoard). The MDC grave no. 10/2 from the site of Moshka in, Khodosovichi (Fig. 5: 5), which comes close in terms of the nature of grave goods to grave 4 at Szczytna, yielded an axe of the Kolontayevka type [Artemenko 1967: 31, Fig. 20] which is frequently encountered in the CC area [Klochko 2001: 138][3].

What this proves is the presence in the broadly understood CWC circle of metal axes that were typologically diversified. Stylistic parallels together with broadly interpreted contexts of the discoveries allow us to consider metal shaft-hole axes found in MDC and Fatyanovo graves to be manifestations of contacts with communities of the northern Black Sea zone (including specifically CC and perhaps also late YC peoples) [Artemenko 1967; Kraynov 1972: 157]. Relations with the northern Black Sea zone seem to be most likely the case also for the artefact from Szczytna, although it is by no means easy to determine whether it involved direct contacts or the process of the CWC-MDC groups heading towards Lesser Poland.

With an arsenic content of 0.45%, the axe from Szczytna is made of arsenical copper, although according to those, who performed the analysis of its chemical composition, such content points to a primary deposit 'containing many elements' [Hensel, Pawlicka 2017: 221-222, Table 1]. Present in a small group of finds from Lesser Poland [Włodarczak 2006: 41, Table 8], arsenic enrichment may be indicative of the eastern provenance of copper [Chernykh 1977; 1992 ; *see* Klochko *et al.* 1999] and confirm typological affinities outlined herein above.

As far as the assemblage of metal artefacts from the grave at Szczytna is concerned, our special attention is attracted also by a form of two copper temple pendants. They are small circles made of wire that has a circular cross section and is thicker (2 mm) than wire employed for most ornaments. The pendants differ from spiral temple pendants (usually two-, or four-segment ones) that are typical of Lesser Poland and have one end flattened and the other end sharpened. They

[3] The axe from Khodosovichi bears parallels also with the artefact from Ivonivka, Mohyliv-Podilskyi *raion* (middle Dniester) associated with the late YC phase [Klochko 2017: 226-229, Fig. 1: 1].

are, however, similar to YC artefacts from both the northern Black Sea zone and Danube areas [Alexandrov 2009; Nikolova 1999: 303-307].

The copper necklace belongs to those ornaments that are rarely present in graves unearthed in Lesser Poland: there only three other graves that offer similar artefacts. Analogical to the necklace from Szczytna, the other three necklaces have been found accompanying richly equipped male burials. The burials were in grave 26 at Kichary Nowe and grave 1/1 10 at the site of Klekacz (no details of the discovery at Daromin are available).

The pottery assemblage from grave 4 at Szczytna comprises an amphora (four-handle, typical of local CWC) and four beakers uniquely shaped and decorated with dense herringbone patterns (Fig. 3: 1-5). No piece shows cord impressions that were so popular across Lesser Poland. Jan Machnik classifies these beakers into a separate 'Szczytna type' that has been specifically distinguished to highlight the fact of the beakers being different from typical vessels of Lesser Poland that belong to type V [Machnik 2014: 98; Hozer *et al*. 2017: 86-87].

To sum up, the burial from Szczytna is the most richly equipped single burial of an adult male in Lesser Poland. In qualitative terms, the assemblage of grave goods is, however, typical as it contains routinely deposited elements, such as vessels (including the 'mandatory beaker'), weapons (axe and arrowheads), set of tools, and semi-processed flint. The tools and semi-processed form, first of all, equipment of a flint knapping specialist and, at the same time, of a warrior equipped with a blunt weapon (axe) and archery equipment.

In terms of composition and richness of grave goods, adult male burials from niche graves in Lesser Poland do not find parallels in other CWC regions of central or northern Europe. They can be, however, compared with burials attributed to the eastern European CWC circle of MDC and Fatyanovo culture.

b. A pot with an oval-shaped base found in feature 1149B at site 11, Święte [Olszewski, Włodarczak 2018; Kośko *et al*. 2018] constitutes yet another important piece of evidence to prove relations between communities of Lesser Poland and the northern Black Sea area. The pot is the only vessel found in south-eastern Poland that can be readily linked to CC/late YC phase (a bowl recovered from a destroyed grave at Koniusza might be the second such artefact, yet any definite attribution is impossible at this stage) [Włodarczak 2014b: Fig. 17: 1, 18]. The closest parallels for the vessel found at Święte come from a concentrated group of YC and MDC cemeteries on the Hirsky Tikych in the basin of Southern Bug [including but not limited to Novosiółka and Jackovica: Bydłowski 1905].

The number of vessels harking back to the YC/CC pottery clearly increases in CWC material recovered from the Upper Dniester basin, where broad-mouth, vase-shaped forms or forms with oval-shaped bases have been recorded. Clear examples of 'imports' are, however, few in number [e.g. a censer recovered from a barrow at Balice – Włodarczak 2014b: Fig. 17: 2], and no pot with an oval-shaped base has been discovered there so far.

4. BLACK SEA TOPOGENETIC CONTEXTS IN ANALYSES OF SUBCARPATHIAN RECEPTION OF EASTERN FUNERAL BELIEF SYSTEMS

The analyses of Black Sea topogenetic identifications assign special status to multi-cultural (YC, CC and MDC) phenomena associated with (a) middle Dnieper area (= 'middle Dnieper trend' in the culture of the third millennium BC), linked to the Vistula drainage basin through the Bug and San. These processes involved latitudinal routes: from the Dnieper through Podolia to Volhynia and, potentially, from the steppes through Podolia to the Dniester [Klochko, Kośko 2009; Makohonienko 2009]. This conception, however, raises a number of questions about mechanisms behind the inflow of YC and CC traits to the Vistula drainage basin. Two variants are possible: (b) Volhynian, corresponding with the settlement pattern of GAC and MDC peoples [Szmyt 1999; Kośko, Szmyt 2011; Łysenko, Szmyt 2011; Bunyatyan, Samolyuk 2009], and the one, which was independent from the Middle Dnieper area, and can be described in the most general terms as (c) Podolia-Dniester one (or more precisely: steppe-Podolia – Dniester, or Southern Bug – Dniester) [Włodarczak 2014a].

a. The discovery of a grave at Młodów-Zakącie (near Lubaczów) [Machnik, Pilch 1997] triggered the debate on migration of MDC groups to Lesser Poland and on resulting new stylistic trends in ceramics produced by local Final Eneolithic communities. A larger number of MDC traits have been identified in grave assemblages from Sokal Ridge [Machnik 1999; Machnik *et al*. 2001; 2009], although their presence in other regions of Lesser Poland [Machnik, Pilch 1997; Machnik *et al*. 2001] as well as in Volhynia has been also signalled [Bunyatyan, Samolyuk 2009]. This pool of evidence has recently come to include typical 'Middle Dnieper' vessels discovered on the Rzeszów Foothills [Machnik 2014; Machnik *et al*. 2019]. As yet, ceramic artefacts have been primary sources to allow comparisons that lead to the conclusion that the MDC traits were indeed present in Lesser Poland. It should be noted that these affinities do not consist merely in ceramic similarities and extend to include other categories of artefacts as well as principles of funeral ritual.

As far as ceramics is concerned, these are thin-walled 'spool-shaped' beakers [Artemenko 1967], which are also referred to as 'hourglass-shape' beakers in the Polish literature [Machnik, Pilch 1997], that 'gained popularity' in Lesser Poland. In funeral ritual, these beakers were equivalents for local beakers of types IV and V from Lesser Poland [Machnik 1966; Włodarczak 2006], occurring in the same contexts, i.e. in graves of both adults (larger forms) and children (miniaturized forms), and occasionally forming assemblages together with large amphorae or with other beaker types. With its characteristic foreign form, a Middle Dnieper beaker became included among Lesser Poland items of symbolic significance in

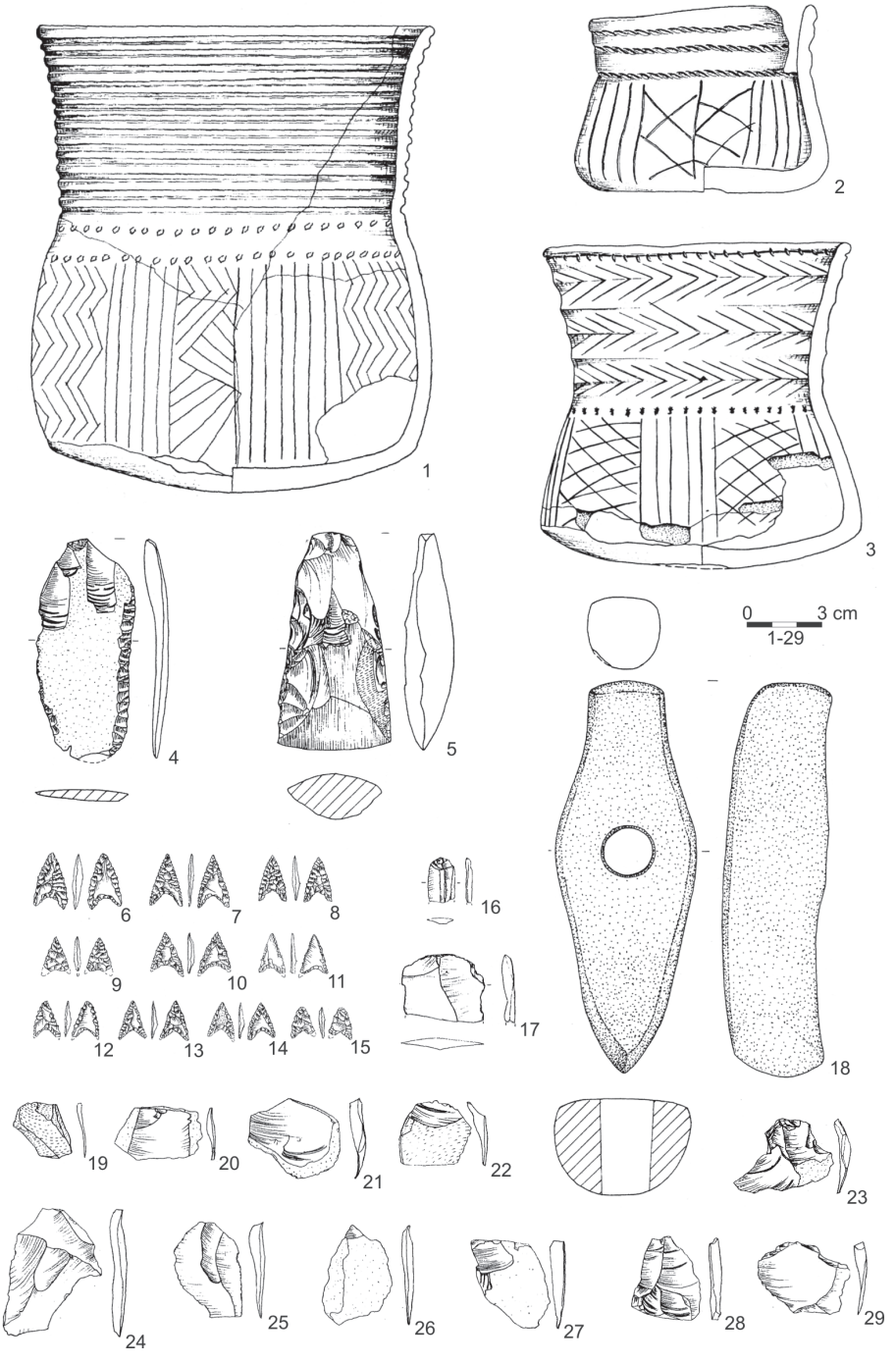

Fig. 7. Inventory of the Middle Dnieper culture grave at Młodów-Zakącie, Lubaczów District. *After* Machnik, Pilch 1997

funeral ritual. It should also be noted that the 'spool-shaped' beakers have been also recorded outside Lesser Poland, i.e. in Chełmno Land within the lower Vistula drainage basin [Kałdus: Kośko 2011: Fig. 11].

Parallels with the MDC artefacts are by no means limited to the above-described beaker form. A bipartite beaker with a spherical body, a funnel-shaped neck, and a dense horizontal herringbone pattern is yet another diagnostic vessel type. For its peculiarity, it has been recently named the 'Szczytna type' [Hozer *et al*. 2017: 86]. Similar beakers were also present in the MDC [Artemenko 1967: Fig. 77; Krywalcewicz 2007; Bunyatyan, Samolyuk 2009]. Rarely encountered in Lesser Poland, these are also broad-mouth, vase-shaped vessels [Janczewski *et al*. 2018: Fig. 25: 1] that are present in the material recovered from the Upper and Middle Dnieper area. These forms are, at the same time, illustrative of a stylistic trend most likely borrowed from the CC/late YC.

A potential 'Middle Dnieper inspiration' for flint production in the younger CWC phase in Lesser Poland is an essential yet still inadequately studied issue. As discussed earlier in the present paper, eastern connections in the said flint production can be clearly seen in the raw material, underlain by the important role of Cretaceous flint imported (primarily) from Volhynia and perhaps also from Podolia. In eastern Lesser Poland, Volhynia flint imports played a considerable role already in the older CWC phase. With the emergence of MDC traits in ca. 2600-2500 BC, the nature of flint assemblages in Lesser Poland changed and new types of tools began to occur (including but not limited to bifacial axes and hollow-based triangular points). A certain pattern is thus discernible: the emergence of Middle Dnieper traits in ceramics comes alongside technological and stylistic changes in flint products.

A greatly inspiring issue is the genesis of the custom of equipping male burials with considerable quantities of flint arrowheads, which is observed in all local groups in Lesser Poland. In the younger phase, arrowhead assemblages include up to 30 pieces (Wilczyce, site 10, grave 15). These are small triangular arrowheads, with a base that is deeply concave, being a gentle arch (less often) or triangle (more often). These arrowheads are made of fine flakes or scaled pieces, with bifacial retouch. Although not proven so far by traceological observations, an opinion about them having been produced using metal tools [Borkowski 1986] is confirmed by the presence of copper retouchers in an increasingly higher number of assemblages (including but not limited to grave 4, site 6, Szczytna). It is nowhere but in Lesser Poland where most westward located male burials occur in a large number sometime around the mid-third millennium BC, while in other regions of central Europe arrowheads did not become common until the Bell Beaker horizon.

The emergence of triangular arrowheads in the Balkan zone is dated to 3300-3000 BC [Ivanova 2008: 54] and, as such, can be linked to the expansion of steppe communities. Although this direction for genetic inspirations is likely to have been the case for other regions, it does not necessarily apply to the custom of deposit-

ing archery equipment in graves. Burials with arrowheads were, indeed, relatively rare in the YC [Razumov 2011: 142-143], becoming somewhat more common in the CC. In this context, our attention is attracted by male graves with numerous arrowheads, identified at MDC cemeteries, including specifically those located in the Ragachov region in the Upper Dnieper area [Artemenko 1967: 42]. Moreover, 10 flint arrowheads have been found in what is the only 'pure' MDC assemblage in Lesser Poland [Młodów-Zakącie – Machnik, Pilch 1997: 151]. Metric and technological properties of these arrowheads display parallels to CWC artefacts from Lesser Poland [Budziszewski, Tunia 2000: 122-127; Włodarczak 2006: 28-30].

The same custom of richly furnishing some of the adult male burials with weapons (usually axes and arrowheads) and implements (flint, metal, bone or antler products, whetstones and polishing plates as well as semi-processed raw material) characteristic of the CWC in Lesser Poland, have very close parallels at MDC cemeteries. The custom emerged sometime around the mid-third millennium BC in Lesser Poland, coinciding with depositions of Middle Dnieper vessels in CWC graves.

b. Tracing the 'Middle Dnieper trend' is somewhat complicated due to the unclear relation between the CWC in Lesser Poland and the steppe or forest-steppe circle of northern Black Sea cultures (YC, CC). The problem is currently approached from the perspective of the genesis of the MDC, for which the steppe model, including primarily the CC, is frequently seen as a contributor [Artemenko 1969: 109; Bondar 1991; Serdyukova 1994; Bunyatyan 2005]. The same steppe component is accepted when interpreting phenomena such as the genesis of ('Ingul') burials with bodies placed in a contracted position, and when evaluating stylistic affinities in ceramics [Bunyatyan 2005: 27-34]. Our attention is attracted by forms such as small beakers (Ukrainian: *kubki*) with oval-shaped bases that are present in the Upper Dniester CWC (according to Machnik's classification: Kavsko-Kołpiec type) and are deemed by Artemenko [1967] to be a manifestation of the steppe trend absorbed in the initial phase of the MDC. It is thus problematic to identify direct relationships between the eastern CWC and the late YC and CC. Most of the CWC pottery pieces from Lesser Poland, which display 'eastern' stylistic affinities, exhibit also traits attributable to the late YC/CC, provided, however, that the pieces may fairly well be also considered to be the production remaining within the MDC circle [for sites at Święte: Olszewski, Włodarczak 2018; Janczewski *et al*. 2018].

c. The autonomy of the Podolia-Dniester (or more precisely: steppe-Podolia-Dniester, or Southern Bug-Dniester) route for the eastern transmission of Black Sea funeral belief systems was addressed as part of by the 'Yampil research program' [Kośko *et al*. (Eds) 2014; Włodarczak 2014a]. A starting point was identification in barrows from the area of Yampil of amphorae, which display traits of the older CWC horizon and had been incorporated in the funeral ritual of the middle YC phase. The amphorae were found in stratigraphic contexts similar to

those recorded for the GAC vessels in the nearby region of Kamenka and on the Upper Prut. Relationships with the western part of the Volhynian-Podolia Upland were corroborated also by the presence of tools made of Cretaceous flint originating there from (including but not limited to: Porohy, grave 3a/15; Prydnistryanske, grave IV/8). Stylistic and chronological affinities point to significance of the route at the time when barrow cemeteries were forming in the upper Dniester area and in Lesser Poland (older CWC phase = ca. 2800-2600 BC).

5. CHRONOMETRIC LANDSCAPE OF BLACK SEA FUNERAL BELIEF SYSTEMS

A series of radiocarbon dates obtained for the cemeteries at Święte enables the precise determination of chronology of the second stage of eastern European relationships of CWC communities of Lesser Poland [Włodarczak 2018]. Similar to other niche features at Święte or other neighbouring cemeteries, the date range of 2473-2348 BC has been obtained for grave 1149A at site 11, which is associated with the pot with a pointed-shaped base (feature 1149B) [Kośko *et al*. 2018: section 4d]. When summed up, all chronometric data from south-eastern Poland give us a terminus post quem of ca. 2600 BC (most probably: ca. 2550 BC) for the emergence of new communities in Lesser Poland that brought a modified concept of the funeral ritual. The thesis about the presence of newcomers from territories east of Lesser Poland seems to be confirmed also by results of stable strontium isotope analysis performed for materials from the site at Święte [Belka *et al*. 2018]. Being powerful manifestation of eastern cultural influences, the new funeral ritual was being phased out starting from ca. 2400 BC, with the abandonment of the niche-grave concept, which was replaced with the Bell Beaker/early Mierzanowice trend.

What we do not have, however, are chronometric analyses that would enable determination of the exact age of many MDC finds from the upper Dnieper, which is especially true for the assumed genetic centre on the northern outskirts of YC and CC territories (within the Tikych-Ros-Dnieper river system) [Artemenko 1967: 55, Fig. 42; 114, 74; chronometric data for the forest zone: Kryvaltsevich, Kovalyukh 1999], or key data to make more plausible the prehistoric reconstruction offered in the present paper.

We also do not have sufficiently distinctive data for the CWC on the upper Dniester. Single radiocarbon dates are not enough for a chronological framework to be developed [Jarosz, Włodarczak 2007]. Approximations are, therefore, made

based on comparative typological studies [Sulimirski 1968; Machnik 1979; Włodarczak 2014a].

From the perspective of the problems touched upon herein, essential is a series of dates obtained for barrow cemeteries from the Yampil region on the middle Dniester [Kośko et al. 2014; Goslar *et al*. 2015]. According to dating results, establishment of local ceremonial and funeral centres should be located in an early, or Eneolithic, period. Associated with the Zhyvotilovka-Volchansk type and with the adaptation of elements of the Late Tripolye-Gordineşti group, the oldest burials are dated to the 2nd half of the fourth millennium BC. In the early Yamnaya phase at the turn of the 4th and the 3rd millennium BC, burials harking back to pre-Yamnaya traditions, including but not limited to Kvityana and Zhivotilovka-Volchansk ones, continued to be present there. Most YC burials are dated to ca. 2800-2600 BC. It was at that time when burials containing artefacts characteristic of CWC, i.e. the amphora (Porohy, grave 2/6) and blade knife insert made of Cretaceous flint from Podolia (Porohy, grave 3A/15), were intrusively dug into the barrows. Around 2600/2500 BC, YC barrow cemeteries went out of use. It is also the date which is assigned to a burial which is in line with the Ingul CC tradition (Prydnistryanske, grave I/4). Assuming that the findings from the Yampil region are equally valid for the entire forest-steppe zone of the Boh-Dniester-Prut, the younger phase of Lesser Poland-oriented transmission of Black Sea traits would postdate the disappearance of the YC ritual, being contemporary with the expansion of the CC model.

RECAPITULATION

Identified in terms of adaptation and occupation with nomadisation processes most clearly seen in the third millennium BC, the beginning of the Final Eneolithic is marked by phenomena dated to the last two centuries of the fourth millennium BC, i.e. eastern ‘GAC exodus’ to the Volhynia – Dnieper area – Podolia and Moldova [Szmyt 1999; 2000; 2009], and intrusion into the western territories of early barrow or Eneolithic/Early Bronze peoples from the Black Sea forest-steppe (generally speaking: communities belonging to the Zhivotilovka-Volchansk type) into the Balkans as well as into the Volhynia/Lesser Poland physiographic border zone between eastern and western Europe (Hubinek type) [Włodarczak 2017b]. In both of the processes indicated above, population movements did not affect Subcarpathia, although there are sources from the steppe – Podolia – Dniester route (in the form of aforementioned settlements of ‘barrow’ group/Gordineşti culture from the Lviv region) suggesting that future fieldwork undertaken as part of a systematic research effort might prove the opposite.

Being our focus, Subcarpathia was clearly included in the circulation system of Black Sea 'barrow cultures' at the turn of the 1st to the 2nd half of the third millennium BC. There is abundant evidence from 2550-2400 BC that confirms reception of Black Sea 'funeral ideologies' identified with the late YC and CC, by local CWC communities. It is appropriate to suggest that the ceremonial centres at Szczytna and Święte on the San give evidence of a syncretic cultural construct (=assemblages belonging to the Szczytna – Święte type), which is highly ambiguous in terms of its autogenesis and perhaps found its broader continuation in CWC communities penetrating the upper Dniester [Belka *et al*. 2018].

The analysis of genetic components of this 'nomadic community type' underscores ties also between the latter and the MDC tradition, which should be suggestive of certain correspondence between Subcarpathian 'Black Sea funeral ideologies' and the Dnieper – Podolia – Volhynia 'northern' circulation route created by the GAC communities already in the late fourth millennium BC. The first ever evidence for GAC occupation of Subcarpathia [Sznajdrowska 2013], which is most probably genetically rooted in GAC enclaves of central-eastern Poland [concept of 'GAC reverse current', most recently: Kośko *et al*. 2017: 259-260] is, therefore, essential.

A 'Subcarpathian annex' to the Final Eneolithic vision of cultural syntheses in the biocultural border zone between eastern and western Europe offers a number of new clues, ones the present paper has tried to capture, occasionally outlining desirable directions for future research.

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