

Research Article

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Great Transformation on a Microscale: The Targowisko Settlement Region

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Abstract: The aim of the article is to characterize the well-recognized early Neolithic settlement region of Targowisko in SE Poland. It is located in southern Poland, on the northern outskirts of Western Carpathians, 30 km to the east of Krakow. It functioned throughout the development of the entire *Linienbandkeramik* and the subsequent Malice culture, in the period from 5300 to 4500 BC. The analysis of the settlement and internal colonization processes of the region showed their dynamic nature and the relative instability of the particular microregions, typically the increased mobility of small groups of people undertaking risky colonization actions in the Targowisko area. The region also offers a rare opportunity to trace the nature of socio-cultural change on a microscale. Impulses from various cultural environments contributed to the formation of the MC, which proves its heterogeneous character and the complicated course of its genesis.

Keywords: *Linienbandkeramik*, Malice culture, settlement processes, culture change, SE Poland

1 Introduction

To date, available studies of the settlement patterns of various post-*Linienbandkeramik* (LBK) cultural units in south-eastern Poland, collectively referred to as the older phase of the Lengyel–Polgár cycle (Kruk, 1973, pp. 49–54; 1980, pp. 33–44), are limited to an averaged presentation of their size, topographic position and environmental background.

Based on a surface survey in the vicinity of Rzeszów, a similarity of the Malice culture (MC) settlement network to the respective LBK one was suggested. They consisted of one central place and two to six satellite settlements (Kadrow, 1990, pp. 43–51).

To this day, however, neither the settlement network nor the basis of its functioning in MC, which is the largest post-LBK culture unit in south-eastern Poland, has been characterized.

The aim of this article is to fill this gap and present the early Neolithic settlement region of Targowisko when it was inhabited during the existence of the LBK and MC, with a special emphasis on the latter. The region also offers an uncommon opportunity to trace the nature of socio-cultural change on a microscale.

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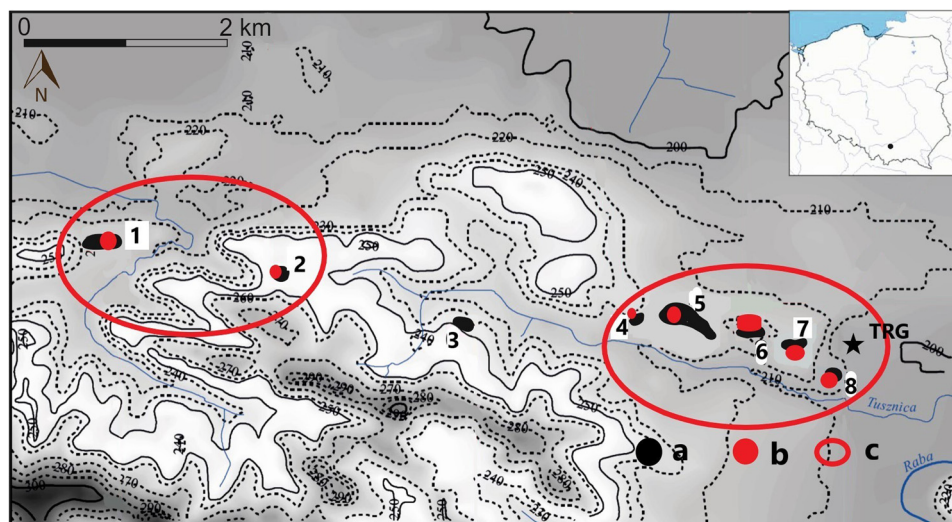


Figure 1: Targowisko settlement region. Early Neolithic sites with relics of houses: (1) Zagórze 2, (2) Brzezcie 17, (3) Brzezcie 40, (4) Szarów 9, (5) Targowisko 16, (6) Targowisko 14–15, (7) Targowisko 12–13 and (8) Targowisko 10–11; TRG – core with biogenic deposits; (a) LBK sites, (b) MC sites and (c) MC settlement microregions.

2 The Targowisko Settlement Region

The studied settlement region (Figure 1) is located in southern Poland on the border of the Western Carpathians and the Outer Western Carpathians (Kondracki, 2002). Its western part (sites: Zagórze 2 and Brzezcie 17 and 40) belongs to the macroregion of the Western Beskids Foothills and the mesoregion of the Wieliczka Foothills, while the lower sites in the eastern part (sites: Szarów 9 and Targowisko 10–11, 12–13, 14–15 and 16) are located in the macroregion of the Sandomierz Basin and the mesoregion of the Bochnia Foothills (cf. Forysiak et al., 2021). The western part of the region, located higher, is characterized by worse access to water and the dominance of steep slopes. The lower eastern part has a denser hydrological network and milder terrain forms.

The Zagórze 2 site is located on a hill overlooking the Podlężanka river valley; the Brzezcie 17 site is located on the elevation between the Podlężanka valley and the Tusznicza spring. The remaining sites mentioned above are located above the Tusznicza valley, and the most eastern positioned is Targowisko 11 on the terrace of the Raba river (Figure 1). The sites located slightly lower in Targowisko, in the eastern part of the settlement region, represent the standard locations of early Neolithic settlements in loess uplands (Kruk, 1973, pp. 44–54). With one exception (Brzezcie 40), where no traces of MC were recorded, all others have traces of settlement of both cultures, i.e. LBK and MC (Figure 1).

The older stage in the functioning of the Targowisko settlement region during the LBK has already been outlined several times. An internal, detailed chronological division of settlements throughout the region has been made (Czekaj-Zastawny, 2014, pp. 97–100; 2017, pp. 30–35, Figure 12) and in its eastern part (Czerniak, 2013). On this basis, it was reconstructed the spatial organization of LBK settlements at Targowisko 10–11 (Zastawny & Grabowska, 2014), Targowisko 12–16 (Czerniak, 2013), Brzezcie 40 (Czerniak, 2019), Brzezcie 17 (Czekaj-Zastawny, 2014) and Zagórze 2 (Kadrow, Krzywda, Rola, Sławińska, & Suchorska, 2020). A detailed classification of long houses in Brzezcie 17 (Czekaj-Zastawny, 2014, pp. 13–37, Figure 13) and Brzezcie 40 was made (Czerniak, 2019). Comprehensively, there were analyzed among others stone raw materials (Wilczyński, 2014), ceramics technology (Rauba-Bukowska, 2014a) and imports of pottery (Rauba-Bukowska, 2014b). The series of radiocarbon dates from two sites were used to try to determine the absolute chronology of the settlement in Brzezcie 17 (Czekaj-Zastawny, 2008, Table 1; 2017, pp. 103–105) and Zagórze 2 (Kadrow et al., 2020, Table 1).

From among MC sites, only two settlements have been published: Targowisko 10–11 (Grabowska & Zastawny, 2014) and Zagórze 2 (Kadrow et al., 2020).

3 Settlement and Inner Colonization Processes

While traces of houses were discovered at all LBK sites, in the case of MC at sites 17 and 40 in Brzezie and site 9 in Szarów, there were none. Five MC graves have also been published (Grabowska & Zastawny, 2014, pp. 262–265, Figures 9–10; Kadrow, 2009; Kadrow et al., 2009, pp. 244–253) and selected examples of houses discovered in the region (Kadrow, 2015).

At the Zagórze 2 site in the western end of the region in about 5300 BC, a group of prospectors with pottery from the older phase (I) of the LBK in the Gniechowice style appeared. The action of permanent settlement (construction of long houses) began a little later, but still in the older phase of LBK (Zofipole style pottery) on the western (Zagórze 2; see Kadrow et al., 2020) and the eastern edge of the region (Targowisko 10–11; see Zastawny & Grabowska, 2014). In the first, there were at least 13 houses from that time, while in Targowisko, there were eight in frames of two building phases (Kadrow et al., 2021, p. 167).

In the subsequent music-note phase (II) of the LBK, permanent settlement from the above-mentioned settlements moves to the sites located in the interior of the region, i.e. to the Brzezie 17 site (east of Zagórze 2) and to the complex of sites 12–16 in Targowisko (west of Targowisko 10–11). Twenty-six long houses from that period were discovered in Brzezie and 30 houses were discovered in Targowisko (Czekaj-Zastawny, 2014, p. 98).

In the late phase (III) of the LBK, settlers showed an even greater tendency to colonize the central parts of the region. At that time, settlements were established at the site of Brzezie 40 and Szarów 9, while the settlement of sites 12–13 and 16 in Targowisko was continued. From that time, 52 long houses were registered in the above-mentioned sites (Czekaj-Zastawny, 2014, p. 98), i.e. slightly fewer than in the previous phase.

Along with the beginning of the MC settlement, the model of the region's settlement strategy from the beginning of the LBK was partially repeated (Figure 2). The oldest settlements of this culture reappear at the sites Targowisko 10–11 (Figure 3) in the eastern and Zagórze 2 in the western (Figure 4) outskirts of the region. At both sites, the presence of four houses was documented, with a construction similar to the house recently discovered at sites 14–15 in Targowisko (Kadrow et al., 2021, Figure 8).

Four MC houses in Targowisko 10–11 are located in the central part of the excavated area (Figure 3). Three of them are arranged in a row with NW–SE orientation, and one accompanies them from the east (Grabowska & Zastawny, 2014, Figure 1). At least four of the houses of this culture discovered at the Zagórze 2 site are concentrated on the northern border of the explored area (Kadrow et al., 2020, pp. 19–20, Figures 73–74). They are concentrated in two places. In the western part, three houses have survived, and in the eastern part, only one house. It is not excluded that the accompanying houses remained in the unexplored area (Figure 4).

In the best-preserved houses at the Targowisko site 10–11, from 36 (house no. 2560) to 39 (house no. 2511), post-holes have survived (Grabowska & Zastawny, 2014, pp. 256–259, Figure 4). There were 7 holes in the shorter gable walls and 11–12 post-holes in the longer side walls. In addition, the interiors of the houses were divided into two or three parts (Figure 5). The dimensions of the houses at the site in question were 10.0–14.2 m long and 6.5–8.0 m wide. Sometimes a deposit or a grave was associated with the construction

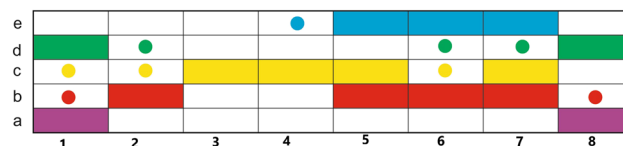


Figure 2: Targowisko settlement region. A graphic model of the sequence of settlement phases of LBK and MC settlements at the sites: (1) Zagórze 2, (2) Brzezie 17, (3) Brzezie 40, (4) Szarów 9, (5) Targowisko 16, (6) Targowisko 14–15, (7) Targowisko 12–13 and (8) Targowisko 10–11; (colored rectangles – stable settlement with house remains; colored rings – settlement without the remains of houses); (a) LBK phase I (Zofipole style), (b) LBK phase II, (c) LBK phase III, (d) MC phase Ia and (e) MC phase Ib (acc. to Kadrow et al., 2021).

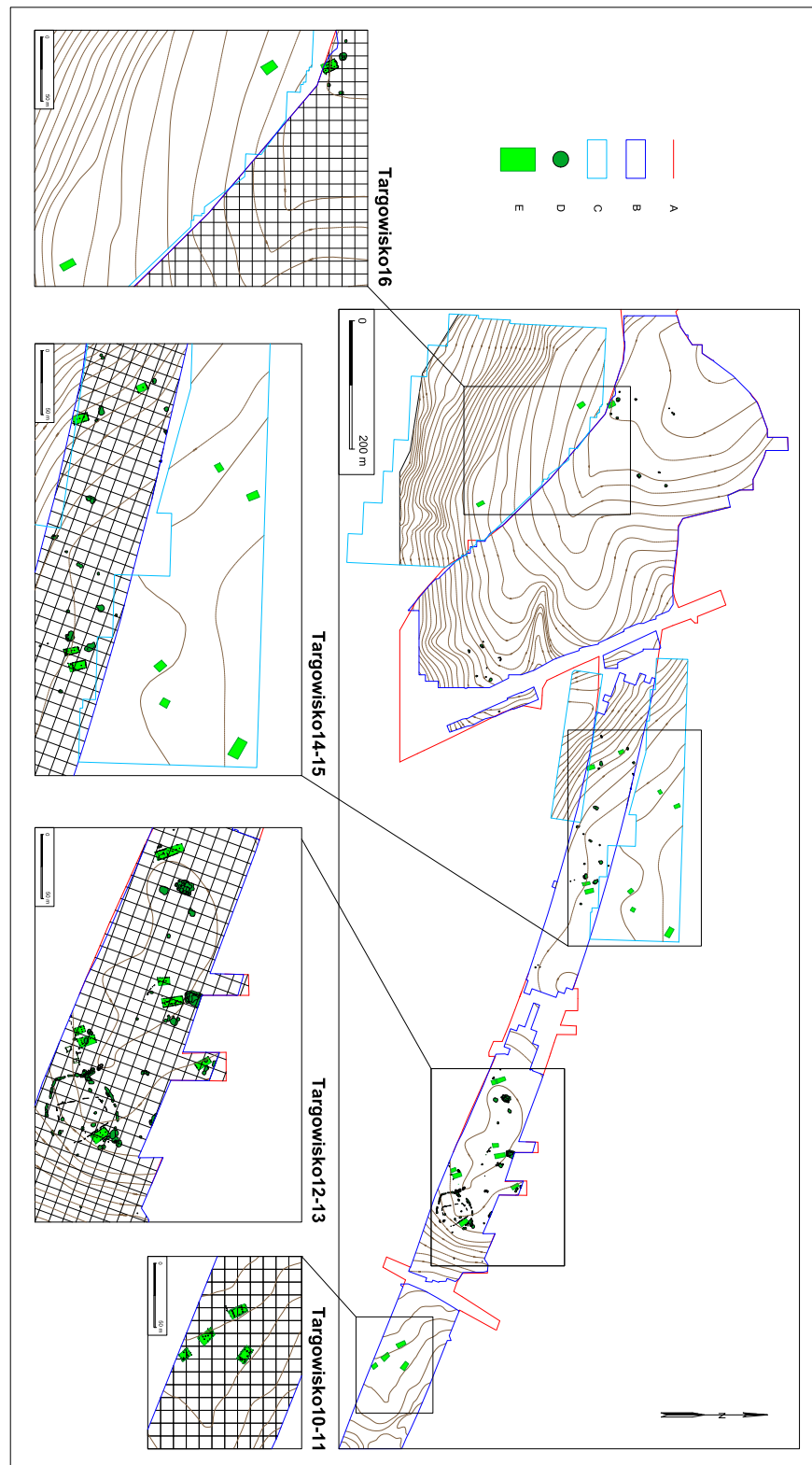


Figure 3: Spatial distribution of MC houses in Targowisko (sites 10–16) settlement complex: (a) boundaries of the unexplored area, (b) boundaries of the excavated area, (c) boundaries of geomagnetic survey, (d) MC features and (e) MC houses (drawn by P. Kalka).

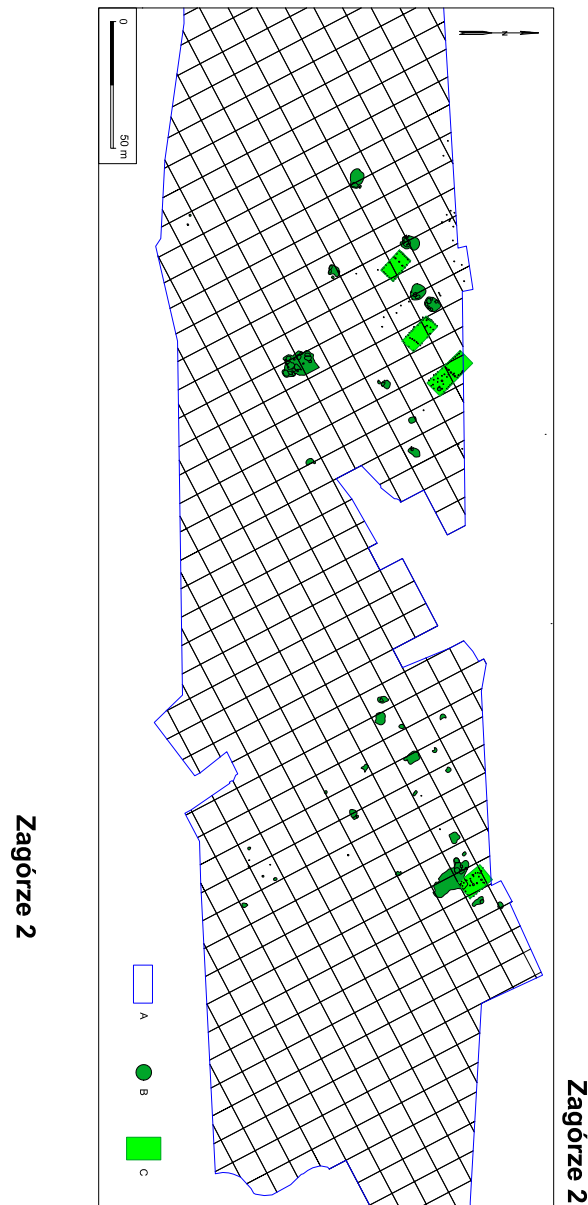


Figure 4: Spatial distribution of MC houses in Zagórze site 2; (a) boundaries of the excavated area, (b) MC features, and (c) MC houses (drawn by P. Kalka).

of the house (Grabowska & Zastawny, 2014, p. 259, Figure 4). One or two oval clay pits occur in the vicinity of each house, usually to the north-west (Kadrow et al., 2020, Figures 75–76).

All houses from the older phase (Ia) MC, therefore, represent a similar standard in terms of size and design features. They come in groups of 3 or 4 houses. House from sites 14–15 in Targowisko and its radiocarbon dating (Figure 6; cf. Kadrow et al., 2021) argue that this construction standard survived to the classical phase (Ib) of MC.

It is not yet known if larger houses at sites 12–13 in Targowisko (Figure 3; Czerniak, Golański, & Kadrow, 2007, Figure 7) are related to the older or classic phase of MC. However, stable forms of settlement in the classical phase (Ib) of the MC disappeared from the sites on the edge of the region (Zagórze 2 on the west and Targowisko 10–11 on the east) and concentrated in the interior on other sites in Targowisko 12–15 (Figures 1–3). The tendency of spatial development in this region speaks rather for the appearance of larger

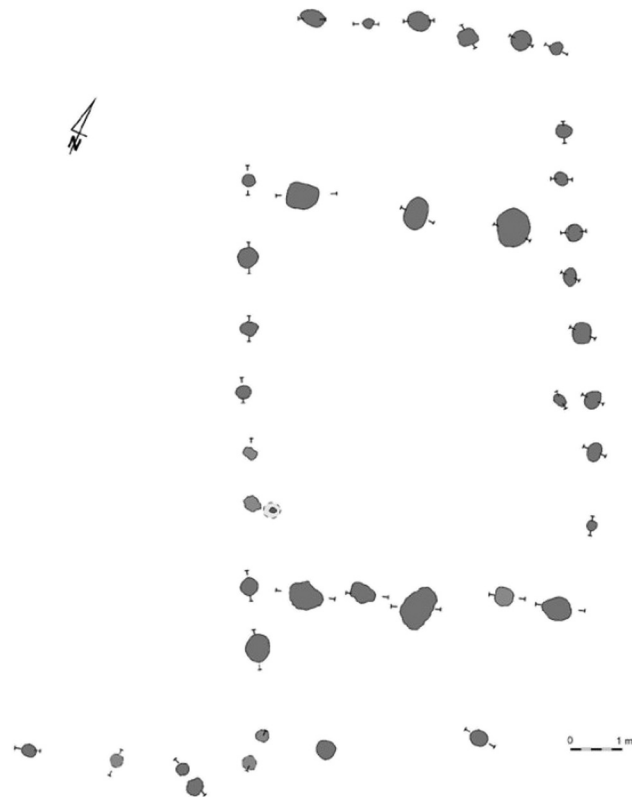


Figure 5: MC house no. 2560 in Targowisko site 10–11 (acc. to Grabowska & Zastawny, 2014).

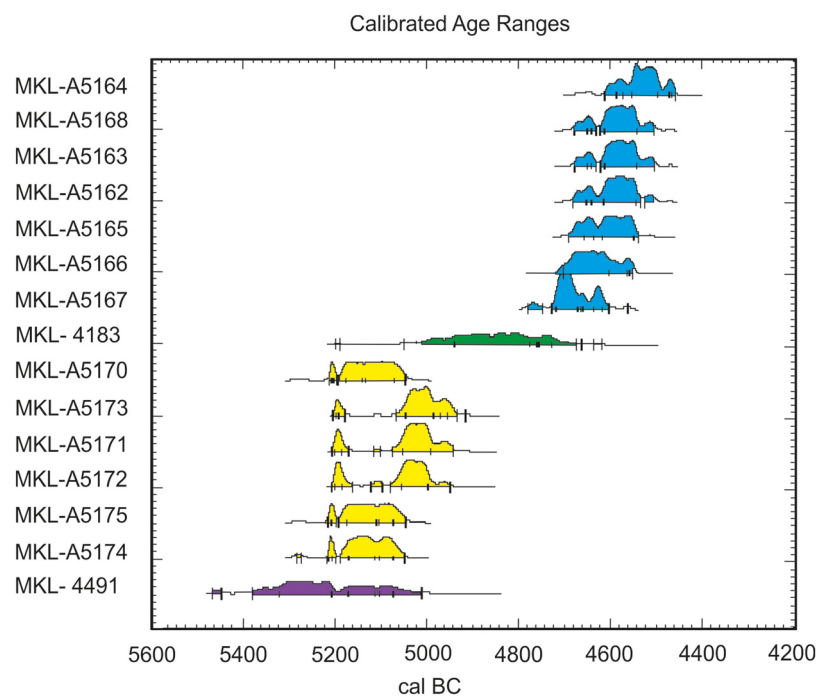


Figure 6: Radiocarbon chronology of Targowisko settlement region. The colors of probability distributions of ^{14}C dates correspond to the LBK and MC chronological phases specified in the caption to Figure 2 (acc. to Kadrow et al., 2022).

and less standardized houses later, i.e. only in phase Ib, while the small houses would last the entire period of the settlement of the area by the MC (Kadrow et al., 2022).

4 Enclosure

An enclosure of one concentric ditch around the central space in the SE part of site 12 in Targowisko is 60 m in diameter. It is made up of 21 sections, which are more or less elongated pits (2–11 m long), “U”-shaped in cross-section.

A unique circular ritual structure in the form of the “pseudo-ditched” causewayed enclosure (Figure 3) finds its numerous equivalents in the Rhine basin (Lefranc, Denaire, & Arbogast, 2017). Studies of Rosheim-type “pseudo-ditch” enclosures in Alsace have revealed their distinctive constructional features. They can be “defined as enclosures formed of independent and discontinuous segments, (...) arranged along a predetermined path” (Lefranc et al., 2017, p. 159). The segments were not contemporary and were rapidly refilled after being dug (Lefranc et al., 2017, Figure 11.1). We adopt a similar interpretation of the formation of the described circular ritual structure in Targowisko (Kadrow et al., 2022, p. 23).

The lack of full publication of materials from site 12 in Targowisko means that it is impossible to properly establish the chronological, cultural and functional relations between the “pseudo-ditched” causewayed enclosure and the trapezoidal structure and the house inside it (Figure 3).

The territorially closest case of this type occurs in the Tisza basin in Hungary. It is enclosure in Öcsöd-Kováshalom dated to the Tisza I phase (cf. Raczky & Füzesi, 2018, p. 155, Figure 2). It was a place of a greater accumulation of pottery decorated with geometric and anthropomorphic motifs than in neighboring areas. A specific feature of the structure from Targowisko is that it consists of only one circle and that this circle is not continuous but made of short sections, i.e. elongated pits arranged on a circular plan (Figure 3). It is believed to be the result of seasonal ritual activities involving the excavation of pits and then backfilling them as elements of more complex ceremonies during local holidays with the participation of local people (Raczky & Füzesi, 2018, pp. 145–147).

The ritual character of the circular structure with a diameter of approx. 60 m is confirmed by the presence of two imported vessels that were found inside it and locally produced ceramics decorated with anthropomorphic images (Figure 7), discovered here and at the neighboring sites Targowisko 10–11 (Figure 8) and Targowisko 14–15 (Figure 9).

One of the imported vessels is a pear-shaped vessel decorated with an ornament of hanging triangles made by means of the tremolo technique (Figure 10). The technology of the preparation of the ceramic mass



Figure 7: Reconstructed vessels of MC from Targowisko sites 12–13 (1 and 3) and 14–15 (2) (acc. to Osiadacz, 2017).



Figure 8: Amphora with anthropomorphic representation from Targowisko site 11 (acc. to Grabowska & Zastawny, 2007).

(mineral admixture) and the ornament and form of the vessel have their closest analogies in the areas of the IV stage of Stroked Ornamented Pottery culture (STK) in Bohemia and Lower Silesia. The tremolo decorating technique appears in phase IVa of STK (Zápotocká, 2007, p. 209).

The second vessel, also a pear-shaped one, was decorated on the entire outer surface with white on red oil painting with a white horizontal stripe just above the largest bulge of the belly (Figure 11) due to the type



Figure 9: Fragment of amphora with anthropomorphic representation from Targowisko site 14–15 (acc. to Czerniak et al., 2007).



Figure 10: Pear-shaped vessel with tremolo ornamentation from Targowisko site 12–13 (acc. to Czerniak et al., 2007).

and color of the paints used; it comes from the Csőszhalom-Čičarovce group from the Bodrog basin (Kalicz & Raczky, 1987, p. 30). This group is synchronized with the V STK phase (Raczky, Domboróczky, & Hajdú, 2007, p. 65, Figure 10).

The biconical MC amphora is decorated in the upper part of the belly with a stylized figure of a woman, made in the technique of glued plastic strips decorated with fingernails (Figure 8; Grabowska & Zastawny, 2007, Figures 4, 5). This single vessel combines three different cultural traditions. The form of the vessel and its technology are local, Malician with some Csőszhalom or Lengyel connections. The anthropomorphic motif is related to the older STK phase (Grabowska & Zastawny, 2007, pp. 130–131, Figure 8), and the technique of decoration refers to the Tisza culture, which inherited it from its local predecessors. Apart from this, at least four more fragments of similar vessels were discovered at the sites in Targowisko (cf. Czerniak et al., 2006; 2007, Figure 5; Kadrow et al., 2021; Osiadacz, 2017, Figures 3, 4, 9). The context of the discovery of this amphora and its formal and stylistic features allow it to be accorded to the very beginning of the MC. A fragment of an amphora decorated with a similar but more simplified anthropomorphic motif was discovered in the objects related to the house from the classic phase (Ib) MC from the Targowisko site 14–15 (Kadrow et al., 2021, Figure 9(6)).

Relative dating of the above-mentioned elements starting from the “pseudo-ditched” enclosure and ending in a pear-shaped vessel painted with red and white paint indicates the need to date the entire ritual complex for the whole duration of the early phase (Ia) until the end of the classic phase (Ib) of MC, i.e. from 4900 to 4500 BC. There is currently no possibility of radiocarbon dating of this ritual complex. The shallow segment fillings of this enclosure provided no organic dating material. In our opinion, the dating of organics contained in ceramics is not very reliable. So we stick to the above suggestion as to the chronological framework of the described object.

It seems that at its inception, the described complex, i.e. at the beginning of the older phase (Ia) of MC, performed only ritual functions and over time it was supplemented with settlement functions, which was associated with the emergence of new houses in its vicinity (Figure 3). However, it is not the purpose of this article to discuss the issue of supra-regional functions of the “pseudo-ditched” causewayed enclosure.



Figure 11: Pear-shaped vessel with red and white oil paintings from Targowisko site 12–13 (acc. to Czerniak et al., 2007).

5 Chronology

Thanks to the new findings in the field of absolute chronology (Figure 6) in the region of our interest (see Kadrow et al., 2021, 2022), it became possible to outline the dynamics of settlement processes at the LBK and MC stages (Figure 2). The sigma 1 intervals of the probability distributions of six ^{14}C dates from Brzezcie 40 and Targowisko 16, whose ceramics are stylistically and typologically related to the beginning of the late (III) LBK phase, take maximum values from 5200 to 4950 BC. A concentration of probabilities is associated with a narrower time period, i.e. 5100–5000 BC. The probability distributions of the seven ^{14}C dates in the sigma 1 range associated with the classic (Ib) phase MC house relics from the Targowisko 14–15 site are located between 4700 and 4450 BC. The concentration of probabilities is limited to a narrower range of 4650–4550 BC (Figure 6).

The presence of the settlement of the older (I) LBK phase at sites 10–11 in Targowisko and the synchronization of the impact of its inhabitants on the environment in the time determined by the ^{14}C date (MKL-4491 6270 ± 80 BP), readable in the core of biogenic sediments (hereafter: TRG core) drilled in Raba river paleochannel approx. 80 m NE from Targowisko 10–11 at a depth of 280 cm and slightly higher (Forysiak et al., 2021, Table 1), allows us to define the absolute chronology of this phase for the period from 5300 to 5100 BC (Figure 6).

The older phase (Ia) of MC, located in the time between the late (III) LBK phase and the classic MC phase, should occupy a period from 4950 to 4700 BC (Figure 6). Such an absolute chronology is confirmed by the synchronization of the environmental impact of the inhabitants of the older MC settlement at sites 10–11 in Targowisko, visible in the layers of the TRG core at a depth of 257–256 cm (MKL-4183 5960 ± 80 BP; cf. Forysiak et al., 2021).

6 Discussion

During the LBK and MC periods (5300–4500 BC) in the Targowisko settlement region (Figures 1 and 2), the population did not form typical, stable settlement microregions with one founding central settlement

(e.g. Pyzel, 2019, p. 338), inhabited continuously from the beginning until the end of LBK or even until the end of the MC classic phase (e.g. Rzeszów, site 16; cf. Kadrow, 2020). As in many lately analyzed regions, e.g. on the upper Danube, the relative instability of microregions is visible, increased mobility of small groups of people and undertaking risky colonization actions (e.g. Pechtl, 2020).

While it is difficult to identify the central place for the entire region or some part of it in the MC period, this function was most likely played by sites 12–13 in Targowisko for the eastern part of the region (Figure 1).

It is known that the stable forms of settlement in the classical phase (Ib) of the MC disappeared from the sites on the edge of the region (Zagórze 2 and Targowisko 10–11) and became concentrated in the interior on other sites in Targowisko (12–16; Figures 1–3).

The central settlement for the western part – but only in the early phase (Ia) – was probably site 2 in Zagórze. For some reason, this microregion did not develop later. The place of MC population at that time was taken by the Lengyel culture (LC) population (in the Pleszów phase of the Pleszów-Modlnica group; cf. Kadrow et al., 2020, p. 20).

To date, there is no direct evidence of chronological contact between the people of the latest LBK and the inhabitants representing the oldest MC in the region. However, such contact cannot be ruled out. The chronological situation at sites 12–13 in Targowisko creates a chance for its empirical confirmation, where the youngest phase (III) of LBK pottery with red painting was registered (Czerniak et al., 2006, Figure 6), pottery with anthropomorphic representations from the older (Ia) MC phase (Czerniak et al., 2006, Figure 17) and “pseudo-ditched” enclosure (Czerniak et al., 2007, Figure 7), contemporary to Tisza I in Carpathian Basin (Kalicz & Raczky, 1987, p. 30).

Two hypotheses about the genesis of post-LBK groups in Poland predominate: (a) migration from the south (Kozłowski et al., 2014) and (b) complex transformations of the local substratum in the face of crisis at the end of LBK (e.g. Czerniak, 2012, p. 155). The assumption of the heterogeneous nature of new (post-LBK) cultural units (Kaczanowska, 1990, p. 82), especially MC (Kadrow, 1990, 2020), seems to be a proper supplement to the latter hypothesis.

The continuity of settlement in the Targowisko region is evidenced by the frequent establishment of MC settlements in the same places as the LBK ones (Figure 1). Of course, demographic continuity is not the same as socio-cultural (Pyzel, 2018, p. 204). There is also a visible continuation in terms of subsistence (Kadrow et al., 2021), in the technology of preparing ceramic masses (Rauba-Bukowska, 2021) and in the import of obsidian.

Discontinuation is recorded mainly in the field of products of symbolic value, e.g. the form and ornamentation of ceramics, as well as the construction and size of houses (Kadrow et al., 2022). The cultural change (LBK gives way to MC) is accompanied by a demographic crisis, although not as deep as in the case of the Rzeszów settlement region (Kadrow, 1990, 2020).

7 Conclusion

The mechanism of adapting foreign cultural patterns in MC differed from the path typical of LBK. MC communities absorbed different patterns and from more different cultural backgrounds. A typical way of acquiring foreign designs at LBK was the import of finished products (e.g. ceramic vessels), mainly from the northern part of the Carpathian Basin, or their imitations. Members of the MC community also obtained foreign patterns from the upper Tisza area, yet took advantage of the offer of STK from Bohemia and Lower Silesia, LC from south-west Slovakia, or of the Samborzec-Opatów group of LC from the Sandomierz Upland. The MC population borrowed individual elements from different cultures and then composed original combinations, giving them a specific local color at the same time. A good example of this is the amphora described above, which is decorated with an anthropomorphic motif (Figure 8).

The assumption about the heterogeneity of MC, which is justified by the above consideration, allows us to escape from the trap of traditional disputes (allochtonism vs autochtonism) about the genesis of this cultural unit. This creates a space for undertaking the necessary studies on the processes of hybridization

and syncretization, undertaken in the perspective of the theoretical achievements of globalization (Barker, 2003) in the conditions of the proven dynamization of settlement processes in the Targowisko region (Kadrow et al., 2022).

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