

# The results of archaeological excavations of multicultural site 1, 2 at Zgórze, Commune of Strzelce, district of Kutno, province of Łódź (route of motorway A-1). Summary

## 1. INTRODUCTION (*BŁAŻEJ MUZOLF*)

The current work is the result of a study of rescue archaeological excavations on site 1, 2 at Zgórze, commune of Strzelce, district of Kutno, undertaken in connection with the building of the A1 motorway. The excavations were carried out by the Konrad Jażdżewski Foundation of the Archaeological Research, supervised by B. Muzolf and M. Frączak in the years 2005–2006 from the funds of the *Agency for Motorway Construction and Operation (ABiEA)*.

The site is situated SW of the dwelling houses at Zgórze, on a gentle slope of the left bank of the Głogowianka river (wide at this site), which is the left tributary of the Ochnia river. The latter, in turn, is the left tributary of the Bzura river (fig.1, 2). The archaeological exploration extended over the area of 310 ares. As a result 1409 features were unearthed and 28000 artefacts were obtained. Ten chronological-cultural levels were distinguished on the site :

1. the Mesolithic, traces of the exploration of the area
2. the Neolithic, campsite(s) of the Funnel Beaker culture
3. the Neolithic, campsite of the Globular Amphora culture
4. the Neolithic, campsite of the Neman culture
5. the Neolithic, campsite of the Linin group of the Neman culture
6. the Neolithic, traces of the settlement of the Epi-Corded Cultural Circle
7. I-II period of the Bronze Age, campsite(s) of the Iwno culture and the Trzciniec culture
8. III-IV period of the Bronze Age, complex of settlements of the Lusatian culture
9. traces of the early-medieval settlement
10. 18<sup>th</sup>-20<sup>th</sup> centuries, modern settlement (building development of homesteads)

## 2. LOCATION AND NATURAL CONDITIONS OF SITE 1, 2 AT ZGÓRZE (*PIOTR KITTEL*)

Archaeological site at Zgórze is situated on an almost completely flat area and a very gentle west-oriented slope. Clusters of archaeological features occupy small elevations, weakly visible in landform. The area lies on the promontory of the ice sheet of the Vistula in the zone of intensive outflow of proglacial waters, which form a sandur level. The substratum of the site is made up by varied-grained sands. Plain-like area of the site was primarily intersected by small, shallow depressions of the system of denudation valleys. The site is located c.a. 160m east of a narrow channel of the upper section of the Głogowianka river – a tributary of the Ochnia river. The valley in the vicinity of the site is not well developed. It is restricted to a narrow valley bottom, formed by silts and fluvial sands.

The vicinity of the site at Zgórze is characterised by geodiversity. It extends over an area conducive to pre-historic settlement, with favourable lithological (sandy substratum) and topographic (almost completely flat surface and very gentle slope) conditions. In the close vicinity of the site there is a bottom of a river valley, with ground waters in shallow position and a system of shallow denudation valleys. At a distance of less than 1km lies a moraine upland with gravel-boulder morainal hills on the surface. In the light of the analysis of the geomorphologic location, the situation of the site at Zgórze should be considered as favourable from the point of view of the development of multi-faceted, prehistoric, agricultural economy.

## 3. PRE-HISTORIC SETTLEMENT – PRELIMINARY REMARKS (*BŁAŻEJ MUZOLF*)

On the area of the site, in three designated zones (I-II-III) there are clusters of features and materials, chronologically diversified, and marked with letters of alphabet which correspond to settlement zones, as follows : A- the Neolithic, B- the early Bronze Age, C – the Lusatian culture of the Urn field cultural circle, Bronze Age, D- the early-medieval period, E- modern period (fig.6)

### 3.1. Flint artefacts– Preliminary remarks (*Dominik K. Płaza*)

### 3.2. Remains of the Mesolithic penetration

Flint assemblage unearthed on site 1, 2 at Zgórze can be linked with various chronological periods. The oldest artefacts are linked with the occasional visits of people to the site during the Middle Palaeolithic. The cultural data consist of single flints, including a core and a microlith.

### 3.3. The Neolithic settlement (*Dominik.K. Płaza*)

#### 3.3.1. The settlement of the Funnel Beaker Culture

A more permanent settlement is connected with the communities of the Funnel Beaker culture and Globular Amphora culture. In the case of the former, flint artefacts add to the picture of the campsite which may be linked with the main settlement, situated in the vicinity, beyond the territory of rescue excavations. The Funnel Beaker culture is connected with such cultural data as : flint artefacts from imported raw material, including Świeciechów and chocolate flint. In general, we can date the material, with caution, to a broad framework of phases II and /or III of the Funnel Beaker culture, judging by the character of the flint assemblage. It contains forms made of the Świeciechów and chocolate flint, and has no forms made of the Volhynian flint. There is also a single pottery fragment, decorated with the characteristic decorative Baalberge plastic mould. The observations seem to indicate that this part of the site at Zgórze was used for economic purposes in a short-lived, possibly seasonal way. A small

number of cultural data rather rules out the possibility that the feature was of dwelling character. Features, scarce pottery and flint materials which belong to the Funnel Beaker culture were unearthed in two clusters. The first one was smaller, situated near the border of hectare G and yielded 21 fragments of pottery. The other, larger one, situated on hectare J, yielded 105 pottery fragments and most flint artefacts. All features containing cultural data were identified in this part. Over a dozen post traces make up an outline of a post building, covering the area of c.a. 35 square metres. A small number of movable artefacts from hectare J (i.e. 105 pottery fragments, and c.a. 20 flint artefacts) are not sufficient to enable a precise chronological dating of the campsite.

### **3.3.2. The settlement of the Globular Amphora culture** (*Błażej Muzolf, Przemysław Muzolf*)

Cluster A3 is made up of the remains of the settlement of the Globular Amphora culture. It consists of 295 vessel fragments, 115 flints and 8 features and covers the area of c.a. 60 ares (fig. 12).

#### **3.3.2.1. The technology, decoration and vessel forms – chronological analysis**

The analysed vessel fragments of the Globular Amphora culture included two technological groups, distinguished on the basis of the kind of temper of pottery “recipe”, it was made of (plate 7). In the first one, which constitutes 73% of the assemblage, the temper used consisted of small amounts of coarse-grained and middle-grained crushed stone, which constituted c.a. 10–20% of the volume of the vessel wall. The vessel surfaces are smooth (F1), or slightly rough (F2). On the outside they are brown (90%) or spotted (10%), whereas inside they are grey-spotted (50%) or brown (50%). The amphorae found on the site (fig. 14: 2–4; 15: 1, 2, 8, 9, 11) were made with the use of this technology. The second technological group comprises 27% of the assemblage and is characterised by the use of a large quantity of temper in the form of medium and fine-grained crushed stone and a big amount of sand, as well as sporadically occurring coarse-grained crushed stone. The colour of the surface is brown and grey-brown. The vessels from this technological group usually consist of small bowls, which belong to medium and thin-walled vessels (fig. 15: 12–15). Forty-one decorated fragments constitute 14% of the assemblage. Decoration was made with two techniques: carve-stamp technique and casting (plate 7), in which several decorative elements are used for making a series of decorative motifs (fig. 13). In the assemblage we can distinguish fragments of richly decorated amphorae (fig. 14: 3; 15: 9, 11, 14), e.g. vertical, quite broad grooves, whose origin should be traced in the assemblages of the Baden culture. M. Furholt and J. Machnik (2006, pp. 351–353) concluded that the classic influences of this cultural unit should be dated to the years between 3050–2900 B.C. According to J. Czebreszuk (1966, p.77), so called Baden stage (eneolithic) of the Globular Amphora culture coincides with the end of phase IIb and the beginning of phase IIIa. The assemblage in question is dated to phase III of the Globular Amphora culture, with absolute dating between 3050–2900 B.C.

#### **3.3.2.2. Flint artefacts** (*Dominik K. Plaza*)

The Globular Amphora culture artefacts are of a different character. Several pits from that culture yielded a numerous flint assemblage, which have additionally been examined with the method of refitting. It turned out that the culture should be linked with the advanced splintering technique of exploitation, aiming at the production of chisel-like splintered piece forms, which could then be used as tools.

#### **3.3.2.3. In-ground features and the spatial analysis of the campsite** (*Błażej Muzolf*)

Eight features have been included in the Globular Amphora culture, three of which were several types of pits classified after B. Muzolf (2002, p. 122, fig. 10). Type IB – these are small pits on the oval plan and basin-like in cross-section, containing very few artefacts -feature 966, 973 (fig. 14: 5), 974 and 800. Type ID – it is a large pit with an abundant flint assemblage, probably from a flint workshop. Type V is an oval pit with two hollows (feature 1201) and a small number of artefacts (fig. 15: 6, 7). Type XV- these are two post holes (features 792 and 796). The last feature (no 765) is a cluster of pottery.

In the attempt to reconstruct the spatial planning and the character of the building development of the campsite in question we took into consideration the dated features and the ones which had no chronological attribution, but were, as it seems, loosely connected with the Globular Amphora culture. On the basis of the preserved post holes we can attempt to make outlines of two hypothetical constructions. One of them of shack construction (?) was located in the centre, in are 150. Around it were located: a cluster of pottery and a pit with the materials of household homogenous occupational unit (in Polish *kshemienitsa*). In the vicinity of the hypothetical shack there was a series of post holes, in which we can detect a form of a fence. It may be a trace of an animal corral. The settlement remains of the Globular Amphora culture are traces of a small campsite.

### **3.3.3. The settlement of the Neman culture** (*Przemysław Muzolf, Błażej Muzolf*)

Three clusters A4, A5 and A6 are linked with, so called, forest circle (fig. 6). The material in question has been classified as two assemblages. The first one is linked with the classic Neman culture and generally with group I after E. Kempisty (E. Kempisty 1973, p.13 and consecutive pages, plates I and II), as well as assemblages described as classic Neman Culture (B. Józwiak 2003, p.190). The second one is connected with the Linin group of the Neman culture, which can be compared with group II of type B2b after E. Kempisty (1973, pp. 29–20), and according to B. Józwiak (2003, p.201 and consecutive pages) with so called Linin horizon – HL3. Cluster A4 of the Neman culture consists of 175 vessel fragments and 2 features (fig.18).

#### **3.3.3.1. The technology, decoration and vessel forms – chronological analysis**

The assemblage of the Neman culture is dominated by thin-walled vessel fragments. Occasionally medium-walled vessels occur. They were made of clay tempered with crushed stone, sporadically supplemented by sand, or clay with sand only (plate 9). The outer surfaces are smoothed to the stage of polishing and sporadically coarsened (fig. 21: 17). The colour of both surfaces is usually brown (B11). Occasionally we record grey-black colour of the inner surface – B12, or spotted –B13. Rarely do we find fragments of two black surfaces – B22, coming from one vessel (fig. 22: 1). We come across a characteristic piercing decoration

in the form of holes pushed from the inside (fig. 19, type F, F2), which can be recorded on many vessels (fig. 19: 3, 4, 9, 13, 19; 20: 3). The second main element is grooving of edges (fig. 20), which occurs on many vessels (fig. 21: 3). Stamp decoration (fig. 19, group J) occurs in horizontal series (fig. 21: 2, 8, 10, 11, 13–15), whereas the nail one (fig. 19, group L) forms horizontal and diagonal series (fig. 21: 5, 6, 7). Ditch decoration (fig. 19, group K) has been only recorded on two fragments and decoration in the form of holes under the brim was found on one fragment only (fig. 19, group M, fig. 21: 9; 22: 1).

Analogies to the assemblage in question can be found for on sites, such as Grabin 5 (M. Rybicka 1995 p.12 and consecutive pages, table III, 1–4), Klusek Biały, site 7 (A. Pelisiak, M. Rybicka, M. Ralska-Jasiewiczowa 2006, fig. 16: 3–5, p.111), Michałów, site 1; Linin, site III; Lipka, site 1 (B. Józwiak, 2003, p.192 and consecutive pages). B. Józwiak links this type of material with the impact of phase IIA and mainly phase IIIA of the Globular Amphora culture, dated no earlier than c.a. 3250 B.C. (op.cit, 2003, p.195). The artefacts in question have been dated to 3050–2900 B.C., which approximately corresponds to temporal framework of the Globular Amphora culture on this site.

### 3.3.3.2. In-ground features and spatial analysis of the campsite

Materials of the Neman culture have been recorded in twenty features, but only in ten of them the artefacts have occurred on their own. In all other features they occur with an admixture of younger materials (plate 10). Little can be said about the spatial planning of the Neman culture settlement on the site. The dispersion of ceramic materials is large and extends over the area of 5 ares, which may indicate the existence of dwelling features in the area, e.g. of shack-like type from, most likely, a short-lived campsite (fig.23).

### 3.3.4. The settlement of the Linin group of the Neman culture (*Przemysław Muzolf, Błażej Muzolf*)

Cluster A5 consists of the Linin group of the Neman culture artefacts (fig. 6; 24), forty-seven fragments in total, including twelve decorated ones.

#### 3.3.4.1. Technology, decoration and vessel forms- chronological analysis

The Linin group of the Neman culture vessels were made of clay with temper of pottery “recipe” in the form of crushed stone with sand. Surfaces of vessels are on the whole smooth and brown on both surfaces (B11), which is characteristic of 70% fragments. 20% are grey (B22) and 10% are brown on the outside and black-grey on the inside (B12). Most decoration has the form of cord impressions and diagonal stamps in “rafter” layout, as well as holes under the brim (fig.25). A characteristic decoration is the abundant application of cord impressions on pots (fig. 26: 1–4, 6–11) and on hemispherical bowls (fig. 26: 6, 8, 9). Cord motifs are occasionally enriched by holes under the brim, pushed from the inside (fig. 26: 4, 11). Cord impressions in horizontal patterns are occasionally accompanied by segmental impressions in the form of a zigzag, supplemented by holes under the brim (fig. 26: 10, 11). Occasionally, stamp decoration has been recorded (fig. 26: 5), as well as engraving (fig. 26: 12). Equivalents of such materials can be found in group II of assemblages of type B after E. Kempisty (1973) and B. Józwiak (2002, p. 201 and consecutive pages, plates 95, 96) in groups HL (Linin horizon), and particularly in group HL3, group B, which contains the largest number of elements of the Corded Ware culture.

A double zigzag motif is very characteristic (fig. 26: 10, 11). Equivalent motifs of this type are published by J. Machnik (1966, table I: 1a, III: 1a, V: 3a; Iva2; XII: 2b; XLIII: 3) on goblets of type Vb and Va, e.g. from Batowice, site 2, group 1, Sulechów, group 1 and 2, Zaslawice, group 229, Mierzanowice, group 81 or Złota. According to J. Machnik (1966, p.179 and consecutive pages, plate XLII), finds from Lesser Poland should be dated to phase II2 of the late Neolithic, with absolute dating from the turn of 3<sup>rd</sup> and 2<sup>nd</sup> millennium B.C., and that is how we date the assemblage in question.

#### 3.3.5. Settlement from the circle of the Corded Ware culture (*Błażej Muzolf*)

Only four vessel fragments have been obtained from the cultural layer (plate 11), which have been included in the circle of the Corded Ware culture (fig.6). The obtained fragments were made of clay void of any intentional temper. Their surfaces are smooth, spotted, brown-grey and brown. One fragment is decorated with impressions of a thick cord (fig. 27: 3), whereas the other one with oval stamps and double impressions of a thin, two-part cord around the vessel (fig. 27: 1). It may come either from a bowl or a pot with analogies in an assemblage from kurgan 1 at Średnia, commune of Krzywca. It is regarded as the oldest vessel of the Corded Ware culture, dated to 2900–2800 B.C. with 14C dating method (J. Machnik 2001, p. 130, fig. 3; 6). The next vessel fragment is decorated with stamps in a herringbone pattern (fig. 27: 2), which is a characteristic method of decorating of such artefacts as goblets of the Corded Ware culture. An assemblage from Wola Węgierska, commune of Rożwienica has been included in the youngest assemblages, dated to 2500–2100 B.C. with 14C dating method (op. cit., p. 130, fig. 4; 10). The last belly-shaped fragment, bearing traces of a bung handle fitting of a mug and a decoration in the form of grooves around the neck, as well as vertical impressions of a thin two-part cord on the belly, directly indicates that it should be dated to the classic Mierzanowice phase (fig. 27: 4). The finds may be dated to a very broad chronological framework in the 3<sup>rd</sup> millennium B.C. These may be traces of several visits to the territory by the people from the circle of the Corded Ware culture.

## 3.4. Settlement of the Bronze Age

### 3.4.1. Flint artefacts from the Bronze Age (*Dominik K. Płaza*)

After a general analysis of artefacts of the Lusatian culture, the picture we obtain confirms the assumption that in the developed Bronze Age, flints were in use, but they did not play a significant role. Sporadically, flint was used to make retouched tools. It was also temporarily used due to the sharp edges of flakes or splintered pieces.

Some flint artefacts, including those connected with splintering or flake technique of exploitation cannot be attributed to any archaeological culture. In such cases they were generally dated to the Palaeolithic or Bronze Age.

### 3.4.2. Settlement of the Iwno-Trzciniec assemblages (*Przemysław Muzolf*)

The beginnings of the settlement of the Bronze Age are connected with the groups of so called Iwno-Trzciniec horizons, which consist of 954 vessel fragments and 29 features, which form two clusters B1 and B2 (fig. 28). Cluster B1 has yielded 911 vessel fragments and 26 features, whereas B2 only 27 fragments and 3 features.

#### 3.4.2.1. Technology, decoration and vessel forms – chronological analysis

954 vessel fragments have undergone technological analysis (plate 12). The assemblage consisted of 80 fragments, decorated with moulded elements, as well as engraved-pierced ones (fig. 29). Decoration of so called grooves was made with the use of two techniques: engraving (fig. 29, A2, B and C) and impressions of small grooves (fig. 29, A1). As regards moulded decoration, the most common method is horizontal plastic strip at the base of a neck (fig. 32: 4, 13, 19; 33: 2–4; 34: 2, 11, 12). In five cases the moulded strip is situated directly on the neck, mostly in goblet forms and sack-like pots (fig. 32: 6, 8, 9, 13, 15). The affixed bumps – round and spindle-shaped have been recorded four times (fig. 32: 2, 16, 18; 34: 5). Only in one case does a bump co-occur with horizontal, engraved lines (fig. 34: 5). It has its analogies in the material from HT2 with east-Trzciniec influences from Pruchnowo, site 23 (B. Józwiak 2003, p. 341, plate 41: 3). The engraved-pierced decoration has been recorded on five fragments. These are mostly horizontal grooves (fig. 32: 1, 20; 34: 7). On one occasion it co-occurred with a moulded bump and stamps (fig. 32: 5). An interesting find is a vessel fragment, decorated with a complex pattern of engraved lines, where the spaces between them are filled by piercing. The whole work is supplemented by holes made from the inside, which form a circle, possibly referring to a solar symbol (?) (fig. 32: 3). Similarly decorated vessel fragment, but with no holes, can be found on the site at Białobrzegi, where it was included in level HT2 (B. Józwiak 2003, p.304, plate 40: 1). On the basis of forty fragments of vessel mouths, two neck forms have been distinguished, as well as several types of edges (fig. 30).

In order to describe the form of vessels, two main morphological features have been accepted, which refer to the point of the maximum width of the belly and the degree of inclination of the mouth edge in three positions (fig. 31A-B). The combination of these elements determine a morpho-type of a given vessel, determined by the number of their shape components, e.g. G3 – three-element pots, etc. A definite majority of the obtained fragments comes from S-shaped pots of category G3. They have been divided into the following types:

- **pots of G3/2c type, variant 1** – squat (fig. 32: 13, 21; 33: 2–4; 34: 2, 3, 7, 11). A pot from feature 850, decorated with engraved lines and a bump (fig. 34: 5) has analogies dated to HT2 from Prochnowo, site 23 (B. Józwiak 2003, site 341, plate 41: 3) and other analogies to the Iwno culture and assemblages from horizons HT1–2 (P. Makarowicz 1998, plate 101: 3, 5, 8).
- **pots of G3/2c type, variant 2** – sack-shaped pots (fig. 32: 9, 15; 34: 8). Their equivalents can be found in the same assemblages as the pots of variant 1 (op.cit., table 101, 4, 7, 10, etc)
- **pots of G3/2a type** – goblet-like forms (fig. 32: 8; 34: 12). Their analogies can be found, e.g. at Brześć Kujawski, site 4, dated to KI III and Rybiny, site 17, included in HT2 (P. Makarowicz 1998, plate 101: 2, 13).
- **bowls** are most likely represented by one fragment in a conical shape of type M1 with plastic strip (fig. 32: 16). The analogies are known from Biskupin, site 2a, Toruń, site 243 (op.cit., plates: 12: 4; 27: 2, 3; 30: 1), mostly dated to HT1.
- **amphorae** – possibly one fragment of a horizontally pierced handle comes from an amphora-like form (fig. 32: 11).

#### 3.4.2.2. In-ground features and the spatial planning of the settlement

Twenty-nine features from this chronological level have been divided into 11 types (plate 13) according to the classification by B. Muzolf (2002, p.122). They have been distinguished on the basis of the shape of the horizontal projection and the cross-section.

**Type I** of variants A, B and D – pits with basin-like cross-section (table 14), variant A and B (fig. 35: 8) and D (fig. 35: 7) of utility character.

**Type IIB** – pits with tank-shaped cross-section (plate 15, fig. 35: 1). Features 810 and 1014 could have played the role of storage pits.

**Type IVB** – pits with “cylindrical” cross-section (plates 16; 17, fig. 35: 4, 5; 6). Features of this type may have been used as household cellars.

**Type VI** – a single pit with a tank-shaped cross-section and a hollow (cellar), quite sizeable (plate 18). The feature with a single-layer filling has yielded only four vessel fragments. Its function is difficult to be determined. It may have been used as a storage place, considering its size. It originally had a shack-type roof.

**Type VII A, B, F** – these are pits with basin-like or tank-shaped cross-section with a single post inside (plate 19, fig. 35: 3) of utility character, possibly covered with a roof.

**Type VIII B, D** – pits with basin-like- tank-shaped cross-section with two posts inside, located along the longitudinal axis of utility character with a shack-type roof (plate 20).

**Type XI** – on-ground buildings?, these are 2 features, irregular in shape, with a relatively flat bottom and one-layer filling, not very deep and quite sizeable (plate 21). Presumably we can deal here with the inner space of the buildings of post construction (feature 850) (fig. 33: 1) or log-frame structure. (feature 175), in which the usable area was sunk in the ground. This function of feature 850 (fig. 34: 1) can be confirmed by a large assemblage of ceramic material (271 fragments).

**Type XV A, B** – post holes

**Type XVI** – clusters of pottery in features 288/D62 and 799/J41 (fig. 34: 12).

Clusters B1 and B2 may be the remains of two settlement incidents in the form of a settlement (B1) and a campsite (B2). The area of cluster B1 may have been the site of three or four hypothetical dwelling features (fig. 36). Three of them (A1, A2, and A4) were approximately located with the longer axes on the N-S line, although building 1 may also be reconstructed on the W-E line, which would correspond with the location of building 3. In the central section of the whole cluster, where the accumulation of ceramic material was the greatest, we can clearly discern a compact cluster of storage pits. It could have been part of the common

(?) storage section for the whole village. The buildings may be traces of homesteads, i.e. main units of spatial planning of a village and the organisation of a community (several families). They surround the utility section B (fig. 36). It is likely that beyond the area of exploration there is yet another homestead (A5?). Under such circumstances we could deal with a short-lived settlement, inhabited by a community of five families. The location of five hypothetical homesteads (c.a. 20m away from each other) indicates that they have been built according to plan on the perimeter of a circle/oval with a central square, 30m in diameter, thus forming a village of the rundling type.

Cluster B2 is small, but within its boundaries we can also try to distinguish a hypothetical building, possibly with log-frame structure. The observation is based on feature 175, located along the E-W axis (fig. 37). It may be a trace of a campsite, whose successive features are located beyond the excavation trench.

### 3.4.2.3. Summary

As a result of the conducted analysis, it can be concluded that the area of the exploration is most probably a trace of a settlement in cluster B1 and a campsite (?) in B2. It seems that the character of the presented material should be mainly linked with late phases of the Iwno culture, with the presence of Trzciniec culture elements. That is why we are inclined to date the whole complex to the early horizon of the development of the Trzciniec cultural circle. It is also likely that the assemblage points to the initial contacts of the Iwno culture with Mazovian groups of the Trzciniec culture, which corresponds with horizon HT1 and HT2, with absolute dating c.a. between 1900–1700 years B.C. (P. Makarowicz 1998, p. 304, fig. 38).

### 3.4.3. Settlement of the Lusatian culture of the Urn field cultural circle (*Błażej Muzolf*)

The most numerous chronological-cultural complex on the site consists of materials connected with the settlement of communities of the Lusatian culture of the Urn field cultural circle.

#### 3.4.3.1. Principles of the classification of technology, morphology and decoration of vessels

Materials from Zgórze have undergone an analysis, which enables the comparison of assemblages from different parts of the site (and from different sites). This refers to the analysis of technology, decoration and morphology of assemblages. As regards technology, we have applied a simplified questionnaire of features, which macroscopically describes the way of making particular vessels or their fragments. In the suggested classification several features have been combined into two categories. The former refers to the correlation of the feature, describing the colour of both surfaces (feature B) with the kind of texture of the external surface (feature F) in the form of code markings, so called BF (plate 23).

Questionnaire of features and their colour markings.

B – colour of external and internal surfaces.

1. brown (different shades of brown)
2. grey-black (predominantly black)
3. multi-coloured, brown-grey-black (predominantly brown-grey);

B11 – both surfaces are brown

B12 – external surface –brown, internal-black

B13 – external surface –brown, internal- multi-coloured

B21 – external surface- black, internal-brown

B22 – both surfaces are black

B23 – external surface – black, internal-multi-coloured

B31 – external surface- multi-coloured, internal-brown

B32 – external surface –multi-coloured, internal-black

B33 – both surfaces –multi-coloured

F- kind of external texture of vessel surfaces

F1 – surface smoothed to the stage of polishing

F2 – rough surface

F3 – coarse surface

F4 – vessels with surfaces partly smoothed and partly coarse (fig. 39)

The second category refers to the pottery recipe that a vessel/vessel fragment is made of. It describes the intentionally applied temper – “fixing” a leaning clay (feature D). The combination of the features describes the code marking of so called pottery “recipe” (e.g. D123S).

D – kind of pottery temper

1. – coarse-grained crashed stone
2. – medium-grained crashed stone
3. – fine-grained crashed stone
4. – sand

O – organic temper

S – ceramic temper/ chamotte

K – bone temper

M – shell temper

We have also adopted a method of dividing vessels into morphological groups, types and variants with code markings. Each vessel mass is made up of basic components (A. Buko 1981). Thus, we distinguish different vessel forms: from one-element vessels to more complex ones, e.g. four-element ones (fig. 40), which allows the division into morphological groups of vessels, e.g. pots of types G1, G2, G3, etc. The division is based on a generalised shape of elements a given vessel consists of, which cor-

respond to several geometrical shapes (fig. 41), looking at the vessel from the bottom to its mouth, e.g. 257. A variant is established on the basis of the combination of three features, the height of the maximum elevation of the belly of a vessel (height H3), in which case we consider three positions : at 1/3, 1/2, and 2/3 of the height of a vessel, with code marking respectively : 1, 2, 3 (fig. 31: A, B). The second feature is the degree of the inclination of an edge of a mouth versus the maximum bulge of the belly of a vessel (diameter – R1). It also has three positions : 1– (R1>R4), 2–(R1=R4) and 3–(R1<R4). The third feature refers to the proportions between the components of the upper part of a vessel, above the maximum bulge of the belly (this particularly refers to three-element forms). We have applied the division into three positions : at 1/3, 1/2 and 2/3, with code markings respectively : 1, 2 and 3 (fig. 42). The combinations of markings of the three features gives the description of the type of a vessel in a given morphological group, e.g. group W3 of type 257, variant 232.

Vessel decoration has been classified into three main elements, which form decorative motifs, made with the use of different techniques (fig. 43). The most numerous is the technique of impressing, which has been divided into two groups of motifs, differentiated by morphological features.

**Group I** – made up by, so called, faceted decoration (fig. 44)

**Group II** – motifs of grooves, in sub-groups A (fig. 45, and consecutive pages, fig.47) and B (fig. 46)

**Group III** – decoration made with the technique of engraving (fig. 48)

**Group IV** – moulded elements (fig. 49).

The fact that decoration was placed in different parts of a vessel made it necessary to distinguish several basic zones of their occurrence (fig. 50).

#### 3.4.3.2. Analysis of ceramic material from the settlements

**Settlement C1.** 6439 vessel fragments have undergone analysis, according to the classification of technology suggested above (plates: 24, 26, 27, 28), and decoration (plate 25), as well as vessel forms (plate 29). Consequently, a general classification of forms distinguished at settlement C1 has been made (fig. 69–72).

**Settlement C2.** 7409 vessel fragments have been analysed according to analogous principles as in the case of settlement C1, and referring to technology (plates: 30, 32, 33, 34), decoration (plate 31) and vessel forms (plate 35). Consequently, a general classification of forms distinguished at settlement C2 has been made (fig. 89–91).

**Settlement C3.** 3637 fragments in total have been obtained from the features and the cultural layer of settlement C3. Their description in terms of technology is presented in plates: 36, 38, 39, 40, decoration (plate 36) and morphology (plates 37, 41). After the analysis, a classification of vessel forms from the settlement has been made (fig. 102–103).

**Settlement C4.** An assemblage of 1138 vessel fragments from settlement C4 has been analysed. Its technological-morphological analysis is presented in plates: 42, 44, 45, 46, 47, whereas the analysis of decoration in plate 43. The analysis of forms distinguished at settlement C4 has been made (fig. 107).

#### 3.4.3.3. The comparative analysis of ceramic material from the settlements

A comparison of the obtained results of the analyses from the distinguished settlements has been made. As regards the vessels used at particular settlements, we can observe big similarities (plate 48). There are, however, considerable differences in the particular categories of vessels (in groups F1–F2 and F3), with regard to frequency, so called BF (plates: 49, 50, 51). It seems that the indicator of the number of blackened vessels may result from the differences in the chronology of settlements, where settlements C1 and C2 would be younger than settlements C3 and C4.

An estimation of the frequency of vessel colour has also been made – feature B at particular settlements (plate 52). The comparison of the frequency of different types of decoration at particular settlements has led to the conclusion that the total number of decorated fragments at all settlements is low and amounts to c.a. 3% at settlements C2 and C3, nearly 4% at C1, and over 6% at settlement C4 (plate 53). A general comparison of the percentage of particular decoration groups reveals considerable differences, especially with reference to the frequency of groups I and II. Three settlements, i.e. C1, C2 and C3 have a very similar percentage of motifs from group I (faceted), which constitutes up to 41–45% of the total number of decorated elements. At settlement C4 the percentage is higher – up to 79.5%. At settlements C2, C3 and C4 the percentage of sub-group IIA is consistently lower than of group I. At settlement C4 the percentage of sub-groups IIA and IIB is particularly low. Motifs based on grooves of sub-group IIA dominate over group I only at settlement C1.

The fact seems to indicate the occurring changes in the decoration stylistics. One gets the impression that motifs from group I are a reflection of older stylistics which is gradually replaced by sub-groups IIA and IIB and then finally vanishes on the area of Central Poland, at a later stage of the development of the local Lusatian group of the Urn Field cultural circle. This most certainly happened at the end of period IV and the beginning of V of the Bronze Age. Engraved motifs of group III are rare and range from 2.7% (settlement C4) to 9.5% (settlement C2). Moulded decoration of group IV is more numerous only at settlement C3 (mainly in the form of bumps of form B1/2) and it amounts to 12%. At other settlements it ranges from 5 to 9% of decorated fragments.

To sum up the considerations on the chronology of settlements, based on technological-decoration data, it can be supposed that settlements C3 and C4 are the oldest ones at the site of Zgórze. Settlement C1 seems to be the youngest.

#### 3.4.3.4. The description of the morphological groups of vessels – chronological analysis

##### W-vases

**W2/14/13 (fig. 108: 1)** – so called bi-conical. Only from settlement C1 did we obtain an unquestionably identified vase of this type, completely void of decoration. The vases are generally connected with so called Urad style and dated to period IV of the Bronze Age (HA2–HB1).

**Type W3** – so called squat, are the most common forms at all settlements. Vase faceted decoration of group I and grooves of group IIA are particularly numerous in the group from Central Poland and other east Lusatian groups. Two main types of vases in this group have been distinguished.

**W3/157/231 (fig. 108: 3)** –with the maximum bulging of strongly oval belly at a half of the vessel's height, with a cylindrical neck.

**W3/254/231 (fig. 108: 2)** – due to the state of preservation, the first feature of the type and variant is accepted as the most common one. The squat form is similar to the previous one, but the neck is conical.

**Type W4 (fig. 108: 4)** – four-element squat vases, equipped with a mouth in the form of a flat ruff. The state of preservation of this type of vases, with one exception, makes it impossible to establish whether we deal here with variant W4A, so called amphora one and consequently distinguish their complete forms.

**A-amphorae.** It is the least numerous vessel group, identified at settlements at Zgórze. It has been divided into three types. As regards decoration, all forms are dated to period IV of the Bronze Age.

**A3/147/131 (fig. 109: 1)** –it was unearthed at settlement C1 and is decorated with arch facets, surrounding the bumps.

**A3/157/231 (fig. 109: 2)** –identified on the basis of the size of a vessel and its ornamentation.

**A3/257/132 (fig. 109: 3)** – characterised by a very low position of the bulging of a belly.

**G – pots (fig. 110 and 111)** It is a morphological group of vessels, strongly diversified in terms of form. Most pots have coarse surfaces by throwing and daubing with fingers and a smooth strip above the bottom, which is always flat, gently highlighted.

**Group G2** – two-element pots

**G2/11/31 (fig. 110: 1)** – single (?) specimen similar to a flowerpot with an edge gently bent outwards.

**G2/25/23 ? (fig.110: 2)** – due to the fragmentary state of preservation it is difficult to early determine their type and variant. Most certainly they belong to type 25, variant 23, i.e. barrel-like forms with an edge bent outwards in the form of an eaves.

**Group G3** –include three-element S-shaped pots of several types, with a series of variants. Taking into account the initial form of the base of a vessel, i.e. element 1, we can talk about pots from series 1 and 2.

**Pots from series 1** – made on the basis of the main element no1. They form a rarely distinguished, but very characteristic group.

**G3/153/322 (fig. 110: 3)** – forms with maximum bulging of a belly located at 2/3 of the height of a vessel or higher. The diameter of the mouth equals the maximum diameter of the bulging of a belly (R1=R4). It is a classic form, also described as tulip pots.

**G3/173/323 (fig. 110: 6)** – a single form of a slender pot with minimum modelling – R1=R4.

**Pots from series 2** – distinguished on the basis of the main component no 2 – the most common at all settlements.

**G3/251/222 (fig. 110: 7)** –consists of small, squat vessels with clearly marked squat belly and neck modelling.

**G3/251/332 (fig. 110: 8)** –a single characteristic vessel, squat, with a bulging belly and plastic mould, decorated with irregular, oval impressions of a stamp, located on the neck.

**G3/253/213 (fig. 111: 1)** – a small vessel with squat belly and clearly modelled, narrowed neck and strongly arched mouth with the diameter larger than the maximum bulging of a belly (R1>R4), which is located at ½ of the height of a vessel.

**G3/253/222 (fig. 111: 2)** – the smallest form, strongly S-shaped with a gentle cross-section and smooth surface.

**G3/253/232 (fig.111: 3)** –represented by a tall pot with maximum bulging of a belly at c.a. ½ of the height of a vessel, with R1, R4.

**G3/253/233 (fig. 111: 4, 5)** – forms of maximum diameter of the belly located at c.a. ½ of the height of the vessel, R1<R4.

**G3/253/332 (fig. 111: 6, 7)** – these are mainly storage vessels, but also smaller forms, with maximum bulging of the belly located very high, c.a. 2/3 of the height of a vessel and higher, R1<R4

**G3/256 and G3/257** –these are three-element forms with quite a short, occasionally slightly longer mouth, cylindrically positioned. Due to the fragmentary character of the vessels of this type, it is difficult to determine what variant they belong to. However, their fragments at all settlements at Zgórze have been identified.

**G3/256/232 (fig. 111: 8)** – large forms of storage character with coarse surface and gently rounded belly, maximum bulging of the belly is situated at ½ of the height of a vessel, R1<R4.

**G3/257/232 (fig. 111: 9)** –small and large forms with rough surfaces and distinct taller or shorter cylindrical neck. They were discovered at all sites ; the best preserved specimen comes from settlement C3 (fig. 98: 2).

Decoration of pots is only restricted to the technique of moulding in the form of attached small bumps, positioned just underneath the edge of a mouth.

**K/D –mugs/jugs** – they form a numerous and strongly diversified group at the settlements at Zgórze.

**Groups K1 and K2** – they are rare at the settlements at Zgórze.

**K1/1 (fig. 112: 1)**– one-element form, conical variant.

**K2/57/21 (fig. 112: 2)** two-element form with hemispherical, bottom part and cylindrical, upper part of the belly, no traces of a handle.

**Group K3** – vast majority of the analysed mugs/jugs is characterised by a distinct rounded modelling of the belly. There also types and variants with bi-conical bellies, i.e. steeply modelled.

**K3/147/131 (fig. 112: 3)** –forms with maximum bulging at 1/3 of the height of a vessel with a cylindrical neck and a small bi-conical belly, void of decoration, possibly also a handle.

**K3/147/231 (fig. 112: 4)** forms with a cylindrical neck and a small bi-conical belly. Maximum bulging of the belly is situated at ½ of the height of a vessel, R1<R4.

**K3/149/131 (fig. 112: 5)** –forms with a cylindrical neck, rounded off by a short, turned up mouth and a large handle fixed to the neck. It is worth noticing moulding motifs on the edge of the mug symmetrically arranged on both sides of the handle

(settlement C1) (fig. 57: 2). It is possible that an early model of this type of decoration was a jug from the Łódź phase (III Bronze Age) from the site in Kraków-Nowa Huta (A. Gardawski 1997, plate II: 4).

**K3/153/121 (fig. 112: 6)** – weakly modelled forms with no distinct shaping of the belly, with maximum bulging of the belly at 1/3 of the height of a vessel,  $R1=R4$ .

**K3/153/131 (fig. 112: 7)** – forms with a cylindrical, short mouth turned outwards and a distinct bulging belly. Maximum bulging of the belly at 1/3 of the height of a vessel,  $R1<R4$ .

**K3/253/232? (fig. 112: 8)** – characteristic S-shaped mugs. Maximum bulging of the belly at c.a. 1/2 of the height of a vessel,  $R4>R1$ .

**K3/253/233? (fig. 112: 9)** – S-shaped mugs, maximum bulging of the belly most probably above 2/3 of the height of a vessel, weakly modelled, with little difference between the diameter of the belly and a mouth, no distinct neck.

**C – ladles (fig. 112)** – this type of vessels is scantily represented in the ceramic assemblage from the settlements at Zgórze.

**C1/2/1 (fig. 112: 10)** – hemispherical forms with a small tape-like handle, single specimens unearthed

**C2/29?/21 (fig. 112: 11)** – ladle with hemispherical bottom part and almost cylindrically fitted mouth

**C2/23/21 (fig. 112: 12)** – forms of hemispherical bottom part with maximum bulging of the belly positioned very low and a funnel-shaped neck with a large tape-like handle.

**C3/253/222 (fig. 112: 13)** – a single, S-shaped form with a small bent mouth, rounded belly and concave bottom.

**M-bowls** – there are several main types of bowls with a series of variants, with and without handles.

#### **Group M1**

**M1/1/1 (fig. 113: 1, 2)** – hemispherical bowls, with and without handles.

**M1/2/1 (fig. 113: 3, 4)** – shallow bowls (variant 1), small, sometimes tiny. The fragments may also come from hemispherical ladles.

**M1/2/2 (fig. 113: 5, 6)** – deep bowls (variant 2)

**M1/3/1 (fig. 113: 7)** – gently arch-shaped bowl.

#### **Group M2**

**M2/27/12 (fig. 113: 8)** – single fragments of bowls with hemispherical lower part of the belly and almost cylindrical upper part. They can also be treated as very deep hemispherical bowls.

#### **Group M3**

**M3/143/211 (fig. 113: 9)** – small, shallow forms, with no distinct, pointed (bi-conical) belly,  $R1>R4$ .

**M3/143/221 (fig. 113: 10)** – analogous to the previous one, but with  $R1=R4$ . One specimen has triangular, moulded motifs on the edge.

**M3/151/222 (fig. 113: 11)** – forms with a small squat belly, decorated with diagonal facets from group I,  $R1=R4$ .

**M3/151/312 (fig. 113: 12)** – modelled bowls with maximum bulging of a belly positioned at 2/3 of the height of a vessel and a mouth strongly bent outwards in the form of a ruff,  $R1=R4$

**M3/151/311 (fig. 113: 13, 14)** – variant of the above type with maximum bulging of the belly positioned at c.a. 2/3 of the height of a vessel, characterised by a particularly small bottom, which may indicate that originally the bottom had the form of a small foot or a stem. In the latter case we would deal with the goblet form.

**M3/153/312 (fig. 113: 15)** – small modelled bowl with maximum bulging of the belly at 2/3 of the height of a vessel, small belly and tape-like handle.

**M3/153/322 (fig. 113: 16)** – a single specimen of a very large S-shaped bowl from settlement C1 (fig. 62: 2). Maximum bulging of the small squat belly is positioned above 2/3 of the height of a vessel with the belly diameter reaching 50–60cm and its height over 25cm. The bowl has two tape-like handles, at the top attached below the edge of a mouth and at the bottom on the belly itself. Below its maximum bulging, the belly is coarse with smoothed strip above the bottom, which is slightly highlighted. Bowls and variants of this type are particularly characteristic of the Silesian groups, and occur in early-Lusatian graves from Kietrz at the end of period II of the Bronze Age (M. Gedl 1991, p. 24, table XIV: 12, etc)

**M3/171/212 (fig. 113: 17)** – modelled bowls, characterised by the cylindrical belly, with maximum bulging at 1/2 of the height of a vessel, rounded off by a wide mouth strongly bent outwards in the form of a ruff around the vessel,  $R1>R4$ .

**M3/171/312 (fig. 113: 18)** – forms analogous to the previous ones, but with the cylindrical belly at c.a. 2/3 of the height of a vessel,  $R1>R4$ .

**M3/251/212 (fig. 113: 19)** – small forms with no identified presence of handles. They can be described as goblets. Maximum bulging of the belly positioned at 1/2 of the height of a vessel,  $R1>R4$ .

**M3/251/221 (fig. 113: 20)** – forms analogous to the previous ones,  $R1=R4$ , a very shallow form with a squat belly, decorated with diagonal facets from group I.

**M3/251/312 (fig. 113: 21, 22)** – modelled bowls with maximum bulging of the rounded belly positioned at c.a. 2/3 of the height of a vessel, with a wide mouth strongly bent outwards in the form of a ruff,  $R1>R4$ .

**M3/271/212 (fig. 113: 23)** – bowl, which is a variant of type 171, with a differently shaped bottom part.

**S-sieve-shaped forms.** This type of finds has not been recorded at Zgórze. It quite clearly indicates that such forms were not used everywhere, and they were not always part of standard household utensils at the settlements of the Lusatian culture.

**Storage vessels.** Among the vessels at Zgórze it is worth noticing several specimens with several- dozen-litre capacity. Apart from pot forms we also record vases. Due to a small number of artefacts, it is not possible to establish whether they form any kind of clusters, basing on spatial distribution of the vessels and their fragments on the area of the settlements (fig. 116).

**Vessel forms with a single hole in the bottom.** These are usually fragmentarily preserved vessel bottoms, with one big hole made before firing. There were 14 such specimens at the site at Zgórze (plate 54, fig. 116). Vessels with a single hole in the bottom are recorded on settlement sites, but not very frequently. They are usually connected with the production of wood tar.



**T – plates/clumps.** Only 30 fragments in total have been recorded in all settlements. Although they are very scarce in particular settlements/clusters, it can be concluded that they are more abundant in settlements C3 and C4. Occasionally they are decorated with engravings of group III, as well as holes and piercing.

**FP – Footed Vessel forms** (plate 55). Fragmentarily preserved, these are very rare finds. It cannot be determined what form of vessel they are.

**FS –Special forms-other clay artefacts.** One fragment comes from settlement C3. It has a complex build, so it is difficult to make conclusions about its initial form (fig. 97: 6). The interpretation of a small funnel from feature 1050, settlement C2 (fig. 73: 4) is not definite. It may be fragment of a nozzle or inlet of a casting form, especially as, in our opinion, the artefact bears traces of firing.

#### 3.4.3.5. The analysis of stone artefacts and other finds

The most numerous finds in this category are pestles, grinders and smoothers made of erratic stone. Below we suggest their general and schematic classification (fig. 114). The markings of the distinguished artefacts are as follows: T- pestles, R- grinders, G – smoothers and Ż – quern.

**T/R –pestles/grinders-** these are usually medium-sized erratic stone artefacts (usually described as granite), oval or polygonal in shape. Taking into account the working spots and their number, we have distinguished several variants: single-, bi-, triple- and multi-polar ones (respectively T1, T2, T3 and Tw). Their variant is certainly, so called arched grinder (Rł). We come across a combination of both forms of working surfaces, e.g. in our type T/Rł. Other types of grinders are flat forms (Rp), also described as “bread-like” grinders. These are proto-rotational specimens. Apart from them, there are also spherical grinders (Rk). As regards quern we have flat (Żp) and basin-shaped (Żn) specimens.

Another type of tool is a small oval artefact made of erratic stone, with one surface flat, which makes it similar to a flat grinder. In this case, however, the surface is polished, which may indicate that it is a flat smoother (Gp). Single examples suggest that such smoothers were also connected with pestles, e.g. bi-polar ones (T2/Gp). Specimens, which we called whetstones, or so called sanding plates are single finds on the site. In total 44 specimens of stone tools have been found on the site at Zgórze (plate 56). We have also made a spatial analysis of the tools (fig. 116).

#### Other stone tools

Two unearthed stone tools include: a fragment of a mace head (fig. 115: 2) and a fragment of a hatchet blade (fig. 115: 1)

#### A bronze artefact

Only one bronze artefact has been yielded from the settlement at Zgórze, i.e. punch or a bodkin.

#### 3.4.3.6. The analysis of settlement features and spatial planning of the settlements (Monika Frączzak, Błażej Muzolf)

##### In-ground features (Monika Frączzak)

In order to analyse the features we have used the classification made for the complex of the Lusatian settlements and the Pomeranian one at Grabek, site 12, community of Szczerców (B. Muzolf, 2002). Taking into consideration the form and function of the features we have distinguished: diversified pits, post holes, hearths and clusters of pottery/vessels (plate 57). The most numerous features on the site are various kinds of pits. Basing on the classification by J. Michalski (1983), we can distinguish storage pits (fig. 117–120), which are described in the literature on the subject as household cellars. Consequently, they point to the existence of a homestead, i.e. the basic organisational settlement unit (S. Kadrow 1991, p. 36).

There have been observed traces of potential post holes in the pits. Such features correspond to types VII–XI, after B. Muzolf (2002). A different number of posts and their various location indicates a variety of roof solutions of the pits, usually of shack type, which was more broadly discussed in the case of settlements from Grabek (op.cit., p. 174–177). Most likely this type of pits were mainly of storage character. A distinct type of pits with post holes are sizeable features, which we consider to be the remains of dwelling buildings. These are features 26 and 300 (fig. 122: 4). Another type of features are post holes (fig. 123: 3–6). No additional stone constructions have been observed, which would support the posts. Only two features have been regarded as hearths. One was oval, whereas the other one quadrilateral in shape (fig. 127: 3). There were seven clusters of pottery at Zgórze.

##### Spatial planning of settlements (Błażej Muzolf)

Spatial planning of pre-historic settlements is one of the main issues connected with the reconstruction of inner organisation of a community. This topic has been tackled in a series of works, such as: P. I. Bogucki, R. Grygiel (1981), A. Pelisiak (1985), R. Grygiel (1986), S. Kadrow (1991), B. Muzolf (2002). It has been recently summarised by J. Baron (2005).

Four clusters of the Lusatian culture, features have been recorded at the site at Zgórze. They are identified as separate settlement units, i.e. settlements C1–C4 (fig. 6, 145), which is also supported by spatial distribution (fig. 38). Smaller clusters of features have been recorded at settlements. In our opinion they should, in some cases, be identified with the remains of homesteads, i.e. main unit of spatial organisation of settlements, inhabited by the basic unit of community, i.e. family.

The analysis of features enables us to determine the function of a given cluster, and identifying them as homesteads – cluster of type A, clusters of utility character- cluster of type B. While adopting this classification, it is particularly important that we can distinguish remains of dwelling buildings within the group of type A. It is the basic denominator of clusters of type A. The clusters whose dwelling character cannot be proved may be treated as features with a different functional purpose, e.g. homestead-storage one – of type B.

**Settlement C1** (fig.132). On the explored area of settlement C1, twenty-three clusters have been identified, marked from I to XXIII, to describe their function and size (plate 58).

Following the study of particular clusters of settlement C1, its spatial distribution and character was described. Settlement C1 was located on an oval plan with a centrally located square. The external diameter of the perimeter of all unearthed clusters is 110 × 130m. The central square has diameter of 45–50m. The layout of clusters in the unearthed section indicates that the

settlement was divided into four zones/quarters: NW, NE, SE and SW. Only zones NW and SW were completely explored. The other ones underwent partial exploration.

It is important to notice that both explored zones are characterised by quite different internal planning. Quarter NW consists of nine clusters (Z.II-Z.X), eight of which form a central quarter. They are on the oval plan with diameter of 48 × 34m (proportion 4: 3?). Seven of them (Z.II-Z.VIII) form a circle of clusters which radiate from the oval "central square", with diameter c.a. 13 × 15m, which is occupied by cluster Z.IX. Features of particular clusters usually cover an area of 1.5 ares. Their outline is oval, with the longer diameter of c.a. 13m. What is important, the extensions of the diameters/radiuses of clusters cross at the central point of the "square". Under such circumstances, it can be supposed that during the spatial planning of the zone, the oval was divided into seven allotments for building development with the "central square". The analysis of the character of the clusters indicates that not all of them could have been used as homesteads (max. 9 homesteads/families). It seems that only three certainly had this function (II, III, IV), and two are presumably remains of homesteads (V and VIII), i.e. five families (maximum seven, assuming that Z.VI and VII are also remains of homesteads in their initial stage). The other four clusters (VI, VII, IX and X) are treated as an area of, broadly speaking, utility character of type B. Among those, cluster IX is a classic example of an area of storage character with storage pits, most probably used by all homesteads.

It is far more difficult to analyse the spatial layout of zone/quarter SW, which consists of ten clusters (X-XX), also on the oval plan, with diameter c.a. 63 × 47m (proportion c.a. 4: 3). Its spatial layout is different from quarter NW. It seems that the centre of this zone is an oval (or quadrilateral) square with diameter 28 × 21m and an area of nearly 600sq.metres (588sqm), with approximate proportions 4: 3. On a square like this we have features of group XX, with purely utility function. These are not well determined post constructions and single pits. Around the square there are five clusters of the first circle (XI-XV), which can also be encircled by an oval with diameter of 52 × 38m, proportion 4: 3, and a total area with the central square covering 16 ares. It is essential, that the distribution of features in these clusters is different than in zone NW, if we encircle them with analogous ovals. The previous zone had a radial layout. Here the axes of clusters are parallel to the sides of an oval, or quadrilateral central square (fig. 132). On the outside of the first inner circle of clusters, there are four other clusters, which form an outer circle (XVI-XIX).

The distinguishing of an oval or quadrilateral square in the centre of zone SW enables a further spatial distribution analysis, which would aim at the explanation of how the inner part of the zone was planned. If we draw the diagonals of the square, we can divide the whole area into eight segments which can be treated as single allotments, within I and II circle of clusters. In each designated allotment, we have our basic distinguished clusters.

Also in the case of zone SW, particular clusters have an area of c.a.1.5 ares. However, in some cases (XIII, XVIII) they seem slightly more elongated (features have a more linear layout) with the longer diameter of c.a. 16m. The analysis of particular groups in the zone indicates that not all of them could be used as homesteads (maximum ten homesteads /families). It seems that only four (XII, XIII, XVII and XVIII) were certainly and 2 (XI-XIa, XVI) were presumably the remains of homesteads, i.e. seats of maximum 6 families. The remaining 4 clusters (XIV, XV, XIX and XX-square) are treated as an area of, broadly speaking, utility function. The whole area of the zone/quarter SW covered c.a. 20 ares.

The next zone – SE encompasses only two or three clusters (XXI-XXIII), two of which have only partly been unearthed (XXII-XXIII). The layout of the features in these clusters, especially their diagonals makes us suppose that the whole area of the zone/quarter could have been organised. The last zone-NE most probably contains a fragment (?) of group I. Its layout may link with the layout of clusters from zone SW.

We have concluded that the explored zones consist of only sixteen certain or plausible homesteads, out of twenty-three clusters, which consequently means that we deal with sixteen families. As regards the whole of settlement C1, if we assume an analogous layout of clusters in the zones, situated beyond the area of exploration, we would deal with twenty-four homesteads (5–7 in each zone). Settlement C1 is a permanent settlement.

**Settlement C2** (fig. 133). Settlement C2 was only partly explored, but it can be supposed that a major part (c.a. 60% of its hypothetical area) was unearthed. Within its boundaries there are nineteen major clusters of features- from I-XIX. Five zones of cluster occurrence have been distinguished in the settlement.

The spatial layout was undoubtedly adjusted to landform. Nineteen clusters of features of various size and function have been identified on the site. As the settlement has only partially been explored, it is possible that there are more clusters (10–12) beyond the area of the excavations. In the explored section we have distinguished five zones of the occurrence of feature clusters, which cover a trapezium-shaped area (unearthed section), with the longer axis W-E of c.a. 90m and the shorter N-S of c.a. 70m. The W-E axis may reach the length of c.a. 180m, as there may be further clusters in extensions of zones: I, II and III. Thus, the whole unearthed area of the settlement is 63ares big and its total area may reach c.a. 130ares. Like previously, we are unable to designate the remains of post construction buildings at this site. As a result we look for dwelling functions in a series of pits unearthed in particular clusters.

The centre of the settlement consists of seven clusters, which are considered to be the remains of homesteads from zones I and II (fig. 133). Each cluster/homestead covers an elliptically-shaped area, with the longer axis of c.a. 15–20m and the area of about 1.5ares. Longer axes of clusters I and II from zone I are situated approximately along the line N-S. The longer axis of the whole zone is positioned on the line W-E. The axes of clusters from zone II are arranged in a fan-shaped manner in relation to the longitudinal axis of zone I. Outside the centre extends zone III, in the form of a circle of six clusters (Z.VIII-XIII) around it. The distinguished clusters are different in character from the clusters in zones I and II. The layout of features on the area, occasionally circular, enables a clear-cut designation of the plausible small plots of land/ courtyards, which is utterly impossible in the case of clusters from zones I and II. The largest cluster Z.IX (c.a. 2.5ares) and the smallest one Z.VIII (c.a.1are) have the layout of elliptically-shaped features, with a centrally located post building, or a granary on four posts (Z.IX). A similar layout is observed in Z.XV from zone IV. Clusters from this zone are also diversified by the functions they performed. Clusters Z.X, XI, XII and possibly XIII could be the potential remains of homesteads. Clusters Z.VIII and Z.IX are of utility-storage character. Zone IV in the form of another (incomplete) circle consists of 5 clusters (Z.XIV-XVIII). They are characterised by the ellipti-

cal layout of features and an area similar to the one of the remaining zones, but with a considerably smaller number of features and artefacts. It is worth noticing two clusters in this zone. Cluster XV is similarly arranged to clusters VIII and IX from zone III. An extensive pit feature is located in its centre, and a storage pit (as well as some other features) on its elliptical perimeter. Cluster XVIII has a different character from the other ones, as it consists of two deep pits, which could have been wells or cellars/ice houses. Due to the minimal number of artefacts in features and the cultural layer, we think that zone IV consists of features of utility character, although a different function cannot be completely ruled out (with the exception of Z.XVIII), as it is the case with some clusters from zone III. In the last zone V, only one cluster Z.XIX has been recorded, with analogous form to clusters:VIII, IX and XV. We seek for dwelling functions of clusters (potential homesteads) in extensive pits, which could have played such role. They could also have been part of over-ground buildings. The largest of those covered an area of c.a. 5–11 square metres (plate 61). Not all of them, however, performed a dwelling function, taking into account their inner landform (cross-sections) and a scarce number of artefacts (e.g. 1–3 vessel fragments).

Settlement C2 bears traces of post holes. They usually formed two-post layouts, which could have been a fence-like or drying room construction. Occasionally, such layouts could be linked with the roof construction of particular pits. Also, post holes in a triangular layout have been recorded in Z.III, XV and XVIII. These could be the remains of a drying room or a granary. Only once was triple-linear layout observed in Z.III from zone II, which may be a trace of an over-ground shack-like building, with the area of 18 square metres, as well as a four-post layout in Z.IX, which could have been a granary or a small building 3 × 3m big (9 square metres).

To sum up, determining the function of particular clusters in the zones of this settlement is not easy (plate 61). We are of the opinion, however, that only some of the unearthened clusters should be regarded as homesteads. These are seven clusters from zones I and II (Z.I–VII) and four from zone III (Z.X–XIII). The remaining ones from zone III (Z.VIII–IX), IV and V presumably had a utility function (e.g. Z.XVIII), although a homestead function cannot be completely ruled out.

**Settlement C3.** The area of the settlement is largely destroyed by modern farmsteads (fig. 145). That is why the analysis and description of its separate components is difficult, as its layout must have been disturbed by modern damage. The whole area of the settlement underwent exploration, but it is likely that it extends eastwards beyond the route of the motorway (fig. 134). The settlement consists of ten potential spatial structures, described as feature clusters, marked from I to X.

To sum up the spatial layout of settlement C3, we can conclude that all clusters have an oval form, with the longer axis of c.a. 16–18m and the area of about 1.5ares. No post layout has been recorded in this settlement, which would enable the reconstruction of dwelling buildings of such a construction. Thus we seek for dwelling functions in larger pits of particular clusters.

We assume that the main core of the settlement was formed by eight clusters in a radial arrangement on an oval plan, with diameter of 50–60m, also surrounding the oval square. The whole area of the settlement was c.a. 25–30ares. Among these clusters, we distinguish five which should be treated as the remains of homesteads (Z.I, II, III, IV and VI). We should, however, make one observation, studying this part of the settlement. Due to a large degree of damage of the western part, we cannot rule out the possibility that two other clusters occurred here and we only found single features, which could be part of the potential homesteads Z.IX and X. Cluster V is evidently an area of storage character with storage pits, which would serve for the whole settlement. Taking this into account, the central settlement could have primarily consisted of seven homesteads.

Outside the centre, two other clusters were located. Cluster VIII is probably only partly (?) unearthened and is located at a considerable distance from the other ones. It may be a trace of a solitary homestead, possibly of special function or character of the family it was inhabited by. The last cluster VII, probably also of utility function, is located beyond the central area of the settlement, at the back of clusters I and II. Finally, on the area of settlement C3, eight potential homesteads have been designated and two clusters of utility-storage character.

**Settlement C4.** It is most probably only partially explored and extends beyond the excavation trench (fig. 134). On its area, seven potential clusters have been designated, marked from I–VII. A full description of settlement C4 causes large problems, due to its incomplete exploration and an ambiguous character of particular clusters. As regards spatial layout, it can be assumed that it was planned on an oval, with diameter of c.a. 45/70m (total length hypothetically reconstructed), also with an oval central square 20 × 40m big. There are six or eight unearthened clusters and potentially four beyond the area of exploration, which surround the square with cluster VII. All clusters are oval in shape, with the longer axis of 11–17m. Also in this settlement, no post holes have been recorded, which would enable a reconstruction of dwelling buildings of this construction. We seek for dwelling functions in larger pits of particular clusters.

Among the distinguished clusters, only some are the remains of homesteads (I, III, VI). The other ones are of different character and could only play storage-utility function (II, IV, V and VII). Supposing that most clusters (except for VII) are the remains of hypothetical homesteads, then the settlement would consist of ten (twelve?) homesteads.

#### Summary

All the distinguished settlements are characterised by a planned spatial development. In their inner structure, we distinguish smaller clusters of features, which may have two different functions. These are clusters of type A with a dwelling-homestead function (potentially homesteads proper) and type B, with utility-storage-breeding function. Clusters of type A at all settlements consist of an area of c.a. 1.5ares in the oval shape. In all of the presented settlements, no classic dwelling house of post construction has been recorded. In our opinion extensive in-ground pits are of dwelling character, which may be the remains of buildings partly sunk in the ground. Only in the case of settlement C1, may we deal with potential post buildings, in the area of cluster XV. This observation may indicate a change in the form of dwelling houses of the community in question.

As regards the spatial development of the settlements, we can unequivocally conclude that most of them have a round layout around the main square, e.g. settlements C1, C3, C4. However settlement C1 may have been additionally divided into four zones/quarters (NW, NE, SW, SE) with a different inner planning of each zone. In each one we deal with clusters surrounding smaller, “local” plots of land, but the layout of the clusters themselves is different. Settlement C2 has a different spatial layout,

with no central square, whose place is occupied by centrally located homesteads, which surround in circles the successive clusters of features.

On the basis of the settlements at Zgórze we can distinguish two general categories of settlement. They refer to the settlement's size and the degree of "urbanisation" of the space used. Category I comprises settlements of a considerable size, c.a. 1 hectare and more, with a well-developed spatial structure. It has two variants: A and B, distinguished on the basis of spatial development and the long period of use. Category IA consists of settlements with multiple clusters of features on an oval plan, like settlement C1, whereas category IB- settlements with a circle of features, like settlement C2. Category II consists of oval-shaped settlements, smaller – up to 0.5 hectare, with less developed inner structure and a shorter time of functioning, like in the case of settlement C3 and C4.

The above comparison indicates that at the site of Zgórze we deal with four settlements, based on a different plan, spatial development and size. Their spatial layouts are, to a large extent, adjusted to the landform, but they are also deeply rooted in tradition and result from the inner structure of a given community. Z. Kobyliński broadly discussed the problem, stating as follows: "The distribution of immovable dwelling features within a settlement is particularly relevant because (...) it is bound to reflect a series of essential relationships which in the past functioned in a given social-cultural system. It mainly refers to the bonds connected with family structure, different social and financial status, as well as the social division of labour" (Z. Kobyliński, 1988, p.58).

Spatial layouts of settlements comparable to the ones at Zgórze are not very frequently found in the current publications, especially with regard to the applied method of analysing their spatial development. It seems that it was used for the first time in this form to analyse the complex of settlements at Grabek, site 11, community Szczerców (B. Muzolf, 2002). The same assumption was applied by J. Baron to analyse the settlement at Polwica, but in this case a different, row-shaped spatial layout was revealed (2000), which may describe a new category – IC (line settlements). Over the last few years we have observed a wider use of this method with reference to the successive settlements, e.g. settlement at Bieniędzice, site 4 (B. Muzolf, 2007) or the complex of settlements at Smólsk, site 2/10 (B. Muzolf, 2011). The settlements unearthed there have analogous or very similar spatial layouts to the ones at Zgórze. In the case of Grabek 11, it mainly refers to settlements B and D of circular-oval shape with a central square (B. Muzolf, 2002, fig. 223, p. 341, 363, 367–368 see for further literature).

#### **3.4.3.7. Economic bases of settlements – obtaining food and household, specialised craftwork (Błażej Muzolf)**

The results of archaeobotanical and archaeozoological analyses are the main sources to provide information about the type and method of obtaining food, level of farming and breeding. They are supplemented by the finds of tools, connected with such an activity, which sometimes are the only sources to of information on the subject. As regards the settlement at Zgórze, we are in the possession of quite limited source material. The best explored of those are archaeozoological remains (Annex 1) and anthracological ones (Annex 4). The archaeobotanical results are, unfortunately, scarce and uncertain (Annex 5).

The tools for processing food include only a stone quern, different kinds of grinders and pestles, which point to the processing of corn into flour and groats, which has been discussed in the case of this type of finds.

On the basis of the archaeozoological analysis of bone material and antler obtained from the settlement features, we may observe the occurrence of several taxa of domesticated animals and most probably two wild ones. Unfortunately, because of strong fragmentation of data and their poor state of preservation it is difficult to say anything definite on the subject. According to the authors of the analysis, the assemblage is dominated by cattle remains, which make up 13% of all remains. They are followed by the remains of small ruminants, i.e. sheep/goat (3.96%) and sheep (1 %), which, in total, gives a large number of nearly 5%. The third place is occupied by the remains of pig- 2.5% of the whole assemblage. The remains of a horse (wild or domesticated) make up quite a large group of up to 1.8%. The least numerous finds are taxa of wild animals, which were found only on one site (remains of red deer in the form of antler fragments).

#### **Metallurgy**

There are no explicit traces of metallurgy on the site. However, one clay object from settlement C2 with the form of a small nozzle or funnel to pour metal into a mould could be taken into account (fig. 73: 4).

#### **Lime processing**

During the research of vessel fragments from the Lusatian culture, thick layers of white coating could be observed on the inner surface of single specimens, which were subsequently analysed (Annex 6). The obtained results indicate that we undoubtedly deal with lime, obtained from fragmented bones, which may be proved by a higher amount of phosphorus.

#### **Wood tar processing**

Wood tar has not been recorded on the analysed ceramic material, or on other finds. However, we found vessels with one large hole in the bottom, which was previously described.

#### **Flint processing and the production of stone artefacts.**

At the settlements at Zgórze, flint tools were still in use, apart from the bronze ones. These were very simple forms, made on splintered pieces and flakes, which is more broadly discussed in the chapter devoted to flint sources of the Bronze Age. Stone artefacts can be divided into two categories. The first one includes: quern, grinders, pestles, and a sanding plate. They can be treated as household products. The other category of stone objects includes products like hatchets or mace heads, which were most certainly made by specialist producers.

#### **Pottery**

Technological analysis of the material at Zgórze indicates a great diversity of this production. No kilns were found at the settlements, which means that objects were most certainly fired in bonfires and hearths.

#### **Building**

It is certain that houses were usually built with the use of the post construction. However, at Zgórze the main dwelling buildings were half dug-outs of a different construction. There are no traces of daub lumps after wall pasting (preserved after

a fire). This may indicate that most houses were not pasted with clay, or fires did not occur and not enough daub was preserved to be found in excavations. Apart from houses, there were also many other features, sunk in the ground, most probably with some kind of roof, e.g. shack-like, which are associated with a series of pits with traces of hypothetical posts inside. There was also a number of other post constructions in the form of granaries and drying rooms, which are identified with double, triple or quadruple layouts of post holes.

#### **Other fields of production**

Apart from the above mentioned activities, there were other household occupations, which are not confirmed by material sources, but which must have been performed. There are no spindle whorls, which would indicate spinning, and consequently producing wool. However, breeding sheep has been proved. The same problem refers to weaving, which cannot be confirmed, as there is a lack of weaving weights from workshops, although they must have been used at the settlements at Zgórze.

#### **3.4.3.8. Chronological analysis of the Lusatian culture settlement (Błażej Muzolf)**

It is not an exaggeration to say that a considerable number of vessel forms and their decoration from the period of the Urn Field culture (Lusatian culture) on Polish lands is under the influence of the Trans-Carpathian zone. It may also be the result of the relocation of groups of new settlers. In many cases the influences were transformed by the local environment, but the southern links are still well discernible. It should, therefore, be clearly stated that most of them are not made according to the stylistics of an older local origin, in this case – the Trzciniec culture. That is why we would like to present some of the elements from the territory of Central Poland, which were also recorded at Zgórze, and which are of southern origin. First of all, it is the method of decorating vessels with diagonal facets and grooves of decorative groups I and II. These are predominant decorative motifs in our material, which give vessels special stylistic character and therefore they will be dealt with more closely. The article by M.S Przybyła (2005b) is crucial in this matter. It refers to the area of the Carpathian Basin at the very beginning of the Urn Field cultural circle and in the period preceding it. On the basis of the findings of other researchers and other analogies, it is possible to work out the process of penetration of the previously described decorative motifs and vessel forms to Central Poland from at least two directions. The first one is from Silesia through the Moravian Gate and, so called Kraków sub-group, and the other one through the Beskid passes and the Tarnobrzeg group/culture. At present, it seems that direction from SE, connected with the Beskid passes was prevalent, as regards the material from Central Poland.

At the current stage of research into the decoration with facets, it should be assumed that they arrived north of the Carpathians and reached Central Poland with a small delay. Consequently they are dated to HaA1 (i.e. 2<sup>nd</sup> half of period III of the Bronze Age, more frequently found in HaA2 and HaB1 (IV Bronze Age). That is how the settlements at Zgórze have been also dated, which is proved by 14C dating (plate 64). We may assume that the original decoration stylistics of vessels from the area of Central Poland and the frequent occurrence of vases with a ruff is the result of a direct influence of a group of settlers from trans-Carpathian territories. This would be a reflection of on-going contacts with trans-Carpathian zone, initiated at the time of the Trzciniec culture (B. Muzolf, P. Muzolf 2010).

#### **3.4.3.9. Summary (Błażej Muzolf)**

We have distinguished four complexes of features, chronologically diversified on the excavated area. Their origins are dated to the end of the 2<sup>nd</sup> half of period III of the Bronze Age (HaA1) and period IV of the Bronze Age (HaA2–HaB1). The complexes form two extensive and permanent settlements : C1 and C2, as well as two smaller, temporary ones: C3 and C4.

The presented settlements provide an example that communities of the Lusatian culture built their houses as part of a planned building development. Settlement plans are diversified, usually oval in shape with the centrally located square. Analogous planning was found at other Lusatian culture settlements from the period HaC and D at Grabek, site 12, community Szczerców (B. Muzolf, 2002). Another example of this type is the settlement at Polwica (J. Baron, 2004) or Smólsk, site 2/10, community of Włocławek (B. Muzolf, P. Kittel, P. Muzolf, 2012). As regards more recent works, we should enumerate the study of the settlement at Jarosław, site 158 (S. Czopek, 2014) and the settlement at Targowisko, site 10–12 (J. Górski, 2014). Analogous methods have also been used to analyse spatial development of the Neolithic settlement of the Funnel Beaker culture at Wilkostów, site 23/24 (S. Rzepecki, 2014).

A crucial problem for the site at Zgórze is the confirmed occurrence of several zones of feature clusters, which are identified as four phases of the inhabitation of the area by groups of farmers of the Lusatian culture communities, which formed not one settlement (several hundred ares big), but a few separate ones. The successive formation of four settlements of different size and plan of building development indicates that it was an area conducive to settling by the communities of the Lusatian culture, inhabiting this region. The occurrence of successive settlement phases in almost the same site also means that this could have been one and the same local group of the Lusatian culture settlers (although not necessarily), which occupied the area on a rota basis.

## **4. TRACES OF THE EARLY-MEDIEVAL SETTLEMENT (BŁAŻEJ MUZOLF)**

The early medieval material on the site (cluster D) is represented by only two fragments of a vessel with, so called, cylindrical mouth (fig. 135: 1, 2). The obtained fragments can be dated to the period of 10<sup>th</sup>/11<sup>th</sup> – 12<sup>th</sup> century.

## **5. MODERN SETTLEMENT (BŁAŻEJ MUZOLF)**

The material and modern features form clusters E1 and E2 and they are connected with two homesteads functioning on the area. The neighbourhood of the dwelling and farmstead features is intersected by various dump features, holes after storing harvests in the storage clamps, burials of dead animals and digs after excavating sand.

### 5.1. The analysis of ceramic material

Due to a large number of ceramic material (over 6000 fragments) a method was applied for their analysis, which had previously been created for other assemblages of this type. After some modification we have accepted the division suggested by L. Kajzer (1990, p.11) and used for the study of the material from the manor house at Bąkowa Góra (M. Głosek, 1998, p.36). Several technological vessel groups have been distinguished :

- A – fired in oxidising atmosphere, made of ferruginous clays, strongly thrown
- B – fired in oxidising atmosphere, made of ferruginous clays, thrown
- C – fired in reducing atmosphere, made of ferruginous clays, thrown
- C1 – fired in reducing atmosphere, made of clay washing, thrown
- D – fired in oxidising atmosphere, made of kaolinite clays, thrown
- E – fired in oxidising atmosphere, vessels glazed from the outside (a), inside (b), on both sides (c), with the division into types of clay : E1 – made of ferruginous clays, E2– made of kaolinite clays
- F – fired in oxidising atmosphere, semi-maiolica vessels, with engobe, painted : a- glazed from the outside, b-glazed from the inside, c- glazed on both sides.
- G – fired in oxidising atmosphere, thrown, painted brown and red : G1– made of ferruginous clays, G2– made of kaolinite clays
- H – stoneware vessels
- I – faience vessels (11) vitreous china vessels (12)

A characteristic feature of the assemblage is the fact that 58.4% of vessels were made of kaolinite clays. Vessels made of ferruginous clays, fired in reducing atmosphere, make up 32.7% of the assemblage, whereas the ones fired in oxidising atmosphere – only 8.9%. Rarely do we record vessels glazed on one or on both sides in the assemblage , as they make up only 3.25% of fragments (all technologies : glazed+ semi-maiolica and faience). In this group of objects, vessels made of kaolinite clay prevail. Stoneware vessels (H) make up c.a. 0.23% of the assemblage and they do not play a significant role in the household of the period.

The vessels which are mostly decorated are bowls and plates. Other vessels are weakly decorated or completely void of decoration. Painting brown and red strips, usually on vessels made of kaolinite clay has been recorded on 1.3% of fragments (136: 1, 2, 9, 21). Apart from painting, the vessels are also decorated with engraving, in the form of single grooves around the vessels made of kaolinite clay, as well as on grey clay vessels (fig. 136: 19, 20, 137: 1, 3, 4, 7, 8, 9, 138: 10, 13).

Several main types of vessels have been distinguished in the assemblage :

**Pots** – make up 88% of the assemblage, with handles – 92.1%. These are usually short and squat, wide-brimmed vessels, with the mouth strongly bent outwards, with no traces of a lid (fig. 136: 2, 19, 21; 137: 3, 4, 9, 10, 11; 138: 9, 10; 139: 6). On the site, this type of vessels was equipped with one wide tape-like handle. It is worth noticing that all vessels were thin-walled.

**Jugs** –make up 1.1% of fragments. They were made of kaolinite clays (fig.138: 2) and ferruginous clay washing, fired in reducing atmosphere (fig. 139: 3). One form similar to a pot may be treated as a jug, with a handle clearly pulled upwards (fig. 137: 11). The same refers to one fragment decorated on the outside with the semi-maiolica technique (fig. 138: 22).

**Makutra / bowls** – make up 2.3% of the assemblage. They were made of kaolinite clays (fig. 136: 5, 21; 137: 1; 139: 2, 138: 3). A common feature of such vessels is the way of decorating the mouth with wavy ribbons painted brown (red) (fig. 136: 21) or segmental strips, supplemented by additional patches, painted around the belly.

Feature 947 has yielded a fragmentarily preserved bowl of a different kind, fired in reducing atmosphere, painted inside, designed as crockery (fig. 136: 26).

**Plates** – make up 3.2% of fragments. This is crockery , painted and glazed, e.g. in the type of semi-maiolica, or in the faience-like technique . Among those we can distinguish forms with cross-like mouth (fig. 136: 15, 17; 138: 1, 5–7, 11, 12), as well as those with a hemispherical cup and no ruff, which may be included in the group of small, shallow bowls (fig.136: 4). What is characteristic, this type of plates and bowls usually has a bottom formed as a ring-like base, with two or three holes on the edge. Usually these forms are made of clay washing, ferruginous and kaolinite clays, and they are glazed inside (green or yellow-brown). Plates are also made with the technique of semi-maiolica, where a surface of a vessel has white engobe base, and then is painted with floral or geometrical motifs (fig.136: 15, 17; 138: 1, 11, 12, 21, 24, 25). Thus prepared surface was subsequently covered with transparent glazing and fired.

**Vessels on a foot / frying pans** – this group makes up only 0.6% of fragments. These are small vessels, with a low-positioned belly, equipped with a short mouth with no rim (fig.137: 2; 138: 18, 19; 139: 5). All of them must have had a cornet-like handle (fig. 136: 15; 137: 2; 138: 18). The inner glazing is very rarely found among the obtained fragments and it is usually green in colour. This type of vessels was made of ferruginous clays, fired in reducing atmosphere. They were also made of kaolinite clays.

**Lids** –make up 0.8% of fragments of the assemblage. They were made of ferruginous clays, including, so called, grey-clayed vessels and kaolinite clays. Three very similar specimens made with this technology, fired in reducing atmosphere, are characterised by a flat, conical bell , a small button-like handle (fig. 126: 22–24) and a slightly bent edge (fig.138: 15). It is possible that a fragment of a flat object with an unattached handle (probably in its central part) with stamp decoration on the surface and “coulter-like” decoration motif, was also used as a lid of a large vessel or barrel. It was made of ferruginous clays and fired to reach red colour (fig. 139: 4).

**Vitreous chinaware /faience.** In many features and the cultural layer we found vessel fragments made of vitreous chinaware and faience. Feature 1153 (are H95) has yielded fragments of a flat plate with a company stamp : A. FREUDENREICH \*1842. In other features vitreous china objects were found with the factory stamp from Włocławek.

Some fragments considered as “faience” are pieces of small bowls-plates, usually white. There are also bowls/plates painted in colourful floral patterns. Usually, they are made of kaolinite clays and glazed on the inner side.

**Stoneware.** There are only very few fragments of such objects with brown colour of the external surface. They came from traditional vessels of mortar or barrel-like form.

The presented materials should be dated to the 19<sup>th</sup> and 20<sup>th</sup> cent. due to their advanced manufacturing, character and co-occurrence with faience vessels and vitreous chinaware.

## 5.2. Other finds

### Vessel glass

Feature 1220 has yielded a neck of a hand-made flask, made of greenish glass, with numerous small air bubbles and a stamp (fig. 139: 1). Other finds include not very characteristic fragments of vessel glass, also from bottles of green colour. Another object is a juice-maker made of transparent glass (imitating crystal), which is still in use in today's households.

### Pipe

A layer from are H75 has yielded a shank of a smoking clay pipe made of clay (kaolinite?) washing, fired in reducing atmosphere, dated to the turn of the 18<sup>th</sup> and 19<sup>th</sup> cent. (fig.140).

### Metal objects

Copper coins unearthed in cluster E2 (fig.4) include a solidus of John II Casimir Vasa from 17<sup>th</sup> century, struck in a Lithuanian mint (fig. 141: 1), one groschen (in Polish – *grosz*) of the Duchy of Warsaw from 1811 (fig. 141: 2) and a ten groschen of the Congress Poland (The Kingdom of Poland) from 1840 (fig. 141: 3).

It is worth noticing hunting equipment unearthed in feature 881/J16. This is a set of metal objects and over a dozen sabots of paper cartridge. The first one is “tongs- handheld extruder” used for placing a percussion cap in a hunting cartridge case (fig. 142: 1, 2). One of the arms of the tongs bears number 16. As it turns out, it denotes the calibre of the cartridge and the gun (rifle), which is additionally confirmed by the marking on the base of the fitting of the sabot (fig. 142: 7).

Other components of the set include : a tool for loading gunpowder and percussion cap into a cartridge case to close it up (fig. 142: 3), a fragmentarily preserved tool to measure gunpowder, with the scale from 100 to 140 on a runner with curves (fig. 142: 4). Analogous “measure” is currently used by hunters, which is proved by two other contemporary objects (fig. 142: 5, 6). The whole set is supplemented by metal fittings of paper cartridge . (Łowiectwo 1989, p.467) with the percussion cap (fig. 142: 7). They have an inscription in the Cyrillic : СЕЛІІЕ И БЕЛІО 16. The character of the find is difficult to determine. It seems that the incident (hiding or throwing away weapon) could have been connected with a life-threatening situation (uprising from 1863, World War I and II). It is also possible, however, that the hunting equipment was hidden by an ordinary poacher.

The only decorated object in the assemblage is a copper plate, probably part of a fitting (fig. 143).

A different type of find is, so called “flint”(for a flintlock mechanism) (fig. 144) probably from the 19<sup>th</sup> cent., although they were also in use earlier.

Other military objects have also been found. They include cartridge case from the Polish factory of Norblin, most certainly from 1930, coming from a bullet used in Mauser type of guns. Moreover, a “middle-sized” button from an army jacket has been found. It was galvanized, introduced to the army outfit in the early 1930–s of the 20<sup>th</sup> century. Both finds can be theoretically linked with the fights from September 1939, which can also be proved by the cast-iron fragments of artillery missiles and the unearthed traces of bomb craters.

## 5.3. Summary of modern settlement

The obtained modern material mainly comes from the clusters in layers and in-ground features connected with two modern homesteads. One of them –from cluster E1 was still destroyed during the excavations, and the other one E2 was only unearthed during current works (fig.6).

The obtained artefacts should definitely be dated to the 19<sup>th</sup> and 20<sup>th</sup> cent. Thus, it can be supposed that the “explored” homesteads were founded on the area no earlier than in the 19<sup>th</sup> cent. It is possible that the homestead from cluster E2 could have been set up at the turn of the 18<sup>th</sup> and 19<sup>th</sup> cent. or at the beginning of the 19<sup>th</sup> cent.

ANEKSY

APPENDICES



