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MAGDALENIAN SETTLEMENT IN THE SOUTH-EASTERN PART OF THE RYCZÓW UPLAND (POLISH JURA). NEW DATA AND THE IMPORTANCE OF THE REGION

ABSTRACT: *Magdalenian sites in the area of the Ryczów Upland (central part of the Kraków-Częstochowa Upland) belong to extremely rare finds, and until recently they had been identified almost exclusively with short-term campsites in the region of the Kroczyckie Rocks, situated in the north-eastern part of the Upland under scrutiny. Therefore, new sites associated with the Magdalenian Culture presented in this paper are so important. These sites were encountered in the south-eastern zone of the Ryczów Upland. As proved by the conducted studies, the above-mentioned zone is at the same time very rich in siliceous rocks of excellent quality. It seems that the location of the sites addressed in this paper is directly connected with raw material management focused on these high-quality flint materials, and the region under scrutiny could have played a significant role in communication routes of Magdalenian communities.*

KEY WORDS: *Magdalenian settlement - Late Palaeolithic - Raw material - Ryczów Upland - Kraków-Częstochowa Upland*

INTRODUCTION

The Ryczów Upland is located within the central part of the Kraków-Częstochowa Upland (*Figure 1*), characterised by an occurrence of Palaeolithic sites, mostly caves, and dated from the Middle until Late Palaeolithic (Sudoł *et al.* 2016a); although, cultural layers linked with the Late Palaeolithic are rarely

encountered. Moreover, an accurate cultural identification of these sites is usually impossible due to scarce and hardly distinctive assemblages. Therefore, new sites ascribed to the Magdalenian Culture and situated in the south-eastern part of the Ryczów Upland (*Figure 1*) seem to be of great importance. This region must have been perceived as exceptionally attractive in terms of settlement conditions it offered in this particular

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period of time, and the fact of its location in close vicinity to high-quality siliceous rock outcrops could have also played a significant role in this respect (Sudoł-Procyk, Krajcarz *in press*).

The south-eastern zone of the Ryczów Upland is a region overlapping with the boundaries of the Kraków-Częstochowa Upland in the east and west, and adjoining to the valleys of the Pilica and Biała Przemsza Rivers in the north and south. The sites discussed in this paper are situated in the region of the Udorka Valley and the Barańskie Mountains. The Udorka Valley is presently a dried-out valley, with a periodical stream on its bottom, and a few caves and rock shelters on its steep eastern verge, including the Perspektywiczna Cave (*Figure 1*). The Barańskie Mountains is a cuesta-type ridge situated ca. 2–3 km to the west from the Udorka Valley. Western slope of the ridge is steep and falls down to another valley, parallel to the Udorka Valley, currently dry (Sudoł-Procyk, Krajcarz *in press*). Along its verges numerous flint outcrops have been encountered, the location of which was determined by an occurrence of outcrops of several varieties of siliceous rocks (Krajcarz *in press*; Sudoł-Procyk, Cyrek *in press*). A great majority of these sites is associated with the Neolithic period (Pelisiak 2006), although recently, nearby the localities named Kleszczowa and Cisowa (*Figure 1*), there were discovered sites, the origins of which may be linked with the Late Palaeolithic cultural units (Sudoł 2016; Sudoł *et al.* 2016a), including the Magdalenian Culture.

LATE PALAEOOLITHIC SETTLEMENT IN THE RYCZÓW UPLAND - STATE OF RESEARCH

Archaeological investigations within the Ryczów Upland have been carried out by many generations of researchers, starting from the beginning of the 20th century until present. Amongst the most significant explorers one can name L. Kozłowski (Kowalski 1951, Kozłowski 2007), K. Kowalski (Kowalski 1951), L. Sawicki (Sawicki 1953), W. Chmielewski (Chmielewska & Pierzchałko 1956, Chmielewski 1958), B. Muzolf (Muzolf *et al.* 2009, Stefaniak *et al.* 2009), A. Pelisiak (Pelisiak 2003, 2006) and K. Cyrek (Cyrek 2009).

The above-mentioned studies revealed that the sites ascribed to the Magdalenian Culture are exceptionally rare in the Ryczów Upland, and mostly represented by short-term campsites in the region of the Kroczyckie Rocks, such as: Krucza Skała Rockshelter (Cyrek

1994a) and Złodziejska Cave (Cyrek 2009). Moreover, from the Deszczowa and Kroczycka Caves scarce Epimagdalenian assemblages are known (Cyrek 1997, Cyrek *et al.* 2000). Against the background of modest flint assemblages mentioned above, the collection gathered in the Krucza Skała Shelter is surely distinctive. The latter site was investigated by Krzysztof Cyrek in the years 1989–1993 (Cyrek 1994b). The assemblage in question contains small cores for blades and flakes, accompanied by conjoinable blanks, which proves that the processing of local Jurassic flint was carried out at the site. Moreover, apart from flint specimens, the collection of artefacts encountered at this site enclosed portable art objects, among others, a fragment of an antler with zoomorphic and geometric ornament (*baquette demi - ronde*) (Cyrek 1994a, 2009).

All that was said above formed the state-of-the-art encountered by the author before she commenced her studies conducted in the scope of projects financed by the National Science Centre Poland since 2012, aimed at, among others, searching for new Palaeolithic sites in the south-eastern part of the Ryczów Upland (Sudoł *et al.* 2016a). These investigations revealed that the activity of Magdalenian hunters in this region was more intense than it had been previously assumed. This paper presents the primary results of the above-mentioned studies.

RESULTS

In 2012 during field survey conducted in the Barańskie Mountains, nearby the locality named Kleszczowa (com. Pilica, Silesian voivodeship), flint artefacts were discovered lying on the ground surface. These were mostly cores and blades made of local high-quality siliceous rocks. Based on technological and typological features the assemblage under study was primarily classified to the Late Palaeolithic cultural unit. In August 2016 an exploratory survey was carried out at the site, aimed at verification of particular spots, on the surface of which concentrations of flint artefacts were recorded, as well as confirmation and determination of cultural and chronological affiliation of the assemblage in question (Sudoł 2016). For this purpose 16 testing trenches were established, oriented along two axes: SN and WE (*Figure 2*). Based on the results of this survey the researchers managed to determine a general extent of the site situated on a well-exposed, flattened terrain, nearby the edge of the slope. In the

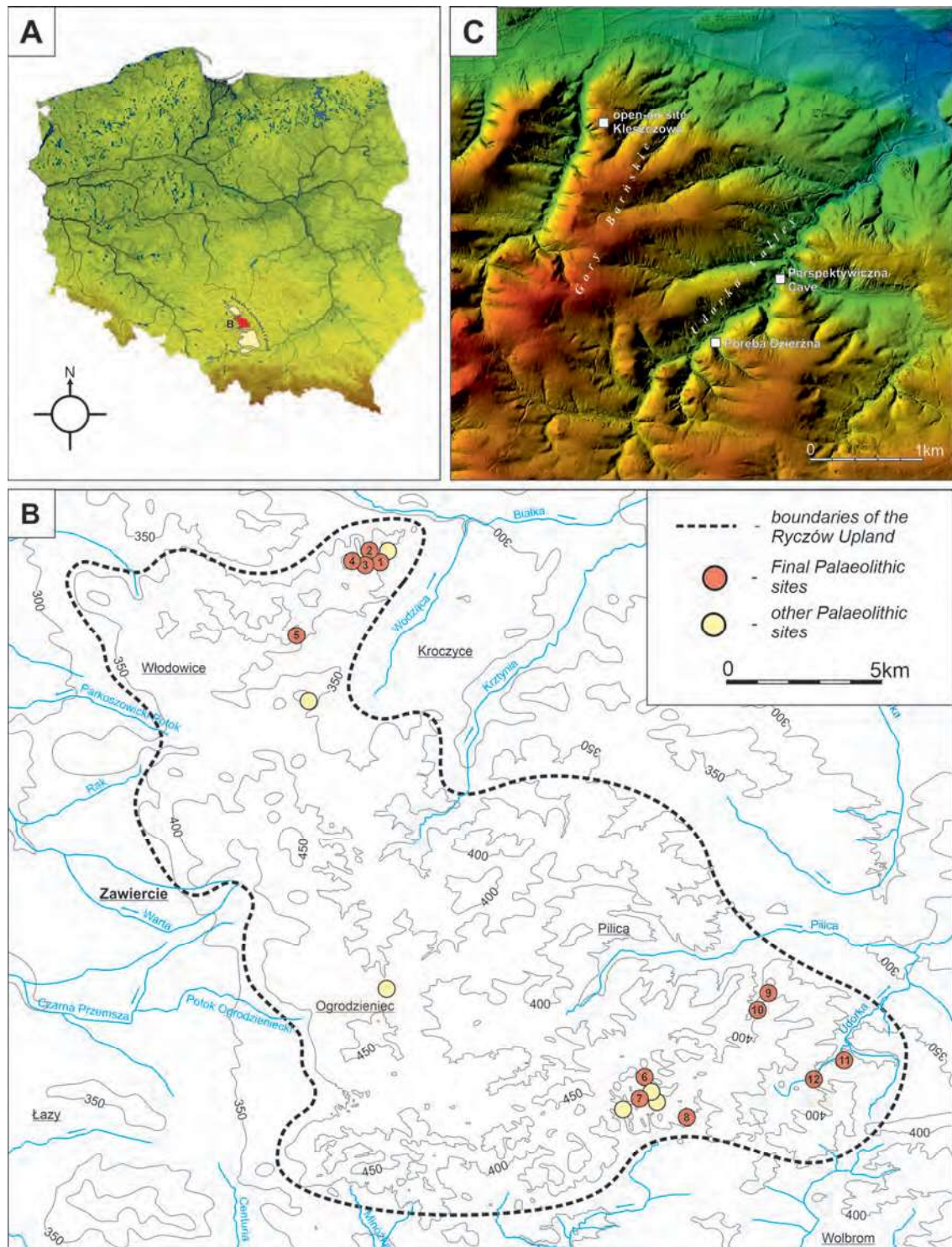


FIGURE 1. A. Location of Ryczów Upland within Kraków-Częstochowa Upland on a map of Poland; B. Location Final Palaeolithic sites in Ryczów Upland; C. Location sites described by text. Explanations plan B: 1, Krucza Skała Rockshelter; 2, Deszczowa Cave; 3, Kroczycka Cave; 4, Złodziejska Cave; 5, Shelter Ruska Skała; 6, Shelter in Smoleń III; 7, Shelter above Zegar Cave; 8, Jasna Strzegowska Cave; 9, Kleszczowa; 10, Cisowa; 11, Perspektywiczna Cave; 12 - Poręba Dzierżna 24 (?).

course of these investigations two concentrations of flints artefacts were recorded, lying within the topmost part of the "Sachalin" hill, the highest elevation of the Barańskie Mountains in this region (ca. 406 m.a.s.l.). One of these concentrations is located in the SE part of the hill, within a distance of ca. 100 m from the latter situated in the NW part of the hill (*Figure 2*). The location of the site made it a great observation point since it provided an excellent view over nearby valleys (Pilica and Udorka Valleys) and hills (Miechowska Upland and Niegowonicko-Smołeńskie Range).

Beneath the topsoil layer loess sediments occurred with a thickness ranging between 10 and 70 cm, lying directly on residual clay. The preserved loess sediments are a part of lessive soil, presently strongly eroded probably due to anthropogenic denudation processes, which was indicated by the well formed arable layer. Underneath only the rBt2 level has preserved, with characteristic alternates between bright streaks of dust material and orange streaks of enriched material with colloidal fraction. Similarly developed Bt levels are known from loess sites of the Magdalenian Culture, such

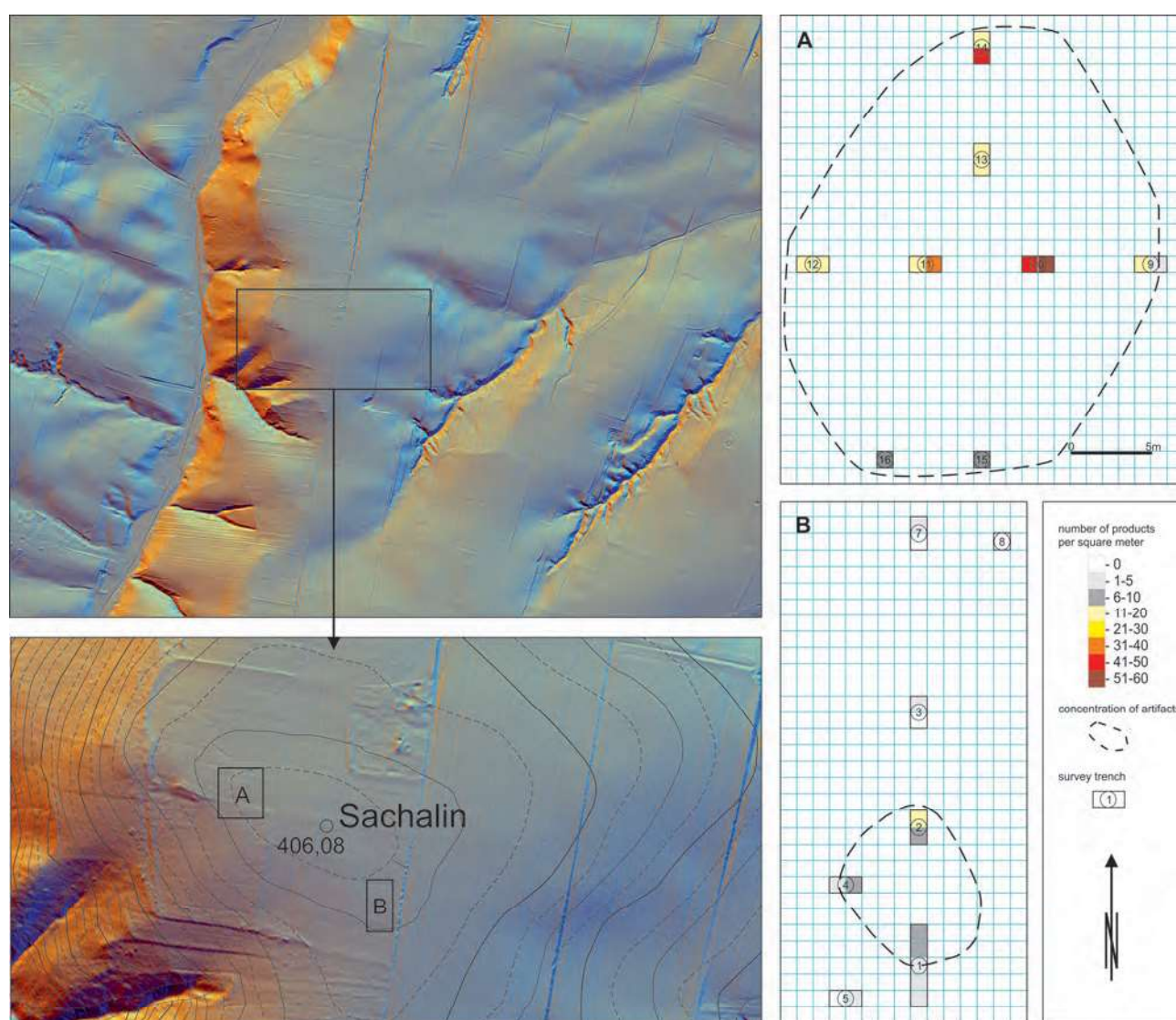


FIGURE 2: Open-air site Kleszczowa. Location in the area of Barańskie Mountains and plan testing trench (A, B) (drawn by M. Sudoł-Procyk).

FIGURE 3: Open-air site Kleszczowa. Archaeological feature (photo by M. Sudoł-Procyk).



TABLE 1: The structure of flint products* in individual testing trenches.

Trench	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Cores	3						1				3						7
Flakes	21	9		18	1		3		14	52	15	21	33	53	7	2	177
Blades	8	5		2	1				4	10	15	6	8	8	1	2	70
Technical forms	2	3	1	1					2	5	5	1	4	3			27
Endscrapers	3																3
Burins	1								1	1		1					4
Perforators	4													1			5
Retouches debitages		1								2			1	2			6
Other							2				4	1					7
Total	42	18	1	21	2	0	6	0	21	70	42	30	46	67	8	4	378

* While drawing this list author purposely omitted waste products and concretions (which are the most numerous), since the site was situated directly on the outcrop where numerous natural forms were also found and being the result of modern agricultural activity of humans

as Klementowice (Wiśniewski 2015, Wiśniewski *et al.* 2012) and Mały Gawroniec (Przeździecki *et al.* 2012).

A great majority of flint artefacts were encountered within the topsoil layer, while only few were recorded in the loess deposits (Figure 3). The latter are considered to be found *in situ*. Moreover, in one of the trenches a bottom part of a feature was captured, circular in its outline, with a diameter of 30 cm. This feature was filled up with barren loess, which delivered a TL date: 15.3 ± 2.3 ka (UG-7088). In the ceiling part of the feature there was recorded a concentration of flint artefacts, mostly initial forms of cores and blades from the preliminary stage of core preparation.

The archaeological material obtained during the exploratory survey constitutes a fragment of a larger assemblage and requires further studies to be more comprehensively characterised. A summary structure of the artefacts (Table 1) coming from the testing trenches and the ground surface in their closest surroundings indicates that the two most numerous groups of artefacts are represented by flake and blade blanks, a great majority of which are technical forms (Figure 4: 1–3). Amongst the blades noteworthy are few, though very distinctive specimens with *éperon* butts (Figure 4: 4–7). The least frequent, though very important are tools, enclosing truncated pieces (Figure 4: 8), perforators (Figure 4: 9–12), endscrapers (Figure 5: 1–3) and burins (Figure 5: 4–6), including one burin of the *Lacan* type (Figure 5: 6). Apart from a great number of blanks, there is a distinctive group of single and double platform cores, at various stages of exploitation (Figure 6: 1, 7: 1–3). Technological and typological features of the assemblage under scrutiny support classification of these workshops to the Magdalenian Culture, which is additionally proved by the TL date obtained from the filling of the feature encountered at the site.

In 2012 the same research team commenced excavations in the Perspektywiczna Cave, which are continued until present. Archaeological finds gathered at the latter site can be associated with a few settlement episodes within the cave (Sudoł *et al.* 2016b), including one ascribed to the Magdalenian Culture. This finding must be considered exceptional since despite the fact that we know a few features related with human settlement from the younger phase of the Last Glacial Period encountered in caves in the southern part of the Ryczów Upland (Figure 1, Sudoł-Procyk, Krajcarz *in press*), there is only one site, namely the Perspektywiczna Cave, where traces of the Magdalenian cultural layer have actually been confirmed.

Within the redeposited sediments by the entrance to the cave there were recorded archaeological materials, including artefacts typical of workshops. The discovered components are analogical to those gathered at the site in Kleszczowa. Moreover, radiocarbon dates obtained from animal bones confirm human activity at this site in the Late Palaeolithic (*unpublished*). The encountered flint artefacts, namely few cores (Figure 8: 1–3), blade (Figure 9: 1–4) and flake blanks, as well as numerous technical forms (Figure 9: 5–7, 9) support an assumption that flint processing was carried out at the site, and possibly these artefacts had constituted a fragment of a larger assemblage, the primary location of which has not been established yet. Among the few tools, mainly burins are dominated (Figure 9: 8, 10–11).

AVAILABILITY AND USE OF LOCAL RAW MATERIALS

In the Ryczów Upland there were distinguished several varieties of flint materials (Krajcarz *in press*; Sudoł-Procyk, Cyrek *in press*), a great majority of which are considered to be variants of the "Cracow Jurassic flint" (for example Ginter, Kozłowski 1969, Kaczanowska, Kozłowski 1976, Kaczanowska *et al.* 1979, Lech 1980). These local varieties of flints were named after lithostratigraphic units, within which they occurred, or the name of the closest locality, such as: "scyflowe", "zawodziańskie", "pileckie" cherts, or flints from Załęże, Cisowa, the Barańskie Mountains, Wierbka and Udórz (Sudoł-Procyk, Cyrek *in press*). Against this background siliceous rocks known until present exclusively from the region of the Holy Cross Mountains, namely chocolate and striped (banded) flint, are distinctive in terms of quality (Krajcarz *et al.* 2012). A great majority of flint varieties were successfully identified based on their macroscopic features, excluding those strongly affected by weathering (Krajcarz *et al.* 2017). Apart from chocolate and striped flint, other materials that were also of great importance are represented by flints from the Barańskie Mountains, corresponding with the most common Jurassic flint variant A (Kaczanowska *et al.* 1979), as well as flints from Wierbka, resembling those of variant G (Kaczanowska *et al.* 1979, Pelisiak 2003). As proved by the investigations conducted in the southern part of the Ryczów Upland, these were the siliceous rocks that played the most significant role in tool production throughout the entire Palaeolithic Age,

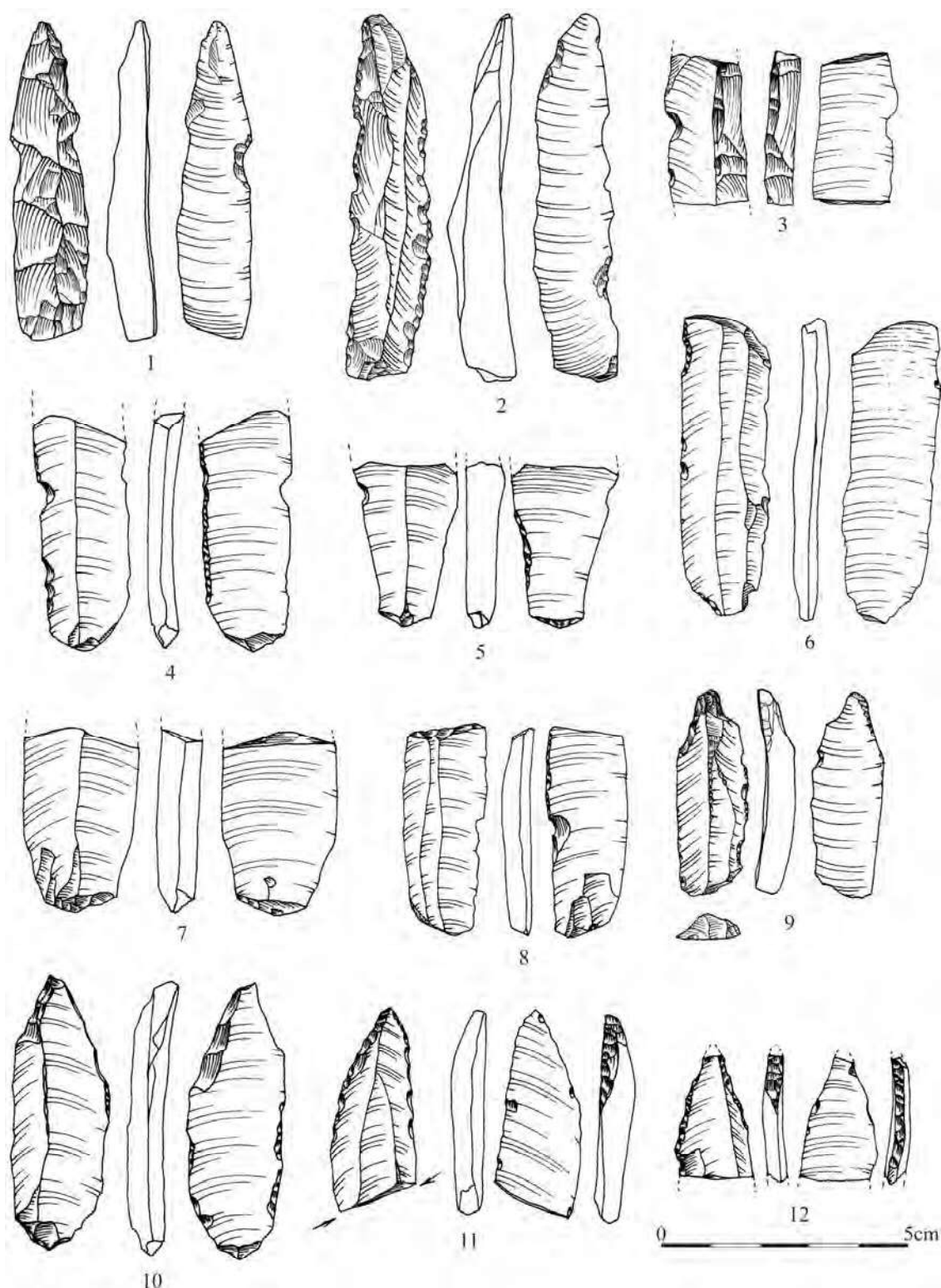


FIGURE 4: Open-air site Kleszczowa. Examples of flint artefacts: 1-3, technical blades; 4-7, 10; blades with *éperon* butts; 8, backed blades; 9-12, perforators (drawn by M. Sudoł-Procyk).

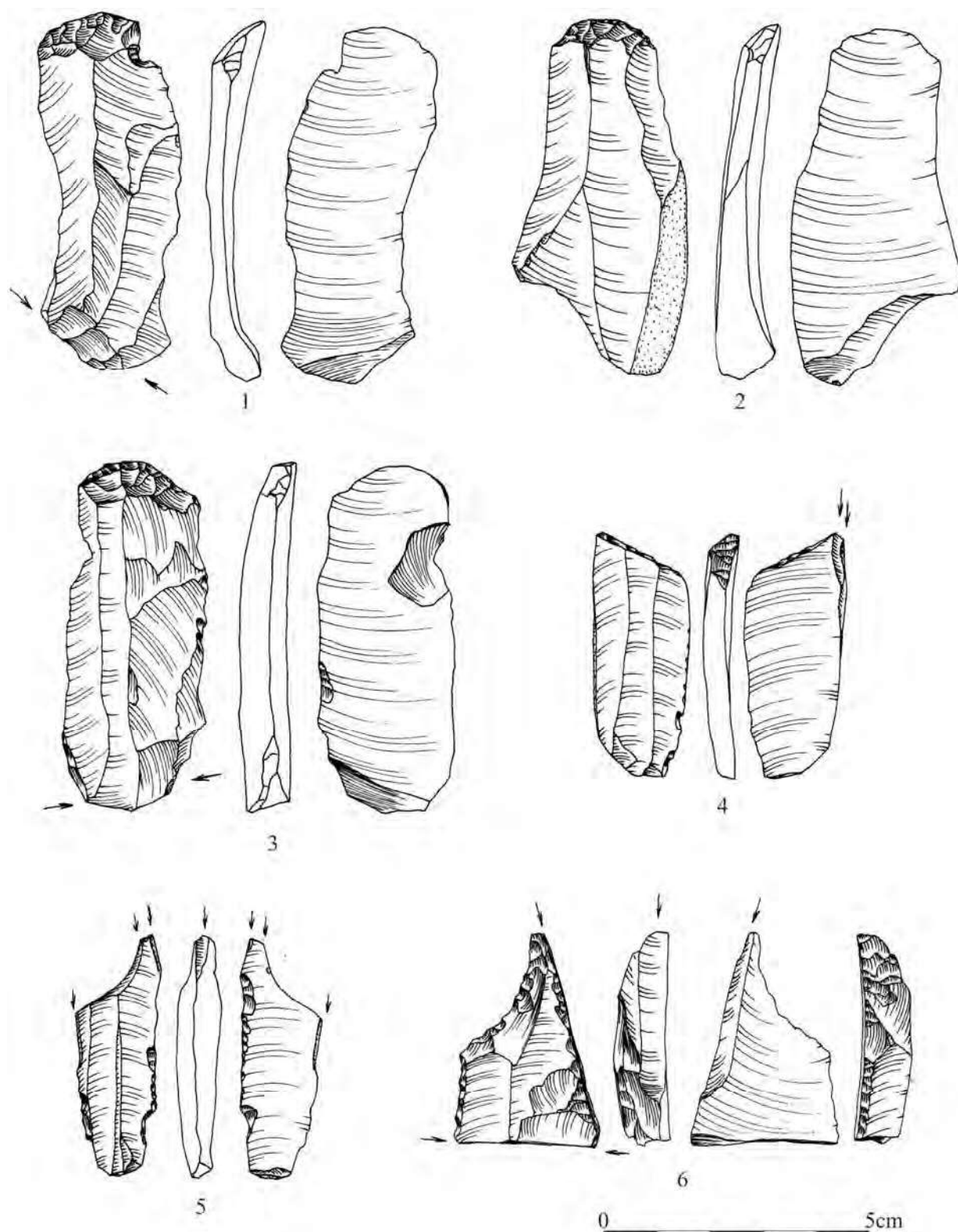


FIGURE 5: Open-air site Kleszczowa. Examples of flint artefacts: 1–3, endscrapers; 4–6, burins (drawn by M. Sudoł-Procyk).

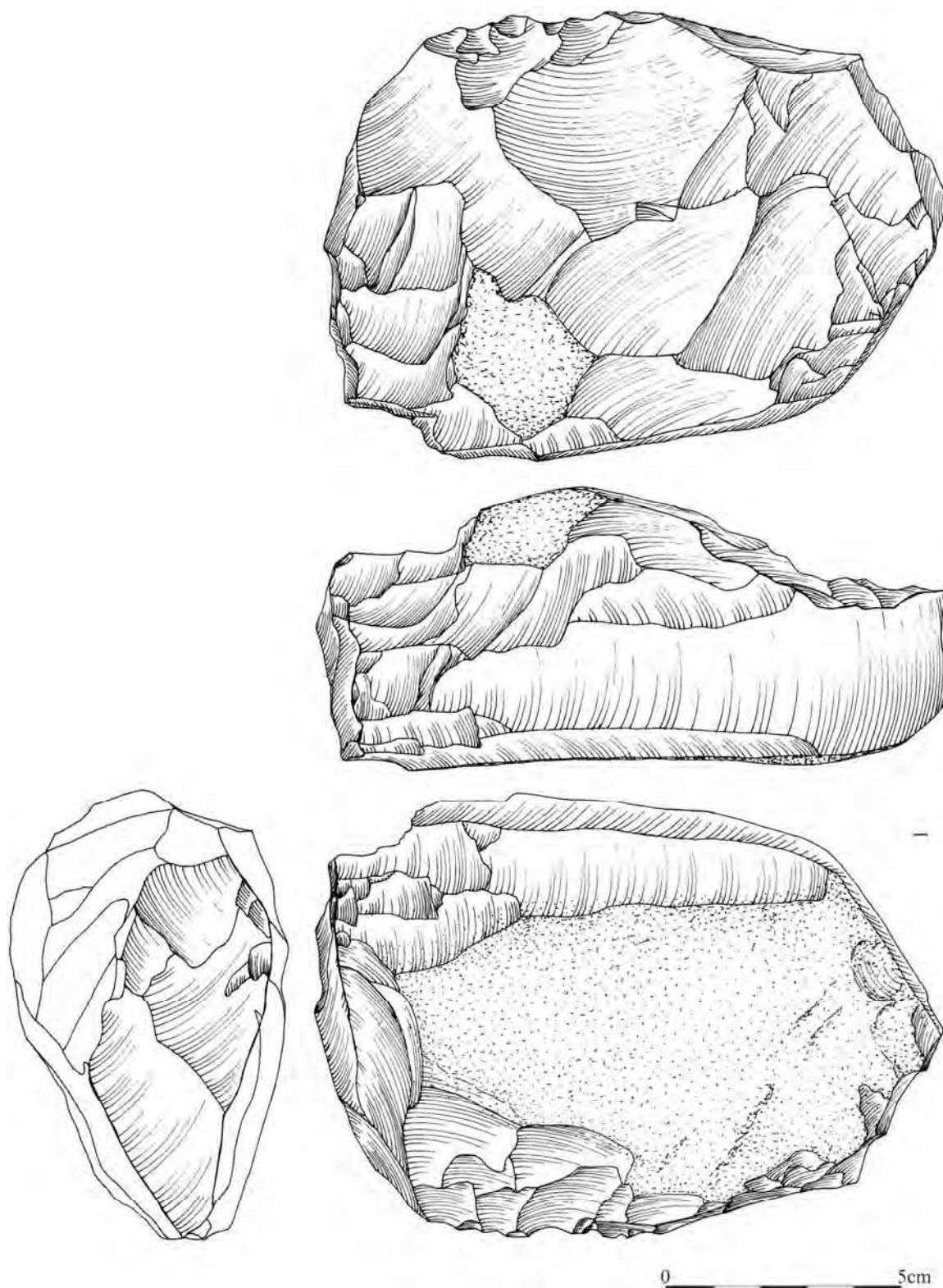


FIGURE 6: Open-air site Kleszczowa. Examples of flint artefacts: 1, initial core (drawn by M. Sudoł-Procyk).

Late Palaeolithic in particular. Other raw materials, namely flints from Załęże, Udórz, "pileckie", "zawodziańskie" and "scyflowe" cherts, were utilised only occasionally. The localisation of outcrops of particular flint varieties identified in the south-eastern part of the Ryczów Upland, as well as Late Palaeolithic sites recorded in this region is presented in *Figure 10*.

Upon analysing the raw material structure of the Magdalenian assemblages obtained from the sites in the Ryczów Upland, clear differences between the sites from the north-eastern and south-eastern zones became clearly readable. In this regard the fact that some of these sites were situated closely to the outcrops of high-quality siliceous rocks seems to be of great significance.

Scarce Late Palaeolithic assemblages encountered at sites in the region of the Kroczyckie Rocks, based exclusively on local flints, i.e. "zawodziańskie" cherts and flint from Wierbka, are usually covered with bright patina and were most likely associated with short-term, seasonal settlement episodes in this area.

A completely different nature and state of preservation are revealed by assemblages from the south-eastern part of the Ryczów Upland. Flint processing in this area was based on raw materials, the outcrops of which were located within a distance of up to 1 km from the sites. The most meaningful is the raw material structure of the assemblage from Kleszczowa (*Figure 10*), dominated by three variants of flints: flint from the Barańskie Mountains, striped and chocolate flints. Yet, this is not surprising since the site lies in a direct neighbourhood of the outcrops of the above-mentioned siliceous rocks. A similar raw material structure can be observed in the Perspektywiczna Cave, however, in this particular case the proportion of siliceous rocks used for flint production is reversed (*Figure 10*). Chocolate flint prevails (70%), and is complemented by striped flint and flint from the Barańskie Mountains.

Noteworthy is the fact that the assemblages from the cave and the open-air site in Kleszczowa are very similar for both technological and state of preservation (*Figure 11*). Flint products are practically not affected by patina, and even if they are, it is only to small extent. This indicates a similar, rapid process of covering the artefacts with sediments, during the period of loess sedimentation. At the current stage of research, there seems that there are no clear preferences between raw materials and the type of artifacts. However, only the best varieties of raw materials (chocolate flint, flint from the Barańskie Mountains and striped flint) were

strictly used, and varieties of poor quality raw materials were consistently avoided, even if they were available on the sites.

A great contribution of chocolate flint in the assemblage of the Perspektywiczna Cave is not striking since the closest outcrops of this material are located within a distance of 300 m from the site (*Figure 10*). An extremely noteworthy is the fact that in the surroundings of these outcrops a series of hollows in the ground was discovered, being the relics of an activity of prehistoric miners (Sudoł-Procyk, Krajcarz *in press*). An exploratory survey confirmed a preliminary interpretation of the site and revealed that the pits visible on the ground are the remains of niches formed by digging into the residual clay and limestone until they reached the depth of raw material occurrence. These pits were then filled in with chunks of limestone coming most likely from the neighbouring niches (Sudoł-Procyk, Krajcarz *in press*). Interestingly, a great majority of flint artefacts was encountered within the redeposited loess sediments recorded in the higher parts of the slope. Loess sediments containing erosion structures are cut through by small ice wedges, down to the depth of 0.5 m. In the fillings of these wedges flint artefacts were also found. Forms of this type are associated exclusively with cool Periglacial climate that occurred in Polish territories for the last time during the Younger Dryas period, which is the *terminus ante quem* for artefacts contained within these wedges and indicates their Pleistocene chronology (Sudoł-Procyk, Krajcarz *in press*). In the spots where the terrain becomes slightly flattened some part of the artefacts seems to be lying in their primary alignment. A great majority of them (ca. 40%) is strongly charred, and in their closest surroundings a large amount of charcoals was recorded (analysis in progress). At the present stage of studies it is difficult to establish univocally the relationships between the discovered flint material and mining features discussed in this paper.

DISCUSSION

Results of typological and technological analyses of flint artefacts coming from both, the open-air site in Kleszczowa and the cave dwelling from the Perspektywiczna Cave, support their relationships with the Magdalenian Culture. The nature of double platform cores for blades with slightly twisted flaking surfaces, blade blanks with specific *éperon* butts, and finally,

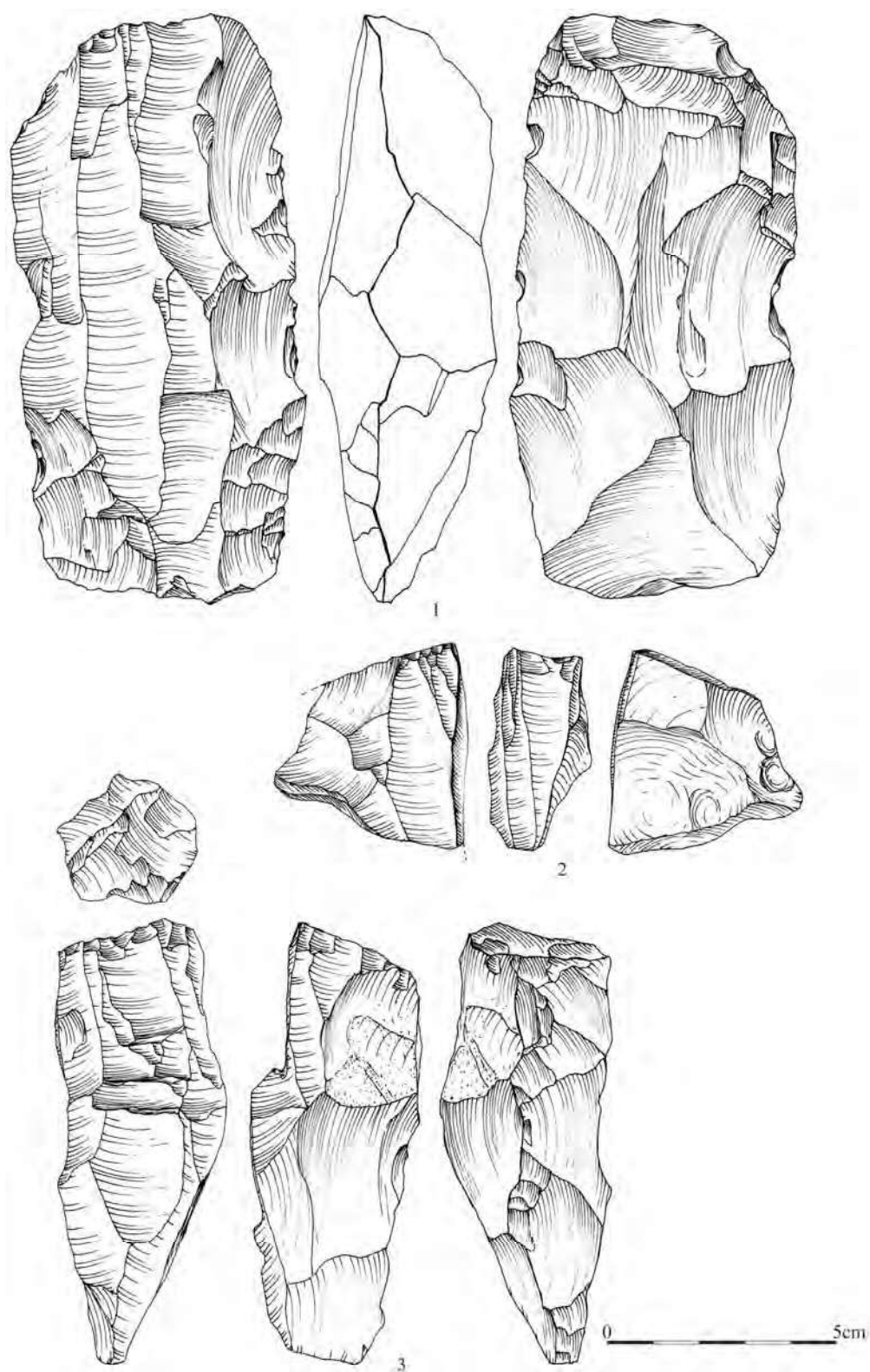


FIGURE 7: Open-air site Kleszczowa. Examples of flint artefacts: 1–3, residual cores (drawn by M. Sudoł-Procyk).

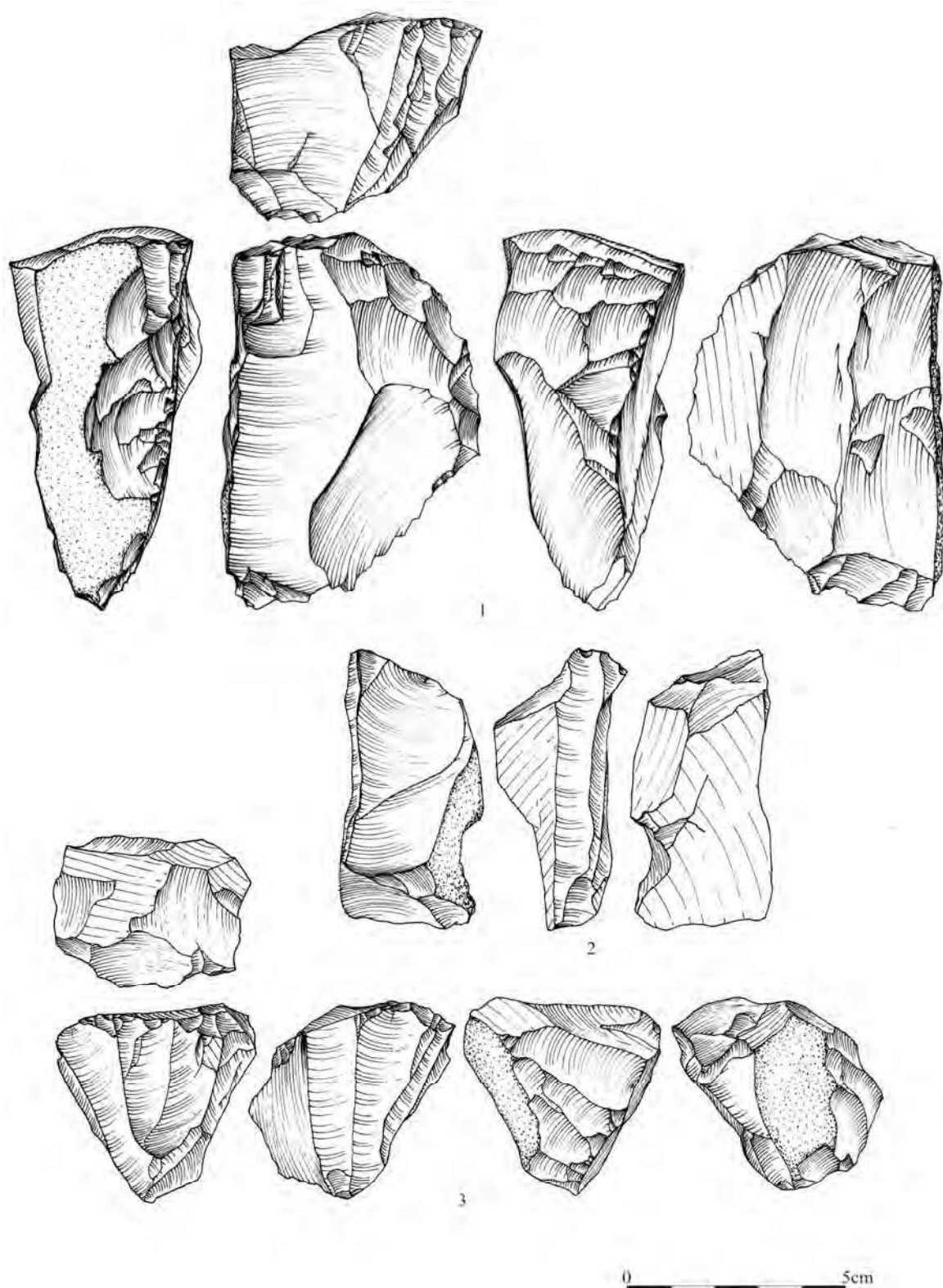


FIGURE 8: Perspektywiczna Cave. Examples of flint artefacts: 1-3, cores (drawn by M. Sudół-Procyk).

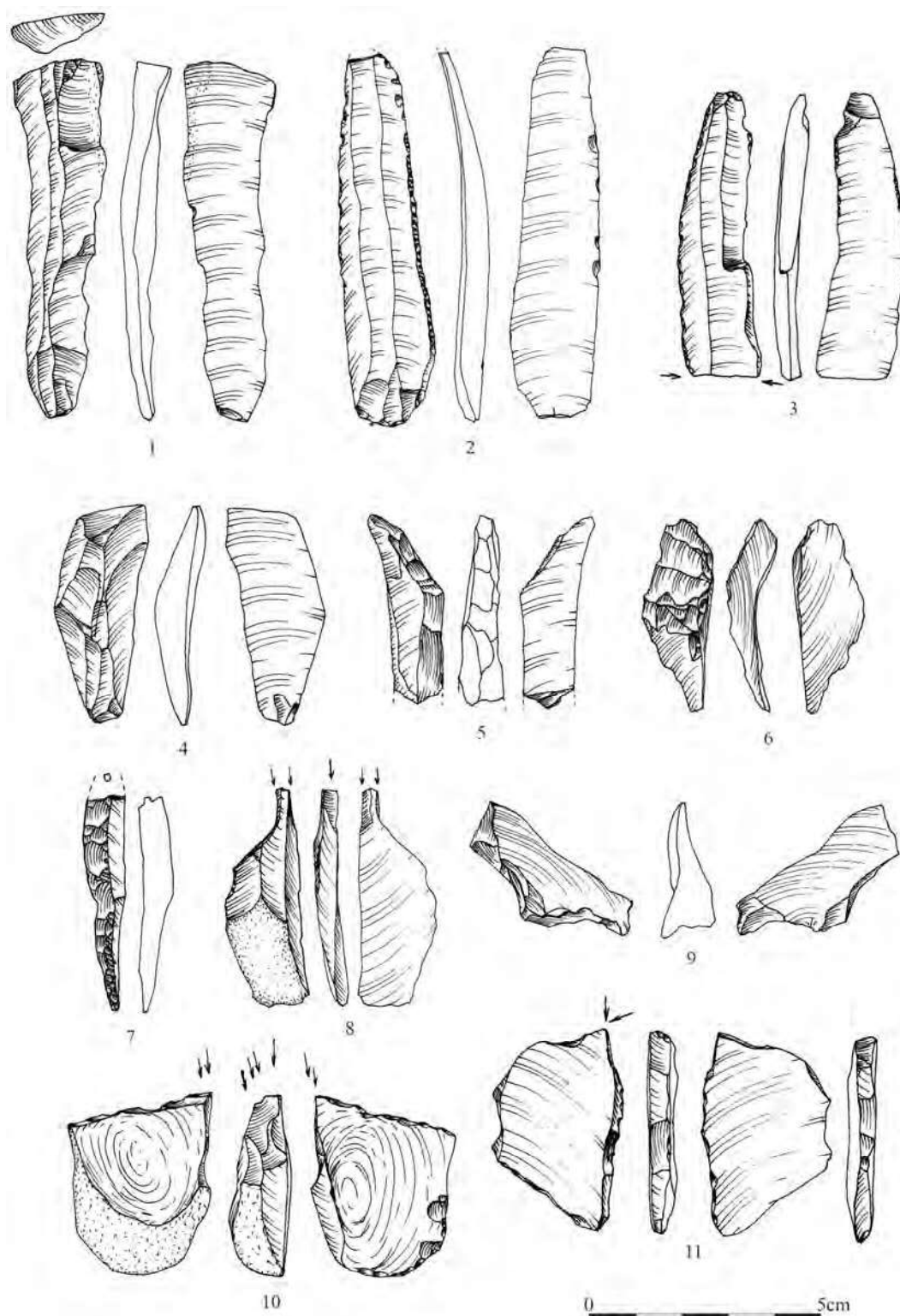


FIGURE 9: Perspektywiczna Cave. Examples of flint artefacts: 1-4, blades with traces of use; 5-7, 9, technical blades and flakes; 8, 10-11, burins (drawn by M. Sudoł-Procyk).

a characteristic tool set, including i.a., burins, or semi-finished tools, of the *Lacan* type, corresponds well with many assemblages obtained from Magdalenian sites. The inventories presented have numerous analogies in such Magdalenian sites as, Wilczyce (Schild 2014), Hłomcza (Łanczont *et al.* 2002), Klementowice-Kolonia (Wiśniewski 2015), or Stare Baraki (T. Wiśniewski 2020). These sites are usually linked, based on radiocarbon dating, with immigration of the Magdalenian communities into the territories of southern Poland in the Late Pleniglacial period (GS-2a) (Połtowicz 2006a, 2006b, Połtowicz-Bobak 2013), which is confirmed by the TL date obtained from the filling of a feature encountered at the site in Kleszczowa.

More controversies are raised by the issue of chronology of the chocolate flint outcrop in the Udorka Valley since the flint materials gathered there so far do not provide basis for its undisputable dating. Further

studies, especially results of radiocarbon dating, should contribute to more accurate determining of this site chronology. Nevertheless, there is a number of premises indicating that, at least to some extent, human activity at this site can be associated with the Late Palaeolithic, and possibly, the Magdalenian Culture (?) (Sudoł-Procyk, Krajcarz *in press*). This reasoning is supported by stratigraphic data gathered in the surroundings of the prehistoric mine as well as results of studies conducted at the sites in Kleszczowa and Perspektywiczna Cave presented in this paper, revealing a high contribution of chocolate flint (compare *Figure 10*) and analogous nature of pre-cores and initial cores. Noteworthy is the fact that in the closest neighbourhood of these sites no younger workshops (e.g. Neolithic) were identified, the production of which was based on chocolate flint (Sudoł-Procyk, Krajcarz *in press*). It is also meaningful that the above-mentioned

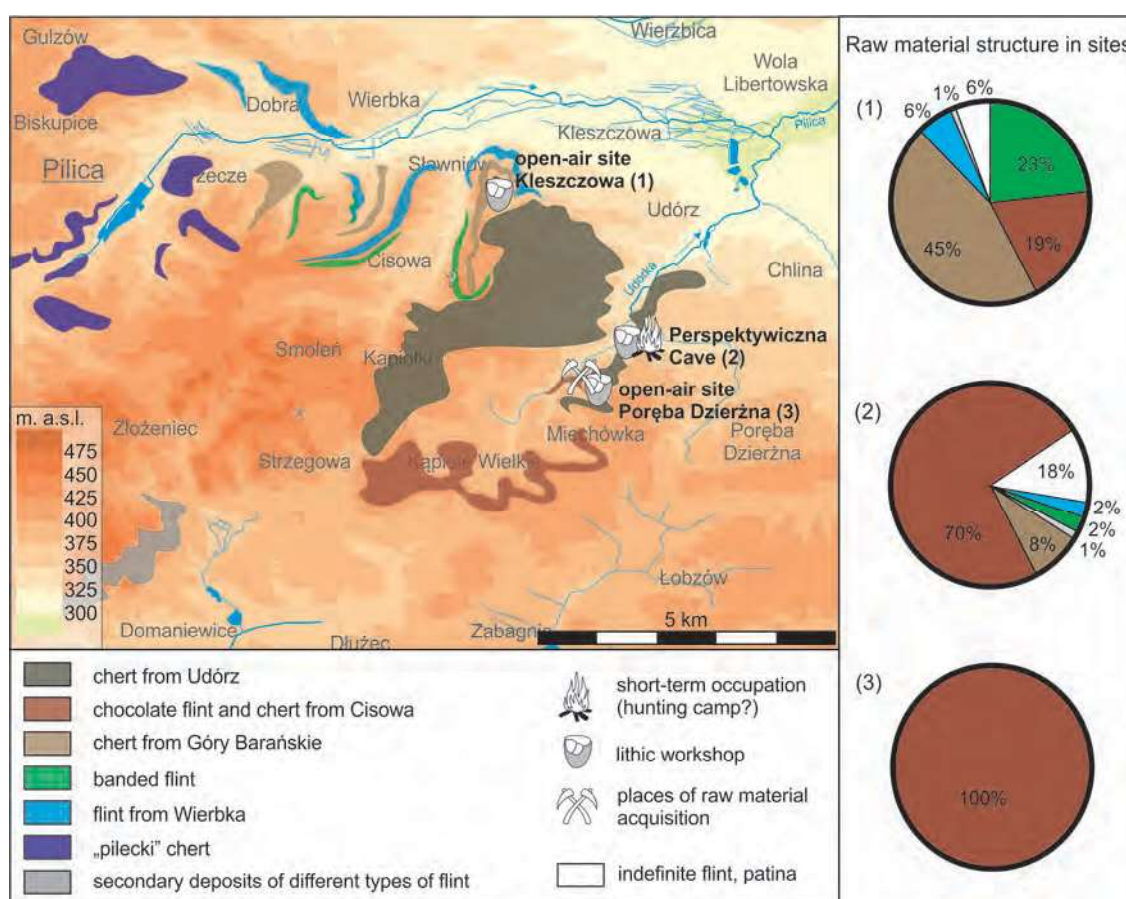


FIGURE 10: Map of siliceous raw material deposits in the southern part of the Ryczów Upland with sites included in the papers, their function and raw material structure (after Sudoł-Procyk & Krajcarz *in press*, with changes).



FIGURE 11: Raw material similarity on the example of selected artifacts from sites Perspektywiczna Cave and open-air site Kleszczowa. 1–3: Perspektywiczna Cave (1, 2 – chocolate flint, 3 – flint from the Barańskie Mountains); 4–7 – open-air site Kleszczowa (4, 6 – chocolate flint, 5, 7 – flint from the Barańskie Mountains; photo by M. Sudół-Procyk).

extraction point indicates a different manner of obtaining chocolate flint concretions when compared with that recorded for younger mines of Jurassic flints in the north-eastern fringe of the Holy Cross Mountains (Sudoł-Procyk *et al.* 2018).

Having analysed the assemblages discussed in this paper, the author noted clear trends in the use of specific types of raw materials in relation to the nature of the Magdalenian sites. And so, in the south-eastern part of the Ryczów Upland we encounter flint artefacts made mostly of flint from the Barańskie Mountains, chocolate and striped flint, while in its northern range, the flint production was based on the "zawodziańskie" cherts and flint from Wierbka. Thus, the raw material analysis clearly revealed a division between the Magdalenian sites located closely to outcrops of high-quality siliceous rocks with abundant assemblages of workshop type (a great example of which are the sites in Kleszczowa and Perspektywiczna cave), and short-term campsites with scarce flint inventories, situated within a considerable distance from those outcrops (such as sites in the Kroczyckie Rocks).

CONCLUSIONS

The results of studies upon the sites from the southern zone of the Ryczów Upland addressed in this paper delivered new data on human activity in the central part of the Kraków-Częstochowa Upland in the Late Palaeolithic period. We can reconstruct this activity tracing the circulation of flint materials among particular types of sites in this region, from the moment of their extraction, through initial preparation, ending with utilisation, and with regard to certain groups of artefacts (e.g. fine blades or finished products), their further, interregional distribution. This is perfectly visible when we consider high-quality local Jurassic flints that at the beginning of their "path" were extracted and primarily elaborated nearby their outcrops. Then, in a form of initially prepared cores, they were transported to more distant sites, campsites and workshops, where they served for production of blades and tools. Interestingly, if we take into account an occurrence of raw materials at the campsite in the Perspektywiczna Cave, the outcrops of which were situated within a distance of over 1 km from the site, we can conclude that the flint was brought to the site for strictly utilitarian reasons in a form of blades and tools (finished products), which is confirmed by the preliminary results of usewear analysis (Sudoł-Procyk, Krajcarz *in press*).

The locations of the sites under scrutiny seems to be directly determined by the management of raw materials of fine quality, and the region of the Udorka Valley must have played a significant role in the communication routes of the Magdalenian communities. What exactly was its role in extraction and distribution of siliceous rocks is a question that is expected to be answered in the course of further studies. However, it must be stressed that the analysis of raw material management is important not only due to recognition of raw material structure of the assemblages, but most importantly, it allows determining hypothetical directions of migration of human groups into the territories of southern Poland (Połtowicz 2006b). Establishing the scale of utilisations and significance of high-quality flint materials from the south-eastern part of the Ryczów Upland may be very helpful in determining the relationships between the Magdalenian sites in Poland and neighbouring territories. The fact that chocolate flint is known from many sites in Poland (Wiśniewski 2008) and overseas, particularly from the Czech Republic (Połtowicz 2006b, Přichystal 2018) and Germany (Połtowicz 2006b), seems to be meaningful, therefore, finding the place of its origins, namely whether it came from the Holy Cross Mountains of Polish Jura, is an extremely significant matter.

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