

ELEMENTS OF PROTO AND EARLY MIERZANOWICE CULTURE ON SETTLEMENTS SITES NEAR JAROSŁAW (SE POLAND)

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Abstract: The article concerns new materials of Proto and Early Mierzanowice culture from settlements on sites 37 and 39 in Dobkowice near Jarosław (SE Poland). The earliest settlement structures in that region falls into the period 2300–2200 BC, when on loess uplands stable settlement centers became to develop. It was the time of decline of the Bell Beaker culture in western Lesser Poland. The Mierzanowice culture on both sites in Dobkowice is represented by 56 archaeological features, some of them contains human remains. Discovered materials are significant contribution in studies on settlement of Mierzanowice culture on loess areas of the SE Poland, allowing the reconstruction of the settlement network.

Key words: Early Bronze Age, Proto and Early Mierzanowice culture, settlement

1. Introduction

During excavations on the line of the Motorway A4 under constriction the Rzeszów-Korczowa section (SE Poland), materials linked with Proto and Early phases of the Mierzanowice culture have been discovered sites 37 and 39 in Dobkowice, Jarosław district (*Fig. 1*). Chronologically they can be synchronized with the decline period of the Bell Beaker culture in west Lesser Poland.

The sites in question are located on easy slope of a hill, descending northwards towards broad valley of a creek, already beyond the limits of the constructed motorway (*Fig. 1*). The research area lies on the Kańczuga Plateau (*Kondracki 2000*). Broad hills of that geographic region are built of Miocene clays covered by sands, Quaternary argils and loess sediments (*Wład 1996, 36, mapa 11; Starkel 2005, 13*).

On Site 37 there have been discovered 44 archaeological features associated with the Mierzanowice culture, two of them with human remains (*Fig. 2*). They can be described as remains of utility structures, grouped in two places in the eastern and central parts of the site (respectively concentrations I and II). The first of them was composed with 24 pits (human remains have been found there, in features 3 and 120; *Fig. 2*). Distribution of the discovered features suggests that they might have been grouped around a free space of dimensions about 15 x 14 m. Several other sizable features with visible stratigraphic interrelations were located in the northwestern part of the site. It is noteworthy that pits with human remains were located on the opposite site of the concentration. The features there were spread over the area about 42 m long and 14 m wide, with longer axis directed NW–SE. To the west of this concentration, in a distance about 15 m, there were 3 more pits, including a big structure of irregular outline and uneven bottom, possibly used as a clay pit.

To the south from concentration I, in a distance of about 17 m there was a small concentration III. It was composed of 5 features in stratigraphic interrelations (*Fig. 2*). The third concentration (III) was 50 m to the west from concentration I. There were 11 settlement features unevenly spread over the area about 30 m long and 14 m wide, along SW–NE axis (*Fig. 2*).

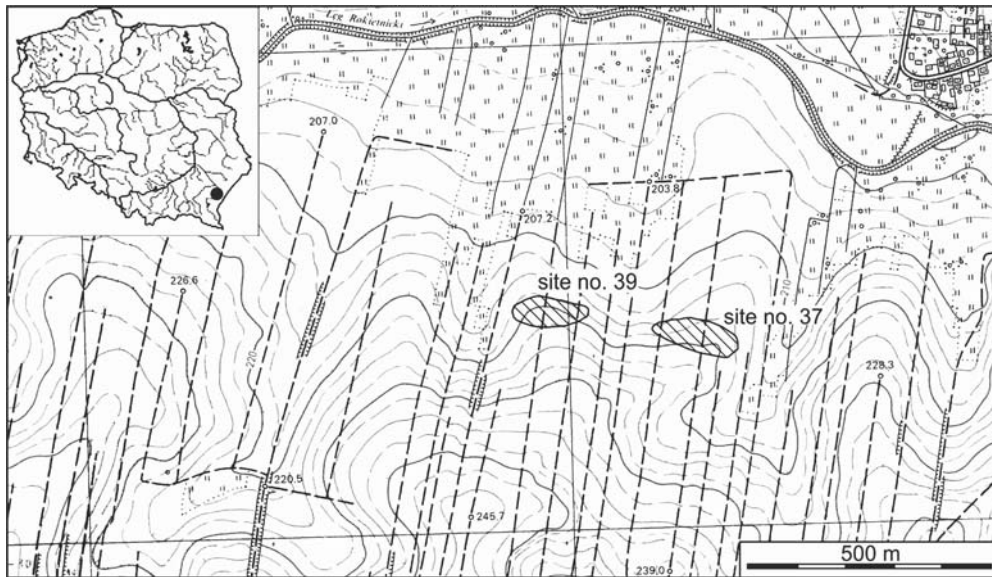


Fig. 1. Dobkowice, Jarosław district sites 37 and 39—location of the Mierzanowice culture sites.

On Site 39 in Dobkowice the Mierzanowice culture is represented by 19 archaeological features, one of them with human remains (Feature 54). All of them have been found in the southern part of the site. The pits, grouped in compact concentrations and arranged along the N–S axis, were spread over the area about 30 m long 15 m wide. Between features associated with the Mierzanowice culture several post holes, probably remains of a house, can be observed (Fig. 3).

2. Analysis.

The concentrations of features of the Mierzanowice culture described above can be interpreted as a certain kind of backyard of a domestic structure, located, as the postholes may indicate, further to the east (Fig. 2, 3). Similar spatial arrangements have been registered also on a site in Targowisko, Wieliczka district (S Poland), where utility pits were spread in a belt 10–12 m wide along the SE–NW axis (Górski *et al.* 2006, 568, 569).

Among the features described above especially interesting are pits with human remains. As already said, two such pits have been discovered on Site 37 in Dobkowice, and one on Site 39 in the same locality. Feature 13 (Site 37) of trapezoid cross-section (Fig. 4: 2) contained remains of three people: individual I – *Infans III/Iuvenis*, sex unknown, in the southern part of the pit; individual III – woman of *Adultus* age, in the central part; individual II – *Iuvenis*, sex unknown, in the northern part (Fig. 4: 1). Skeletal remains indicate that the deceased persons had been placed into the pit and later certain bones disintegrated due to taphonomic processes. Individual I was placed in crouched position, with head directed SW. His legs were strongly bent in knees, while positioning of arms are indiscernible. In relation to individual III, the preserved skeletal fragments we found in a disturbed state. The pit contained potsherds (Fig. 4: 3) and 5 bone objects – 3 beads and 2 pins, the latter with remains of individuals I and II (Fig. 4: 7, 8). One bead preserved in damaged state (Fig. 4: 4) was found between rib bones of individual II, and two others (better preserved; Fig. 4: 5, 6) near cervical vertebrae of individual III.

Feature 120 on Site 37 had, as Feature 13, trapezoid cross-section. The poorly preserved human remains, spread along pit limitation, belonged to a woman of the *Iuvenis* age. Most of them were in a disturbed state (anatomical order can be attributed only to a few bones). In general, the biggest part of the skeleton was destroyed by taphonomic processes. Skull bones were found in SE part of the pit, leg bones in a certain distance from them towards SW (also at the pit limits), and arm remains in the western part. All these observations suggest that in the pit, probably in its center, a complete body was placed. Later the pit must have remained open for a certain period of time. Dispersion of bones was natural

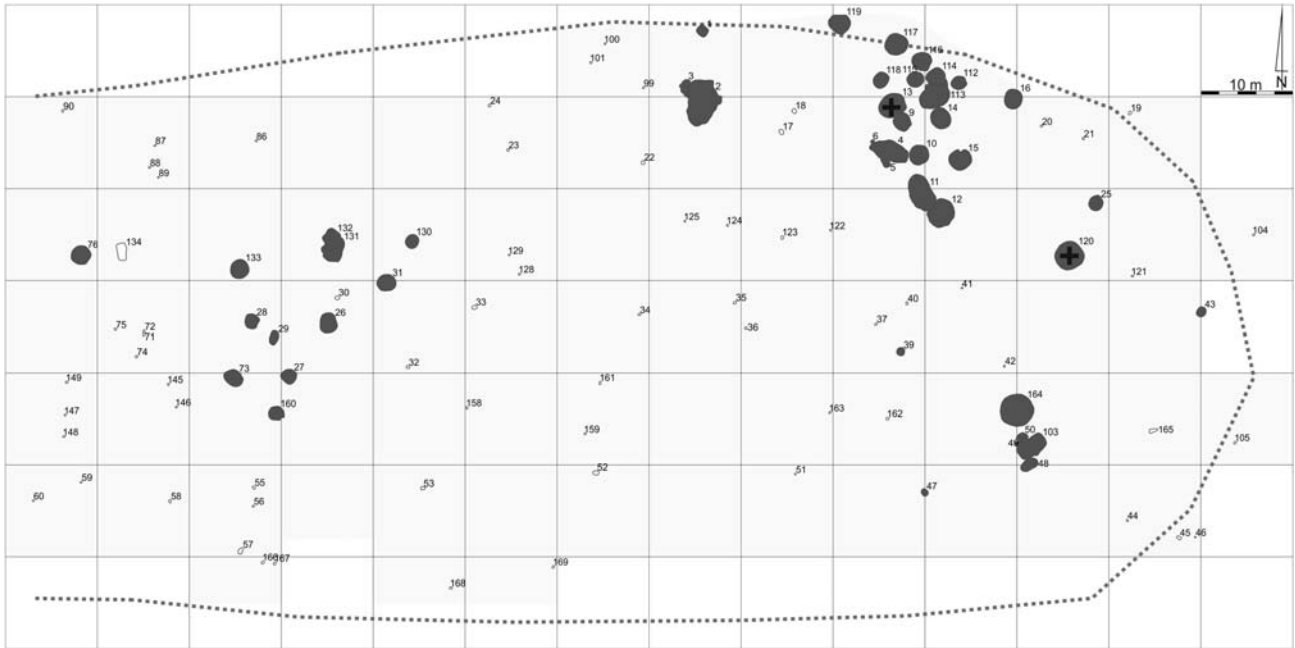


Fig. 2. Dobkowice, plan of the site 37; + – features with human bones.

and caused by decomposition processes, precipitated by exposing the body to atmospheric influences. The pit fill contain artifacts – a few potsherds.

On Site 39 human remains were found in Feature 54. Its cross-section it was similar to pits described above, while the depth was about 170 cm (Fig. 5: 3). Artifacts appeared on three levels. In the bottom part there were fragments from at least three big vessels (Fig. 5: 2) – a pot with pronounced belly (Fig. 5: 4), another pot with ledge in the upper part of the belly (Fig. 5: 6), and a pot with flat protrusions beneath the rim (Fig. 5: 5). They were accompanied by stone artifacts – a fragment of a polishing tablet (Fig. 6: 3) and a few pieces with traces of wear (Fig. 6: 4). Between the pottery fragments there were human skeletal remains (of 2 children aged 1–1.5 and 4–5 years) and animal bones, all in non-anatomic position (Fig. 5: 2). It is possible that an parietal bone of the younger child was originally placed in the pot with ledge decoration. The other bones, both human and animal, were dispersed and mixed. It may be attributed to the fact that after depositing vessels and bodies the pit might have been remained open to influences from outside (atmospheric and penetration of animals).

On the second “exploitation level” in upper part of the fill (40 cm above the first one; Fig. 5: 1) and in the southern part of the pit there were remains of *Infans II* (12–15 years), with a sandstone piece placed on *pelvis*. The skeleton rested at the pit wall and was not dispersed (the pit was evidently filled immediately after the body had been placed). About 50 cm above (in the upper part of the pit; Fig. 6: 7–10) there were found a few potsherds with cord impression. In general, the pit should be interpreted as a settlement structure used for depositing pottery, animal bones, and bodies of two children mentioned (aged 1–1.5 and 4–5 years). Assuming that it was left open, the bodies might have been dispersed within the pit (e.g. by animals). It is also possible that they might have been already partially decomposed prior to the interment. Same time later (the period is unknown) the pit was used for burring another child (aged 12–15 years). The presence of artifacts found above the skeleton can be attributed to the process of natural filling of the pit.

Pottery fragments found in the described feature and in others discorvred ones constitute the basis for chronological analysis of the site. On Site 37 fragments of S-profiled vessels appeared in Feature 16 and in Feature 117. From the latter there is a reconstructed upper part of a vessel with a slightly “dropping” knob beneath the rim (Fig. 7: 5). Similar forms are known from Iwanowice, Site Babia Góra, from structures 482 (Kadrow 1991, tabl. IX: g) and 382 (Kadrow 1991, tabl. VII: d). They are dated to Early and Classic phase of the Mierzanowice culture (Kadrow 1991, tabela 33). In Dobkow-

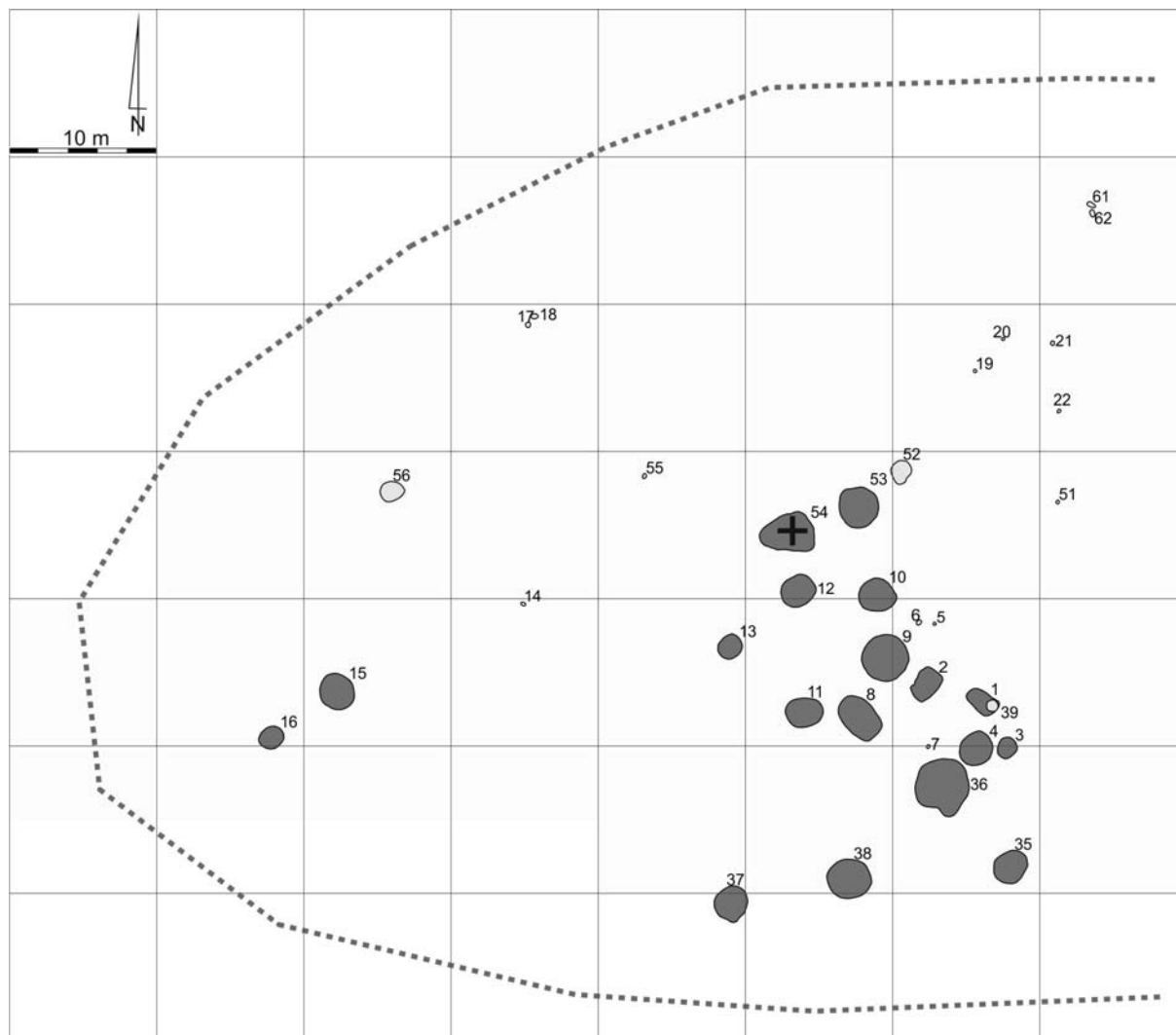


Fig. 3. Dobkowice, plan of the site 39; + – features with human bones.

ice, Site 39, in Feature 35 there was found a big vessel in well pronounced belly and decorative ledge (*Fig. 8: 3*). From Feature 54 we have the upper part of a pot, also with decorative edge (*Fig. 5: 6*), the upper part of a vessel with knobs beneath the rim (*Fig. 5: 5*), and a big pot (*Fig. 5: 4*). Another interesting vessel – the big belly pot with four knobs, was found in Feature 37 (*Fig. 8: 2*) on the site 39. Vessels from Feature 53 on the same site were preserved in smaller fragments (*Fig. 7: 5; 8: 9, 10*).

Vessels described above have numerous analogies in the Mierzanowice culture. Pots from Feature 54 on the site 39 and Feature 117 on the site 37 with flat knobs beneath the rim (*Fig. 5: 5; 7: 5*) are close to Type A according to S. Kadrow and J. Machnik (1997, ryc. 13), dated to the Early phase of the culture in question. Similar forms are known from Iwanowice, Site Babia Góra (*Kadrow 1991, tabl. VII: d*), Iwanowice, Site Góra Klin (*Machnikowie – Kaczanowski 1987*), Opatkowice, Site 2, in Proszowice district (*Górski 2001, tabl. II:9*), and in Sietesz, Przeworsk district, on the River San region (*Madej 2000, ryc. 2: 11*). The vessel with four rounded knobs from Feature 37 on the site 39 (*Fig. 8: 2*) has also many analogies in assemblages of the Mierzanowice culture. In this respect especially interesting is the find of the upper part of a slim pot with decorative ledge between neck and belly (*Fig. 5: 6*). Such a form, typical for the Early Mierzanowice phase, can be classified as Type B (Kadrow – Machnik 1997) and is known from Sietesz (*Madej 1999, ryc. 9: a*). However, the decorative ledge on the vessel from Dobkowice has no close analogies, although resembles ledges on vessels from Early and Classic phases from Mierzanowice (*Balcer 1977, 68*) and Iwanowice, Site Babia Góra (*Kadrow 1991, tabl. V: j*). It is notable that this kind of decoration appear in the Carpathian Basin in several units of the Early

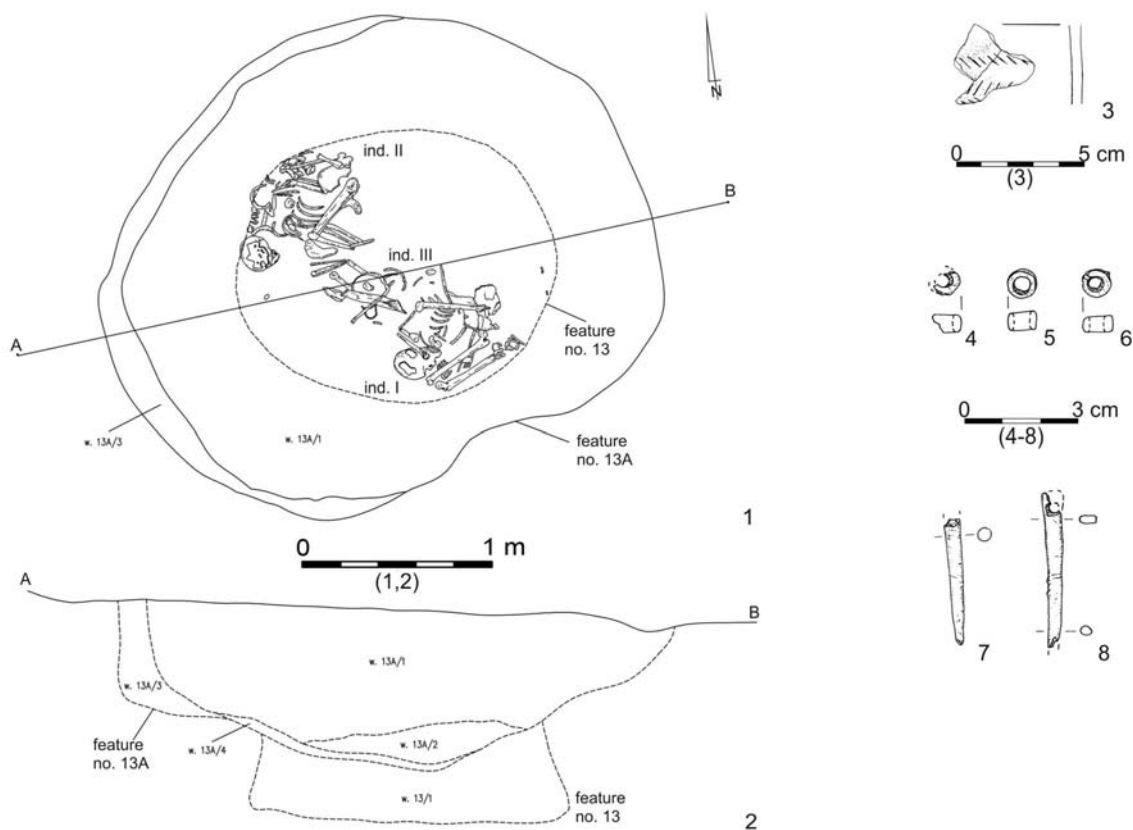


Fig. 4. Dobkowice, site 37, features 13 and 13a; 1 – plan, 2 – cross-section, 3–8 – selection of artifacts.

Bronze Age – the Csepel group of the Bell Beaker culture (Schreiber-Kalicz 1984, Taf. XXXVII:11), the Makó-Kosihy-Čaka group (Kalicz 1984, Taf. XXII: 13; Stuchlíková – Stuchlík 1989, 189, Abb. 2–1, 2), and the Nagyrév culture (Schreiber-Kalicz 1984, Taf. XLIV 8: 10). The best analogy to the decorative element on the vessel from Dobkowice are in the Early Nagyrév phase (Schreiber-Kalicz 1984, XLIV: 2). The third unusual form – almost completely preserved pot with amphora proportion and distinctive belly represents also the Early Mierzanowice style (Fig. 5: 4). Analogies to it can be found in settlement materials from Opatkowice (Górski 2001, tabl. II: 9, III: 4), Karwin (Górski et al. 2013, 109, Fig. 4: 2, 5), and in a vessel from grave 3 in Miernów (Kempisty 1978). Due to proportions, it can be linked with Type A2c of Early Mierzanowice pottery from the Babia Góra Site in Iwanowice (Kadrow 1991, XXVIII: f).

Cups represent another form in the Dobkowice assemblage. From Feature 112 from the site 37 there is a partially reconstructed cup (Fig. 7: 4) close in shape to Type B5–B6a according to S. Kadrow and J. Machnik (1997, ryc. 72). It has an original decoration on the neck in form of short oblique notches arranged in 6 horizontal lines. Beneath, between the neck and the belly, there are impressions of slanting squared stamps in uneven groups. The vessel, similar in shape to a vessel from Grave 17 in Veselé, Slovakia (Budinský-Krička 1965, tab. VI: 11), is dated to the Early Mierzanowice phase (Kadrow – Machnik 1997, 33). Decoration on cup fragments from Features 11 and 4 (Tabl. 7: 1, 2) is also of the Early Mierzanowice style. In the assemblage from Site 39 in Dobkowice there is almost completely preserved vessel from Feature 53 (Fig. 8: 7). It has zonal decorative motif on the neck composed of four triple rows of impressions and a row of vertical notches beneath. A potsherd from Feature 54 (Fig. 6: 2) is decorated in a similar way. Cups with triple cord impressions and overhanged rim typical for the Early Mierzanowice phase (Kadrow – Machnik 1997) are known from Kietrz, Głubczyce district (Łęczycycki 1983, ryc. 2: 2), Średnia, Barrow 3/2, Grave 2 (Jarosz 2002, ryc. 10: 1), Kraków, Site “Kopiec Wandy”, Grave 11/63 and 13/63 (Hachulska-Ledwos 1967, tabl. I: 3, 9) and Chłopice (Machnik 1961). Potsherds with zonal motifs composed with double cord impressions were discovered also in Features 35 (Fig. 8: 4), 53 (Fig. 8: 8) and 54 (Fig. 6: 4). Such a decoration, although known already in the Proto-Mierzanowice phase, became more common in the phase to follow (Early Mierzanowice; Kadrow – Machnik 1997). Another vessel of type is a cup from Feature 54, preserved only

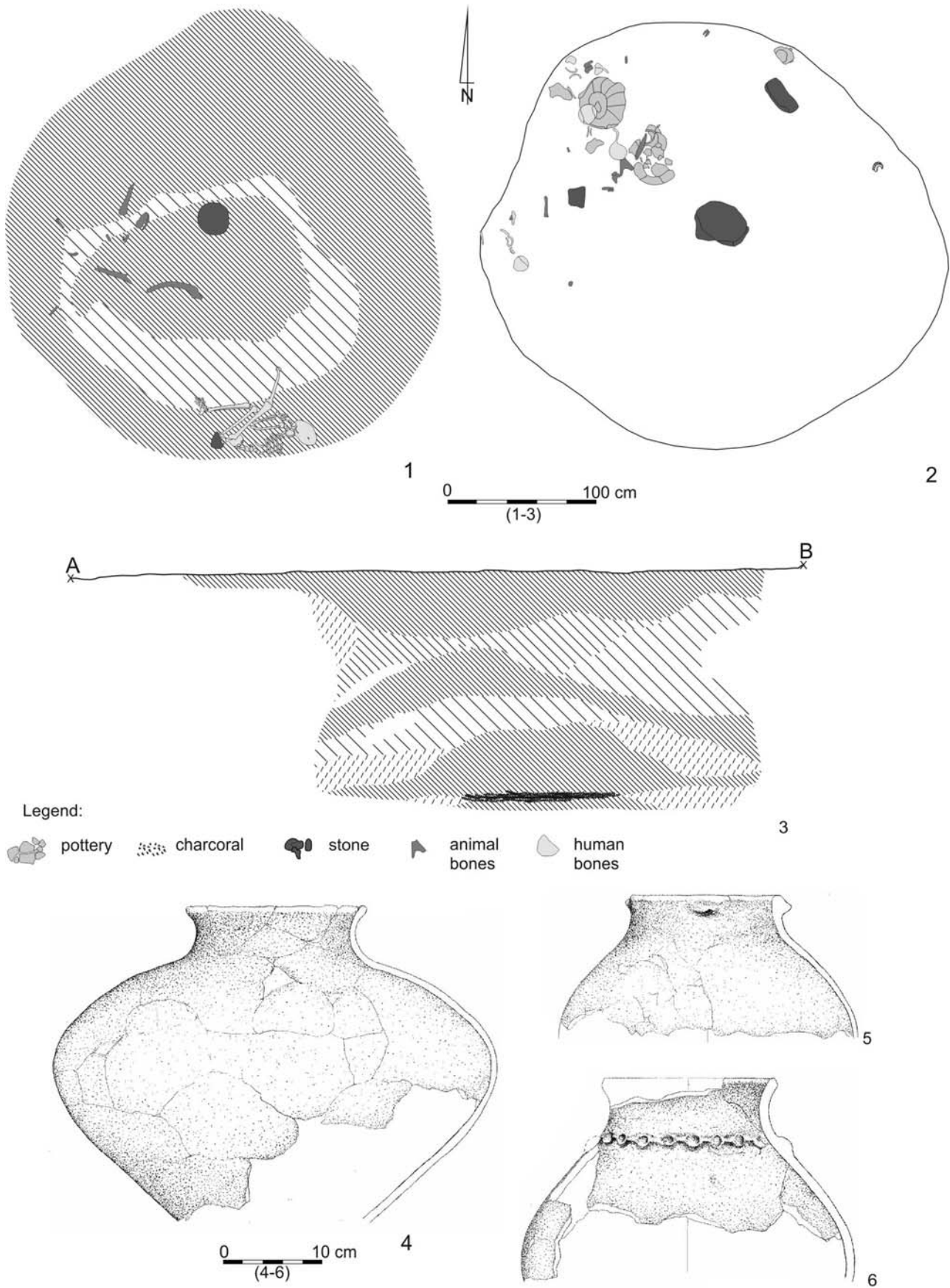


Fig. 5. Dobkowice, site 39, feature 54; 1, 2 – plan, 3 – cross-section, 4–6 – selection of artifacts.

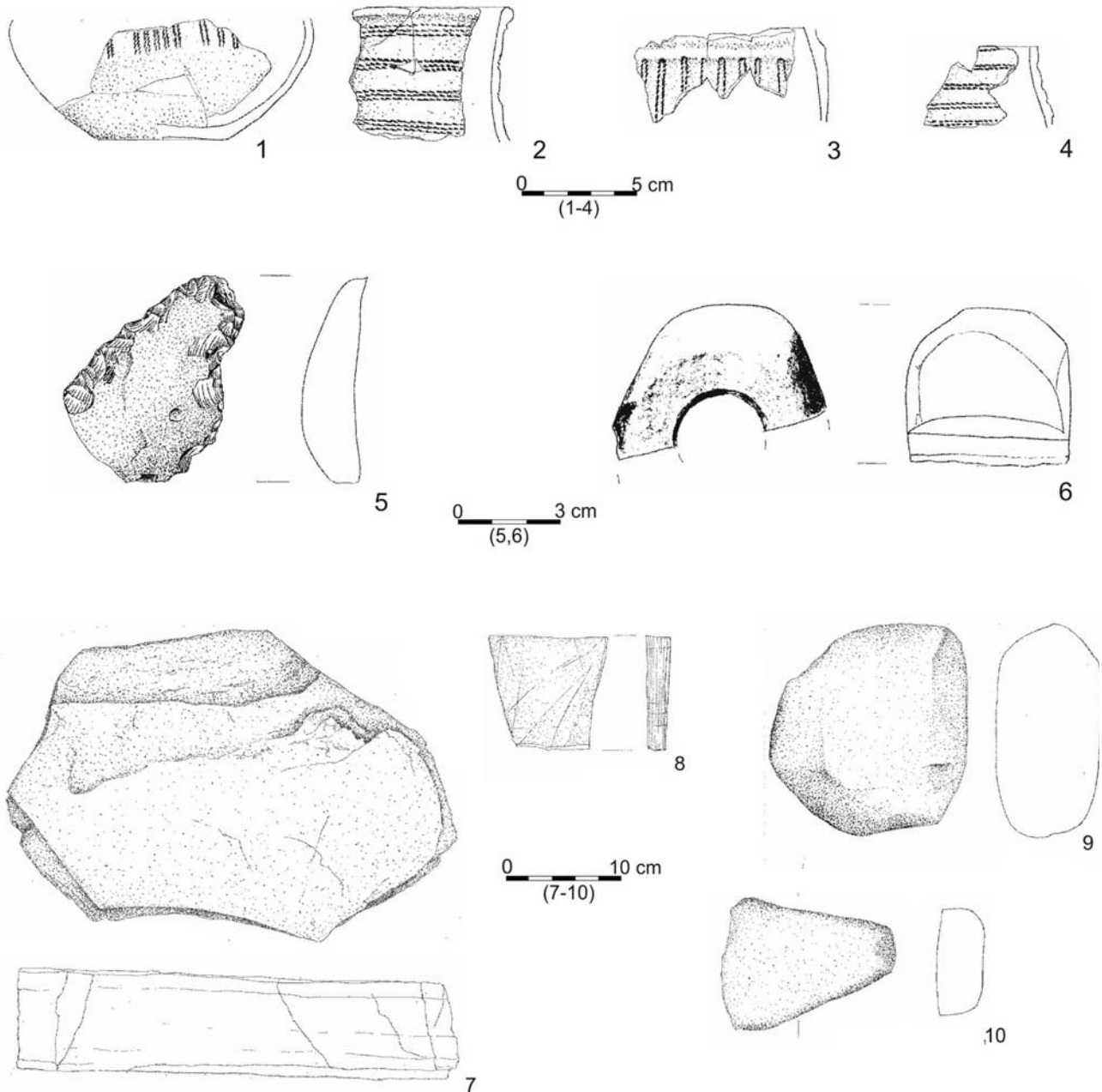


Fig. 6. Dobkowice, site 39, feature 54; selection of artifacts.

in the lower part (Fig. 6:1). Its belly is decorated by vertical quadruple cord impressions. Such vertical motifs were developed in the Early Mierzanowice phase (Kadrow – Machnik 1997, 31). In various combinations they were applied to various vessel forms, including cups (e.g. in Żerniki Górne, graves 52 and 79 – Kempisty 1978, ryc. 172, 186) and amphorae (e.g. in Iwanowice, Site “Góra Klin”; Machnikowie – Kaczanowski 1987). We can find them also on a vessel from Sietesz, Feature 1a/98 (Madej 1999, ryc. 6: n).

On Site 37 in Dobkowice there were found small fragments of amphora – like vessel from Feature 16 and from Feature 117, and on Site 39 from Feature 10 (Fig. 8: 1). As with cups already described, exact forms of these vessels are unknown due to their strong fragmentation. The vessel from Site 39 shows corded decoration on the neck forming two horizontal lines. It has analogies in materials from the Early Mierzanowice. Analogies to them can be found in several Early Mierzanowice assemblages, e.g. from Sietesz, Site 5, Przeworsk district (Madej 1999, ryc. 54: b) and Iwanowice, Site Babia Góra II, Kraków district (Kadrow 1991, tabl. I: y; III: k; VI: i; Kadrow – Machnikowie 1992, tabl. 14: 2).

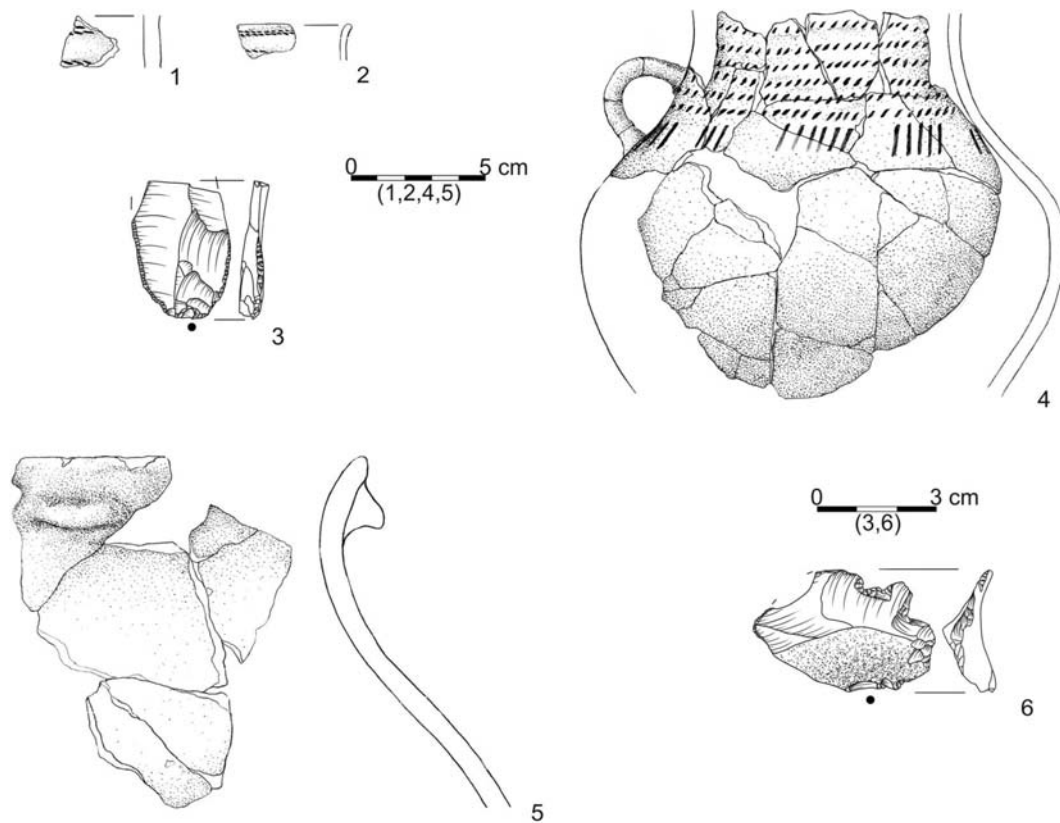


Fig. 7. Dobkowice, site 37; 1–3 – selection of artifacts from feature 4; 4 – selection of artifacts from feature 112; 5 – selection of artifacts from feature 117; 6 – selection of artifacts from feature 164.

Among flint artifacts from 37 in Dobkowice linked with the Mierzanowice culture especially interesting is the artifact from Feature 4 – a knife like tool on blade of the Volhynian flint (Fig. 7: 3). Inserts of that type have been registered in funerary Feature 786 on Site 5 in Modlnica (Włodarczak – Grabowska – Zastawny 2011, tabl. 54: 3), together with Proto-Mierzanowice pottery (Włodarczak – Grabowska – Zastawny 2011, 335). In Feature 164 (Fig. 7: 6) there is a marginally retouched massive flake of the Volhynian flint. Altogether, 23 artifacts of that type were discovered on the site, among them a bifacial backed knife on flake of the Volhynian flint (Fig. 8: 6), and a broken flake retouched on one edge of the Turonian flint (Fig. 8: 5; both artifacts from Feature 35), and – from Feature 54 – a sidescraper on flake of the Volhynian flint (Fig. 6: 5). The burnt knife from Feature 35 represents a characteristic form of the Mierzanowice culture, known e.g. from Iwanowice and Mierzanowice (Kopacz 1976; Balcer 1977). Knife like sidescrapers of the Volhynian flint are also common finds in the Mierzanowice culture. Similar artifacts can be found for example in Świniary (Kraussowicz 1971, ryc. 5b, 9b) and Modlnica, Site 5 (Włodarczak – Grabowska – Zastawny 2011, tabl. 54: 2). The raw material utilized in production of these tools is typical for Proto-Mierzanowice lithic assemblages (Budziszewski 1991).

Apart from artifacts described, above in these features there were found stone artifacts: the butt part of a shafted axe of amphibolite and a small axe of siliceous rock. The fragment, is probably from the axe of pentagonal cross-section (Fig. 6: 6). In the Mierzanowice culture artifacts of that type appear mainly in the Proto-Mierzanowice phase (Kadrow – Machnik 1997, 25). Similar pentagonal axe is known from a funerary assemblage from Kraków-Nowa Huta-Kopiec Wandy, Site 53, Grave 13 (Hachulska-Ledwos 1967). In contrast, rectangular siliceous axes such as the artifact from Dobkowice (Fig. 8: 11), produced probably from the siliceous marl are uncommon in the Mierzanowice culture. We can list here a few artifacts of that type, preserved in damaged state, obtained during excavations on the Kańczuga Plateau, e.g. in Mirocin, Site 29, or from Kańczuga, Site 5 (Koperski – Kostek 1998, ryc. 3: c–e). In general, siliceous axes should be regarded emblematic for the Corded Ware culture from the end of the Neolithic (Jarosz 2002, tabl. 8: 2). The Mierzanowice structures in Dobkowice yielded also polishing tablet (Fig. 6: 7–10) and grinding stones. As analogies to them are known from a utility pit in Pobiednik Wielki, Kraków district (Reyman 1934).

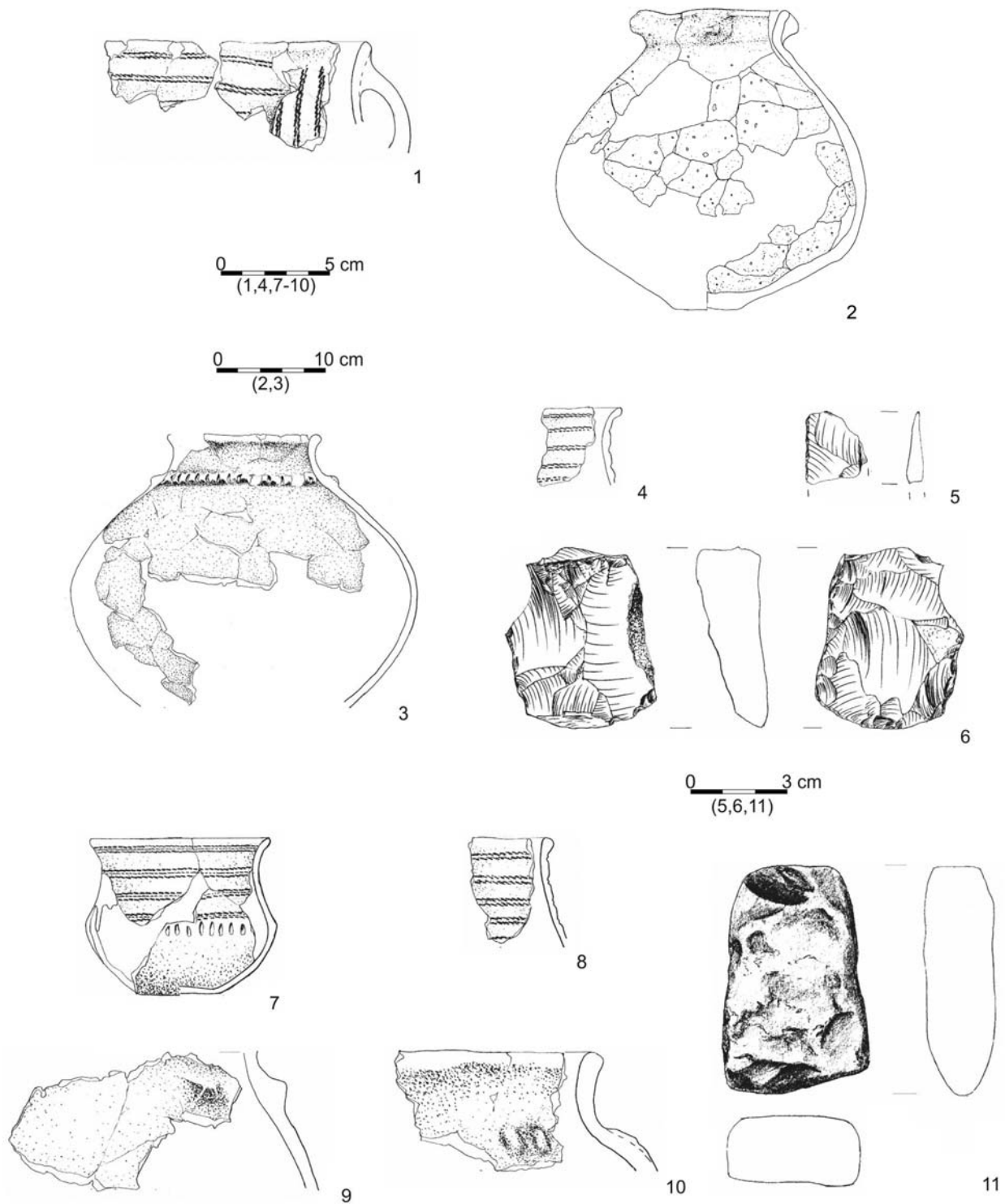


Fig. 8. Dobkowice, site 39; 1 – selection of artifacts from feature 10; 2 – selection of artifacts from feature 37; 3–6 – selection of artifacts from feature 35; 7–11 – selection of artifacts from feature 53.

In Dobkowice, objects of bones were found only in one pit – Feature 13 (Site 32). The pins, which accompanied human remains of individuals I and II (Fig. 4: 7, 8), have their analogies in the assemblage from Grave 18 in Iwanowice, Site Góra Klin (*Machnikowie – Kaczanowski 1987, ryc. 22: B*). In the same pit there were also bone beads (Fig. 4: 4–6). Artifacts of that kind made of bone appear infrequently in the Mierzanowice. Example of them is the pin from Grave 46 in Świniary Stare (*Kraussowie 1971, tabl. 4*).

3. Conclusions

Traces of the Mierzanowice culture discovered on sites 37 and 39 in Dobkowice are significant contribution in studies on settlement of that culture on loess areas of the Kańczuga Plateau (SE Poland), allowing for the reconstruction of the settlement network of this culture in the region in question. The analysis indicate that concentrations of pits are compact, both in the scope of space chronology. Distribution of pits suggests that they were used in more or less the same time. Therefore, they can be regarded as vestiges of single-household sites from early phases of the Mierzanowice culture. Some of them contained human or animal remains. Similar situation was earlier observed in Szarbia, where many pits contained incomplete skeletal remains of individuals of young age (*Haduch 1997*, 167). Remarkable in the Mierzanowice culture is scarcity of child burials on cemeteries (*Kadrow – Machnikowie 1992*), and also frequent presence of partial burials in settlement pits, the best observed in Szarbia (*Haduch 1997*, 167). On the latter site, among 100 burials there were only 14 related to children. In fact, only in 7 cases we can speak about real interments (the others were pits with diverse mixed material, among them human bone fragments or teeth). Child burials were located both in grave pits and settlement structures, and their positioning suggest that the bones were disorderly dumped into. In this context the presence of child remains in settlement structures in Dobkowice confirms that it was customary treatment of dead in the Mierzanowice culture (cf. *Kotodziej 2010[2011]*, 323). Especially interesting in this respect is a feature discovered in Mydłów, Opatów district, where human remains were accompanied by remains of at least two dogs and two sheep (*Bargieł 1991*), as well as a human burial with dog from Iwanowice (*Kadrow – Makowicz-Poliszt 2000*).

Artifacts discovered in pits place the site within Proto- and Early Mierzanowice phase, with certain elements typical for the Classic phase (they might have appeared earlier than that). Typical Proto-Mierzanowice element is decorative motifs applied to upper parts of cups in forms of multiple cord impressions; most often triple (*Fig. 6: 2, 8: 7*), but also stone artifacts (*Fig. 6: 6*). Even more frequent Early Mierzanowice elements are manifested in decorative motifs of double horizontal impression, often combined with fingernail impressions, and broader assortment of pottery forms including amphorae (*Fig. 8: 1*) and pots. The latter forms are most often decorated with knobs and ledges (*Fig. 8: 5, 6; 7: 5; 8: 2, 3*). Knobs in upper parts of vessels (near the rim) are mainly of types 1 and 3–6 according to S. Kadrowa (*Kadrow 1991*, 46, ryc. 26).

The observations presented above links the settlements in Dobkowice with the early phase of the Mierzanowice culture. It has been confirmed by radiocarbon date from a sample of human bone of individual I from Feature 53 (Site 39): 3705±35 BP (Poz-54037), *i.e.* 2201–1980 BC. The date is younger then chronological range proposed for the Proto-Mierzanowice phase – 2200–2050 BC (*Kadrow – Machnik 1997*). Instead, it corresponds with the beginning of stable settlement of the Mierzanowice culture in upper parts of loess uplands of Lesser Poland (*Kadrow – Machnik 1997*). We cannot exclude that sites Dobkowice, representing the first wave of the Early Bronze Age settlement in southeastern Poland, are contemporary with funerary remains of the Proto-Mierzanowice phase (*Górski et al. 2013*).

Settlement sites from Dobkowice represent the early phase of the Mierzanowice culture existence in the region of the middle San river. A number of settlements typical for the Proto- and Early Mierzanowice culture is noted from this area (*Przybyła – Blajer 2008; Blajer 2009; Machnik 2011; Pelisiak 2013*). Besides mentioned earlier in the text sites one can list the newly discovered site 158 in Jarosław (*Pelisiak – Rybicka 2013*) and unpublished so far settlements from Mirocin sites 24 and 27 (under author's studies). The earliest settlement structures in that region falls into the period 2300–2200 BC, when on loess uplands stable settlement centers became to develop. It was the time of decline of the Bell Beaker culture in western Lesser Poland.

Bibliography

- Balcer, B. 1977:* Osada kultury mierzanowickiej na stanowisku 1 w Mierzanowicach woj. tarnobrzeskie. *Wiadomości Archeologiczne* 42, 175–212.
- Bargieł, B. 1991:* Drugi sezon badań stanowiska 37 i 38 w Mydłowie, woj. tarnobrzeskie. In: Gurba, J. (ed.): *Sprawozdania z Badań Terenowych Katedry Archeologii UMCS w 1991 roku*. Lublin, 26–31.
- Blajer, W. 2009:* Uwagi o stanie badań nad epoką brązu i wczesną epoką żelaza w dorzeczu Sanu. *Rocznik Przemyski* 45, 85–104.
- Bobak, D. – Jarosz, P. – Mazurek, M. – Okoński, J. – Szczepanek, A. 2012:* Szczątki dzieci w jamie osadowej kultury mierzanowickiej na stanowisku 39 w Dobkowicach, pow. jarosławski. *Obiekt kultowy czy przejaw zwyczajów pogrzebowych?* In: Czopek, S. (ed.): *Hic mortus vivunt. Z badań nad archeologią funeralną*, *Collectio Archaeologica Ressoviensis* 20. Rzeszów, 51–72.
- Budinský-Krička, V. 1965:* Gräberfeld der späten schnurkeramischen Kultur in Veselé. *Slovenská archeológia* 13-1, 51–106.
- Budziszewski, J. 1991:* Krzemieniarstwo ludności Wyżyny Środkowomałopolskiej we wczesnej epoce brązu. In: Gurba, J. (ed.): *Schylek neolitu i wczesna epoka brązu w Polsce Środkowowschodniej*. *Lubelskie Materiały Archeologiczne* 6. Lublin, 181–208.
- Górski, J. 2001:* Wyniki ratowniczych badań wykopaliskowych na stanowisku 2 w Opatkowicach. *Materiały Archeologiczne* 31, 163–197.
- Górski, J. – Grabowska, B. – Izdebska, E. – Konieczny, B. – Wilczyński, J. – Wojenka, M. 2006:* Wyniki archeologicznych badań wykopaliskowych przeprowadzonych w obrębie stanowisk 8–11, 24 i 26 w Targowisku, gm. Kłaj, woj. małopolskie w latach 2003–2004. In: Bukowski, Z. – Gierlach, M. (eds.): *Raport 2003–2004. Tom 2. Wstępne wyniki konserwatorskich badań archeologicznych w strefie budowy autostrad w Polsce za lata 2003–2004*. Warszawa, 555–584.
- Górski, J. – Jarosz, P. – Tunia, K. – Wilk, S. – Włodarczak, P. 2013:* New evidence on the absolute chronology of early Mierzanowice culture in south-eastern Poland. In: Bartelheim, M. – Peška, J. – Turek J. (eds.): *From Copper to Bronze. Cultural and Social Transformations at the Turn of the 3rd/2nd Millennium B.C. in Central Europe*. *Gewidmet PhDr. Václav Moucha, CSc. anlässlich seines 80. Geburtstages, Beiträge zur Ur- und Frühgeschichte Mitteleuropas* 74. Langenweissbach, 105–118.
- Hachulska-Ledwos, R. 1967:* Materiały kultury ceramiki sznurowej odkryte koło Kopca Wandy (Kraków Nowa Huta). *Materiały Archeologiczne* 8, 89–104.
- Haduch, E. 1997:* Ludność kultury mierzanowickiej z Szarbi, woj. kieleckie na tle populacji środkowoeuropejskich z wczesnego okresu epoki brązu. Kraków.
- Jarosz, P. 2002:* Kurhan kultury ceramiki sznurowej w Średniej st. 3/2, pow. Przemysł. Wyniki badań wykopaliskowych prowadzonych w 2001 r. *Rocznik Przemyski* 38-2, 3–21.
- Kadrow, S. 1991:* Iwanowice. Stanowisko babia Góra, cz. I. Rozwój przestrzenny osady z wczesnego okresu epoki brązu. Kraków.
- Kadrow, S. – Machnik, J. 1997:* *Kultura mierzanowicka, Chronologia, taksonomia i rozwój przestrzenny*. Kraków.
- Kadrow, S. – Machnikowie, A. – Machnik, J. 1992:* Iwanowice, stanowisko Babia Góra, cz. II. Cmentarzysko z wczesnego okresu epoki brązu. Kraków.

- Kadrow, S. – Makowicz-Poliszot, D. 2000:* Tiergräber der Mierzanowice kultur auf der Fundstelle „Babia Góra” in Iwanowice, gm. loco, Wojewodschaft Małopolska. In: Kadrow, S. (ed.): *A Turning of Ages*. Kraków, 257–300.
- Kalicz, N. 1984:* Die Nyírség-Kultur. In: Tasić, N. (ed.): *Kulturen der Frühbronzezeit des Karpatenbeckens und Nordbalkans*. Belgrad, 109–123.
- Kempisty, A. 1978:* Schyłek neolitu i początek epoki brązu na Wyżynie Małopolskiej w świetle badań nad kopcami. Warszawa.
- Kołodziej, B. 2010[2011]:* Animal Burials in the Early Bronze Age in Central and Eastern Europe. *Analecta Archaeologica Ressoiviensia* 8, 141–358.
- Kondracki, J. 2000:* Geografia regionalna Polski. Warszawa.
- Kopacz, J. 1976:* Wstępna charakterystyka technologiczno-typologiczna wczesnobrązowego przemysłu krzemienego z Iwanowic, woj. Kraków. *Archeologia Polski* 21, 85–107.
- Koperski, A. – Kostek, A. 1998:* Zespół zabytków kultury mierzanowickiej na st. 5 w Kańczudze, woj. Przemyskie. *Rocznik Przemyski* 34-3, 37–42.
- Kraussowie, J. – Krauss, A. 1971:* Cmentarzysko kultury mierzanowickiej w Świniarach Starych, pow. Sandomierz. *Materiały Archeologiczne* 12, 109–131.
- Łęczycki, S. 1983:* Zespół obiektów kultury Chłopice-Veselé z Kietrza, woj. Opole, stan. D. *Sprawozdania Archeologiczne* 34, 67–76.
- Machnik, J. 1961:* Uwagi o związkach i chronologii niektórych znalezisk kultury ceramiki sznurowej w Karpatach. *Sprawozdanie z posiedzeń Komisji Oddziału PAN w Krakowie* 6, 58–60.
- Machnik, J. 2011:* Znaczenie archeologicznych badań ratowniczych na trasie planowanej budowy autostrady A4 na odcinku Przeworsk-Radymno dla znajomości problematyki schyłku neolitu i początków epoki brązu. In: Czopek, S. (ed.): *Autostradą w przeszłość*. Katalog wystawy. Rzeszów, 61–78.
- Machnikowie, A. – Machnik, J. – Kaczanowski, K. 1987:* Osada i cmentarzysko z wczesnego okresu epoki brązu na „Górze Klin” w Iwanowicach. Wrocław.
- Madej, P. 1999:* Wyniki badań osady kultury mierzanowickiej na stanowisku 5 w Sieteszy, gm. Kańczuga, woj. Podkarpackie. *Rocznik Przemyski* 35-2, 41–58.
- Madej, P. 2000:* Sprawozdanie z badań wykopaliskowych przeprowadzonych w 1999 r. na stan. 5 w Sieteszy. *Rocznik Przemyski* 36-1, 11–32.
- Pelisiak, A. 2013:* Man and mountains. Settlement and economy of Neolithic communities in the Eastern part of the Polish Carpathians. In: Kadrow, S. – Włodarczak, P. (eds.): *Environment and subsistence – forty years after Janusz Kruk’s “Settlement studies...”*. *Studien zur Archäologie in Ostmitteleuropa* 11. Bonn, 225–244
- Pelisiak, A. – Rybicka, M. 2013:* Stanowisko 158 w Jarosławiu, woj. Podkarpackie. Część I. Kultura malicka i kultura mierzanowicka. *Via Archaeologica Ressoiviensia* 3. Rzeszów.
- Przybyła, M. S. – Blajer, W. 2008:* Struktury osadnicze w epoce brązu i wczesnej epoce żelaza na obszarze podkarpackiej wysoczyzny lessowej. Kraków.

Reyman, T. 1934: Badania terenowe na polu „Karasiniec” w Pobiedniku Wielkim, pow. Miechów. Materiały Prehistoryczne 1, 29–58.

Starkel, L. 2005: Współczesna rzeźba Polski dziedziczy cechy peryglacjalne. Przegląd Geograficzny 77-1, 11–19.

Schreiber-Kalicz, R. 1984: Komplex der Nagyrév-Kultur. In: Tasić, N. (ed.): Kulturen der Frühbronzezeit des Karpatenbeckens und Nordbalkans. Beograd, 133–190.

Stuchlíková, J. – Stuchlík, S. 1989: Die historische Bedeutung des mährischen Raumes im Spätäneolithikum und in der frühen Bronzezeit. Praehistorica 15, 187–192.

Wład P. 1996: Województwo przemyskie. Zarys geograficzny. Przemyśl.

Włodarczak, P. – Grabowska, B. – Zastawny, A. 2011: Groby kultury ceramiki sznurowej i kultury mierzanowickiej ze stan. 5 w Modlnicy, pow. Krakowski. In: Kruk, J. – Zastawny, A. (red.): Modlnica, st. 5. Od neolitu środkowego do wczesnej epoki brązu, Via Archaeologica. Kraków, 291–410.

