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OLD FIND – NEW INFORMATION. HOARD OF LONG FLINT BLADES FROM WĄWORKÓW (SANDOMIERZ UPLAND, POLAND)

ABSTRACT

Mączyński P. 2024. Old find – new information. Hoard of long flint blades from Wąworków (Sandomierz Upland, Poland). *Sprawozdania Archeologiczne* 76/1, 427-443.

Deposits of flint blades have been found in southern Poland for many years. These finds, although rare, due to their nature have aroused the curiosity of many researchers. One such assemblage, consisting of seven macrolithic chocolate flint blades, was discovered in 1958 in the village of Wąworków, Opatów District. In order to understand the reasons for depositing these lithics in the ground and to uncover all the secrets they conceal, the artefacts were subjected to multidimensional research. In the first phase of the studies aimed at analysing and recording the assemblage, a detailed description of the specimens was made, and raw material, technological, and functional analyses were carried out. Then, on the basis of the collected data, an attempt was made to establish their age, cultural provenance, and final interpretation.

Keywords: long blades, chocolate flint, use-wear analyses, Lublin-Volhynian culture, Funnel Beaker culture
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INTRODUCTION

A deposit of seven blades made of chocolate flint, described below, is kept in the Department of Archaeology of the National Museum in Kielce. According to the information available to us, they were discovered by chance in September 1958 while ploughing a field in the village of Wąworków, Opatów District. This unique hoard of flint blades has not yet been studied in detail. Assemblages of this type are relatively rare finds (Fig. 1; see Florek and Zakościelna 2003, 51; Mączyński and Polit 2018, 142). Usually, artefacts deposited in the ground are interpreted as evidence of armed conflicts, during which their owner, in order to save some of his/her property, decides to bury it in the ground. This is, of course, only one interpretation. It is equally probable that the products deposited in the pits may be testimony to the rich spiritual realm and beliefs of ancient communities. If this is the case, they should be interpreted as a remnant of ancient rituals associated with, for example, making offerings to deities or as a foundation deposit (see Kaflińska 2006, 8-10).

To understand the reasons that prompted the last owner of the blades to deposit the hoard, analyses were carried out to establish their chronology and cultural provenance. In addition, a technological and functional analysis was carried out to obtain the broadest possible picture.

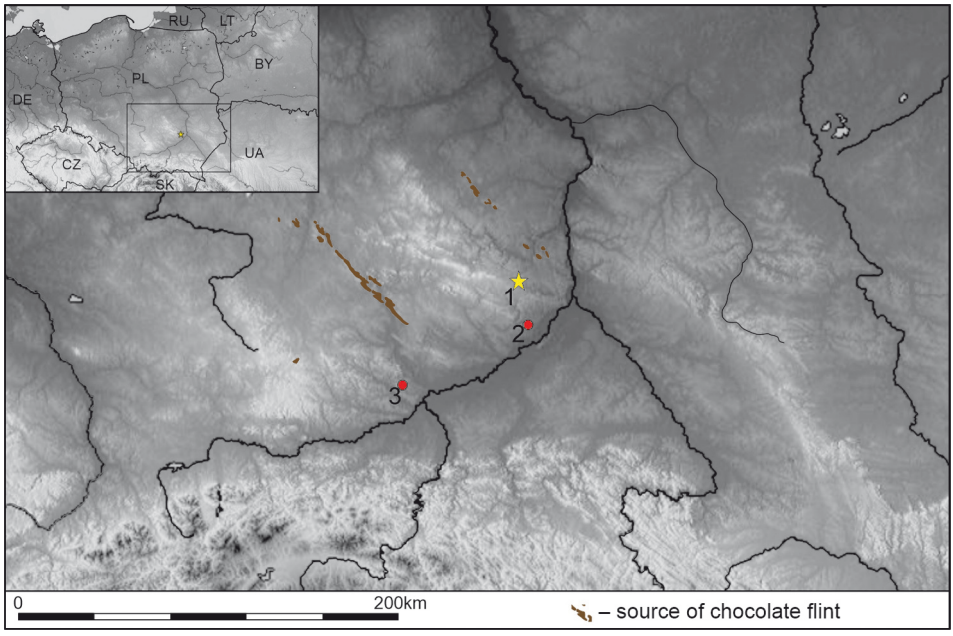

Fig. 1. Map of the deposits containing long flint blades made of chocolate flint:
1 – Wąworków; 2 – Krowia Góra; 3 – Pełczyska.
Prepared by P. Mączyński (after Sudoł-Procyk 2022, fig. 1; base map: https: //maps-for-free.com)

PRESENTATION OF THE MATERIAL

1. Blade with irregularly shaped lateral edges removed from a single platform core. Negative scars of two previously removed blades are visible on the dorsal side, the surface of the left part of the blade is formed by the cortex and a surface created as a result of a thermal crack, slightly curved in the middle part; trapezoidal cross-section; multi-scarred butt (rather faceted); platform edge trimming; mildly prominent bulb. The tip is broken off. The blade can be refitted with blade No. MNKi/A/5666/4 (item 2 below). Dimensions: length: 177 mm, width: 26 mm, thickness: 10 mm; weight: 43 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/3 (Fig. 2: 1, 3; 3).

2. A lengthwise cortical blade with irregularly shaped lateral edges removed from a single platform core, with negative scars on the dorsal surface formed by a previously removed crested blade and fragments of trimming negatives. There are also two visible negative scars formed by the flawed attempts to remove blades. The specimen is slightly bent in the mesial part; trapezoidal/triangular cross-section; multi-scarred (faceted) butt; platform edge trimming?; mildly prominent bulb with a visible bulb scar. The bottom part of the right edge of the blade is damaged by contemporary retouching. The tip is broken off. Dimensions: length: 167 mm, width: 26 mm, thickness: 11.5 mm (the refitting shows that it should be 19 mm longer); weight: 52 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/4 (Fig. 2: 2, 4).

3. Blade with regularly shaped lateral edges removed from a single platform core. Negative scars of three previously removed blades are visible on the dorsal surface. The specimen is bent in the top part; trapezoidal cross-section; butt bearing two negative scars; platform edge trimming and abrasion; mildly prominent bulb. Fragments of a crest are preserved near the tip of the blade. The right edge of the blade is badly damaged by contemporary retouching, the blade is broken into three pieces. The tip is broken off. The blade can be refitted with blade No. MNKi/A/5666/1 (item No. 4 below). Dimensions: length: 163 mm, width: 19 mm, thickness: 9 mm; weight: 33.5 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/5 (Fig. 4: 1, 3).

4. Negative blade with regular lateral edges, removed from a single platform core. Negative scars of three previously removed blades are visible on the dorsal surface. The specimen is bent in the central part; the apical part shows a fragment of a crest, trapezoidal cross-section; butt bearing two negative scars; platform edge trimming, abrasion; weakly distinct bulb with a visible bulb scar. Both edges of the blade are damaged by contemporary retouching forming notches. Dimensions: length: 155 mm, width: 23 mm, thickness: 10 mm; weight: 43.5 g. (the refitting shows that it should be 6 mm longer). Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/1 (Fig. 4: 2, 4).

5. Blade with regularly shaped lateral edges removed from a single platform core. Visible negative scars on the dorsal surface formed by at least two previously removed blades; along the left side of the blade there is a regular cortical surface along its entire length. The

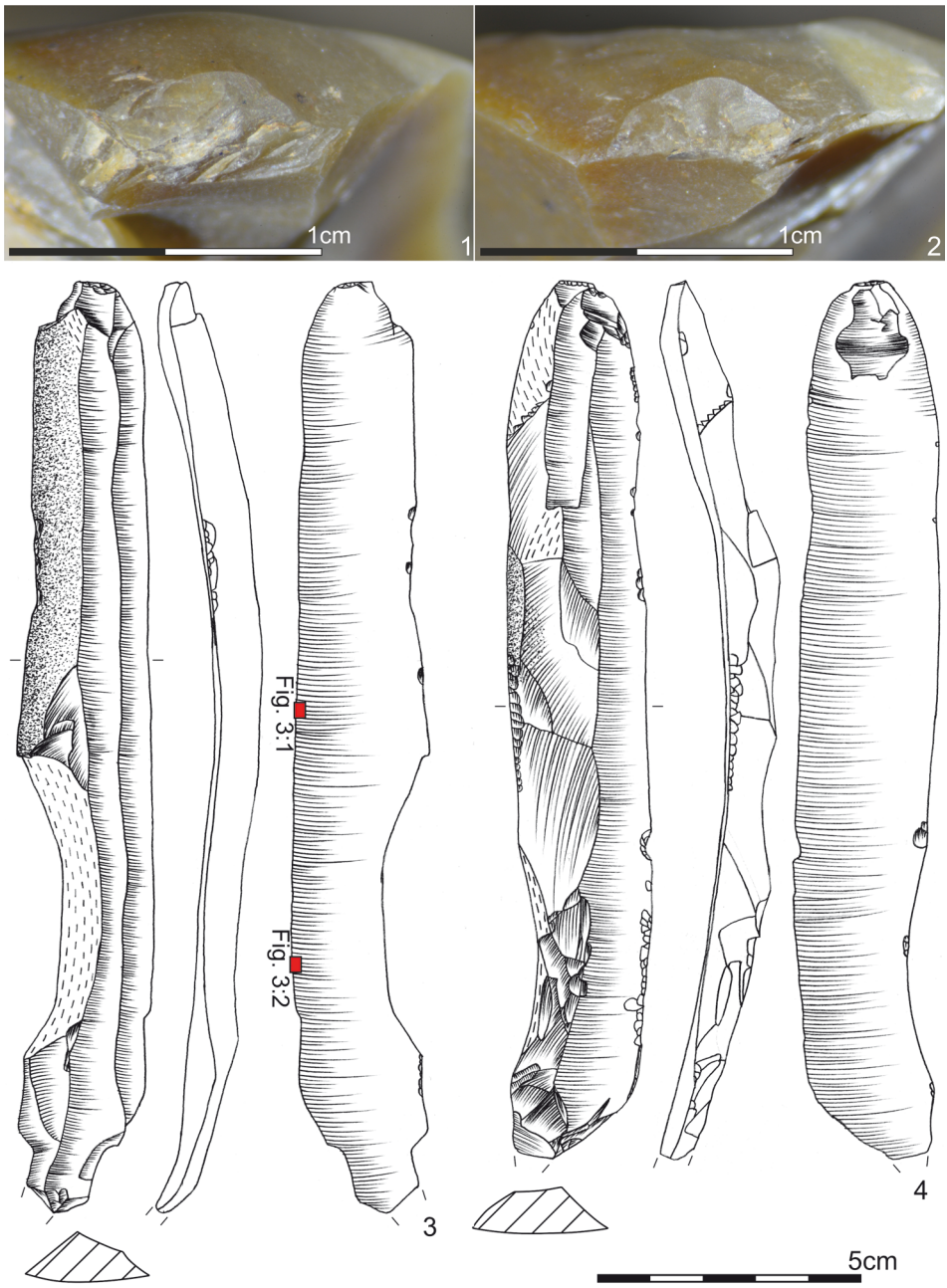

Fig. 2. Wąworków, Opatów District.
1, 3 – Flint blade No. MNKi/A/5666/3; 2, 4 – Flint blade No. MNKi/A/5666/4.
Drawn and photo by P. Mączyński

specimen is bent in the top part; the apical part shows a crest-type correcting retouching, trapezoidal cross-section; multi-scarred butt; platform edge trimming; mildly prominent bulb with a visible bulb scar. The tip is slightly broken off. Dimensions: length: 159 mm, width: 23 mm, thickness: 9 mm; weight: 40 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/6 (Fig. 5: 1, 3).

6. Blade with regularly shaped lateral edges removed from a single platform core. Negative scars of three previously removed blades are visible on the dorsal surface. The specimen is bent in the top part; trapezoidal cross-section; planar butt bearing two (?) negative scars; platform edge trimming; mildly prominent bulb. The blade is broken into two parts. The tip is slightly broken off. Dimensions: length: 156 mm, width: 23 mm, thickness: 11 mm; weight: 43.5 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/7 (Figs 5: 2 and 4; 7).

7. Blade with regularly shaped lateral edges, removed from a single platform core. Negative scars of three previously removed blades are visible on the dorsal surface, in addition, there are visible fragments of trimming negatives on the upper right side and cortical surfaces on the lower part. The specimen is bent in the central part; pentagonal cross-section; enéperon butt bearing two negative scars; platform edge trimming/ abrasion; mildly prominent bulb with a visible bulb scar. The left edge of the blade is damaged by contemporary retouching. The tip is broken off. Dimensions: length: 141 mm, width: 31 mm, thickness: 7 mm; weight: 34 g. Raw material: chocolate flint with visible stripes. Inventory number MNKi/A/5666/2 (Fig. 7).

MORPHOLOGICAL AND TECHNOLOGICAL ANALYSIS

The blades in question are chance finds. Their discovery, which was made during farming activity, negatively affected their state of preservation – four of the specimens show modern damage as a result of contact with agricultural machinery. This was probably also the reason

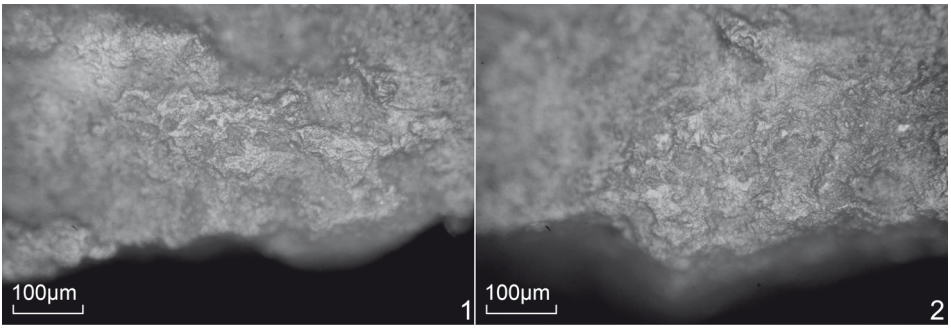

Fig. 3. Wąworków, Opatów District.
1, 2 – poorly developed polish visible on the edge of the blade No. MNKi/A/5666/3.
The origin of the polish is unclear. Photo by P. Mączyński

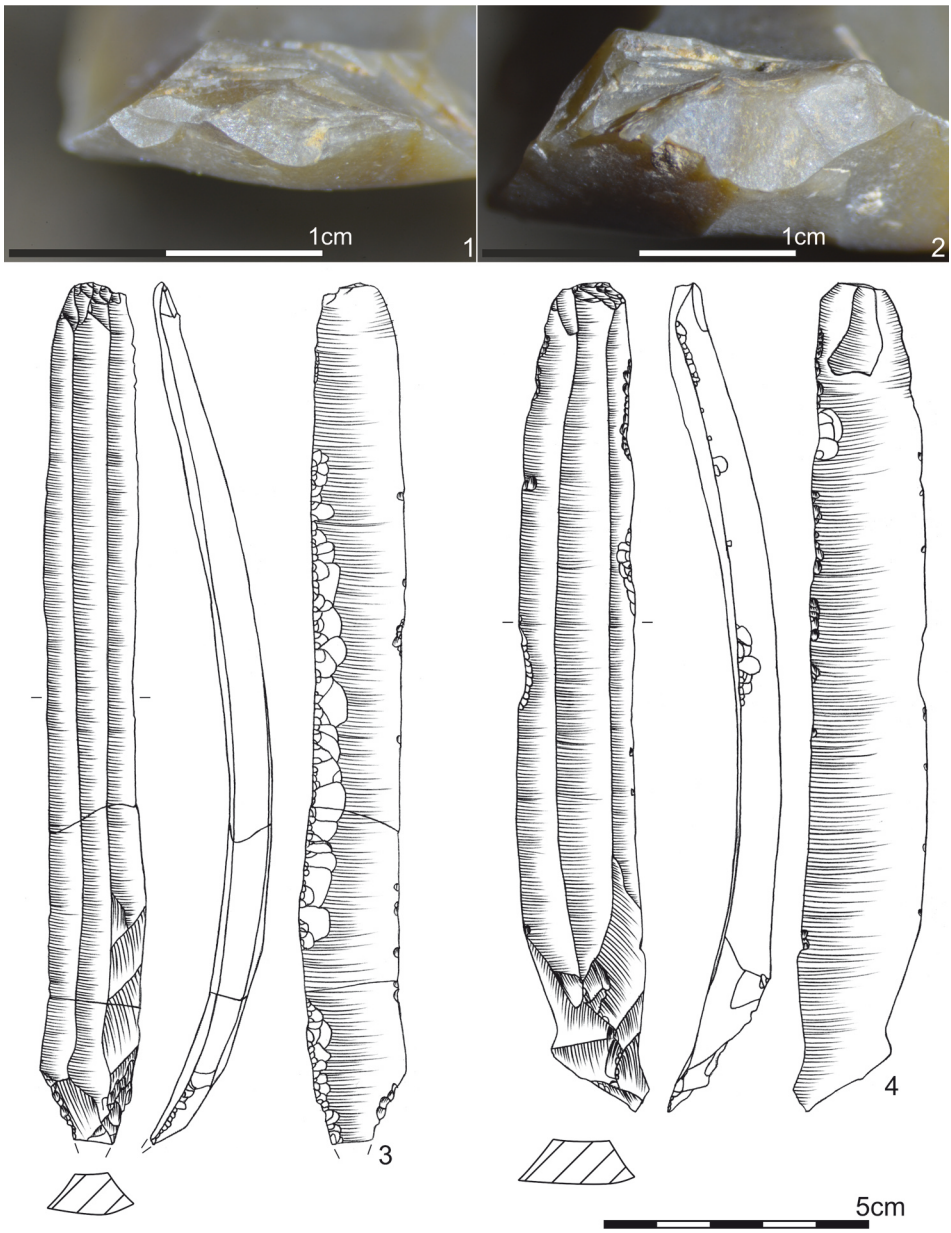

Fig. 4. Wąworków, Opatów District.
1, 3 – Flint blade No. MNKi/A/5666/5; 2, 4 – Flint blade No. MNKi/A/5666/1.
Drawn and photo by P. Mączyński

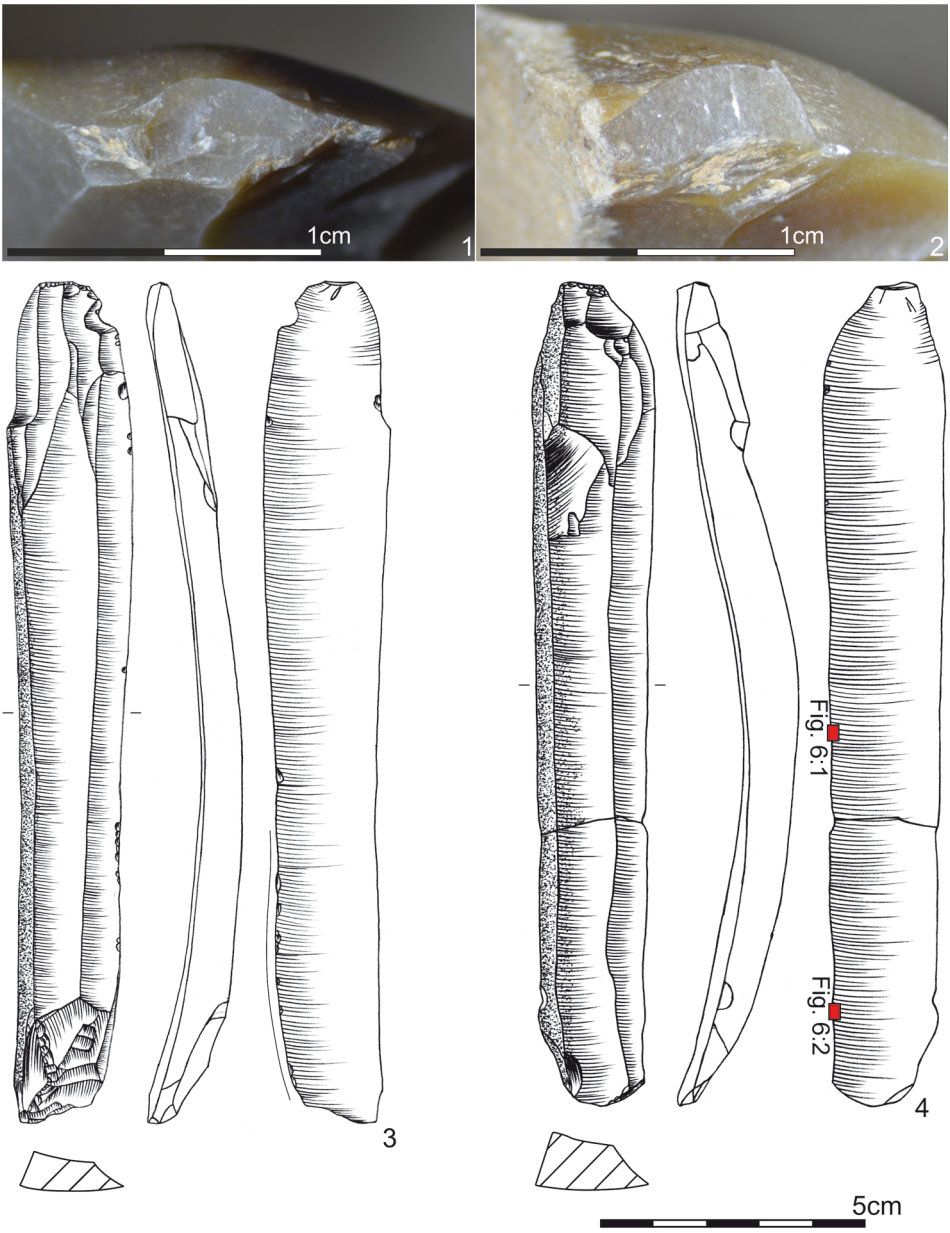

Fig. 5. Wąworków, Opatów District.
1, 3 – Flint blade No. MNKi/A/5666/6; 2, 4 – Flint blade No. MNKi/A/5666/7.
Drawn and photo by P. Mączyński

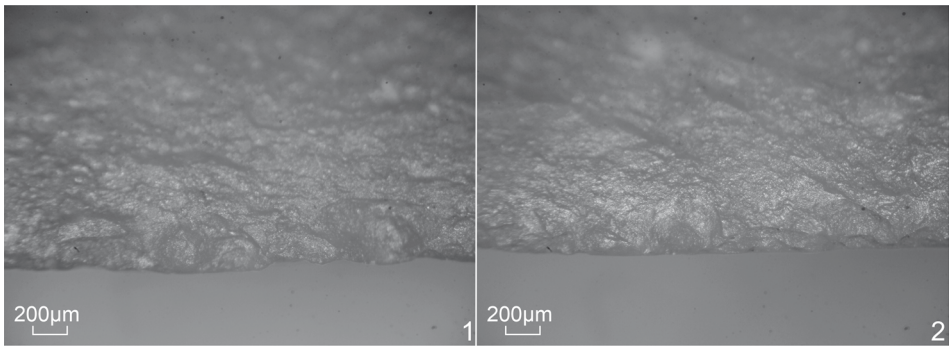

Fig. 6. Wąworków, Opatów District.
1, 2 – retouch visible on the edge of the blade No. MNKi/A/5666/7 interpreted as traces of transport (?).
Photo by P. Mączyński

why two of the specimens were broken into two and three pieces. Also, all blades have a slightly broken tip. Such a frequency may suggest that at least in some cases this was intentional.

Furthermore, all blades have a similar, brown colour with a characteristic striping (Fig. 8). This may be a premise suggesting that at least some of the artefacts were removed from a single lump of raw material. However, this supposition is not reflected in the refittings. Only two matches were obtained. The first refitting concerns two blades removed at an early stage of the core exploitation process, as evidenced by the fragments of the crest negative scars and the cortical surfaces (Fig. 2: 3, 4). Another refitting combines two blades with negatives and cortex surface (Fig. 4: 3, 4).

All the products are characterised by a fairly high degree of regularity and a very similar morphology. Only two of the specimens are an irregular form (Fig. 2: 3, 4). Most of them have relatively parallel sides and ridges (Fig. 4: 3, 4; 5: 3, 4; 7: 2). Their side profiles thin down towards the apex with the greatest thickness usually occurring near the mesial part. On the upper surfaces, the specimens bear traces of previously removed three to five blades. The lateral projection is characterised by an arched profile. The curvature of the majority of the specimens was recorded in the mesial part (Fig. 2: 1, 2; 4: 4; 5: 3, 4; 7: 2), less frequently at the top (Fig. 4: 3). Six specimens have a very fine lip underneath which there are mildly prominent bulbs, in several cases these are partially removed by the bulb scar.

In the course of the analyses, an attempt was made to reconstruct the core exploitation technique used to manufacture the blades. Experimental studies indicate that two different techniques may result in the production of flint forms with parameters similar to the blades discovered at Wąworków. The first one, called the indirect percussion technique, involved applying to the edge of the butt a punch (made usually of bone or antler) that was struck with a stone or wooden hammer. With this type of operation, the core was most likely stabilised between the flintknapper's thighs. In the second technique, the core was immovably put in a grip placed on the ground and the force necessary to obtain blades was

generated by applying strong pressure to the edge of the core's butt using a wooden lever. Due to the similarity of morphological features, distinguishing the indirect percussion technique from the lever pressure technique is sometimes difficult and not always possible (see Inizan *et al.* 1999, 76, 78; Migal 2002, 264; 2003, 61; Pelegrin 2002; 2006, 39-47;

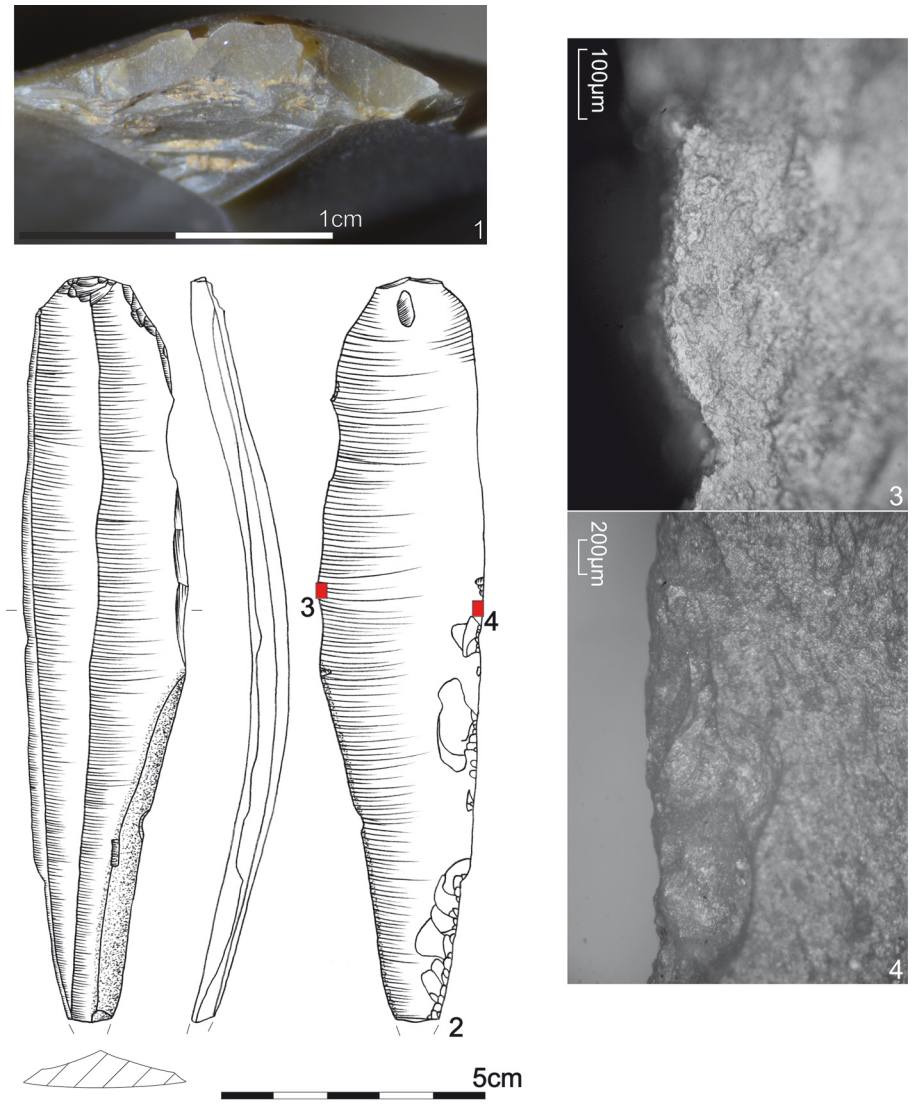

Fig. 7. Wąworków, Opatów District.
1, 2 – Flint blade No. MNKi/A/5666/2; 3 – poorly developed polish visible on the edge of the blade. The origin of the polish is unclear; 4 – retouch visible on the edge of the blade interpreted as traces of damage in transport(?). Drawn and photo by P. Mączyński

Fig. 8. Colour diversity of chocolate flint based on the example of the materials from Wąworków. Photo by P. Suchanek (MNKi)

2012; Budziszewski and Grużdź 2013, 167-169). Furthermore, the rather small sample of available artefacts, consisting of only seven specimens, creates additional uncertainty, as this sample may not be sufficient when analysing technological features.

As indicated above, some of the artefacts from Wąworków have very parallel sides and ridges (Fig. 4: 3, 4; 5: 3, 4). On the one hand, these features bring them closer to the blades obtained by the lever pressure technique. However, all the specimens lack the bending in the apical part typical of this method of obtaining blades. The artefacts are also quite thick. The forms created using the lever pressure technique are usually characterised by a slight curvature and are relatively thin and narrow. Thus, we are unable to attribute these features to the forms from Wąworków.

It is also worth bearing in mind that the chocolate flint has very good knapping qualities and, furthermore, some of the blades have been removed from a core for which a plate-shaped concretion of flint with flat, even sides has been adapted. Both of these features facilitate obtaining long blades with straight edges.

The above-mentioned deliberations do not make it possible to state unequivocally which method was used in the manufacturing of the discussed hoard of blades. However, many of the morphological features observed on the material from Wąworków seem to indicate that probably the indirect percussion technique was used in their production.

USE-WEAR ANALYSIS

Use-wear analyses were carried out using two types of microscope.The applied method of conducting microscopic observations does not deviate from general guidelines for such research (Vaughan 1985, 6, 16; van Gijn 1989, 12, 13; Korobkowa 1999, 15; Osipowicz 2010, 24, 25). In the initial phase of the study, Carll Zeiss SteREO Discovery.V8 equipment providing actual magnification between 10× and 80× was used. Magnification up to 40 times was used in the studies. The microscope was equipped with a dedicated source of cold LED light. The next step of the research involved the observation of artefacts using a Meiji Techno MC-50T apparatus, which is a metallographic microscope capable of much greater magnifications – between 50× and 500× (zoom 50×/ 100×/ 200× was used). The magnification obtained with it enables the free observation of use-wear polish/abrasions and traces in the form of lines. Prior to the analysis, the flint specimens were cleaned with acetone to degrease their surfaces and remove fingerprints.

The study was directed towards the analysis of several aspects. The primary goal was the observations carried out to identify traces related to the use of hafts and wrappings/sheaths. The next stage of the analysis focused on the observation of the surface of the butts in order to identify traces that might indicate the type of raw material from which the tools used in their manufacture were made.

The surface of the artefacts was covered with a bright patina penetrating into the structure of the flint, altering its natural surface. Microscopic observations did not reveal linear traces of use-wear, and very faint weak polish was sometimes recorded, most probably related to the impact of post-depositional processes (Figs 3: 1, 2; 7: 3). On the other hand, multi-step continuous scars were observed on the lateral edges of all blades (Figs 6: 1, 2; 7: 4). This damage was undoubtedly caused by their contact with hard material. These transformations are also covered by patina, suggesting that they were formed as early as the prehistoric period probably before the blades were deposited in their hiding place.

Usually, scars are among the low-distinctive transformations and an analysis based on them alone is not very certain. Nevertheless, it seems that some of them may be of a use-wear nature. They may, for example, have been created during a short-term work. Such a situation is recorded on one edge of blade No. 5. As it seems, this edge may have been used for scraping/shaving hard material, like bone or antler (Fig. 5: 3). What is important, these transformations are not accompanied by linear traces or polish. Unfortunately, the rather limited nature of the traces makes this a rather questionable interpretation. Thus, how can we interpret the scars recorded on the edges of virtually all blades? It seems that these transformations were created during the transport of the blades without due protection (for example the use of a wrapper). Experimental studies have proven that transporting blades in a single container resulted in the formation of numerous scars on the edges of the lithics as the flint blades bumped against each other. We need to bear in mind that the location of the blade deposit is approximately 20 km as the crow flies from the nearest chocolate flint outcrop (see Mazzucco and Clemente 2013, fig. 3: a-d).

Butt surfaces were also examined to identify transformations that occurred during the blade manufacturing process. These analyses, however, do not identify the method used in their production but only allow us to identify the type of material of which the tools used in the process were made, *i.e.*, stone or bone/antler. In addition, there is also the hypothetical possibility of recording traces of copper, which would confirm the use of a copper tool. Unfortunately, no such transformations were registered.

DISCUSSION

So far, apart from the aforementioned assemblage, we know of only two other assemblages of macrolithic blades made of chocolate flint. The first deposit was discovered in the village of Krowia Góra, Site 14, Sandomierz District. It comprises a total of 24 blades, including both fully and fragmentary preserved artefacts (Florek and Zakościelna 2003, 51; Migal 2003; Skakun *et al.* 2008, 429). Six specimens were lost during the discovery of the assemblage. This fact indicates that the originally deposited assemblage was most likely larger. Furthermore, some of the blades forming the assemblage were recovered during rescue work carried out at a later date. The artefacts were not accompanied by fragments of clay vessels that could have contributed new information regarding the dating of the materials. No traces of archaeological features were also recorded (Florek and Zakościelna 2003, 51).

The second assemblage was obtained as a result of a chance discovery in the village of Pełczyska, Pińczów District. It consists of three well-preserved flint blades. As in the case of the discussed assemblage from Wąworków, these finds also have a very poorly documented context of their discovery, and no ceramic material was discovered with them either. Therefore, it is not possible to clearly determine their chronology and cultural provenance (Mączyński and Polit 2018, 150).

It is worth mentioning that for both above-mentioned assemblages of blades – from Krowia Góra and Pełczyska – a use-wear analysis was performed. The materials from Krowia Góra were examined by Natalia N. Skakun for the presence of use-wear transformations. As a result, changes were found on the surface of 18 of the 24 specimens, indicating their use as knives for cutting soft material – like meat (see Skakun *et al.* 2008, 429, 432). The analysis of the flint artefacts comprising the second of the mentioned assemblages did not reveal any functional changes on their surfaces; only the presence of numerous removals along the edges of blades was noted, potentially indicating evidence of damage in transport (Mączyński and Polit 2018, 149).

Unfortunately, due to the chance find nature of the assemblages from Krowia Góra and Pełczyska, we cannot use these finds to date the collection from Wąworków presented in this paper. However, while discussing this issue we can instead rely on general findings related to the use of chocolate flint raw material and long blades by Neolithic communities.

All of the examined flint blades are characterised by their significant dimensions. The size of the artefacts ranges from 141 to 177 mm, prompting their classification as macrolithic specimens. These forms were discovered in the Sandomierz Upland, and the only communities inhabiting this area in prehistory with the sufficient skills and knowledge necessary to produce blades of similar size were the people representing the Lublin-Volhynian culture and the Funnel Beaker culture (Zakościelna 1996, 44; 2008, 578; 2010, 137; Budziszewski 2000, 258, 259; Migal 2006, 398).

The analysis of the differentiation in the use of siliceous rocks provides some information on the attribution of the discussed assemblage to one of these communities. Thanks to its application, we are able to obtain data relating to the raw material preferences of individual Neolithic groups. When manufacturing lithic forms, the people of the Lublin-Volhynian culture primarily used chocolate flint and Volhynian raw material, while at the same time it is worth noting that the use of chocolate flint is typical of communities that inhabited areas to the west of the Vistula River and in the western part of Lublin region (Zakościelna 1996, 19-26; Zakościelna and Libera 2013, 277-283).

At the same time, a very different situation concerning the supply of raw material is observed in flint assemblages associated with the Funnel Beaker culture. The people of this group inhabiting the area of the Lesser Poland Upland relied on the sources of the Volhynian flint, Cracow-Jurassic flint, Świeciechów flint, and striped flint for the production of tools, while artefacts made from chocolate flint accounted only for a small percentage of the lithic material known to us (Balcer 1983, 131; Budziszewski 2000, 258, 259; Libera and Zakościelna 2011, 89-93; Zakościelna and Libera 2013, 283-289). However, it is worth noting that this is typical for this region, because in other areas the situation with the use of raw materials could be different, for example, in the Kujawy area, the people of the Funnel Beaker culture widely used chocolate flint for tool production (Balcer 1983, 123; Prinke and Rachmajda 1988, 118; Domańska 2013, 101; Papiernik 2016).

The presented variation in the use of siliceous rocks does not determine unequivocally the cultural affiliation of the Wąworków blade assemblage. However, the fact that chocolate flint was used may indicate a link to the community of the Lublin-Volhynian culture.

In determining the cultural provenance of the assemblage, the context of the discovery is also important. Usually, discoveries of hoards are interpreted as votive offerings given to deities or as foundation deposits. Their discovery may indicate the special significance of the place where they are deposited. In the case of the communities of the Lublin-Volhynian culture, the deposition of hoards has not been attested in archaeological sources (Florek and Zakościelna 2003, 58). Such evidence of ritual practices is, however, known from the community of the Funnel Beaker culture, which quite commonly deposited hoards consisting of both flint artefacts (axes, long blades), copper artefacts (tools, jewellery as well as raw material), and pottery. So far, several dozen assemblages of this type are known to have been discovered on settlement sites, in funerary contexts or associated with deposi-

tion in water bodies (Kadrow 1988, 27, 30, 32; Libera 2003, 37; Kaflińska 2006, 8-10; Libera and Zakościelna 2010, 91-97; Libera *et al*. 2019, 198; Zakościelna 2022, 414, 416).

If we accept the hypothesis that the creators of the deposit were the people of the Funnel Beaker culture, in such a situation, then the blades made of chocolate flint may have come into their possession as a result of trade exchange, as gifts, or as spoils of war. The hostile attitude of both cultures (at least in some periods and regions) is suggested, among other things, by traces of hostile occupation of the territory, resulting, among other things, in the destruction of Lublin-Volhynian culture funerary features, as evidenced, *inter alia*, by materials from Gródek and Książnice. In both cases, earlier burial pits were destroyed by settlement features of the Funnel Beaker culture (Libera and Zakościelna 2006, 161; Wilk *et al*. 2006, 90, 91).

CONCLUSIONS

In conclusion, we are unable to unambiguously determine the cultural provenance of the analysed assemblage, although its manufacture and deposition in the ground were undoubtedly associated with the activity of Neolithic communities. The choice of chocolate flint raw material as a material for the production of the discussed blades indicates their affiliation with the community of the Lublin-Volhynian culture. This population, however, did not make sacrificial offerings. Such behaviour was practised by members of the Funnel Beaker culture communities. Unfortunately, it is difficult to find an explanation as to how this community could have come into possession of an assemblage of flint blades made from chocolate raw material. It is possible that this occurred through trade exchange or was the consequence of a successful war expedition carried out by the people of the Funnel Beaker cultures into areas occupied by the Lublin-Volhynian culture population. Such or similar interpretations, although currently impossible to prove, seem to explain both the type of flint raw material used and the deposition of blades in the ground.

Regrettably, due to the lack of detailed information relating to the circumstances of the discovery of the hoard, we are unable to unequivocally answer many of the questions we have concerning the artefacts in question. However, in the light of the conclusions obtained, the presented deposit of flint artefacts can undoubtedly be regarded as a unique find on the regional scale.

Acknowledgements

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