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Corded Ware culture at Zagórze in the Middle Beskid (Polish Western Carpathians)

ABSTRACT

In 2012, series of archaeological rescue excavations were carried out at Zagórze, due to the construction of the Świnna Poręba retention reservoir on the Skawa river in Wadowice district (Lesser Poland voivodeship). During this research, in one of the excavated sites – no. 8 – a flint tool was discovered below the top of the slope in the diluvial cover, in the secondary position. The preliminary analysis showed that it is a so-called flame knife, characteristic tool of the Corded Ware culture. Sometime later, feature no. 894 was discovered, located approximately 35 meters from the aforementioned flame knife, at the top of the slope. Five fragments of pottery were found in this feature. Four of them have been classified as fragments of CWC ceramics, including fragments of a beaker and an amphora. On the basis of these finds, as well as comparisons to other sites, two hypotheses were formulated regarding the nature of the discovered feature: a flat grave or a feature of a settlement character.

The aim of this paper is to present a comprehensive analysis (including use-wear analysis of the flame knife) and interpretation of these discovered finds.

KEYWORDS

Corded Ware culture, flame knife, use-wear analysis



I. INTRODUCTION

The water reservoir at Świnna Poręba, distr. Wadowice (N 49°49'25.9" E 19°31'56.94") – has been carried out on the border of the Middle and Small Beskids Mountains. A water dam is to be built on the Skawa river below the gorge of the river between the mountain ranges (Fig. 1). Due to the execution of the project, several archaeological sites are threatened with destruction. One of them is situated at Zagórze, distr. Wadowice, site 8 (Fig. 2).

The site has a multicultural character. The Late Palaeolithic Swiderian culture assemblage represent the oldest occupation phase here. Some Mesolithic pieces, Lusatian culture, Roman Period and late Medieval Ages are represented at this site as well. The material of the CWC concentrated not only in the one place of the site, but never have been noted at the others sites of this part of Skawa river valley. The site no 8 is placed on the large promontory exposed between Skawa river and its right tributary Łękawka. In this paper, the remains of the Corded Ware culture (CWC) discovered at this site are presented, as discovery is exceptional character.

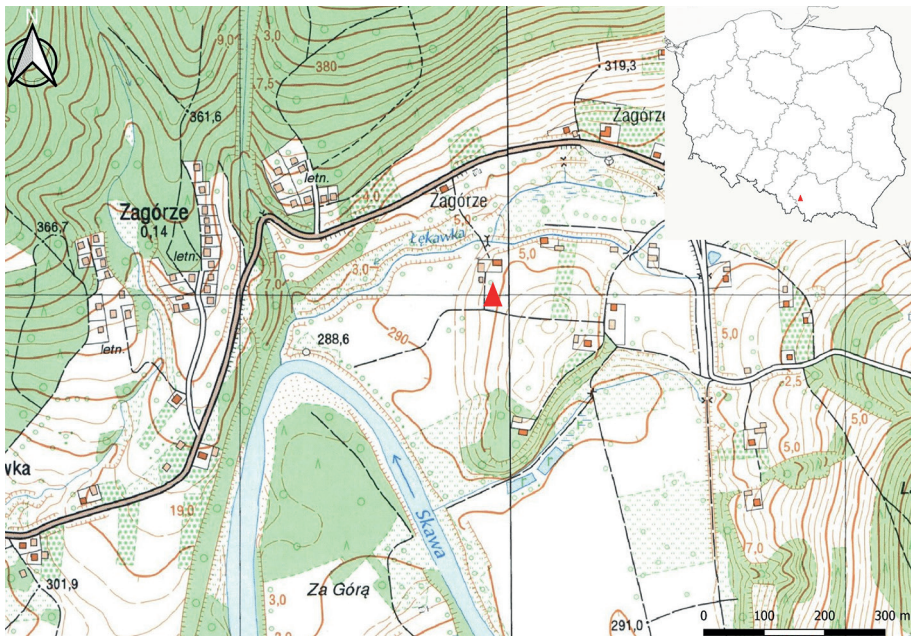


FIG. 1. Topographic map before the construction of the water reservoir. The red triangle shows the location of the Zagórze site 8



FIG. 2. Zagórze site 8, view on the excavated area. The red arrow indicates the location of the feature no. 894 (photo by P. Valde-Nowak)

II. HISTORY OF RESEARCH

The area of the water reservoir of the Skawa river that was under construction and located in the Polish Western Beskid Mountains, has already been the concern of archaeologists since the '70s. The first archaeological survey was led in this area by Paweł Valde-Nowak penetrating the left bank of the Skawa river, between Skawce and Wadowice. The results revealed the discovery of a small chip of a Cracow Jurassic flint with Mesolithic characteristics. This work was continued into the spring of the next year together with J. Rydlewski (Rydlewski, Valde-Nowak 1979). Other Mesolithic materials were discovered on the southwest slope of the Upalisko Mount (442 m above sea level) in Mucharz. Also, the small scale excavations by Marek Gedl in 1960s in Dabówka should be mentioned.

Field survey have been conducted in this microregion in the frame of the project Archaeological Picture of Poland (AZP), in AZP sheets no.: 107-52 and no. 107-53. The 1986 surveys were led by Eugeniusz and Edelgarda M. Foltyn (Foltyn, Foltyn 1986) and in 1987 by Jacek Rydlewski (Rydlewski 1987).

Surface collecting was led by Teresa Kosmala in 1990 (Kosmala *et al.* 1990). As a result of all the superficial surveys conducted until the end of June 1993, the next 25 archaeological sites were discovered in the area of the water reservoir that remained under construction and a dozen flint artefacts were found. In the course of following archaeological procedures, a portion of these sites was negatively verified, and another part of them was designed to direct excavating works.

In 2012, as a part of the construction of the Świnna Poręba retention reservoir on the Skawa river in Wadowice district (Lesser Poland voivodeship), a series of archaeological rescue excavations were carried out under director Paweł Micyk.

III. CIRCUMSTANCES OF DISCOVERY, METHODS OF FIELDWORK

In the year 2012, in the north-eastern, peripheral part of the site on the long slope, after removing the topsoil, flint artefact was found in the diluvial cover, in the secondary position. The morphological and typological analysis allowed us to recognize this tool as a so-called flame knife. This kind of tools are known from CWC contexts (Valde-Nowak 2000; 2019), therefore it was assumed that this part of the site could be used by the people of this culture. The assumptions have been confirmed by discovered during this same excavation season of feature no. 894, 35 meters above the flint artefact (Fig. 3), where two pieces of pottery with a herringbone ornament have been collected. It seems that this flame knife should be connected with the object due to its location on the erosive axis of this slope.

IV. DESCRIPTION OF THE FINDS

On are no. 62/12, an irregularly octal outline feature no. 894 was distinguished (dimensions: length approx. 375 cm, width approx. 130 cm, depth approx. 70 cm; Fig. 3). After removing the 10 cm layer, the northern part of the object split off and received the number 894a. The longitudinal cross-section showed that these two parts were connected by a pale brown streak (Fig. 4). Detailed description as well as cultural inventory is presented below separately to the feature 894 and distinguished smaller one – 894a.

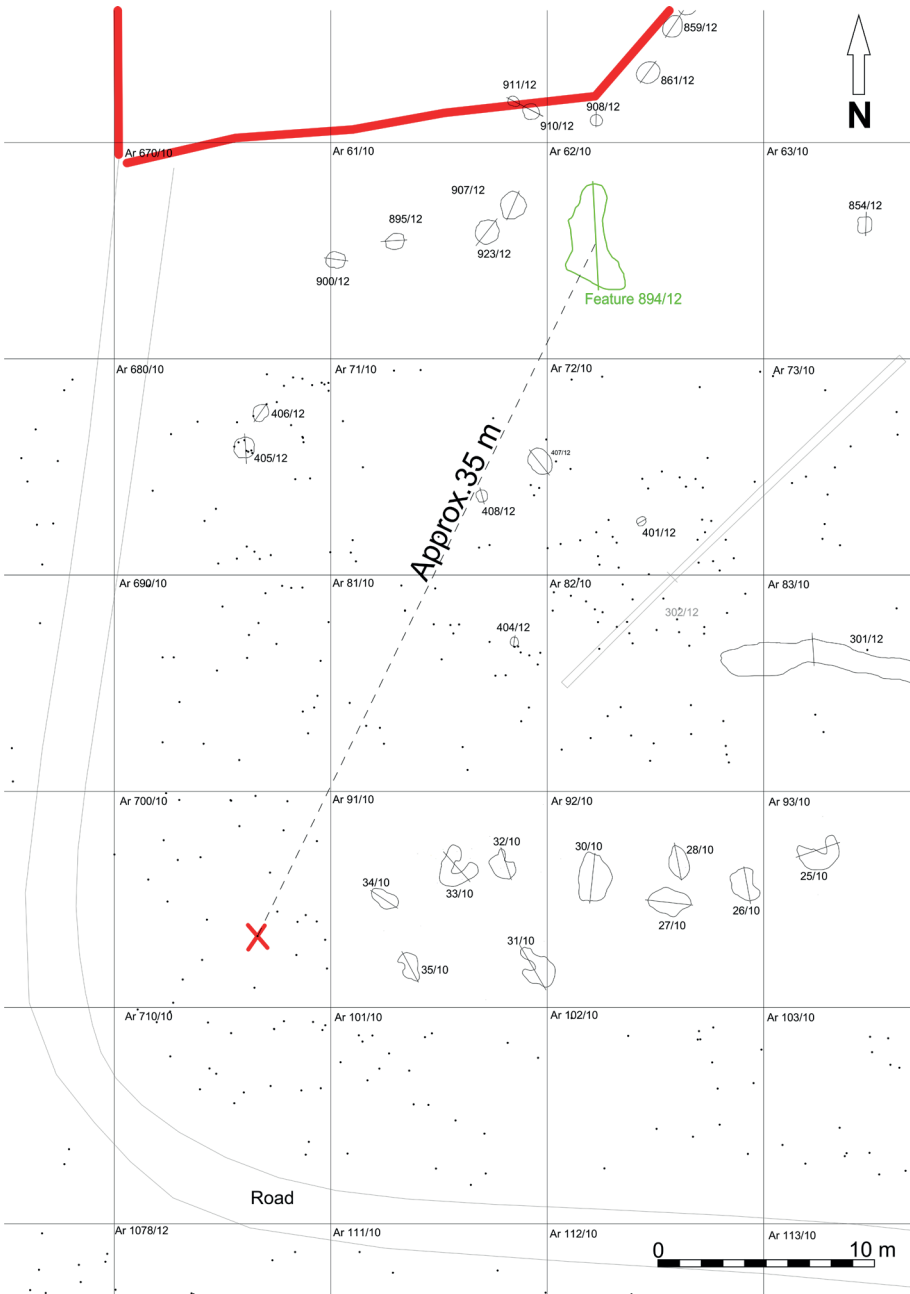


FIG. 3. Zagórze site 8, planigraphy of the excavated area. The red cross indicates the location of discovery of the flame knife (drawn by P. Micyk)

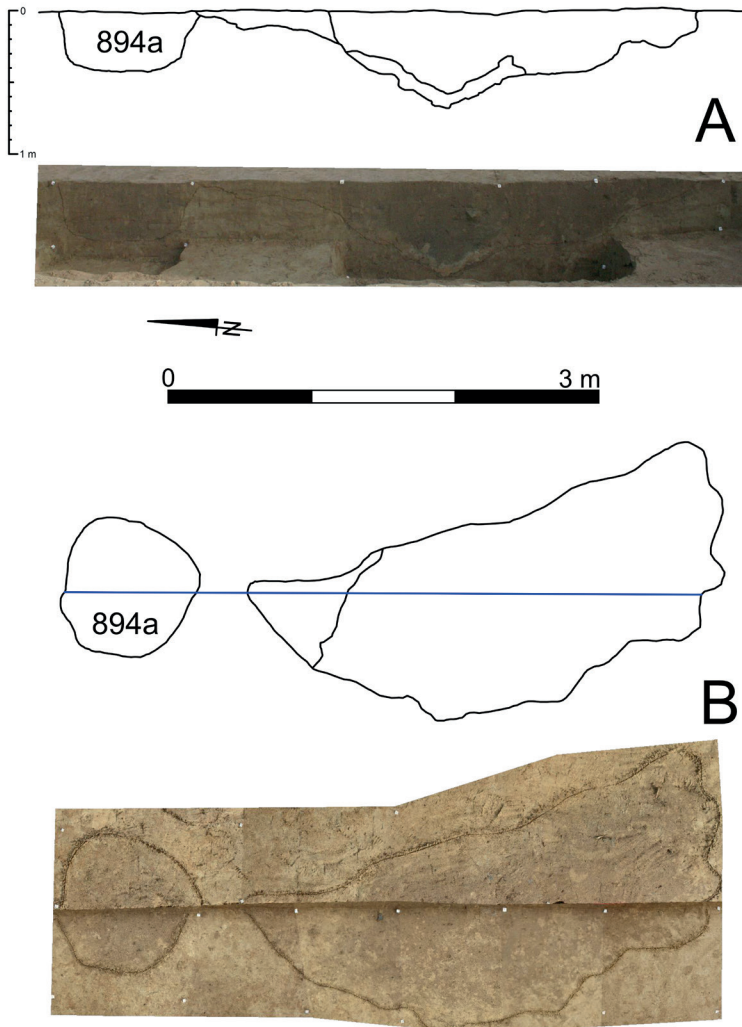


FIG. 4. Zagórze site 8, feature no 894. A – drawing and photo of the feature section; B – drawing and photo of the feature plan at the level of 10 cm (drawn and photographed by P. Micyk)

The feature 894

Is irregular in shape. Dimensions: length approx. 250 cm, width approx. 130 cm, depth approx. 70 cm. The colour of the fill ranges from intensely dark brown to brownish-black. Cultural inventory: five pieces of pottery were found in the

feature in question. Four of them have been classified as CWC pottery fragments. The last one should be considered as a secondary insertion (see below) and will not be associated with the find discussed in this article. In addition to these 5 pieces of pottery, 20 pieces of clay lump also come from this feature.

The first one is the medium-walled piece (9 mm of thickness) with admixture of crushed ceramics (Fig. 5: 2). An ornament in the form of a horizontal stripe of herringbone was noted. The outer surface is brick-red, the inner surface is grey, one-color dark breakthrough. The second piece is a neck fragment with sharp edge cut from the inside. An ornament in the form of a horizontal stripe of herringbone was also noted (decoration width 39 mm). The outer surface is brick-red, covered with a horizontal herringbone ornament (decoration width 39 mm, continuous pattern). The neck was broken off at the point where the tapes were joined – at the transition to the belly.

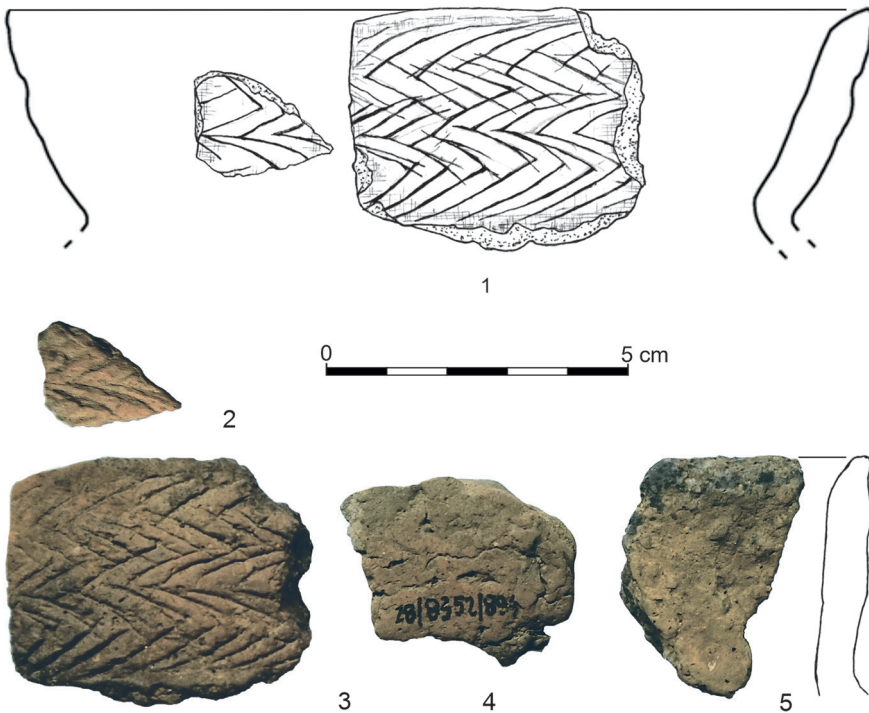


FIG. 5. The CWC ceramic fragments from Zagórze site 8. 1 – reconstruction of two fragments of beaker with herringbone ornament; 2, 3 – photos of these two fragments of beaker with herringbone ornament; 4 – unidentified pottery fragment; 5 – neck fragment of the amphora (drawn and photographed by J. Chowaniak)

The inner surface is grey, single-color, dark breakthrough. An admixture of crushed ceramics is visible. The wall thickness is 9 mm, the outlet is 13-14 mm (Fig. 5: 3). Described above two fragments with an ornament in the form of a horizontal stripe of herringbone are technologically homogenous and probably came from the same vessel, in this case from a beaker (Fig. 5: 1). The third piece of pottery is an unidentified, poorly fired fragment (Fig. 5: 4). The fourth is a neck fragment of an amphora, with coarse grains of sand visible in the ceramic mass (Fig. 5: 5). The last one is a fragment of ceramic with completely different characteristics: fragment of a thin-walled vessel (thickness less than 5 mm) with a smooth dark outer and inner surface, clay with an admixture of sand grains, probably a secondary deposit of material from the Lusatian culture.

The feature 894a

The approximately circular shape, light brown colour filling. Dimensions: diameter 85 cm, depth 45 cm. No artifacts were found in this part.

Flame knife

The flame knife was prepared on a blade from a double platform core (dimensions 82×33×9 mm). The used raw material is Cracow Jurassic flint. Mainly triangular in cross-section, curved in the longitudinal section. Facetted butt of 5 mm of thickness was noted. Negatives of remove overhangs from core (abrasion – technical preparation) on dorsal face were observed. Sharp angle of flaking between butt and dorsal face and flat bulb with scar indicates direct percussion technic with a soft hammer. The convex right side has been shaped by a regular, fine, monoserially, semi-abrupt retouch on the dorsal face. More interesting seems to be the left side, where one negative of burin spall was noted. The negative covers half of the edge, removing the previously retouched edge of the side. A part of this retouch is still observed in the proximal part of this side (Fig. 6).

Use-Wear Analysis

The knife has been examined by the use-wear method of analysis. This method is used to determine the function of prehistoric tools by identifying and interpreting traces produced on the prehistoric tools as a result of their use.

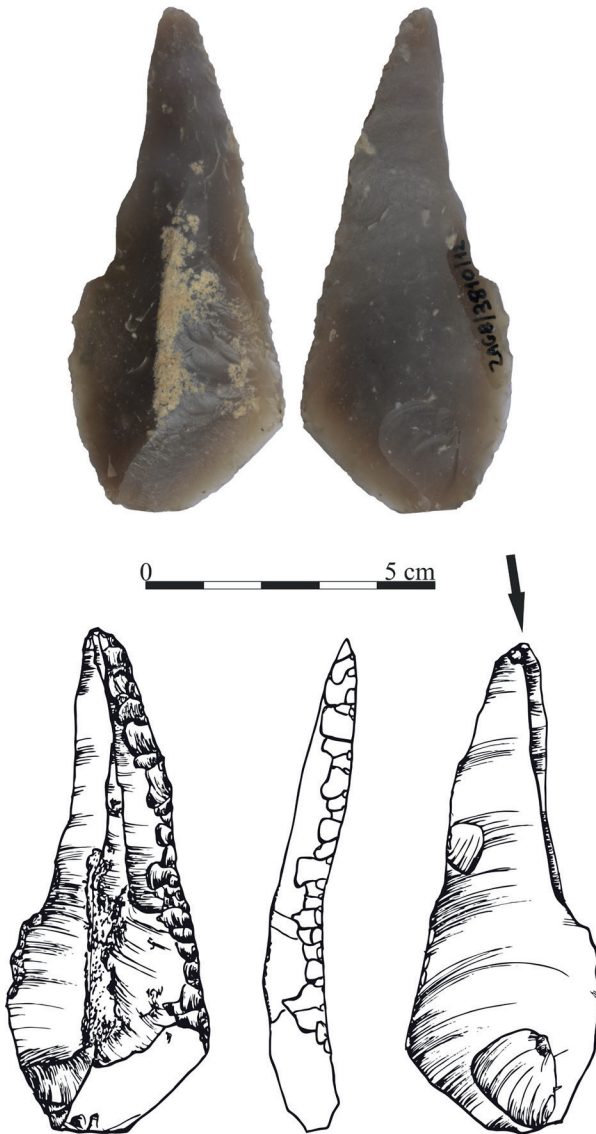


FIG. 6. The flame knife discovered at Zagórze site 8 (photo by J. Skłucki, drawing by Anna Kraszewska)

The use-wear analysis also includes analysis of traces generated by other factors than the work of these tools, such as land reclamation or transport (Semenov 1964; Keeley 1980; Korobkova 1999).

Microscopic observations were conducted in both low power approach and high power approach. At the stage of defining the working edge and the types of abrasions, a stereoscopic microscope Motic has been used. Leica Wet-zlar 12 metallographic microscope was used to determine the nature of the micro traces such as polish and linear traces. Documentary pictures were taken by the Canon 650d camera connected to the metallographic microscope. Before the analysis, the tool was cleaned with warm water with detergent and acetone to remove greasy spots. The analysis revealed traces of use. Along the right side on both faces of the knife greasy, domed polish in the form of a band of medium degree of intrusion was noted (Fig. 7A) as well as linear traces parallel to the edge (Fig. 7B). Moreover, a rounded working edge was observed. These kinds of traces are suggesting that the examined object was used as a knife to processing of a soft kind of material, probably a hide. The lack of utility retouch or crashes on the edge support this conclusion. On the tip of the knife similar traces to these on the right side were observed, however, linear traces aren't parallel to the edge but to the main axis of the knife. Also, a few scalar negatives were noted on the tip. It is also worth paying some attention to the large negative of the burin spall that forms the left side of the artefact. Its origin is unclear. It is possible a deliberate treatment or an impact caused by using this tool. At this point, it is necessary to ask what the purpose of this treatment would be if it was intentional and whether the impact could cause such a large burin spall (the negative reaches from the tip to half the artefact). The planned experimental research should bring us closer to determining the causes of formation of this negative. It is worth mentioning, however, that no traces of use-wear were observed on the left edge, which, combined with these scalars negatives on the tip, may suggest a formed this negative as a result of direct impact. On the dorsal ridges, a polish was noted, which could be interpreted as traces of haft (Rots 2002).

V. DISCUSSION

The problematic matter is the interpretation of the finds discovered at the Zagórze, site 8. Similar feature in shape to the octal feature no. 894 from Zagórze was discovered at settlement site Lubiša-Merava no. 2 in the Lubiška river basin (southeastern border of the Ondava Upland, eastern Slovakia), where it was interpreted as a dwelling structure (Valde-Nowak 2001, 70–72, 79).

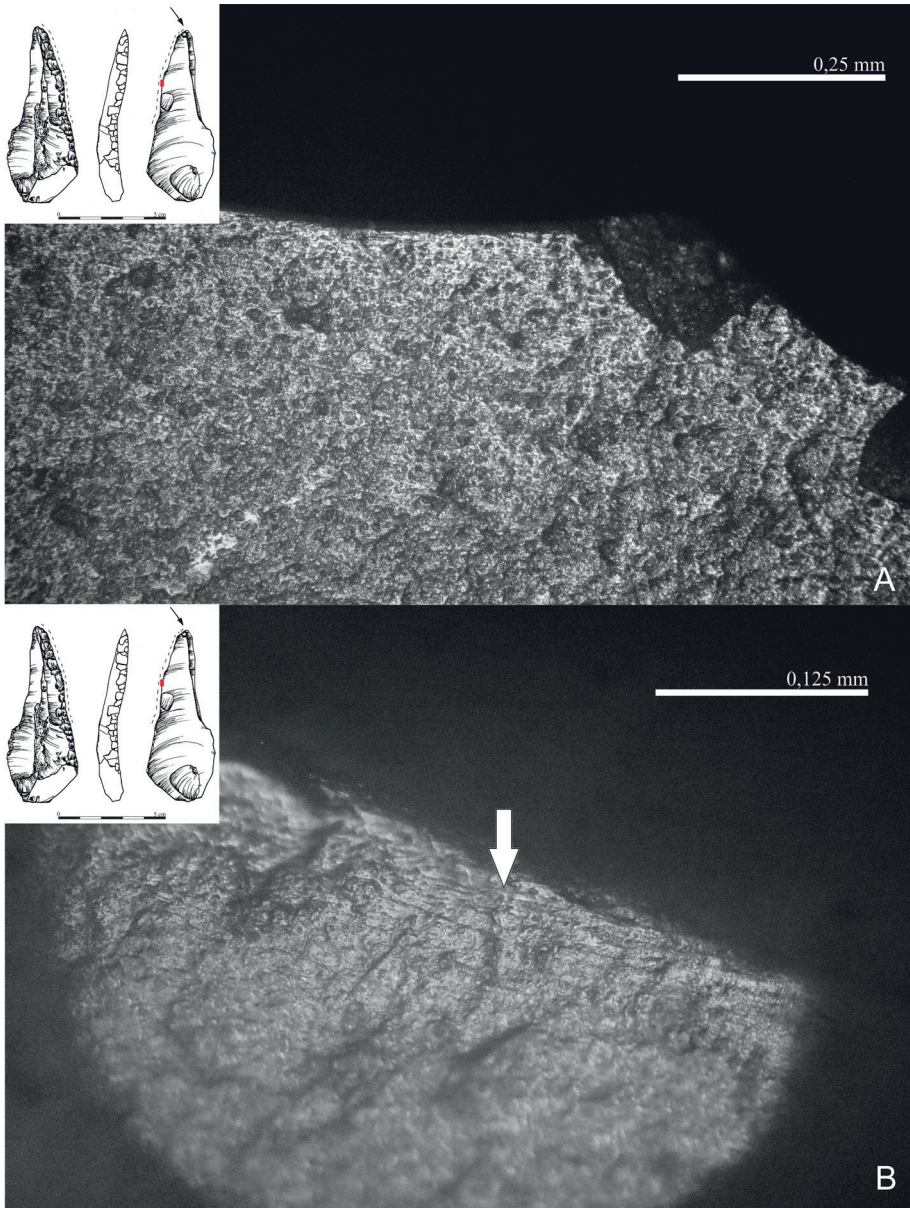


FIG. 7. Microtraces of use on the flame knife discovered at Zagórze site 8. (B) The white arrow indicates linear traces parallel to the working edge (photos by J. Skłucki, drawing by Anna Kraszewska)

Interestingly, on the other side of the same basin of the Lubiška river, a fragment of a beaker with a herringbone ornament was discovered in a settlement context with an alleged traces of a hut construction (Valde-Nowak, Strakošová 2001, 61–62, Fig. 8: 1). Also, similar-looking CWC piece of ceramic was discovered at Side near Sambor during the Polish-Ukrainian archaeological research conducted in 1996 (Machnik *et al.* 2007, 14). The outer surface is covered with a herringbone ornament in a horizontal pattern – three horizontal lines (cf. J. Machnik *et al.* 2007, Fig. 7: c). It is worth noting that, as in the case of the site no 8 at Zagórze, also the settlement traces of the CWC at Side are located in the upper parts of the slope humps and hills. The Side position is located approximately 370 m above sea level (Machnik *et al.* 2007, Fig. 17). At a similar altitude to the sea level, the CWC feature and artefacts were located at Zagórze site 8 – 299 m above sea level. The CWC settlement (camp?) located at Side is placed approx. 336 km from the CWC finds from the Świnna Poręba reservoir area. Along the way, at 122 km, there is another site – Tarnów site 98, where a similar pottery fragment was also found (Włodarczak 2011).

The flame knives, for the very first time, were recognized, described in details and named by P. Valde-Nowak in the book: *A Turning of Ages. Jubilee Book Dedicated to Professor Jan Machnik on His 70th Anniversary* (2000) as well as in later paper (2019). Several main patterns of these knives have been distinguished, like asymmetrical shape (conchoidal), one edge slightly convex from the middle length, the other slightly concave or maximum width in the proximal part (for more see Valde-Nowak 2019, 259). These knives were prepared on, most of all, very good quality flint, e.g. Świeciechów, chocolate, Jurassic or brown Saxon flint (Valde-Nowak 2000, 473). They have been found at many sites in Poland. The model example that strictly meets the definition comes from the Złota culture cemetery in Złota, grave no. 19 (Krzak 1961, 58–59, fig. 55b). The very interesting one was found in Kietrz, where in one of the graves a flame knife was lying next to the hipbone with a bone object that was adjacent to this knife. Probably the bone piece was a handle of this knife (Chochorowski 1976, 128). Other examples can be two flame knives from cemeteries in Szczytina – site 5 and 6 (Pelisiak 2017), as well as another two of the cemeteries in Świąte – site 11 (Olszewski, Włodarczak 2018, 35) and 15 (Janczewski *et al.* 2018, 123). They are also known from graves of Kraków-Sandomierz CWC group, e.g. Zielona site 3, grave 3/4-6 and 34, Malice-Kościelne site 1, grave 24/5, Bronocice site 1, grave 11/10 or Żuków, grave 3/3 (Włodarczak 2006, 269, 281, 305, 333). Flame knives are known not only from flat cemeteries but also from barrows. An example may be two flame knives discovered in

the mound of the barrow at Niepla (Gancarski, Valde-Nowak 2011, 281, fig. 5). The context of finding these knives may indicate their multifunctional, not necessarily only military, nature of the grave inventory. The use-wear analysis carried out shows that these tools were not only grave gifts, but were also used during the owner's lifetime as knives for cutting soft material, most likely hide. Unfortunately, only a few solid CWC assemblages were analyzed in this way. These are mainly funerary assemblages of such sites as Koniusza (Drobniewicz 1979), Zielona site 3 (Winiarska-Kabacińska 2007; 2008), Dąbrowa Biskupia site 21 (Budziszewski *et al.* 2008), Magnice site 8 (Kufel-Diakowska 2011), Nieborowa site 1 (Boroń, Winiarska-Kabacińska 2014), Wilczyce site 10 (Włodarczak *et al.* 2016) and Ulów sites 3 and 4 (Pyżewicz 2017). However, so far only four examples of flame knives were examined in relation to the use-wear analysis. Three of them come from Zielona site 3. They were found in the very rich grave no. 3 (Winiarska-Kabacińska 2007, 169–171, ryc. 3/2, 4, 29). These examples show the variability within this category of tools, sometimes significantly different from the “ideal type” (e.g. Złota), but always with some traces of the original concept. Use-wear analysis showed that each knife was used to cut different raw materials of different hardness, including hide (Winiarska-Kabacińska 2007). Likewise, some traces of use-wear were observed on the specimen from Magnice site 8, where recognized traces of plant or hide cutting (Kufel-Diakowska 2011, 175). On all four knives as well as on this from Zagórze, traces of haft were observed. Some analogies of the way of hafting such tools can be found at CWC sites of the Alpine zone, e.g. Montilier or Portalban (Anderson *et al.* 1992, 60). The recorded traces of hafting on the specimen from Zagórze suggest that it was hafted in similar way. Good quality retouch of the right side probably re-sharpen the working edge of this knife. This indicates the long use of this type of tools, and hence its importance for the CWC population, especially since they were put into the grave as a gift.

However, there is another possibility of interpreting the discovery made at Zagórze site 8, far from indicating that it is a relic of the camp. As we know, both fragments of pottery with a herringbone ornament, probably from a large beaker and possibly neck fragment of an amphora, as well as a flame knife fit more into the grave equipment than in the camp inventory. A horizontal herringbone pattern, made with corded prints, can be found on the neck of the vessel from the grave 782A from Modlnica, site 5 (Włodarczak *et al.* 2011, 299, 381 Tabl. 32). It is not difficult to find similarly ornamented vessels in a wider range, e.g. in materials from Silesia (Machnik 1979, 356, Fig. 217: 3) or Pomerania (Machnik 1979, 363, Fig. 221: 5) in both cases considered

as marking the older phase of settlement of the culture, we are interested in. This can be a useful hint important for the chronology of finds from Zagórze. In this context, it is worth looking at the arrangement of two adjacent features 894 and 894a as a whole, and consider the possibility of treating this arrangement as a remnant of a grave with an introductory niche. Considerations can be started by reminding that the niche graves of the people of the CWC were constructed in the loess substrate, which made it possible. The position in Zagórze is within the range of the so-called Mucharz clay deposit, collected at the core of the dam and which is a composition similar to the Carpathian loess. Many flat graves of the CWC were not covered with a mound, and in any case today there is no indication of the presence of a mound (Włodarczak 2006, 48). In the case of the CWC graves in Małopolska, flat graves are numerous. Attention is drawn to their different location to the barrow graves. The former were usually located on the edge of the upland or in low valley positions near the watercourse, in contrast to the barrows built on the uplands. The topography of the find from Zagórze 8, due to its location in the lower part of the slope of the valley of a large river, at the mouth of its tributary Łękawka, clearly refers to the standard of flat graves (Włodarczak 2006, 46).

VI. CONCLUSIONS

The discovery of ceramic materials, probably from the burial site in the Western Beskids, would be a big surprise. Surprising would be also the presumed possibility of the existence of a niche grave at Zagórze, which does not occur in the Carpathian zone. We know the closest grave traces of the Corded Ware culture in the Carpathians from Jawczyce in the Wieliczka Foothills, where there is a large burial mound that was investigated already in the 1960s (Jarosz, Libera 2020 – further literature there). Further west, both on the right bank of the Vistula (Włodarczak *et al.* 2011, 332, Fig. 12) and deeper in the Polish Carpathians (Valde-Nowak 1988, 33, Fig. 6) traces of this culture are few and limited to single finds of random axes and especially hammer-axes. From the Skawa river basin, we know the axe from Zawoja, typical for the late phase of this culture, and the tetrahedral axe made of Jurassic flint variety G from Kojuszówka (Tunia 1978). The latter, however, may be connected with the culture of Baden. Another find loose from the vicinity, probably representing the so-called Central European horizon from Sułkowice (collection of the Archaeological Museum in Krakow – inv. no. 8418; Valde-Nowak 1988, 115 Table XI: 4).

Reaching further south, to the Slovak Carpathians, it is worth mentioning the accidental discovery of a flat grave of the Corded Ware culture, in which a typical flame knife made of radiolarite was found in Trencin (Cheben 2005). The old discovery of the cup of this culture in Skalica in the White Carpathians may also be significant (Budinsky-Krička 1965, 51–52, Fig. 1: 5). Despite the presented suggestion of a funerary nature, it cannot be ruled out that the described remains are evidence of the camp. In this context, we can recall the discovery of amphora fragments in the Corded Ware culture settlement in Kraków-Bieżanów (Jarosz *et al.* 2010, 11–14, Fig. 3, 5). Thus, the recognition of two fragments of pottery from Zagórze not as a fragment of a beaker but just an amphora does not prejudice the grave nature of the reconstructed complex. In this context, a flame knife is probably a better indicator of a grave character, which has not been found in the settlement of this culture so far. Taking into account both the cultural content of the reconstructed inventory, as well as the stratigraphic premises of the complex 894, 894a, the reported finds from Zagórze, site 8, rather indicate the presence of a flat grave in this place. On the other hand, the conclusion hardly fits the standard of burial ritual documented in the Northern part of the Carpathians CWC funerary sites, in which the barrows as grave forms predominate.

The presence of the grave remains of the CWC in Western Beskidy are unique. The first indicator here was the flint artefact. Therefore, the proposed recognition seems to be uncertain. However, the first opinion has been confirmed by discovered typical finds for CWC during the next seasons of field work. Previously, only some isolated finds of hammer axes indicated for the activity of people of CWC in Western Beskid.

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