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Collective Flint Deposits in Graves of the Corded Ware Culture: Examples from the Sandomierz Upland, Lesser Poland

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The subject of this article is to present a special type of collective finds, namely compact deposits of flint artefacts in the graves belonging to the Corded Ware culture, to the Kraków-Sandomierz group. Grave deposits from two cemeteries: Kichary Nowe and Wilczyce, situated in the Sandomierz Upland and located in the Opatówka-river valley serve as an example. The authors propose a new perspective on issues related to the placement of such deposits in human graves, hoping that this will contribute to a broader discussion on the meaning and function of finds of this kind in the socio-cultural context of Late Neolithic communities, with particular emphasis on their role in funeral rites.

KEY-WORDS: Poland, Neolithic, Corded Ware culture, funeral rites, grave deposits, flint artefacts

INTRODUCTION

The subject of analysis and the main topic of this article is the presentation of specific grave goods found in funeral structures of the Corded Ware culture. The term "specific grave goods" should be understood here not as concerning unique or exceptional artefacts, but as applied to elements of grave inventories whose special character results from their context: funeral rituals and gestures. The subject of interest are therefore collective flint deposits consisting of flakes or/and blades, stored in a limited space

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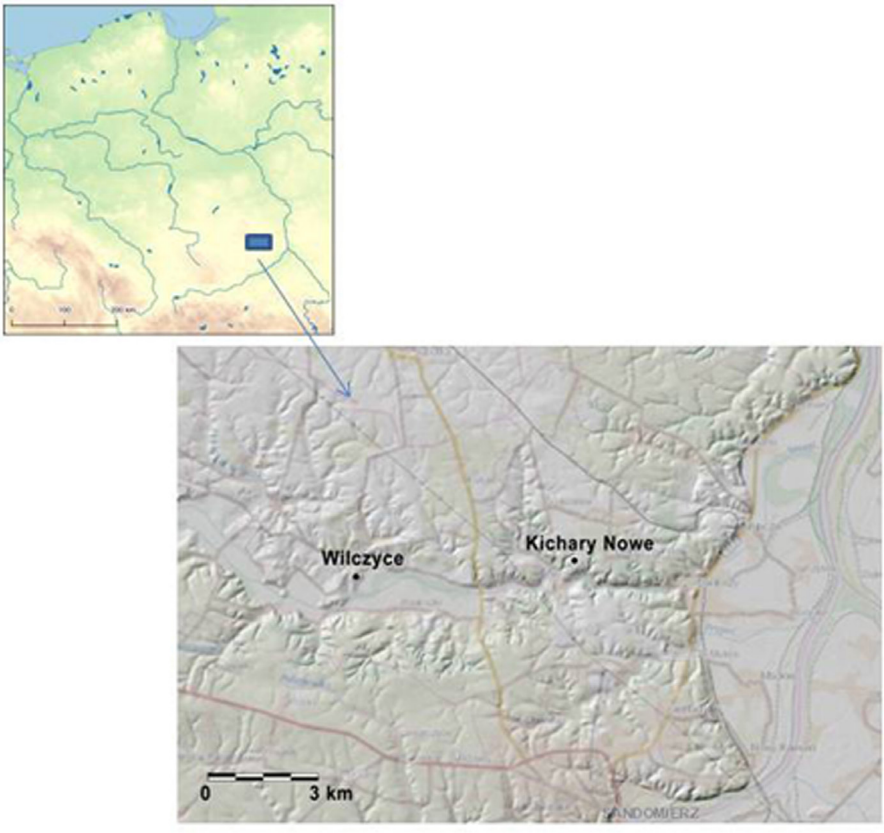

Fig. 1. Location of cemeteries at Kichary Nowe and at Wilczyce in the Sandomierz Upland, Lesser Poland (hypsometric map according to: Geoportal.gov.pl). Preparation: M. Jakubczak (map of Poland) and D. Wyczółkowski (hypsometric map).

inside the burial chamber, which were discovered in two Neolithic cemeteries on the Sandomierz Upland: at Kichary Nowe and at Wilczyce near Sandomierz (Fig. 1).

The authors attempt to reflect on the nature and significance of these deposits, viewing them as an ambiguous and multidimensional phenomenon. The key issue is here to understand the idea of placing such sets in graves among other grave goods which is linked to the perception of flint in spiritual and social terms. The authors hope that their research will contribute to a deeper understanding of the function and role of such deposits in the cultural system of Neolithic communities.

MATERIALS AND CONTEXTS

Flint deposits in grave inventories of the Corded Ware culture are not very common finds, and their presence has only recently become the subject of more detailed analysis (Budziszewski and Tunia 2000; Włodarczak 2004; Budziszewski *et al.*, 2008; Libera 2009; Bienia *et al.*, 2016; Pelisiak 2017; 2019).

The three deposits of this kind analysed in this article come from two burial grounds associated with the Kraków-Sandomierz group of the Corded Ware culture. They are situated in the central-eastern part of the Sandomierz Upland, Lesser Poland, at a distance of several kilometres from each other, on the northern slope of the Opatówka-river valley. In both cases, these are small Corded Ware culture cemeteries belonging to larger funeral complexes (see, e.g., Kowalewska-Marszałek 2007; Kowalewska-Marszałek and Duday 2014; Boroń and Włodarczak 2019).

KICHARY NOWE SITE 2

Site 2 (AZP: 99-74/18) at Kichary Nowe (current name of this village is Nowe Kichary, Dwikozy commune, Sandomierz district, Świętokrzyskie voivodeship) is located on a prominent loess promontory on the left edge of the Opatówka river valley. Archaeological excavations conducted there in 1987–2020 revealed remains of a Neolithic and Early Bronze Age necropolis. Five graves belonging to the Kraków-Sandomierz group of the Corded Ware culture were unearthed there (see e.g., Kowalewska-Marszałek 2007; Kowalewska-Marszałek and Duday 2014) except for human burials related to the Funnel Beaker culture (Duday and Kowalewska-Marszałek 2003; Kowalewska-Marszałek *et al.*, 2006) and to the Mierzanowice culture as well. Two graves of the Corded Ware culture (No. 26 and No. 29) contained collective flint deposits.

Both are graves of a niche-construction, each of them contained individual inhumation as the primary type of deposit (Kowalewska-Marszałek and Duday, in print). The deceased were buried in a contracted position, on their right side; both were adults (*adultus* in Grave no. 29; *juvenis/adultus* in Grave No. 26; see Pyżuk 2006), presumably males (the poor state of preservation of the skeletal remains does not allow to determine their sex for certain). This diagnosis seems to be confirmed by both the details of the arrangement of the dead and the nature of the grave goods (Table 1; see also Włodarczak 2006: 59).

Both graves in question should be described as "very rich" (Kadrow and Machnikowie 1992: 66; Włodarczak 2006: 143); Grave No. 29 is even to be placed among

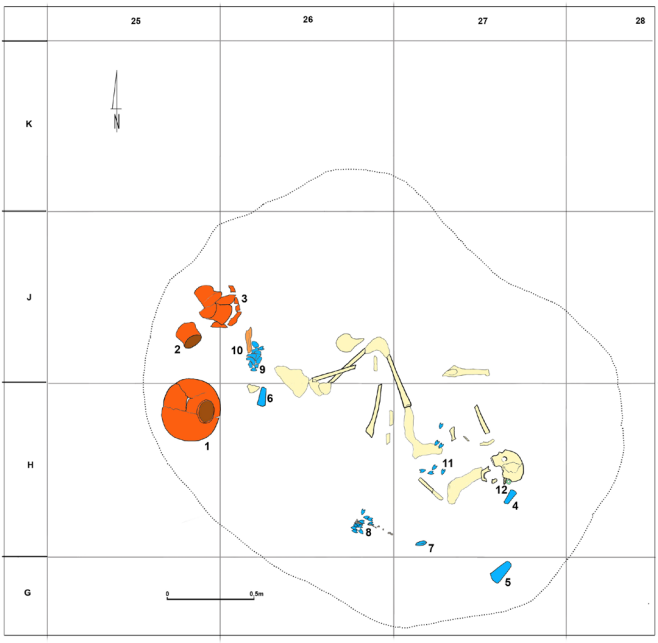

Fig. 2. Kichary Nowe, Site 2, Grave no. 26. Layout of burial and location of grave goods: 1–3 – vessels, 4 – stone battle-axe, 5–6 – polished flint axes, 7 – flint blade tool, 8 – concentration of flint arrowheads, 9 – collective deposit of flint specimens, 10 – tools of animal bone and of boar tusk, 11 – arrowheads dispersed in the region of thorax, 12 – spiral copper ornament. Drawing: E. Gumińska, after original field documentation by M. Krakowiak.

the "richest" graves of the Kraków-Sandomierz group of the Corded Ware culture in Lesser Poland (e.g., Polańska 2016: 317) due to the nature of its inventory.

KICHARY NOWE, GRAVE NO. 26

A burial of a young adult *(iuvenis/adultus*), presumably male (Pyżuk 2006), lying on his right side, along the SE–NW axis, head to SE (Fig. 2). The deposit of flint material was situated in the western part of the niche, between the feet of the deceased on the one side and a set of three ceramic vessels on the other one (Fig. 2:9). It was found at the bottom of the burial chamber, at the same level as the skeletal remains.

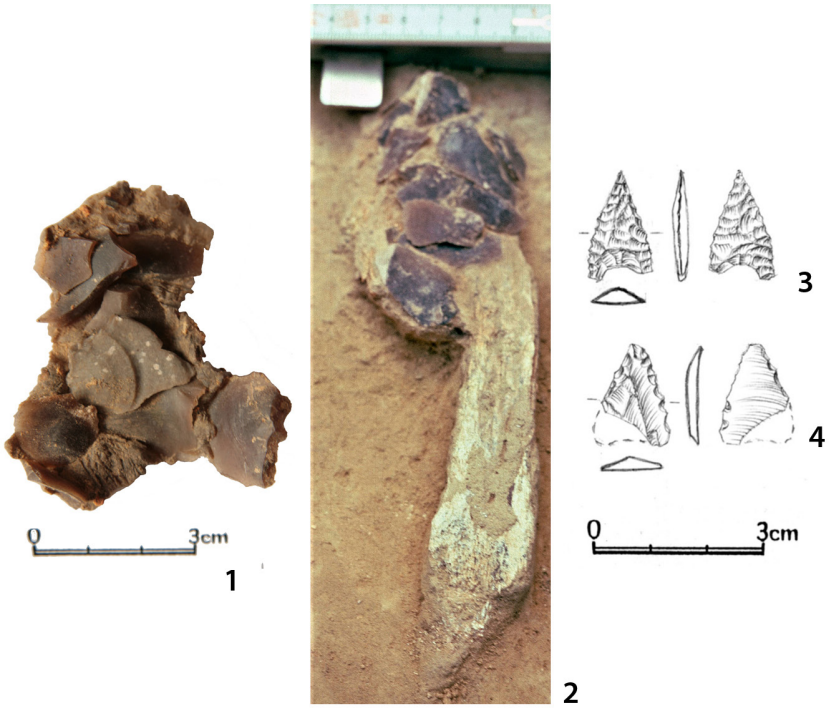

Fig. 3. Kichary Nowe, Site 2, Grave no. 26. Collective deposit of flint specimens: 1 – part of the assemblage, view from inside; 2 – flint specimens and tool of animal bone during the excavations; 3 – an arrowhead, and 4 – fragment of an arrowhead from this deposit. Photo: H. Kowalewska-Marszałek (1–2); Drawing: E. Gumińska (3–4).

One of two flint axes (the smaller one) was located nearby (Fig. 2:6). Other grave goods were placed mainly on the SW and SE edges of the niche: a small copper spiral ornament (Fig. 2:12) was situated directly by the skull of the deceased, near his left temporal lobe, a battle axe (Fig. 2:4) was behind the skull as well as another flint axe (Fig. 2:5), a retouched blade tool (Fig. 2:7) and an assemblage of flint arrowheads (probably remains of a quiver; Fig. 2:8) were placed behind the back of the deceased, and single arrowheads (Fig. 2:11) were dispersed in his chest area (Kowalewska-Marszałek 2025).

The collective deposit of flint material (Fig. 3:1, 2): consisted of 18 specimens preserved in whole or in fragments that formed three compact layers lying closely on top of each other (inv. I J26: 326–327; 353–359; 361–370). There were also about 108 very fine pieces of flint: micro-waste particles, mainly microscopic chips

(inv. I J26: 329–351; 351A; 359) which formed two small concentrations at the upper level of the whole set.

One small flint arrowhead (inv. I J26-325; Fig. 3:3) and a fragment of another one, maybe a semi-finished product (inv. I J26-328; Fig. 3:4) were also included, as well as two tools made of animal bone: one of them, presumably a chisel (inv. I J26-260; Fig. 3:2) was made of a split long bone (its poor state of preservation makes it impossible to identify the species), the other one was a fragment of a split boar's tusk (inv. I J26-252).

The deposit cluster, small and very compact, was approximately oval in shape (with its longitudinal axis N–S). It covered an area of approximately 9 x 5.5 cm (or about 15.5 x 8 cm if bone objects are included) at its upper level, and slightly less (approximately 7 x 5 cm) at the lowest one; its thickness was about 2–3 cm. All larger flint specimens were located on one side of the bone "chisel", while the smallest pieces formed two separate, very compact concentrations on the northern edge of this area, located on both sides of the aforementioned tool.

The high uniformity of the raw material is noteworthy in the set: almost all specimens (except for one) were made of chocolate flint, most of them of the same variety of it. Flakes and fragments of flakes clearly dominate (14 specimens); one splintered flake was also included: that is also the only piece made of the different kind of raw material, of the Świeciechów-type flint (Fig. 3:1; Table 2). The standardisation of the size is noticeable in this collection (Table 3): the length of the specimens ranges from 8.8 to 27.6–30.0 mm (average 20.6 mm), the width from 10.7 to 27.7 mm (average 17.8 mm); these are also specimens of small thickness: 1.4–3.8 mm (average 2.6 mm).

KICHARY NOWE, GRAVE NO. 29

A burial of an adult with a fairly strong body structure, presumably male, at the age of 20–30 (Pyżuk 2006). He was lying on his right side along the S–N axis, head towards S, the face directed to E, with legs strongly drawn up (Fig. 4).

As previously, the flint deposit was located at the bottom of the burial chamber, at the level of skeletal remains (Fig. 4:14). It was situated in the northern part of the niche, to the N of the lower limbs of the deceased and near two ceramic vessels (Fig. 5:A). Other elements of the grave inventory (Table 1) were also two polished flint axes (placed behind the deceased's head); four retouched blade tools and a set of flint arrowheads (probably in a quiver) were located behind the deceased's back, as were two copper tool tips, presumably retouchers (one of them stuck among the arrowheads). The necklace of copper wire (Fig. 4:1) was situated at the height of the deceased's cervical vertebrae,

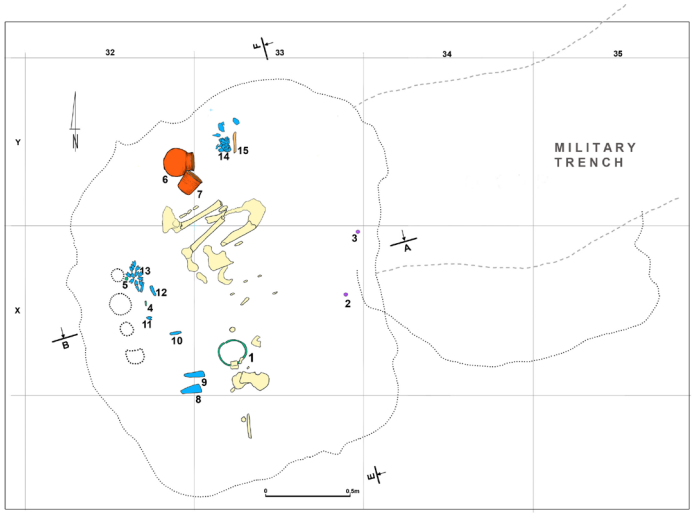

Fig. 4. Kichary Nowe, Site 2, Grave No. 29. Layout of burial and location of grave goods. 1 – copper necklace; 2–3 – gold spiral ornaments, 4 – larger tool tip of copper, 5 – small tool tip, probably of copper, 6–7 – vessels, 8–9 – polished flint axes, 10–12 – tools of flint blades, 13 – assemblage of flint arrowheads (probably remains of a quiver), 14 – collective deposit of flint specimens, 15 – tool of animal bone. Drawing: E. Gumińska, after original field documentation by M. Krakowiak.

and two spiral ornaments of golden wire were found in the eastern edge of the burial chamber, some distance from the human remains: one of them (Fig. 4:2) to the E of the deceased's head, the other (Fig. 4:3) to the E of his pelvis (Kowalewska-Marszałek 2025).

Because of the nature of grave goods and the number of elements, Grave No. 29 stands out not only from all graves at Kichary Nowe but it is also among the "richest" graves belonging to the Kraków-Sandomierz group of the Corded War culture in the Lesser Poland (see above).

The flint deposit consisted of 27 specimens, mainly blades preserved in whole or in part (Fig. 5:B; Table 2) and forming, as before, a multi-layered structure with four layers of flint pieces lying closely on top of each other. Four specimens remained a little outside this most compact arrangement but they were situated at a very short distance from it. This set also included one bone tool of the chisel type made from a split shaft of a long animal bone – the identification of the species was not possible in this case either (Fig. 5:A).

This deposit was rather triangular in shape; its minimum dimensions were 6.5–8.0 x 8.5–9.0 cm, approximately 20 x 16 cm when taking into account the bone

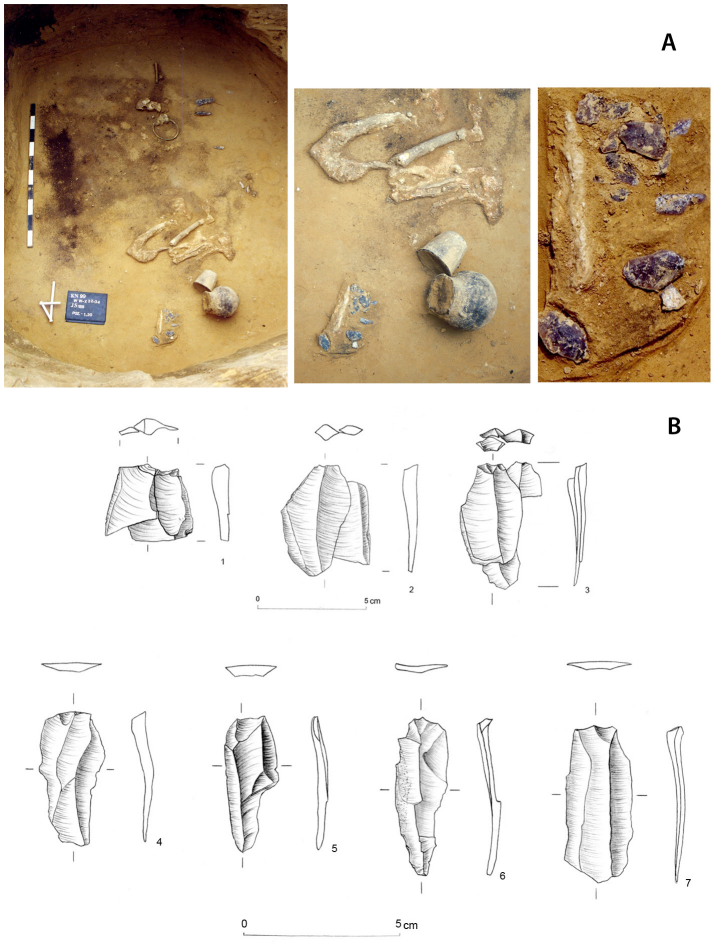

Fig. 5. Kichary Nowe, Site 2, Grave No. 29. A – location of the deposit inside the burial chamber (close-up); B – selected flint artefacts from this deposit: 1–3 – refitted blocs (according to T. Boroń); 4–7 – blades. Photo: H. Kowalewska-Marszałek (A). Drawing: D. Wach (B).

tool and four flint specimens from the edge; its thickness was approximately 2–3 cm. Unlike the previous, in this case almost all flint specimens (except one) were located on only one side of the bone tool (to the W of it; Fig. 5:A).

The uniformity of the raw material is even more evident in this case: only chocolate flints, of dark and very dark varieties, were used. The set is dominated by blades

and their fragments, mainly proximal parts, there are also few splintered pieces. Flakes are much less numerous (Table 2). The edges of specimens often bear traces of use (visible macroscopically). Metric differences between these two deposits are noticeable: the pieces from Grave No. 29 are generally slightly larger and more massive (Table 3).

The detailed analysis of refitting allowed distinguishing in this deposit at least three refitted blocks: one of them consisting of three elements and the other two – of two elements each (Fig. 5B:1–3). Flakes and blades or fragments thereof were concerned, all of them are non-cortical and unidirectional. They have a flat cross-section, and their distal parts are slightly bent, while the butts are dihedral and concave. Based on these refitting blocks, it was observed that the striking platform of the core was renewed and its flaking surface was rather wide.

The deposits from both graves formed small but very compact, multi-layered clusters, consisting of a group of flint specimens and single tool made of animal bone; they were uniform in terms of raw material and not very diverse as to their size. Both deposits were similarly located within the burial chamber: in the zone of the deceased's lower limbs, below the knees (Grave No. 29) or slightly below the feet (Grave No. 26), which seems to be their typical location (e.g., Włodarczak 2006: 73).

The compact nature of deposits suggests that they were placed in tight containers or packages (wraps) made of organic materials. The uniformity of the raw material seems to indicate a deliberate selection of a specific type of flint – in these cases, the chocolate one. On the other hand, the presence of three (at least) refitting blocks in Grave No. 29 suggests that the selections of the components of these assemblages may have been related to the local flint production processes, perhaps the acquisition of blanks, maybe intended for further processing (see below).

WILCZYCE SITE 10

Site

Site 10 at Wilczyce (Wilczyce commune, Sandomierz district, Świętokrzyskie voivodeship) is situated on the plateau on the northern, southeast-facing slope of the Opatówka-river valley (Fig. 1 and Fig. 6). It is located above 40 m from the modern valley floor and about 200 m above sea level.

History

The site was discovered in 1994 during a ground survey carried out within the framework of the Archaeological Picture of Poland (AZP) research project by an expedition

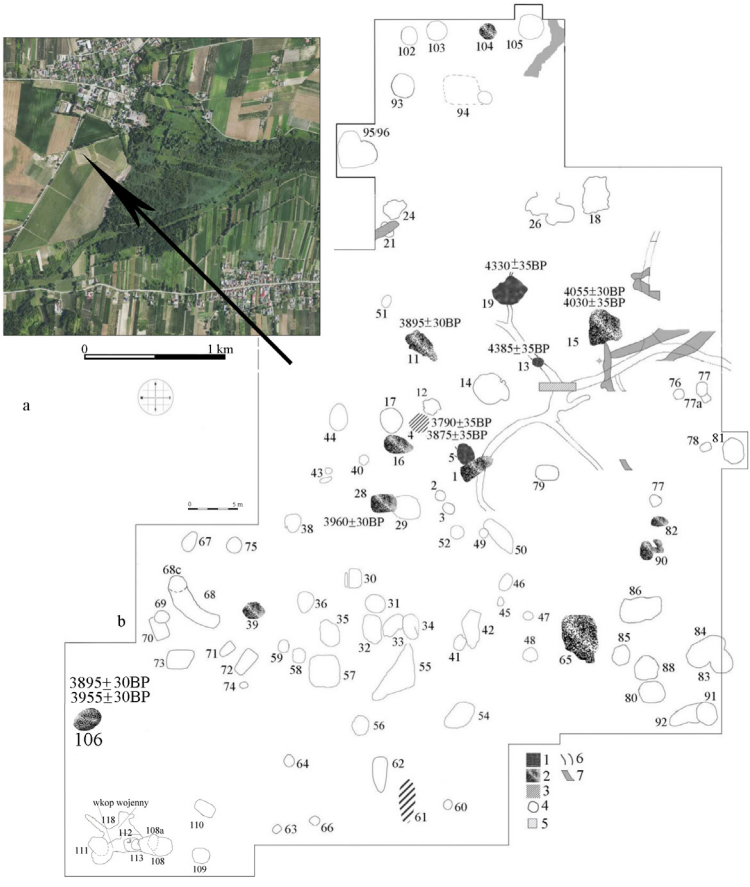

Fig. 6. Wilczyce Site. 10: a – location of Site 10 at Wilczyce, b – archaeological features discovered at Wilczyce during excavations (state in 2022): 1 – Globular Amphorae culture; 2 – Corded Ware culture; 3 – Bronze Age features; 4 – other features; 5 – preserved baulk of cut; 6 – ice wedge; 7 – military trench from the First World War. Preparation: T. Boroń.

headed by Hanna Kowalewska-Marszałek from the Institute of Archaeology and Ethnology of the Polish Academy of Sciences (Kowalewska-Marszałek and Włodarczak 2002).

The first stage of investigation at the site was related to the settlement of the Magdalenian culture and lasted until 2010. Unique and spectacular discoveries

concerning art, everyday life and funeral rituals have been presented many times in renowned journals as well as in books (Fiedorczuk and Schild 2002; Fiedorczuk *et al.*, 2007; Irish *et al.*, 2008, Boroń 2010; Boroń *et al.*, 2012; Schild 2014).

The second stage of research focuses on Neolithic settlement and on the Early and Middle Bronze Age.

To date, 167 features have been explored (Fig. 6). Based on ^{14}C dates and analysis of ceramic materials, several phases of settlement associated with the Middle and Late Neolithic (Lublin-Volhynian culture, Globular Amphora culture, Złota culture, Corded Ware culture) and with the Early and Middle Bronze Age (Mierzanowice culture and Trzciniec culture) have been identified.

One aspect that is very clearly and legibly outlined at the site is related to funeral rites, manifested by the presence of human and animal burials. The exceptional character of the settlement by Neolithic and Bronze Age communities is reflected in the unusual nature of the grave structures and the "richness" of the grave goods. In addition to burials, settlement pits and industrial structures, known as combustion features, have also been discovered there.

The material sources obtained so far are remnants of various forms of settlement, which makes this site unique in the settlement landscape of Neolithic and Bronze Age communities, not only in Poland but also in Central Europe. These discoveries have been published in many foreign journals (Boroń 2017; 2020; Boroń and Winiarska-Kabacińska 2021). One of them is presented in this article.

BURIAL FEATURE

Location

A burial feature (No. 106) was unearthed during the excavation season in 2022. It is located in the SW part of the investigated area, outside the area of the other features (burials as well as settlement pits) belonging to the Corded Ware culture (Fig. 6). It was a grave of niche construction.

Grave construction

At the level of distinction, this feature, measuring 200 cm by 170 cm, manifested itself in the form of an irregular outline filled with dark earth (Fig. 7:1). Its size increased during exploration, reaching dimensions of 300 cm by 300 cm at the bottom. The depth of the grave filling was 115 cm. The entrance to the niche was located at its eastern edge. The burial chamber was later destroyed as a result of the collapse of the vault, which probably occurred quite quickly, as no

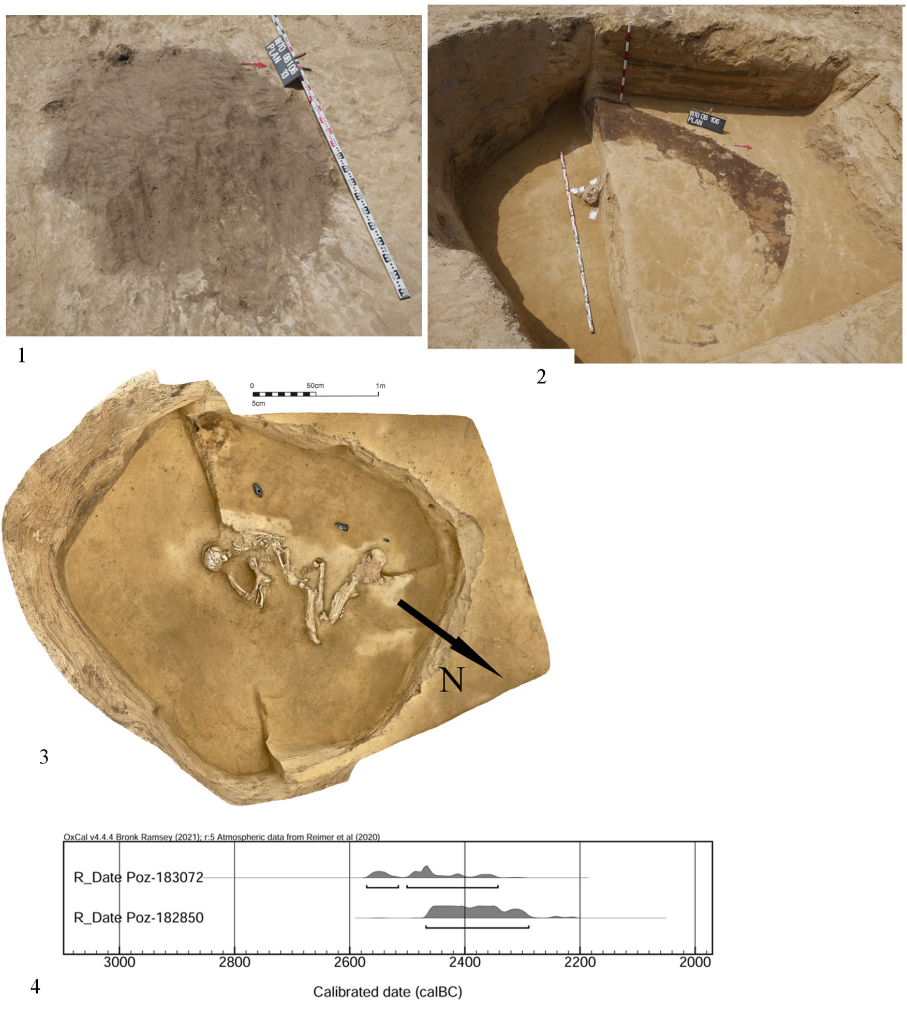

Fig. 7. Wilczyce, Site 10. Feature 106: 1 – level of distinction; 2 – layout of the feature; 3 – burial chamber (scanned); 4 – calibration diagram. Scanning: M. Chrzanowski. Photo: T. Boroń.

dark earth runoff from the surface was noted at the level of the human remains. Figure 7:2 illustrates the collapse of the vault. This event undoubtedly affected the condition and state of preservation of the skeleton and the fragmentation of the ceramic vessels.

Chronology
Two ^{14}C dates were obtained from a bone sample from the skeleton: 3895±30 BP (Poz-182850); 3955±30 BP (Poz-183072; Fig. 7:4).

Grave arrangement
The central part of the niche was occupied by a human burial. The skeleton remained in an anatomical position. The deceased was laid on his right side, facing east, with his arms bent at the elbows and raised towards his face, and with his legs drawn up (Fig. 7:3).

The grave goods were located in three areas: at the head and under it (a deposit of small flakes and chips, metal ornaments, Fig. 8:1–2), behind the back of the deceased (a stone axe, five arrowheads, a flint axe, a copper awl, and flint blades and flakes), and at the feet (ceramic vessels – an amphora and a beaker, as well as a flint chisel, Fig. 8:3).

Characteristic of grave goods
Metal specimens
– An awl with a square cross-section, which becomes round near the tip (Fig. 9:3). The head of the specimen is slightly rounded. Dimensions: length – 64 mm, width – 3.8 mm, thickness – 4 mm. Weight: 6 g.
– Spiral ornament made of metal wire. Heavily corroded. Dimensions: outer diameter – 17 mm, inner diameter – 10,5 mm, width – 7.8 mm. Weight: less than 1 g.

Ceramic vessels
Two vessels were unearthed: a complete, undamaged amphora (Fig. 8:3) and a damaged, broken beaker. The amphora was not destroyed because it was located outside the area where the vault collapsed.

Stone implements
1. The axe has an elongated, boat-shaped form and a regular symmetrical outline (Fig. 9:2). The hole is located in the widest part of the specimen, almost halfway along its length. The head is round and slightly raised above the upper surface. Dimensions: length – 127.5 mm, maximum width – 53.7 mm, thickness – 30 mm, hole diameter – 30 mm. Weight: 311 g. Raw material: not specified.

Bifacial forms
1. A symmetrical four-sided chisel with a slightly curved blade and a quadrangular cross-section (Fig. 9:4). All surfaces of the preserved fragment of the chisel

Fig. 8. Wilczyce, Site 10. Feature 106: 1 – collective flint deposit under the skull of the deceased; 2 – metal ornament (close-up); 3 – amphora. Photo: T. Boroń.

are polished. Dimensions: length – 62.8 mm, width – 19.6 mm, thickness – 14.4 mm. Weight: 31 g. Raw material: striped flint.

2. Flint axe with a symmetrical outline and a slightly convex, polished cutting edge (Fig. 9:1). The cross-section is trapezoidal in the middle and lenticular near the cutting edge. Surfaces: the lower and upper surfaces are formed with flat strikes from both edges, while the slightly sloping side surfaces are formed with strikes from

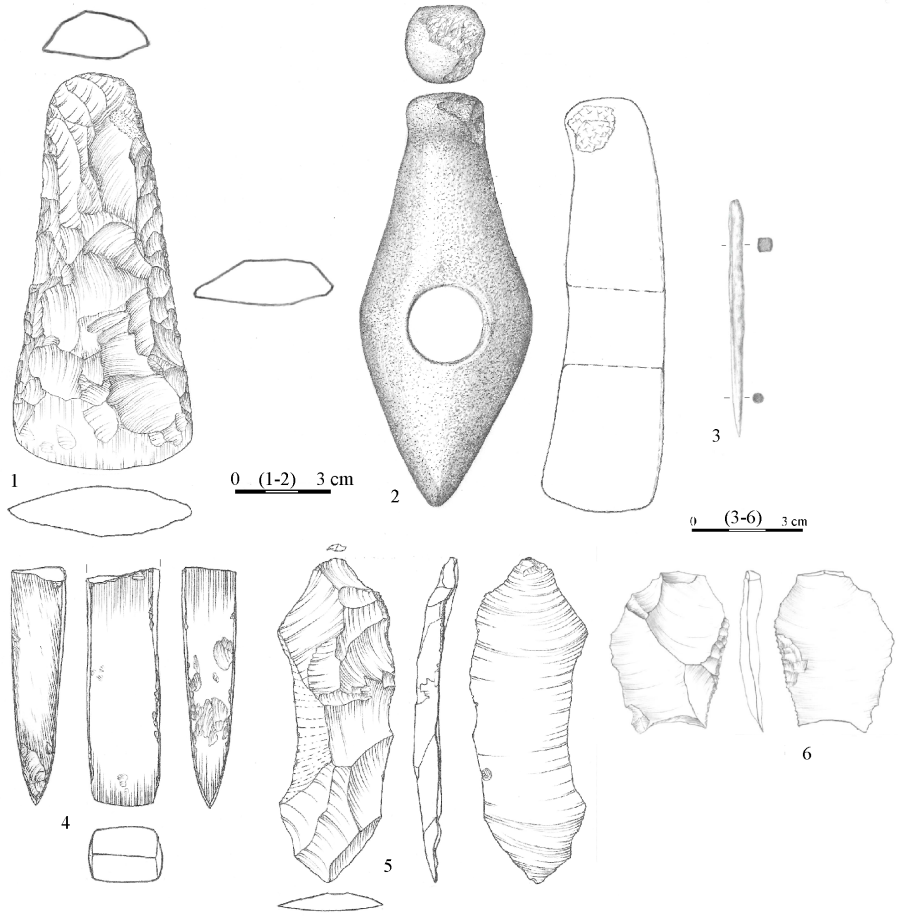

Fig. 9. Wilczyce, Site 10. Feature 106: 1 – flint axe; 2 – stone battle-axe; 3 – copper pin; 4 – chisel; 5 – retouched blade; 6 – retouched flake. Drawing: E. Gumińska, A. Pałasz, D. Wach.

below. The butt is rounded and profiled. Dimensions: length – 122.5 mm, width of cutting edge 55.2 mm; width of butt – 26.7 mm, thickness – 15.3 mm. Weight: 135 g. Raw material: Ożarów-type flint.

3. Triangular arrowhead with a flat-convex cross-section. The retouched base concavity is semicircular, as are the tops of the wings. The specimen was formed by semi-sharp edge bifacial retouch. Dimensions: length – 19.0 mm, width

14.5 mm, thickness – 2.5 mm. Weight: less than 1 g. Raw material: chocolate flint.

4. A slightly asymmetrical triangular arrowhead with an arched base and a flat-convex cross-section. The surfaces are bifacially retouched with a trough-like retouch. Dimensions: length – 14.5 mm, width – 11.5 mm, thickness – 1.7 mm. Weight: less than 1 g. Raw material: chocolate flint.
5. A small and slim, triangular arrowhead with an asymmetrical arched base and lenticular in cross-section. The surfaces are shaped by surface retouching, while the edges – with flat and trough-like retouch. The wings with sharp ends. Dimensions: length – 17 mm, width – 10.4 mm, thickness – 2.3 mm. Weight: less than 1 g. Raw material: chocolate flint.
6. A triangular arrowhead with slightly convex edges and a flat-convex cross-section. The point formed in the proximal part of the flake. The lower surface at the base of the specimen is worked using the scaled retouch, while the side edges are formed with trough-like retouch on the dorsal face and a flat retouch on the ventral face. Dimensions: length – 15.4 mm, width – 11 mm, thickness – 2.2 mm. Weight: less than 1 g. Raw material: chocolate flint.
7. A triangular arrowhead symmetrical in shape and of a concave base. Its cross-section is lenticular, and its point was formed in the apical part of the flake. The dorsal face with surface retouch while the ventral face with edge retouch only. Dimensions: length – 15.5 mm, width – 11 mm, thickness – 2.7 mm. Weight: less than 1 g. Raw material: chocolate flint.

Other tools

1. Non-cortical blade with multidirectional scars on the dorsal face (Fig. 9:5). The butt is small and of double-scar. A fine, probably functional retouch is visible in the proximal part of the blade, on a short section of the edge. Dimensions: length – 87 mm, width 30.7 mm, thickness – 5.3 mm. Weight: 17 g. Raw material: dark chocolate flint.
2. Flake with a trough-like retouch on one edge (Fig. 9:6). The retouch is regular and continuous, covering almost the entire length of the edge. The butt is dihedral. Dimensions: length – 44.8 mm, width – 31 mm, thickness – 4.4 mm. Weight: 7 g. Raw material: dark chocolate flint.
3. Flake with fine regular retouch on one edge. Dimensions: length – 32.3 mm, width – 34.4 mm, thickness – 4.9 mm. Weight: 7 g. Raw material: dark chocolate flint.

Blades

1. Non-cortical blade with a partly natural surface (Fig. 10:1). The butt is smooth, and the bulb is small and convex, but clearly distinct from the rest of the surface.

Dimensions: length – 58.4 mm, width – 22 mm, thickness – 4 mm. Weight: 5 g. Raw material: dark chocolate flint.
2. A blade with a dihedral, faceted butt and a large, broad bulb, and with multidirectional scars (Fig. 10:2). Dimensions: length – 46.7 mm, width – 28 mm, thickness – 5.5 mm. Weight: 8 g. Raw material: dark chocolate flint.
3. Non-cortical blade, very flat and thin, with multidirectional scars. The butt is large, with single scar. Dimensions: length 44.8 mm, width 24.5 mm, thickness 2.2 mm. Weight: 3 g. Raw material: Ożarów-type of flint.

Flakes
1. A rather large non-cortical flake with a flat and thin cross-section, with a series of scars as in centripetal preparation (Fig. 10:3). Dimensions: length – 50 mm, width – 40 mm, thickness – 5.4 mm. Weight: 10 g. Raw material: dark chocolate flint.
2. A bi-directional, non-cortical flake. Dimensions: length – 44 mm, width 27.2 mm, thickness – 3.7 mm. Weight: 5 g. Raw material: dark chocolate flint.
3. Unidirectional, non-cortical flake. The butt is smooth and elongated, and the profile of the flake is flat and thin. Dimensions: length – 36 mm, width 27.3 mm, thickness – 3.5 mm. Weight: 4 g. Raw material: dark chocolate flint.
4. Small non-cortical flake with unidirectional scars. Dimensions: length 23.3 mm, width 15 mm, thickness 2.2 mm. Weight: less than 1 g. Raw material: dark chocolate flint.

Flint deposit under the skull of the deceased
The assemblage consists of 65 flakes and 198 chips and small debris. Apart from two flakes presumably made of Volhynian cretaceous flint (Fig. 10:12), all other specimens are made of light chocolate flint (Fig. 10:4–11; 13–18). The flakes are rather small in dimensions: the largest one measures 34 by 28 mm, while the vast majority do not exceed 25 mm in size. The collection includes cortical and non-cortical flakes. Weight of the collection: 85 g.

Bone artefacts
Only one artefact with a severely damaged surface. It is made of external bone tissue. Dimensions: length 90 mm, width 16 mm, thickness 7 mm. Weight: 8 g.

DISCUSSION

Flint deposits in graves belonging to the Corded Ware culture are sometimes considered to be sets of semi-products or materials for the production of arrowheads – this

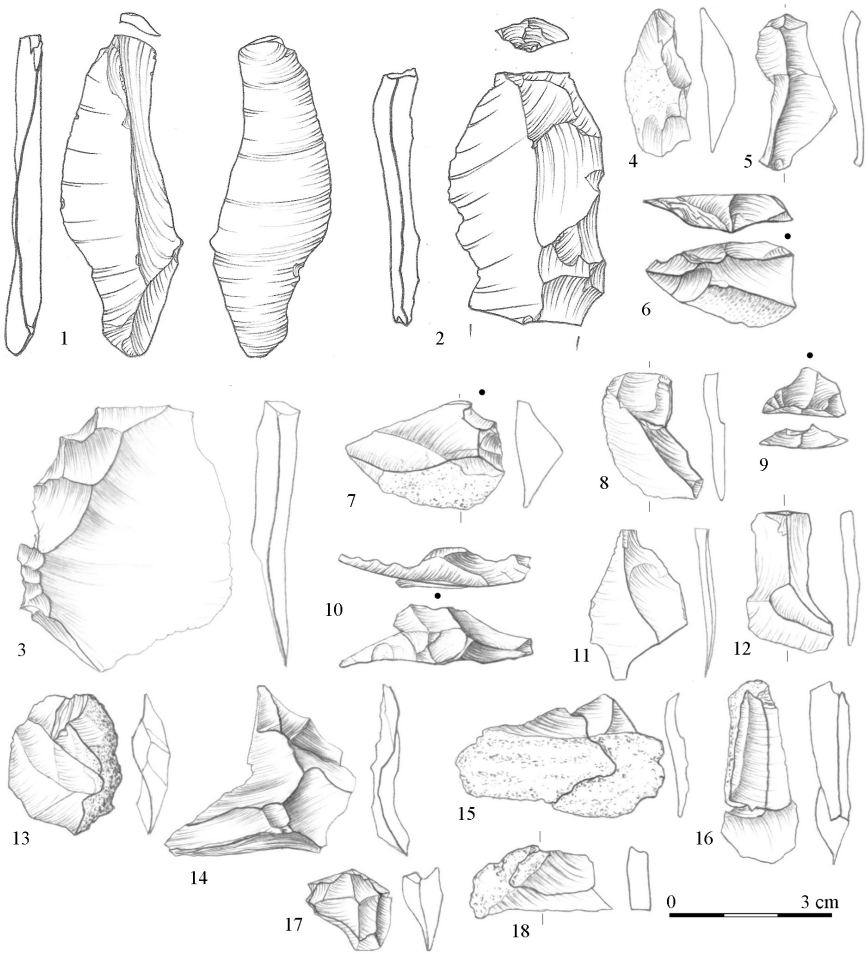

Fig. 10. Wilczyce, Site 10. Feature 106: 1 – blade; 2 – blade; 3 – flake; 4–18 – flakes from the collective deposit under the skull of deceased. Drawing: A. Pałasz, D. Wach.

is, for example, the interpretation of the assemblage from Grave 110 in Mirocin, Przeworsk district, Site no. 24 (Pelisiak 2019: 177), referring to earlier analyses of the inventory from the grave at Koniusza, Proszowice district (Budziszewski and Tunia 2000: 130).

However, it seems that such an interpretation would be difficult to accept in the case of the analysed sets from Kichary Nowe and from Wilczyce as well. Especially the deposit

from Grave No. 26 at Kichary is concerning, due to the parameters of specimens that are lower to those from Mirocin. They also do not fully correspond to the size of the finished arrowheads found in Grave No. 26: their average length is 20.6 mm, which is almost equal to the average length of the arrowheads (20.2 mm), and the average thickness of the arrowheads is even slightly greater than that of the specimens from this set, amounting to approximately 3 mm (from 2.1 to 4.55 mm). Therefore, only the width of the arrowheads (13.4 mm) would correspond to the dimensions of pieces from the deposit. The situation is slightly different in the case of the assemblage from Grave No. 29, where the parameters of the flint specimens are generally higher, but even in this case their thickness seems generally too small. However, it cannot be ruled out that only some of the specimens in these sets could be considered as potential material for the production of arrowheads (Borkowski 1987: 156–160; see also Fig. 11).

However, an argument in favour of linking the Kichary Nowe deposits with the production of arrowheads may be the fact that one semi-finished piece and one finished arrowhead (2.5 mm thick) were found together with the other specimens from the deposit from Grave No. 26 (Fig. 2:4, 5). Such interpretation may also be supported by the presence of a tool made from a split boar's tusk together with flint pieces in the same "container". Tools of this kind were used, among other things, for working flint (Włodarczak 2006: 38). This type of use has recently been confirmed by traseological studies concerning tools from a grave at Świerszczów, Hrubieszów district, however belonging to the Malice culture (Zakościelna and Osipowicz 2024: 345).

The presence (in Grave No. 26) of numerous, very small flint fragments, microscopic chips and debris that should undoubtedly be considered as micro-waste should also be noted: these are, perhaps, waste from the production of arrowheads. Their concentrations on the border of the "proper" assemblage, but definitely together with it, seems also indicate some connections with the arrowheads production. Unlike other flint materials, they could not have had any utilitarian significance, so their presence in the grave deposit must have been due to other (non-functional) reasons.

In the case of the deposit from Wilczyce, however, the morphological and technical characteristics of the flakes, such as dihedral butts, flat cross-sections of non-cortical specimens, multidirectional scars and the presence of so-called overpassed flakes in the collection, indicate that they were obtained during the production of a tetrahedral axe (Fig. 10:6, 9, 10, 14). In view of the fact that the collection also includes cortical and partly cortical forms, it should be considered as waste products from all phases of axe production. Of course, this is not a complete assemblage of flakes, as it lacks, for example, large pieces over 3 cm from the initial stage of axe production (Boroń 2017; 2018). Two flakes of Volhynian cretaceous flint are not related to axe production.

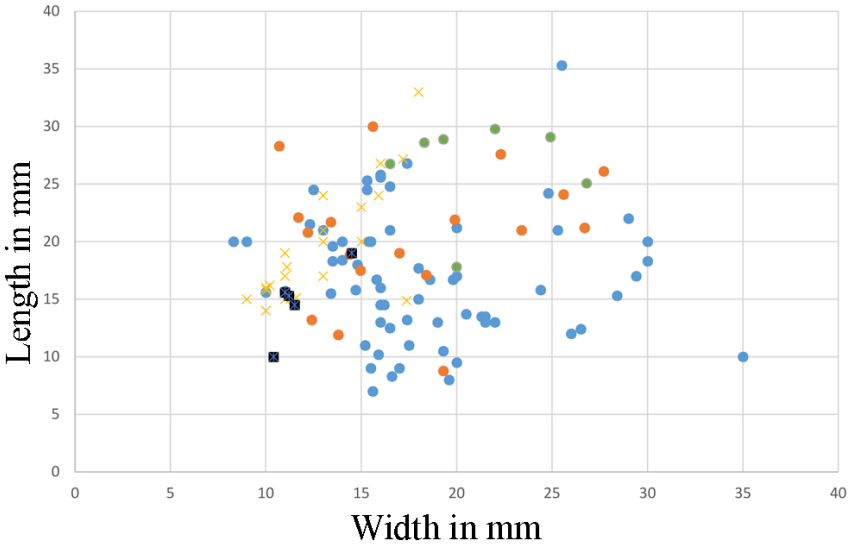

Fig. 11. Flakes and arrowheads from collective deposits at Kichary Nowe, Site 2, and at Wilczyce, Site 10: relation of the length and width of the specimens: red points – flakes of Kichary Nowe, Grave No. 26; green points – flakes of Kichary Nowe, Grave No. 29; blue points – flakes of Wilczyce; yellow X – arrowheads of Kichary Nowe; black squares – arrowheads of Wilczyce. Preparation: T. Boroń.

The issues related to the production and use of tetrahedral axes, as well as the formation of a specific group of waste, have been raised many times in both Polish and foreign literature (Balcer and Kowalski 1978; Arnold 1981; Olausson 1983; 1997; Kopacz and Pelisiak 1988; Borkowski and Migal 1996; Sałaciński and Migal 1997; Mitura 2007).

The nature of finds from flint deposits in question – the presence of very small, even microscopic pieces – and their high spatial density indicate the possibility of their deposition (at least some of them) in the form of a "package". Rather than a "bag" made of organic material it could have been a tightly rolled piece of textile or leather, for example, which could have served previously as a kind of pad used during flint working and, at the same time, during the preparation of the funeral deposit.

All three sets analysed here have many features in common:

1. Funeral context: these deposits were found with human burials and are undoubtedly elements of grave inventories, along with other grave goods, which were very numerous in all graves in question: both graves from Kichary Nowe and that from Wilczyce were also high on the "wealth" scale.

2. The compact nature of all sets is evident: each of the flint assemblages occupied a very small area, limited to a few dozen square centimetres.
3. The uniformity of the raw material is clearly visible in all cases, the main or exclusive source was chocolate flint. Other types of flint were present at most in the form of single "inclusions": Świeciechów flint – only one specimen at Kichary Nowe (Grave No. 26), Volhynian Cretaceous flint – in the assemblage from Wilczyce. There is also a clear internal uniformity within the sets: each of them is dominated by one variety of chocolate flint, with only a small proportion of other variants.
4. A large part of specimens in each assemblage are pieces of a "post-production" nature, related to flint processing: blade production, axe manufacturing and production of arrowheads. However, this is rather waste material: a significant part of these sets consist of small (Kichary Nowe, Grave No. 26) or even very small flakes (Wilczyce), not particularly suitable for further use as semi-raw material. In two assemblages, there are also very small micro-waste pieces (Kichary Nowe, Grave No. 26, Wilczyce) which are completely useless in this respect.

Several differences are also noteworthy concerning the analysed deposits:

1. The sets differ in terms of the number of specimens: the deposit from Wilczyce contained 65 flakes and 198 chips and small debris, while the assemblage from the Grave No. 26 at Kichary Nowe included 18 flakes and 108 micro-waste chips and debris. The smallest one was the assemblage from the Grave No. 29 at Kichary containing 27 specimens.
2. The structure of each assemblage was different: two of them consist exclusively (Wilczyce) or almost exclusively (Kichary Nowe, Grave No. 26) of flakes and micro-debris; in the third one, blades, mostly in fragments, predominate among which at least three refitted blocks have been detected.
3. Deposits differ also in terms of metric data (Fig. 11).
4. Despite the general uniformity of the raw material and the use of chocolate flint as the basic one, the deposits differ in terms of the varieties of this type of flint: light chocolate flint was used at Wilczyce, and dark or very dark in both sets from Kichary Nowe.
5. The location of the deposits within the burial chamber was different: they were found near the lower limbs of the deceased in both graves from Kichary Nowe, while that from Wilczyce was placed under the deceased's head.

As in other cemeteries of the Corded Ware culture in the Sandomierz Upland (at Mierzanowice, Złota-Grodzisko II, Żuków), the sets in question were found in the graves of the deceased laid on their right side, which are often also distinguished by the presence of numerous flint arrowheads (Włodarczak 2006: 74).

Suggestions or assumptions about the intentionality of flakes obtaining during ceremonial procedures have already been considered in earlier publications

(Budziszewski *et al.*, 2008: 53; Bienia *et al.*, 2016) but due to the lack of clear arguments they have not been articulated explicitly.

Undoubtedly, quite specific and reliable evidence of the possibility of obtaining flakes during funeral rituals is provided by the analysis of the deposit from Wilczyce. Considering this possibility, we may ask the question: when and where was the axe produced and how was the collection of flakes deposited in the grave in question? The answer to the first question is based on further research and the application of the flint refitting method.

Six blocks of two- and three-elements each were refitted, which most likely indicates that the axe was made at the site in Wilczyce or in a short distance from it. Another important element is the method of storing the waste products. Undoubtedly, the flint knapper had to work on the concretion in a previously chosen and prepared place, using a mat or a sheet of leather. The waste was then dumped, possibly into a tight container, and the whole deposit was placed in a grave. However, the most suitable flakes, suitable for making arrowheads or other tools, were previously removed from this collection. The presence of small, 1–2 mm chips in the remaining part of flint material indicates such sequence of events. It is therefore a deliberate relocation of part of the flakes, associated with their transfer from the primary original location (i.e. place of axe production) and putting them into secondary context – a grave (Schiffer 1972; 1987; Morrow 1996: 355).

CONCLUSIONS

1. The analysed flint assemblages were undoubtedly burial deposits, intentionally placed in graves along with other grave goods.
2. The sets in question were "composed" of elements prepared *ad hoc*, as evidenced by the refitting blocs and the presence of numerous very small pieces. They utilised the effects of local flint processing: the possible production of arrowheads (Kichary Nowe, Grave No. 26) and of axes (Wilczyce), as well as the production of blades (Kichary Nowe, Grave No. 29).
3. The selection of specimens for deposition in graves was not always focused on their further "production" usefulness, although it cannot be ruled out that several flakes, and especially blade fragments, could still be used to make, for example, arrowheads. However, most of the specimens in the analysed deposits were post-production waste, completely useless from economic point of view. It would therefore be mainly a kind of "negative selection", although undoubtedly deliberate and targeted. It was also Piotr Włodarczak who pointed to a similar way of selecting materials when

discussing the deposit from Grave 3 at Zielona, Proszowice district (Włodarczak 2004: 335).

4. The current division of flint materials from grave inventories into two groups: semi-raw materials "used as tools" and that "for tool production" (Włodarczak 2006: 32) should be supplemented with a third category: "flint production waste", selected or not, but undoubtedly deliberately deposited.

Therefore, graves associated with the Corded Ware culture contained not only functional things (vessels, tools, personal ornaments, and, partly, flint blank material), but also "useless" flint waste, which, however, was clearly important to the communities of that time, as indicated by the repetitiveness of this phenomenon. This was probably related to some aspects of the funeral ritual, which are difficult to specify at present: perhaps it was the chocolate raw material that was important? Or perhaps the fact that the deposit was prepared on the spot just before the deceased was laid to rest in the grave was important?

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