

ARTICLES

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NOWA BIAŁA AND SROMOWCE NIŻNE — LATE PALAEOLITHIC CENTRAL CARPATHIAN SITES WITH ARCHED-BACKED POINTS

ABSTRACT

P. Valde-Nowak, A. Kraszewska 2014. *Nowa Biała and Sromowce Niżne — Late Palaeolithic Central Carpathian sites with Arched-backed Points*, AAC 49: 5–35.

This article may be viewed as an attempt of summarizing research results of two Late Palaeolithic sites from the Central Western Carpathians located in the following places: Sromowce Niżne on the Dunajec river in the Pieniny Mts. and Nowa Biała on the Białka in the Podhale region. The discovery of these sites in the late 70s and 80s of the last century changed the common view that mountains areas located north of the Tatras were settled relatively late and that the settlement began in the Late Medieval. Both sites were excavated shortly after having been discovered. Although rich inventories of stone remains obtained during excavations are typical for technocomplex with arched-backed points but, they differ with respect to stone processing technology, typology and raw materials structure. A thesis about the existence of very classical relations between them and the so-called Witów-complexes as well as typical connections with the Federmesser environment is proposed in this article.

Key words: Late Palaeolithic; West Carpathians; arched-backed points (ABP) technocomplex; Federmesser; radiolarite

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INTRODUCTION

This article is an attempt of summing up results of the excavations of two Late Palaeolithic sites coming from the Western Carpathian Mountains and located in Sromowce Niżne on the Dunajec river in Pieniny Mts. and Nowa Biała on the Białka river in Podhale (Fig. 1). The discovery of these sites changed the widely held view concerning the late settlement of mountains areas located north of the Tatras. According to that view, the settlement began in the Late Middle

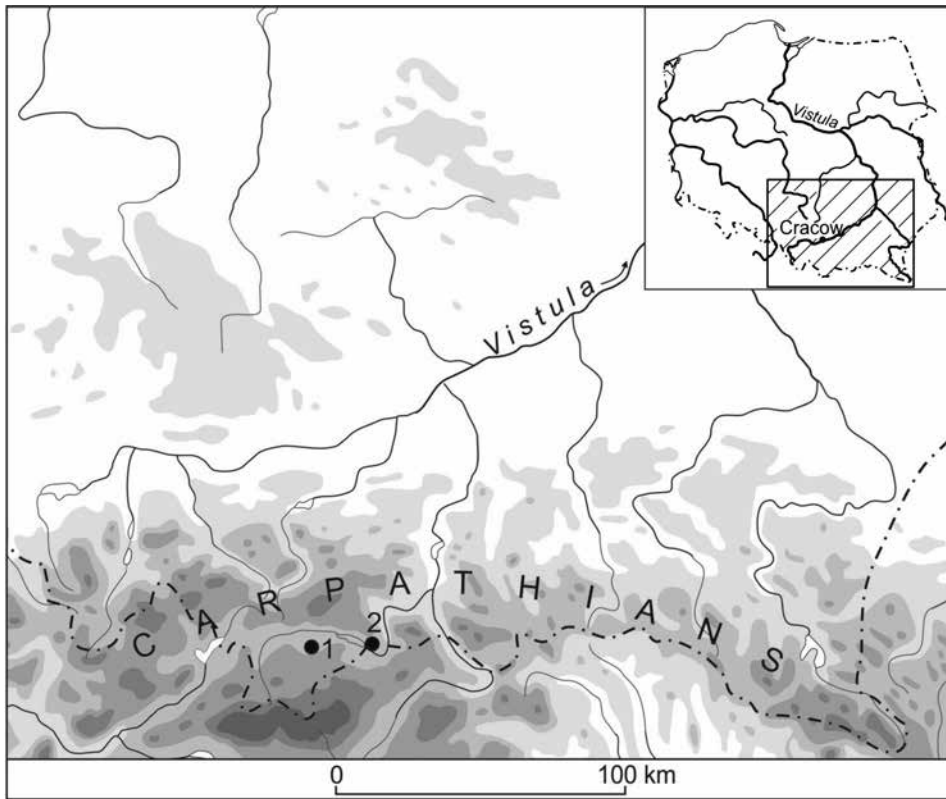


Fig. 1. Polish West Carpathians with two Arched Backed sites; drawn by the authors.

- 1 — Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1;
 2 — Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.

Ages. The first of the above-mentioned sites was discovered in the autumn of 1976 during gathering of radiolarites needed for carrying out mineralogical and geochemical research (Fig. 2)¹. A dozen of radiolarites items were found then in an area of about 50 square meters. Their location on a high Pleistocene terrace of erosion of Dunajec river between the mouth of Sobczański gorge and the estuary of Macelowy Potok in the gorge of the river (Fig. 3) suggested a relationship with the Late Paleolithic hunting and fishing settlement. The second site was discovered in May 1985 during a local inspection of caves in the Obłazowa Rock (670 m asl.; *cf.* Fig. 4). More than 20 flint and radiolarite artefacts were found in Andrzej Bednarczyk's farmland during these activities. Both sites were excavated shortly after they having been discovered.

¹ Radiolarities were gathered by students of archaeology of the Jagiellonian University, J. Rydlewski and P. Valde-Nowak which resulted in assembling of over a dozen radiolarites from surfaces of the farm fields belonging to S. Bożęcki, M. Regiec, M. Waradzyn. An endscraper on the flake and a thick backed piece were found then.

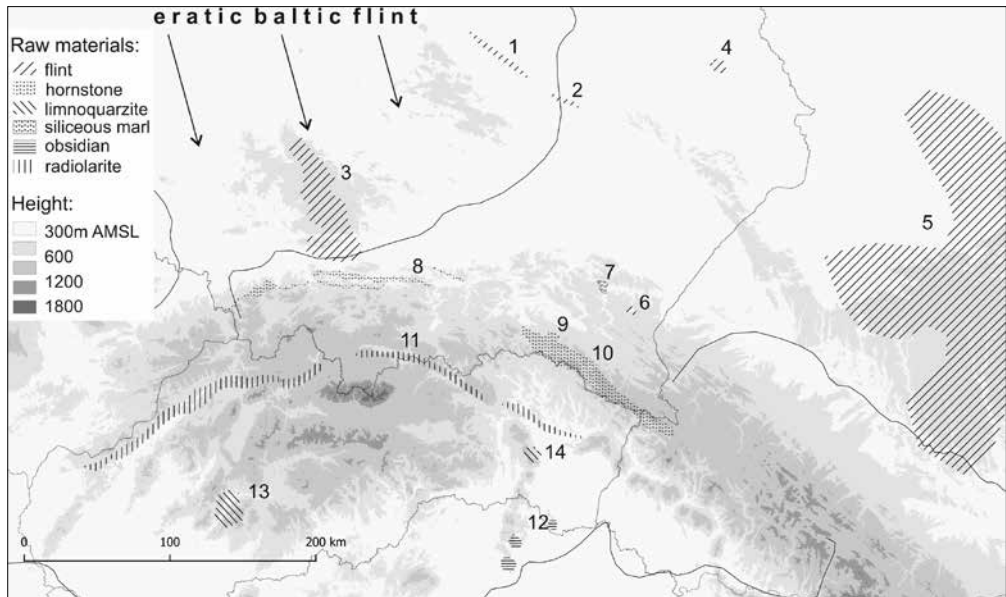


Fig. 2. Main stone sources represented in the Late Palaeolithic inventories from Western Carpathians (acc. to different authors); drawn by the authors.

- 1 — Chocolate flint; 2 — Ożarów-, Świeciechów-, Gościeradów-flint; 3 — Jurassic flint; 4 — Rejowiec flint; 5 — Wolhynian flint; 6 — Birza flint; 7 — Dynów siliceous marl; 8 — Mikuszowice hornstone; 9 — Cergowa hornstone; 10 — Black menilite hornstone; 11 — Pieniny radiolarite; 12 — Tokai obsidian; 13 — Kremnica limnoquartzite; 14 — Banské limnoquartzite.



Fig. 3. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. The range of the site (white line) on the agricultural fields of J. Regiec, S. Bożęcki and M. Waradzyn. Trzy Korony Mt. (982 m asl.) in the background; Photo by P. Valde-Nowak.



Fig. 4. Nowa Biała, powiat Nowy Targ, województwo małopolskie, site No. 1. Topography of the site (arrow). The Oblazowa Rock (670 m asl.) in the background; Photo by P. Valde-Nowak.

THE EXCAVATIONS

The inventory of Sromowce Niżne was discovered in 1976. In summer of 1977 excavations of the site were initiated. They were continued in 1978 and 1980² covering an area of 367 square meters. After few years of excavations the inventory comprised of 2459 artefacts, from among of which approx. 10% were tools (Rydlewski, Valde-Nowak 1978; 1979; 1981a). The site is of stone processing character, utilizing the local beds of radiolarite. The raw material spectrum of the Sromowce inventory indicates a predominance of the red radiolarite which makes up for 90% of there. Among the others there are: Cracow-Jurassic flint and obsidian from the territory of contemporary Slovakia or northern Hungary.

² The research excavations during the years 1977–78 were carried out by students of archaeology of the Jagiellonian University, J. Rydlewski and P. Valde-Nowak. They were conducted under the scientific supervision of Prof. Dr. J. K. Kozłowski and with the financial support of the Archaeological Commission of Polish Academy of Sciences in Cracow, and Regional Office for the Protection of Monuments in Nowy Sącz (Rydlewski, Valde-Nowak 1978; 1979; 1981a). Materials from the first two seasons have been elaborated in the master thesis in Jagiellonian University (Valde-Nowak 1979). The finds from these excavations are in private hands of J. Rydlewski, M.A. They have been not deposited by the institution indicated by the conservator by this day and therefore they remain inaccessible.

The artefacts lay in a structureless position in the layer II of dusty character and yellow-brown color. Single artifacts were found both in an arable soil and deeper, in traces of the root system. The analysis of the cuts of excavations and geomorphological characteristics indicate dislocation of the artefacts and not keeping their original arrangement which was caused by a colluvium process. The analysis presented below concerns inventories from the first two excavation seasons (Valde-Nowak 1979). The items found in 1980 remain inaccessible (*cf.* Footnote No. 2).

The inventory of Nowa Biała, site No. 1, discovered in 1985 and excavated in the years 1985–1986 and 2012, 2014 consists of over 1700 artefacts. In contrast to the inventory of Sromowce, now only 77,5% of artefacts was made of local radiolarite.

Research excavations at the Nowa Biała, site No. 1 may be divided into two parts. The first one took place in 1985–86 while the second one in 2012–14. The area of 54 square meters was explored during the first part. Stratigraphy of the site was identified which resulted in distinguishing the following layers: I — plough soil earth, II — soli of dusty character, III — clay base and rock scree appearing in the northeastern part of the excavation (Fig. 5).

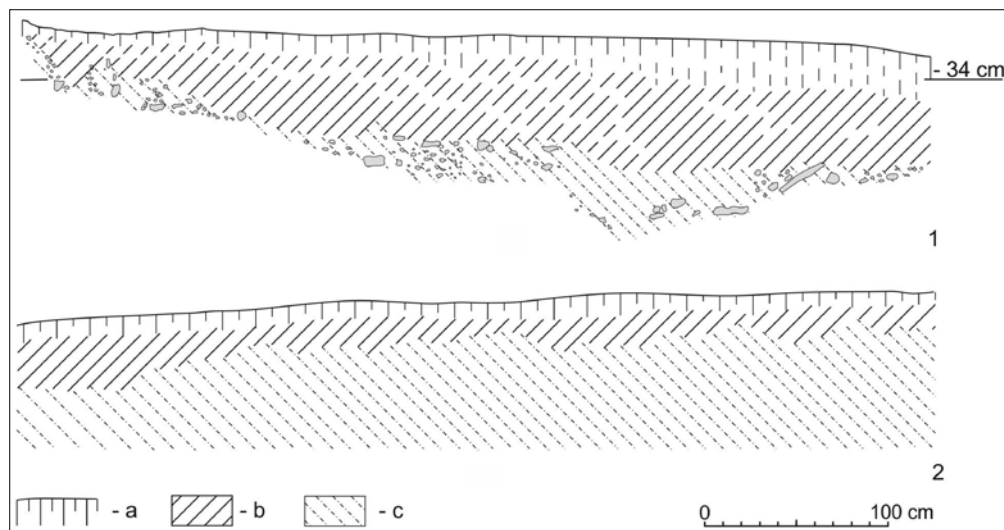


Fig. 5. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Southern (1) and northern (2) cross section of the trench I/1986; drawn by the authors.

a — arable layer; b — dusty layer; c — clay base with stones scree.

The inventory gathered at that time, together with artefacts scattered on the surface, comprised of 765 items.

The research excavations were resumed in 2012. Excavation trench I/2012, located west of the already excavated area, covered an area of 125 square meters. The inventory derived there was composed of 952 stone artefacts; 734 among them lay in situ within dusty layer II, 150 in an arable layer, whereas

77 artefacts were recovered from the surface of the whole site. Stratigraphy of the excavations partially agreed with observations made during the initial seasons of the research, however layer II in the western part of the excavation was completely destroyed by plowing, and an oval structure interpreted as relics of possible dwelling structure was observed in the northeast part.

In 2014 an area of 15 square meters was explored to grab the northern range of the excavation site. 74 stone artefacts were found then, 30 of them came from the surface of farm fields, 13 lay in an arable layer and 21 in the layer II. The layer II had been leveled out by intensive plowing.

DWELLING STRUCTURE AT NOWA BIAŁA, SITE NO. 1

In the northeast corner of the excavation the remains of an oval object of diameter of 3 meters were found. The western part of the object had been destroyed. The outline of the object was regular and its maximum depth was 40–45 cm below of field surface. In the eastern part a hole-root was visible. In the central part traces of the hearth as well as an unidentified structure, most likely being a trace of unidentified organic substance were observed. Few stone artefacts occurred in the fill (Fig. 6). A concentration of stone artefacts was found at the sectors adjacent to the possible dwelling structure to the south. A large number of anvils, hammerstones and debitage forms allow us to interpret this place as a domestic workshop. Accumulation of charcoals has been interpreted as the second, outdoor fireplace. Around the dwelling structure, precisely from its northeastern part, a zone of yellowish clay and, most probably, the activity area was caught. The AMS dating 11270 ± 60 BP (Poz-53553) of charcoals from the fireplace was performed. A series of OSL dating was carried out for the above-mentioned hole-root, object and for the geological profiles. Moreover, the archeobotanical samples were taken for those profiles, as well³. A ferruginous concretion of the characteristics of a magnetite was found in the layer II at the distance of 2 meters to SW⁴.

³ The AMS and OSL measurements as well as archeobotanical analysis were carried out by Dr. M. Komar within the project No. 691/N-Ukraina: *Paleolityczna ekumena strefy pery- i metakarpackiej — studium zmian środowiska zachodniej Ukrainy i południowo-wschodniej Polski w plejstocenie i ich wpływu na pierwotne osadnictwo oraz szlaki migracji (na podstawie stanowisk lessowych i jaskiniowych)*; see <http://ekumena.umcs.lublin.pl>). Through this grant the analyses of AMS, OSL as well as palynologic measurements were carried out. We are indebted to Prof. Dr. M. Lanczont, the head of the project, for co-operation and support for the analytical program of the samples from the excavations of Nowa Biała, site No. 1. The analytical results are being progressed about the final report of the project.

⁴ A possibility for it to have been a meteorite iron was initially taken into account which, however, was not confirmed by a series of microscope analyses. Edges of the concretion have some traces of crushing. This created a possibility of regarding the item as an element of a tinder-box kit. We express our gratitude to Ass. Prof. Dr. M. Biborski, M. Biborski M.A, Ass. and Dr. M. Paszkowski for helpful consultations and carrying out primary analysis. We are also grateful to J. Sniadek M.A. for geological microscope analysis.

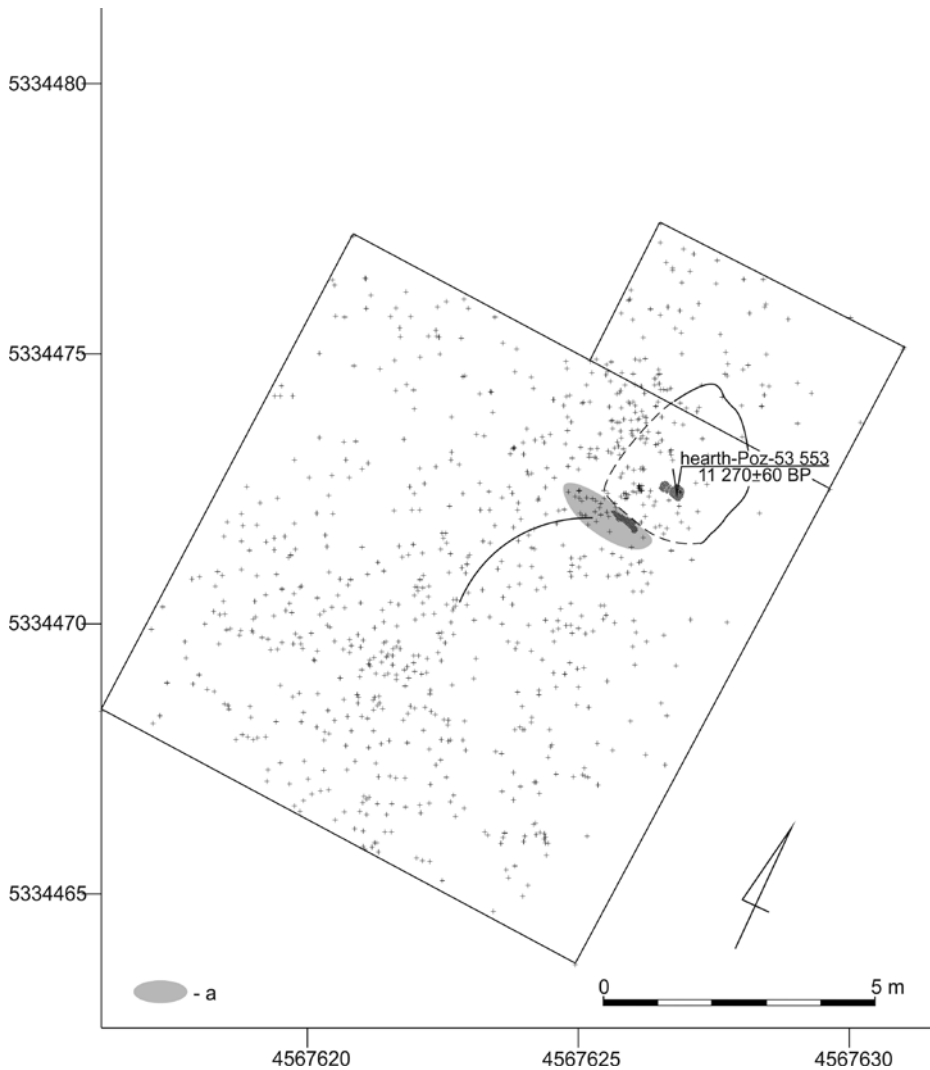


Fig. 6. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. The planigraphy of stone artefacts in the trench I/2012 and the range of possible dwelling structure; drawn by the authors.

a — domestic flint workshop with sandstone plates and hamerstones.

THE INVENTORY FROM SROMOWCE NIŻNE, SITE NO. 1

The inventory consisting of 2437 artefacts was derived from the site. 1016 items were found in the years 1977–1978 (Valde-Nowak 1979) and the next 1421 in 1980 (Rydlewski, Valde-Nowak 1981a; see Table 1).

Table 1

Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Structure of the inventory.

Sromowce Niżne — inventory	1977–1978	1980	Total
Cores	33	37	70
Flakes	638	917	1555
Blades	127	134	261
Tools	92	124	216
Negative pieces	97	132	229
Hammerstones	24	75	99
Burin spalls	5	2	7
Total	1016	1421	2437

Raw materials structure can be presented as follows. The Pieniny radiolarite predominates (96%). Only few artefacts are made of other kinds of stone materials: Cracow-jurassic flint — 36 pieces, obsidian — 2 pieces, undetermined — 6.

The group of pre-cores and cores is represented by 70 items (2,9%); 33 of which were comprehensively analyzed. Pre-cores are represented by one item of a horseshoe shape (Fig. 7:3). The original intention of a knapper is represented by single-platform flake cores. Among 29 complete items found in the first two research seasons, as much as 15 are single-platform cores (Fig. 7:1, 4, 6, 8; 8:1; 9), one have traces of orientation change (Fig. 8:3), 3 are in double-platform stage (Fig. 8:5–6). The most common are either small or microlithic, irregular items or not well used ones. The variability of a shape and proportion is clear. These features are somehow caused by the specification of raw material and technique was used. Concretions showing strong cracking and bearing traces of hard hammer used in many cases reveal some unintended effects. As many as 9 pieces have no core preparation. Uneconomical treatment of raw materials puts the studied inventory closer to the assemblages occurring in areas rich in raw materials.

Flakes predominate significantly in the inventory (638 pieces — the first two seasons, 917 — the year 1980). Among them there are no cortex flakes coming from the first phase of the knapping. It seems that only already pre-prepared items occurred in the site. In the inventory from two first excavation seasons 127 pieces have been classified as blades. A large number of them bear some traces of intentional fragmentation. Many seem to be random.

Tools represent 8,9% of the whole inventory. 92 of them, of which 20 formed on blades and 30 on flakes, were found in the years 1977–1978. Other 124 tools were found in 1980.

The structure of the group of tools is as follows (Table 2): endscrapers 64 (30%), arched-backed points 24 (11%), burins 29 (13%), truncations 19 (9%), perforators 8 (4%), macro-tools 4 (2%), retouched blades and flakes 46 (21%), combined tools 5 (5%), others 2 (1%).

Table 2

Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Structure of tools group.

Sromowce Niżne — tools	1977–1978	1980	Total
Backed pieces	11	13	24
Endscrapers	23	41	64
Burins	14	15	29
Truncated	7	12	19
Perforators	3	5	8
Macro-tools	4		4
Retouched blades and flakes	15	31	46
Combined tools	4	1	5
Others	2		2
Pieces of undetermined tools	11	4	15
Total	92	124	216

The tools found in the years 1977–1978 were thoroughly analyzed. The most numerous group was composed of endscrapers. Thumbnail endscrapers predominated (8 pcs.). Two of them were made on irregular blades (Fig. 10:9; 11:2), another two were the so-called oblique endscrapers on flakes (Fig. 11:1) One item was identified as a circular form (Fig. 11:5), another four as double endscrapers (Fig. 11:3–4, 6). Among further types there are mouth-endscrapers made on a flake (Fig. 11:8). Two forms were recognized as scraper-like tools made on large flakes (Fig. 10:10), five as atypical forms.

Among the eleven backed pieces there are small and microlithic forms with arched or fully arched backs. Most of the items are complete (9 pcs.). Forms with refracted back and oblique reduce base — the ones of double refracted back (Fig. 13:3, 5) and straight back and oblique reduced by base (Fig. 13:10), were also recorded. A similar backed piece with a contour similar to a triangle and a very thick back (Fig. 12:6) appeared in Całowanie, Level III cut XII (Schild et al. 2014, 118). An interesting form is the item considered as a blade with a tiny retouch on its right side (Fig. 12:9).

Burins are represented by 14 pieces. The following typological variants have been distinguished: angle burins against a truncation, dihedral symmetric burins, multiple burins and single blow burins (Fig. 13; 15). Seven items with less or more oblique truncation were classified as truncated pieces.

Among the perforators, items such as a massive blade with asymmetric sting were recognized (Fig. 12:11). Two tools were classified into the group „Others”. Interesting is an asymmetric trapeze-like tool formed on flakes (Fig. 13:12).

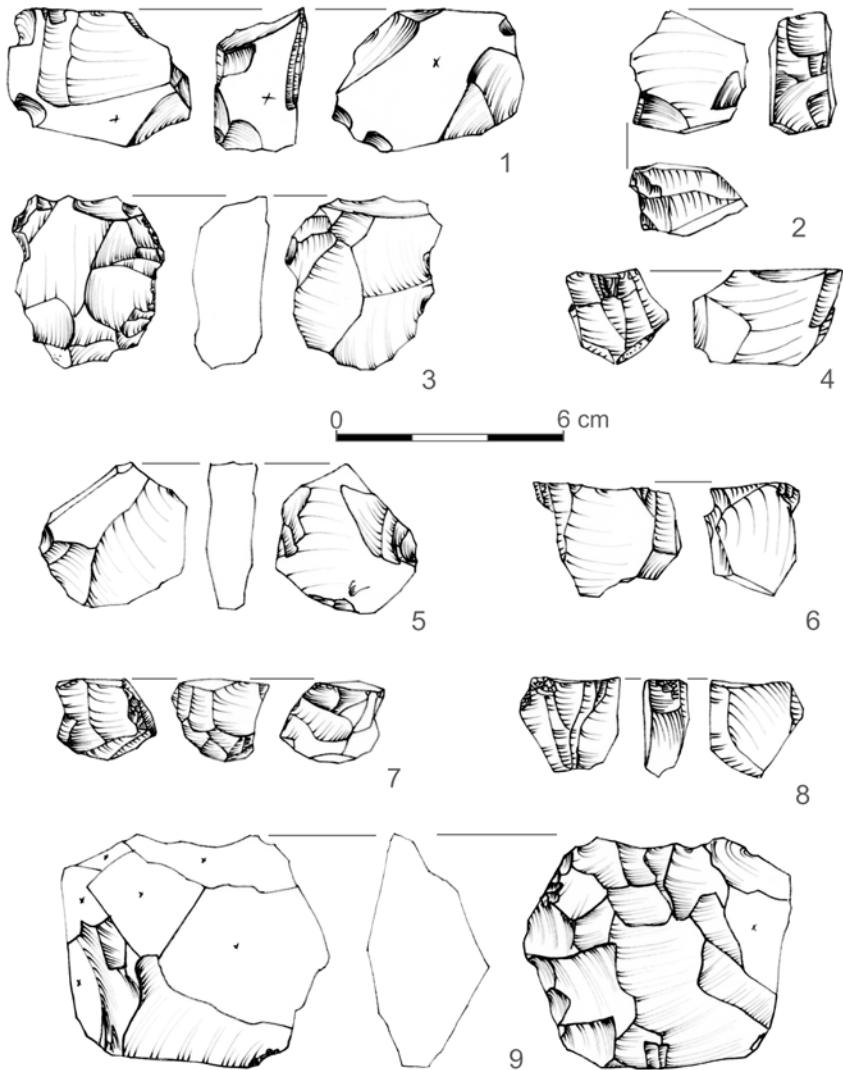


Fig. 7. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Cores; drawn by authors.

1–9 — radiolarite.

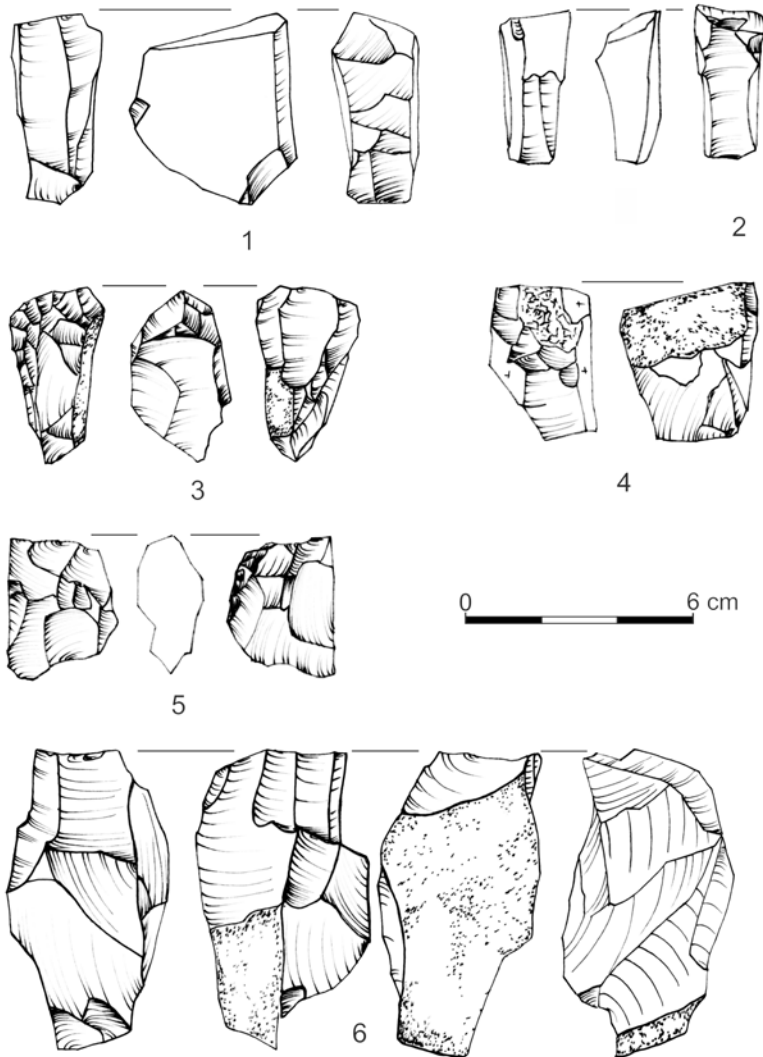


Fig. 8. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Cores; drawn by the authors.

1-6 — radiolarite.

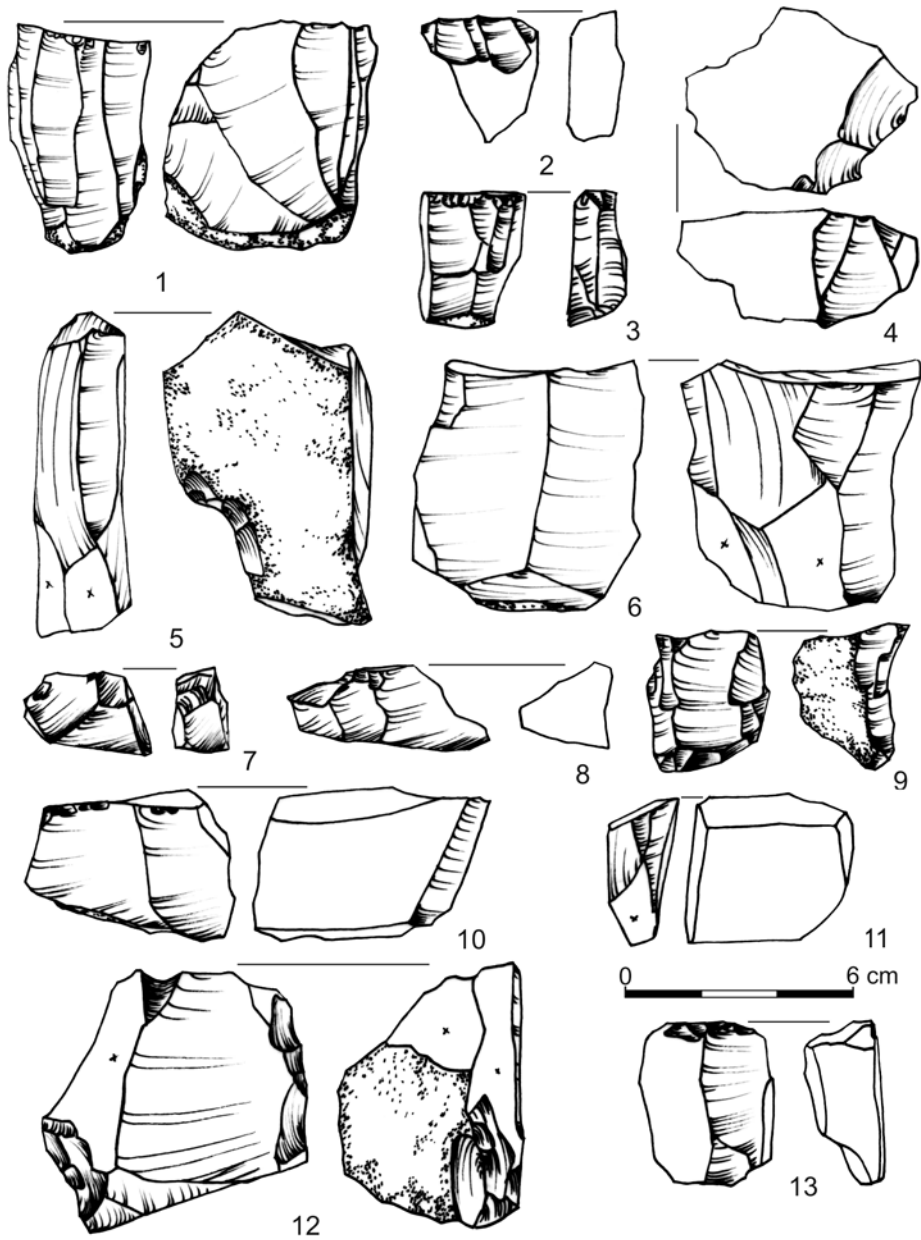


Fig. 9. Sromowce Niżne, powiat Nowy Targ, site No. 1. Cores; drawn by the authors.

1-13 — radiolarite.

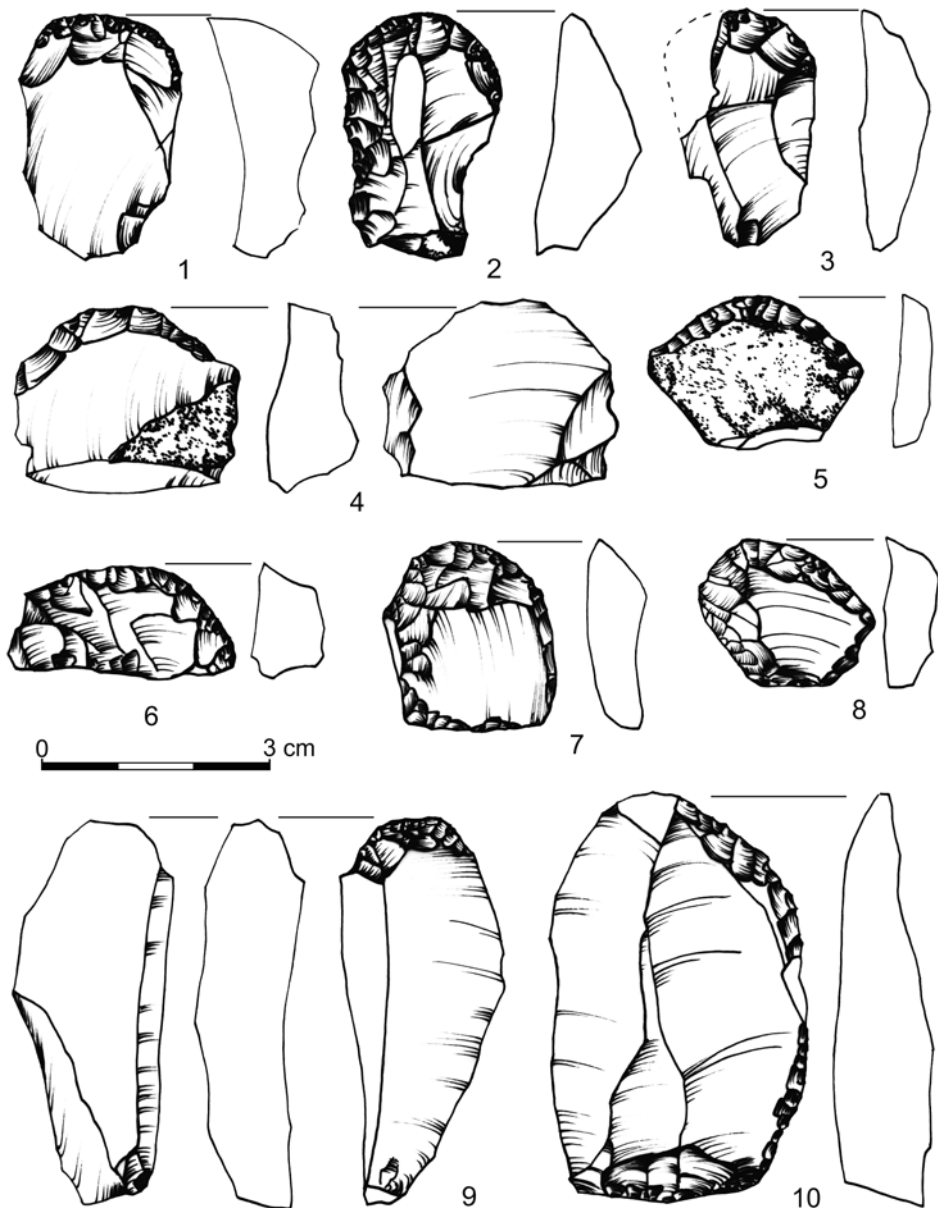


Fig. 10. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Selected finds; drawn by the authors.

1-9 — endscrapers; 10 — scraper; 1-4, 6-10 — radiolarite, 5 — Cracow Jurassic flint

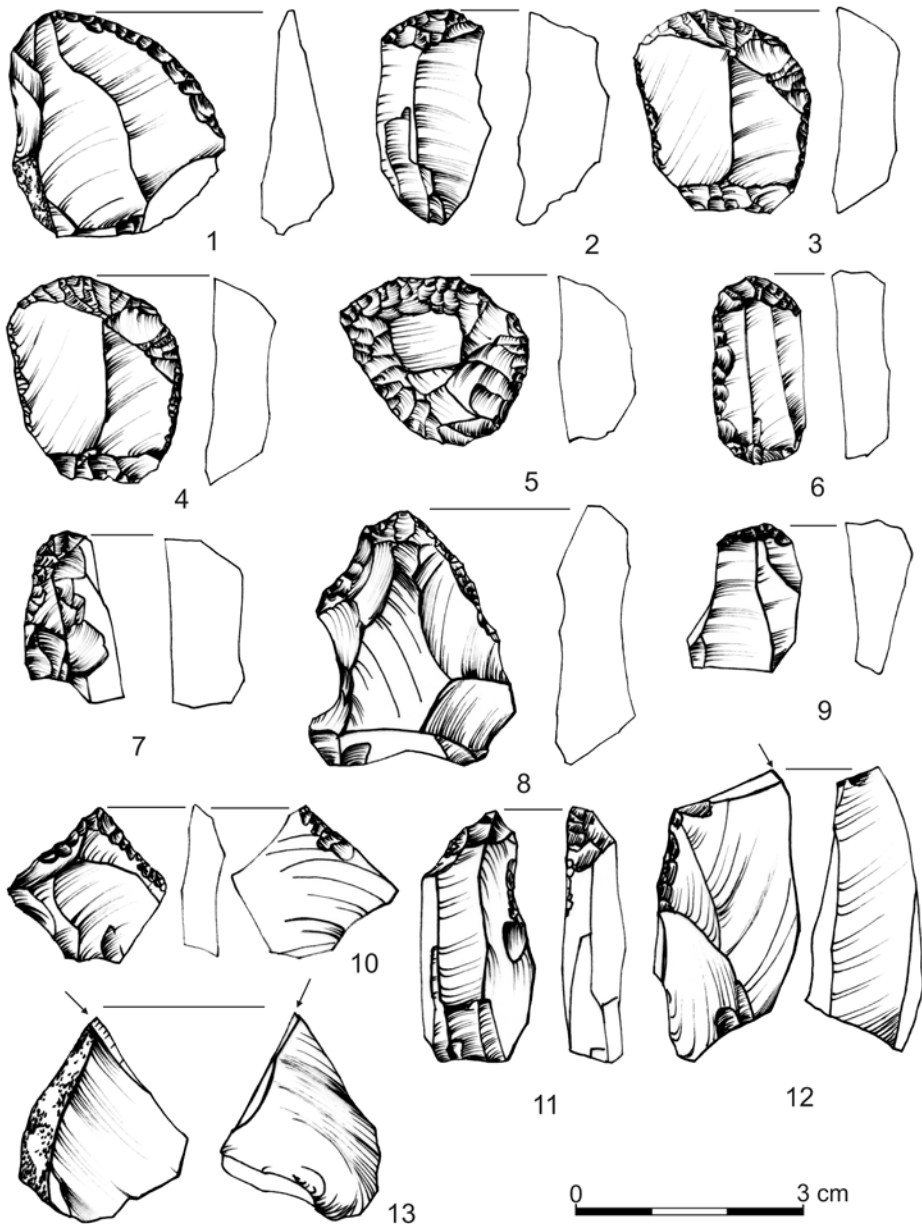


Fig. 11. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie Poland, site No. 1.
Selected finds; drawn by the authors.

1-9 — endscrapers, 10-11 — perforators; 12-13 — burins; 1-13 radiolarite.

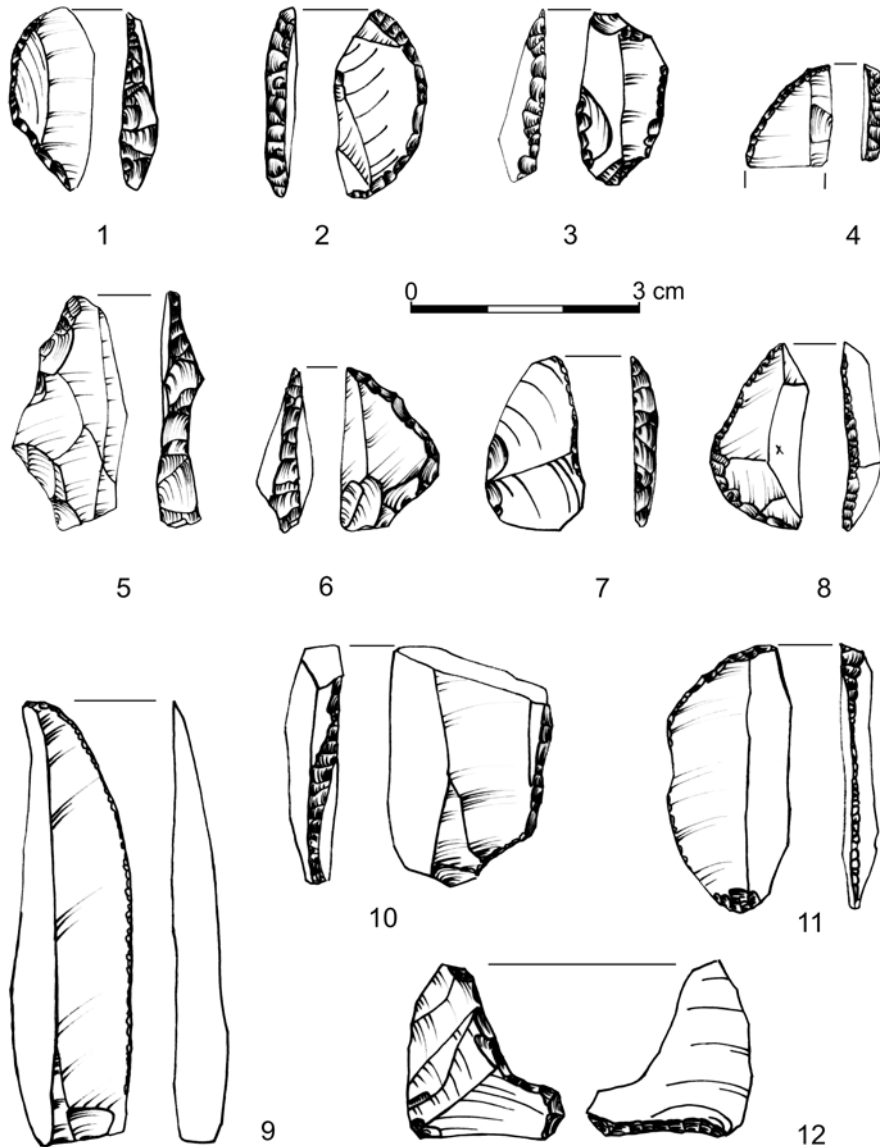


Fig. 12. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Selected finds; drawn by the authors.

1-11 — backed forms; 12 — atypical form; 1-3, 5-10 — radiolarite; 4, 11 — Cracow Jurassic flint.

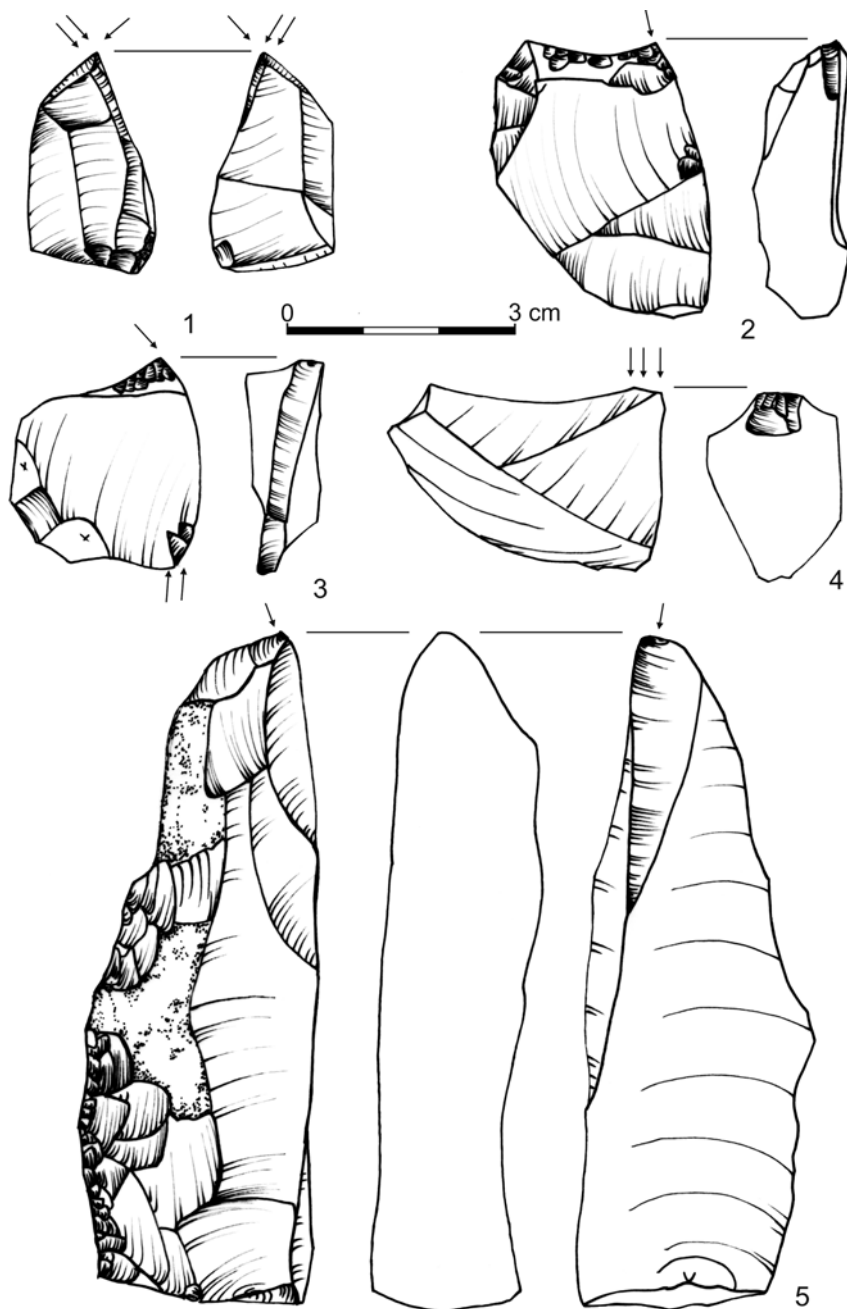


Fig. 13. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1; Burins; drawn by the authors.

1-5 — radiolarite.

THE INVENTORY FROM NOWA BIAŁA, SITE NO. 1

A collection of 1702 stone artifacts has been derived from the site and 1321 of them lay *in situ* in the layer II. An overall structure of the inventory is presented below. A multifaceted analysis was carried out for the material derived from the so called layer II, where it lay *in situ* (Table 3).

Table 3

Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Structure of the inventory.

Nowa Biała — inventory	2012	1985–1986	Total
Cores	4	8	12
Flakes	303	445	748
Blades	143	102	245
Blade/flakes fragments	128		128
Tools	90	54	144
Negative pices	25	6	31
Burin spall	13		13
Total	706	615	1321

The raw materials structure may be sketched as follows. The Pieniny radiolarite predominates (77,44%). Some share of artifacts is made of other kinds of stone materials: Cracow-jurassic flint (12,79%), chocolate flint (6,28%), obsidian (0,68%), Świeciechów flint (0,08%), undetermined flint (0,68%; *cf.* Chart No. 1).

The number of cores in the whole inventory was 19 (9 items from 2012, 11 from the previous excavations). 12 cores were derived from the layer II (4 at stage II, 8 at I). Red radiolarite finds predominate (9 pcs.), other are made of Cracow Jurassic flint.

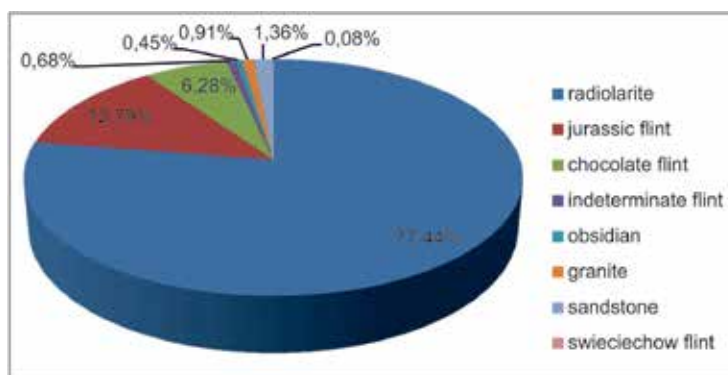


Chart No. 1. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Raw material structure of the inventory; drawn by the authors.

Single-platform cores, whose core trimming boiled down to preparing of striking surfaces, predominate. One of them is an item of tablet shape with no traces of core preparation on the platform, another one is a conical core (Fig. 16:5).

Other cores, planned generally for blade exploitation, are characterized by one striking platform. They represent cores with changed orientation. Never did the cores transit into the flake stage. Two such cores were made of Cracow Jurassic flint. The first of them is cuboid-shaped and does not have prepared sides (Fig. 16:2). Blades are of a small size and have been obtained from the slightly convex striking platform. Despite the significant overexploitation, blades' exploitation from the opposite platforms was carried out constantly.

Yet another one is made of Cracow Jurassic flint. The striking surface confirm exploration of blades (Fig. 16:6). Yet another one, made of red radiolarite, has a conical shape, prepared platform, traces of edges and back preparation. It is a kind of a core exploited by blades exploitation. Some traces of renovation on one of its faces may be noted. On the apex of core platform negative of removal flakes are visible (Fig. 16:1). An interesting case is a massive blade core made of red radiolarite. It is boat-shaped, with changed orientation (Fig. 16:7). Another example is the red radiolarite core made of a large flake, partially covered by a cortex (Fig. 15:3).

This group contains an exemplar of core flakes made of pebble stone of red radiolarite. There are no traces of preparation expect platforms.

Flakes prevail in the inventory (29,54%), however the participation of blades is also significant (12,07%), especially when compared to the inventory out of the Sromowce Niżne, site No. 1.

Among the artefacts 144 items have been classified as tools (Chart No. 2; Table 4). Endscrapers prevail through the inventory (48 pcs.). These items are of Tarnowa-type, small and short, made out of the flakes or blade-fragments. Forms with rounded, oblique or straight working edge occur numerously (Fig. 17). 9 tools were classified as burins.

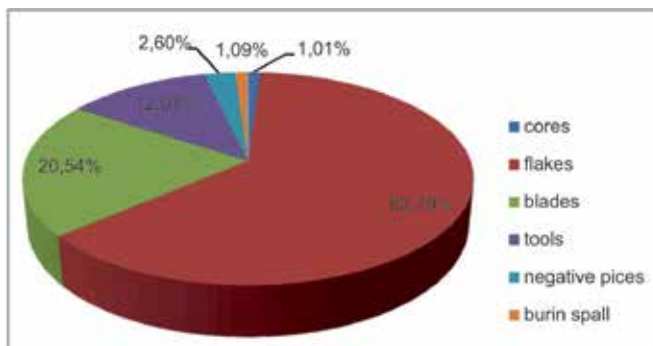


Chart No. 2. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. General structure of the inventory; drawn by the authors.

Table 4

Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Structure of tools group.

Nowa Biała — tools	2012	1985–1986	Total
Backed pieces	9	5	14
Endscreapers	16	32	48
Burins	4	5	9
Notched tools	8		8
Retouched blades and flakes	25		25
Pieces of undetermined tools	4		4
Hammerstones	24	6	30
Others		4	4
Combined tools		1	1
Perforators		1	1
Truncated			0
Total	90	54	144

Backed pieces are represented by 14 items, mostly preserved fragmentarily. 4 finds were derived during the first stage of the excavations (Valde-Nowak 1987). One of them was made of limnoquartzite (Fig. 18:4), the second was made of obsidian (Fig. 18:2), the third, reminiscent of a shouldered point, was made of chocolate flint (Fig. 18:3) another one of Cracow Jurassic flint (Fig. 18:5). The others were found in the second stage of excavations.

During the excavations carried out in the year 2012 a complete arched backed piece made of Cracow Jurassic flint, with refracted back and oblique reduced base was found (Fig. 19:7). A fragment of a massive backed piece made of Volhynian flint (Fig. 19:3) as well as a proximal fragment of backed piece with notched retouch on base, made of red radiolarite (Fig. 19:8) were recognized as slender forms. All these items correspond well to classical forms of Federmesser found in different variants of “Penknife civilization” (Schwabedissen 1973, 253). Among them there is a distinctive item of irregular shape and straight back formed on flake (Fig. 19:9).

No thickset, ogival forms known from Witów and Katarzynów (Chmielewska 1978) and characteristic for the Sromowiec Niżne, site No. 1 have been reported in the inventory.

Numerous hammerstones of quartz and sandstone come from the workshop situated in front of the dwelling structure. One of them forms a few-element puzzle. Flat, broken retoucher, composed of three pieces, comes from the previous excavation research.

In 2012 in the ploughing layer (I) three younger elements were discovered in secondary position. They are: top part of the blade — probably the tanged point, made of green radiolarite, Mesolithic trapez made of chocolate flint and flat regular blade core with opposite platforms made of Cracow Jurassic flint.

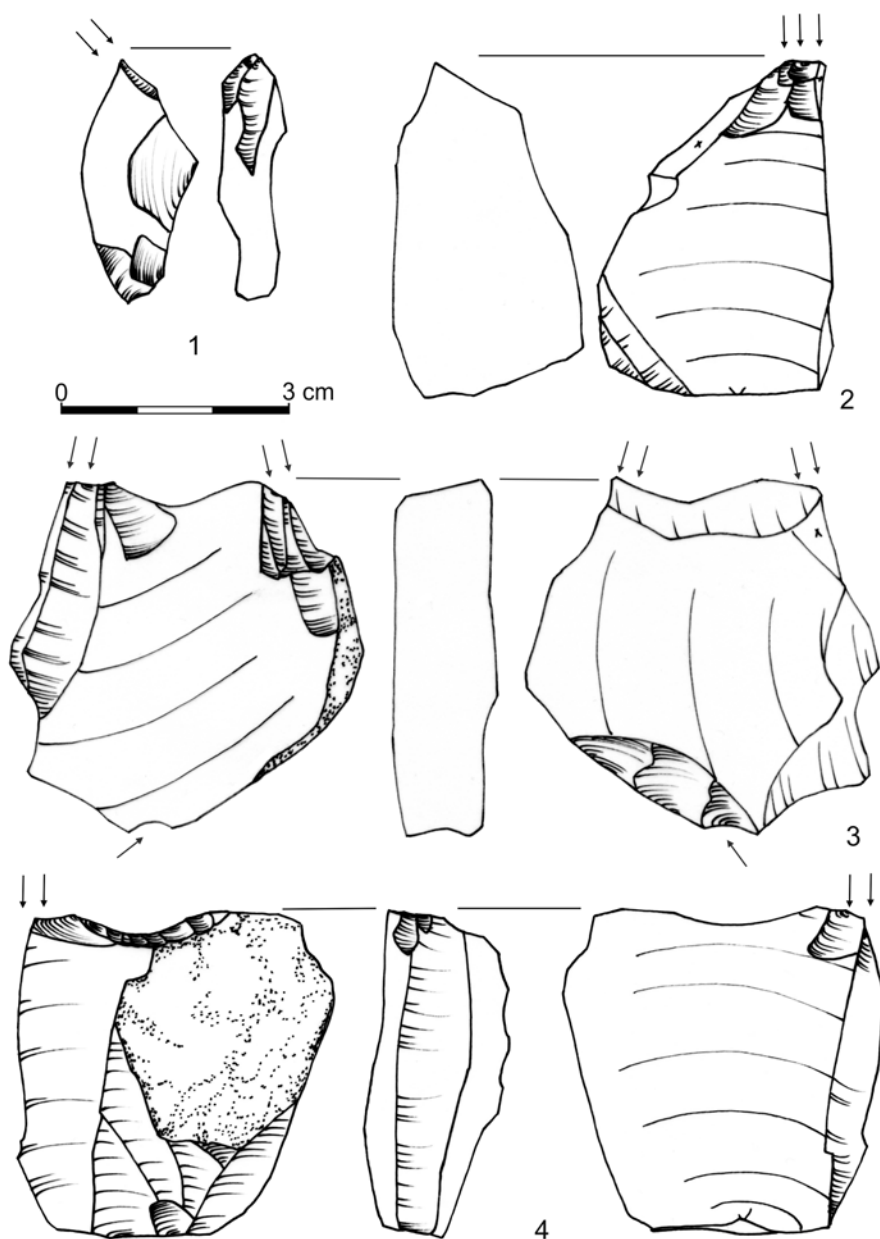


Fig. 14. Sromowce Niżne, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Burins; drawn by the authors.

1-4 — radiolarite.

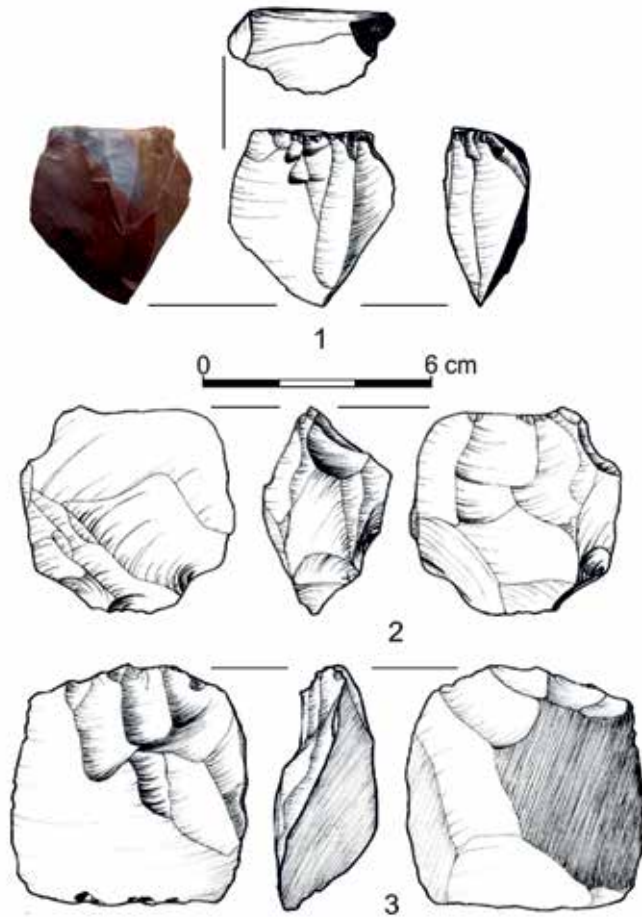


Fig. 15. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Cores; drawn by M. Biernat and the authors.

1-3 — radiolarite.

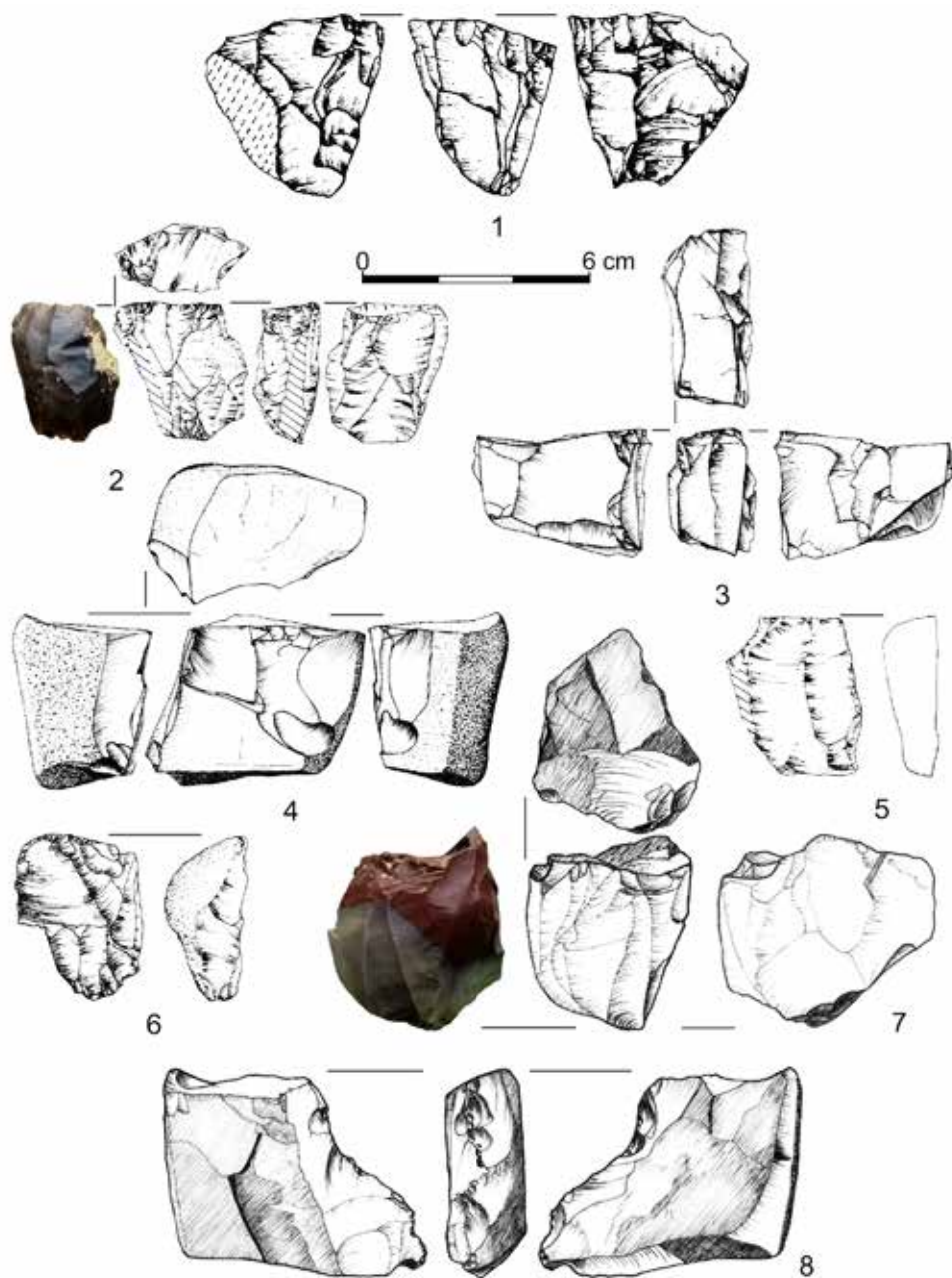


Fig. 16. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1. Cores; drawn by M. Biernat and the authors.

1, 6 — Cracow jurassic flint, 2-5, 7-8 — radiolarite.

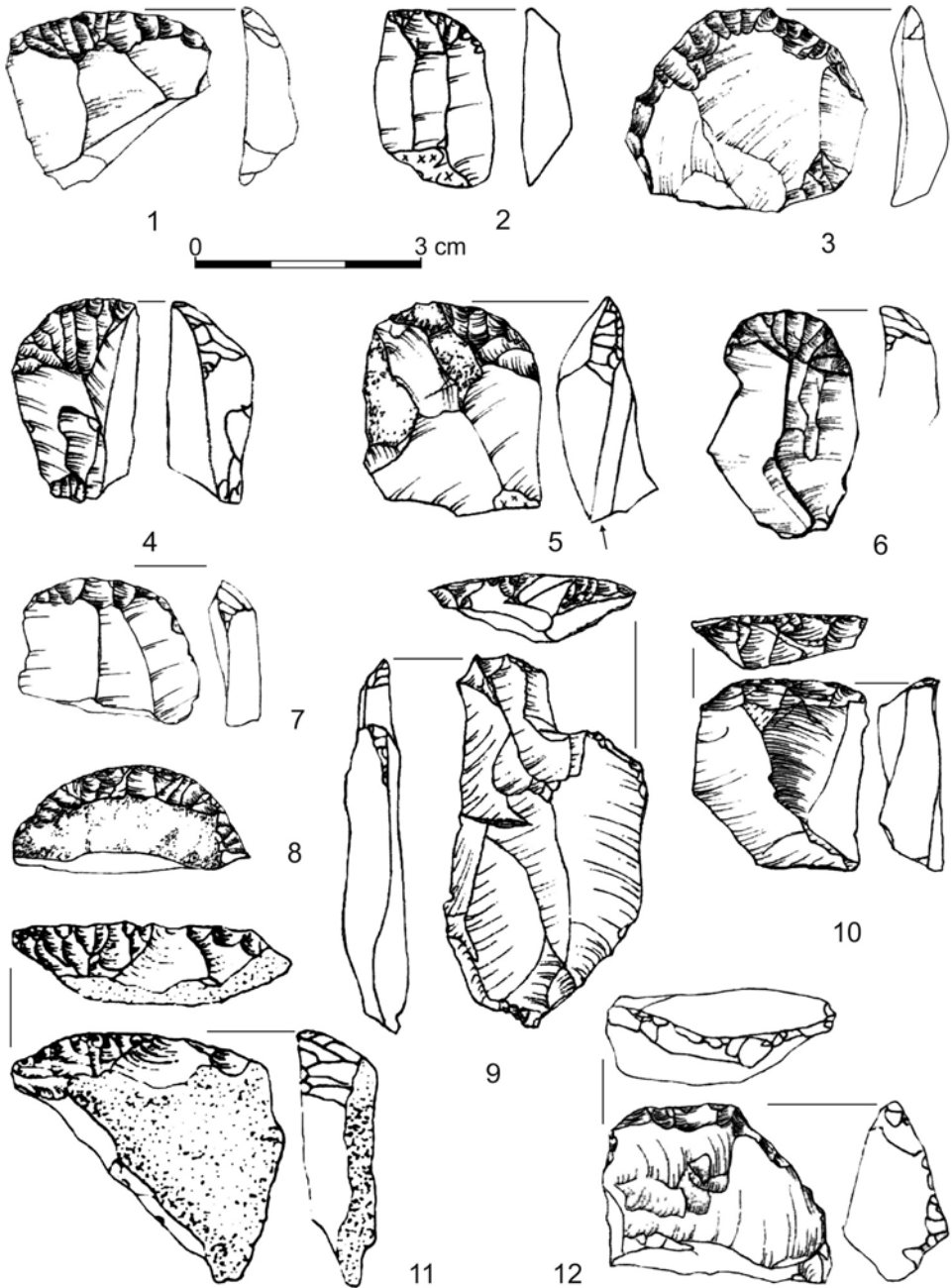


Fig. 17. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Endscrapers; drawn by the authors.

1-5, 7, 9-10, 12 — radiolarite, 6 — obsidian, 8, 11 — Cracow Jurassic flint.

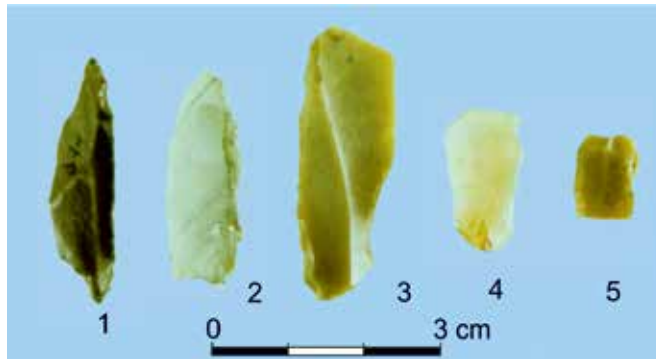


Fig. 18. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Backed forms; Photo by the authors.

1 — radiolarite, 2 — obsidian, 3 — chocolate flint, 4 — limnoquarzite, 5 — Cracow Jurassic flint.

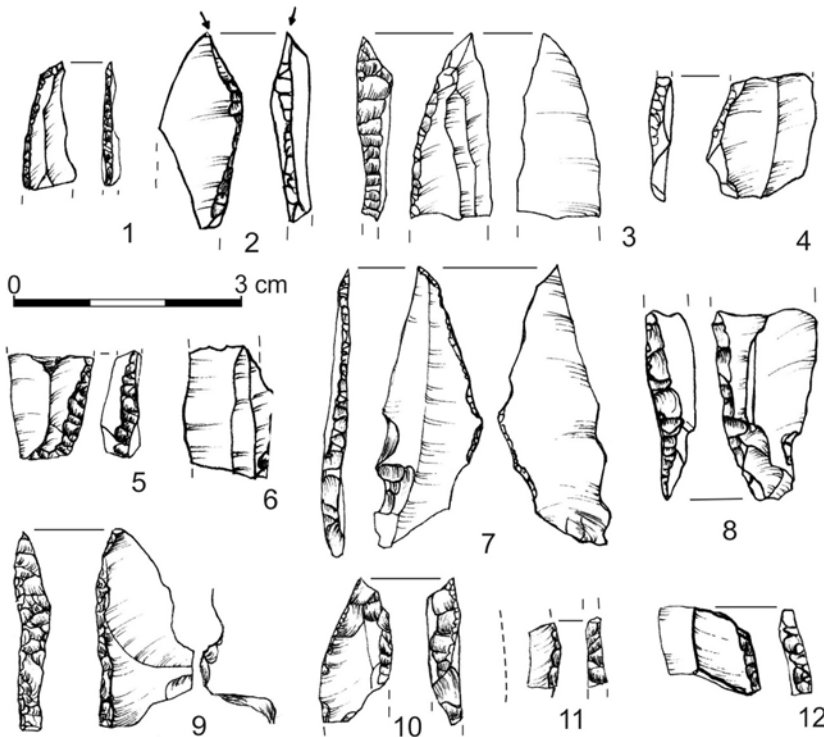


Fig. 19. Nowa Biała, powiat Nowy Targ, województwo małopolskie, Poland, site No. 1.
Backed forms; drawn by the authors.

1, 3, 7, 12 — Cracow jurassic flint, 2, 4-6, 8, 9-11 — radiolarite.

DISCUSSION

Raising a discussion on this topic can be enhanced by determinations, on which we intend to focus in this paper. They come out of the view on two Late Palaeolithic backed points inventories, known from the mountainous area in the Central West-Carpathians.

Intensification of the archeological research in the northern Carpathian Mountains led to the discovery of two relatively big sites of such technocomplexes: Sromowce Niżne, site No. 1 and Nowa Biała, site No. 1. Our aim is to focus on them as each one represents a different technological and typological variant of these technocomplexes.

Both sites are situated within small areas of the occurrence of radiolarites and both prove this raw material to have been exploited. We will present some elements of differentiating the backed points as well as different ways of stone processing. In scope of the proposal of classification of the ABP complexes, it may be concluded that one of those sites — Sromowce Niżne — may represent the Witow group (Chmielewska 1961) while the other — Nowa Biała — suggests a link with the Federmesser culture (Schwabedissen 1954; Taute 1963). The stratigraphy of both open air sites is coherent. The artefacts are gathered in loess-like sediments right below the ploughing layer. The sites are convergent in terms of the topographic position. Both are in a valley of a big mountainous river, close to the edge of terraces. It points out for a big role of fishing in the everyday life and diet of the inhabitants of the campsites.

Clear differences are visible in the case of the cores. Most of them found in Sromowce have no traces of preparation, except for the platforms. They represent a concept of flake-blade, or just flake core. In case of the inventory of Nowa Biała, contrary to the Sromowce inventories, the blade- and blade-flake cores predominate, usually in the double platform stage. Soft hammer procedure is documented.

In the Sromowce inventory the majority of backed pieces have lengths not exceeding 3 cm. They are thick and segment-like. Thick-back and triangle-in-shape forms draw the attention. Among the tools the end-scrapers constitute 30%. Critical for the reconstruction of the technological face of the end-scrapers group is that the majority of them were made of flakes and not of severed blades.

In the case of the Nowa Biała inventory the tool index reaches 16%. In the tool group the most characteristic are backed points. Their group is however differentiated. Big (over 4 cm), lancet-like specimen and backed pieces with reduced base are present. End-scrapers with extremely short flakes are typical, however there are also numerous scrapers made of detached blades. It corresponds well with the outcomes of the analysis of the cores.

A value of the site No. 1 in Nowa Biała comes out of yet different factors. A concentration of interesting relics explored in the circular structures that we are ready to assume as a dwelling trace has been found there. From that place hammerstones of sandstone and plates of that material were found there. Also

an iron concretion, probably a magnetite, was determined. It bears traces of percussion working. A function of the “lighter” cannot be excluded. From this area an AMS date 11270 ± 60 BP is known (Poz-53553). It is the dating like of GI-1c, or in another words generally just after the mid-Lateglacial Interstadial period (Weber et al. 2011, 278–279).

This is even more interesting since both sites are 20 km away from each other and placed in the same river basin. Moreover, it is difficult to indicate inventories in the Carpathian range providing a context for either of the variants. Only few finds of arched points were made within a radius of several tens of kilometers; furthermore, their connection with the techno-complex that we are interested in, is certain by different extent. The first we want to point out is the cave Sucha Díera in Slovakia. After the rescue excavations, a fireplace was found there and few silica artefacts, and among them one thick backed point (Soják, Harničár 1999; Soják, Suchý 2001; Soják, Hunka 2003). From a bone of Capricorn two C-14 date were obtained. They are as follows: 11620 ± 390 BP (Gd-30012), 11230 ± 280 BP (Gd-18146).

In the picture one can see a range of the chronometric determination as a result of the events fluctuation. It has been done because of the reason that the dates were made of bones and their strict relation with the settlement was not certain. Anyway the range of both fit well the developed stage of the Allerød.

The second West-Carpathian site, which we want to point is Zagórze, site No. 2, discovered during rescue excavations, connected with the construction of water dam on the Skawa river in Western Beskidy Mts. Amid numerous flint artefacts a fragment of a big and slender backed point was reached. It is featured by massive back. This specimen refers to the obsidian backed point from the Nowa Biała site, which has been showed before (Fig. 18:2). The site in Zagórze, no published yet, corresponds probably with the Federmesser technocomplex.

Moving back to the sites in Sromowce Niżne and Nowa Biała, it needs to be mentioned that both sites have features of base camps, most probably with a dwelling construction, situated on a big river in the Central Western Carpathians, where no traces of such settlements had been reported before. In both cases the assemblage inventories may be regarded as household stone-processing workshops.

If we account the natural conditions for settlement during two last phases of the Pleistocene in that region, two elements should be underlined, which would contrast with a situation known from the Lowland. The first is composition of the vegetation. Both in Allerød as well as in Dryas III in the Northern Carpathians developed Pine-Spruce forests initially with an advantage of Hazels and Elms. During Dryas III only the upper boundary of the forest allowed to the altitude of 600–700 m asl. In Allerød it reached the altitude of about 1150 m abs. (Koperowa 1961; Rydlewski, Valde-Nowak 1981b; Obidowicz 1990; Hrynowska-Czmielowska 2009).

The second element comprises of easily accessible and differentiated beds of the silica rocks. They allowed to define of the Carpathian raw material province several years ago (Valde-Nowak 1995; 2013).

The value of these findings can be also emphasized by their geographic location. Firstly, they prove that the arched point groups embraced a mountainous landscape, in this case the Tatra and Pieniny Mts., with their characteristic climate and fauna. Secondly, intensive studies of the discovered inventories would allow us to better define a South-Eastern boundary of the area penetrated by the population of the Federmesser culture. Thirdly, the finds provide new information for the discussion about the scale of presumed southern (Epigravettian) influences on the ABP communities active in the European Lowland in the Allerød period.

FINAL REMARKS

It is difficult to indicate inventories in the Carpathian range as well as in the neighborhoods providing a context for the above variants. Only few finds of the arched points were made within the radius of several tens of kilometers; furthermore, their connection with the techno-complex that we focus on is certain by different extent. In addition to these Carpathians sites, as Sucha Díera in Slovakia and Zagórze in Skawa river basin, as well as the site No. 1 in Skwirtne, distr. Gorlice, in Lower Beskidy Mts. (Valde-Nowak 1991; 1996), the flint workshop at Pawłów (Libera et al. 2008) and discovered recently in Upper Silesia in Sowin, site No. 9 and Kozłówki, site No. 36 (Bobak, Połtowicz-Bobak 2010; Wiśniewski, Połtowicz-Bobak 2013, 27) as well as Lubrza, site No. 42 and others sites in Odra river basin (Kabaciński, Sobkowiak-Tabaka 2010) should be mentioned.

Two described ABP assemblages differ from each other. It is relatively easy to find analogies to the Nowa Biała, site No. 1 assemblage among the Polish sites such as the Rydno-Sahara cat II and Całowanie III sites (Schild, Tobolski et al. 1999; Schild, Królik et al. 2011; Schild, Mańka et al. 2014). Similarities between them apply to the raw-materials (radiolarite is reported in Rydno, whereas chocolate flint in Nowa Biała inventory), technology and tool kits. Dwelling structures were discovered at both sites in Rydno and Nowa Biała. Sizes, shapes, profiles and southern exposure of the huts are similar. In both cases, the fireplace was situated inside of the hut and the workshop was outside.

Radiocarbon age obtained from Nowa Biała, site No. 1: 11270 ± 60 BP (Poz-53553) is close to the dates known from the Całownie Level III: 11380 ± 95 BP (GrN-5967), 11280 ± 60 BP (Poz-5093), 11170 ± 60 BP (Poz-49027), or 11020 ± 50 BP (Poz-4670) (Schild et al. 2014, 99–100) as well as to other dates obtained from other Polish sites (Kabaciński, Sobkowiak-Tabaka 2010, 153, Fig. 17).

The situation looks different about the second assemblage coming from the Sromowce-Niżne site. It corresponds with the materials from Witów and Katarzynów (Chmielewska 1978). The technology of flakes, forms of ABP, and hard hammer processing are similar. Possible relations between this assemblage and the southern zone require further research.

There is a possibility for the observed technological differentiations to be of chronological significance. A succession of the regular blade technology, to be replaced by flake core procedure through the time of Allerød, is well documented either from the Azilian range (Bodu, Valentin 1997), Federmesser from Rhine basin (Baales, Street 1997, 376–377; Grimm 2014, 16) or, according to the last publication by R. Schild (Schild, Królik et al. 2011, 129–130), from the Kamienna river basin in Poland. It may have been significant because of no absolute chronometric determination for the Sromowce Niżne inventory which can be younger than the occupation at Nowa Biała.

In the Middle Europe, in Oder- and Vistula Basins the issue of Arched-backed pieces technocomplexes is not fully understood. Federmesser complexes in the western part of contemporary Poland were distinguished a long time ago (Wołczkowo, Tarnowa, Rydno IV, Siedlnica, site No. 17). They used to be called Tarnowa industry by the Tarnowa position in the Lowland (Krukowski 1939–1948; Taute 1963; Burdukiewicz 1977; Schild 1975; Sobkowiak-Tabaka 2011; 2014) or according to the last publication by R. Schild (Schild, Królik et al. 2011, 129–193, 376–377), classic Tarnovian/Witowian. In the same work the Kamienna variant, as an older phase of ABP development (Schild, Królik et al. 2011, 187–193) was separated. The discoveries from over half a century in Witów, Katarzynów and Całowanie let the explorers realize the existence of some distinctive ABP complexes from Allerød period in that region. Many factors differed them from the typical Federmesser what was emphasized by J. K. Kozłowski and S. K. Kozłowski (1975; Kozłowski 1978), M. Chmielewska (1978), and especially by S. K. Kozłowski (1987). The complexes highlighted previously by M. Chmielewska (1961) and called the Witów type (Witowian) were associated with the terminal Tardigravettian (Kozłowski 1978). The taxonomic set outlined in that manner is commonly accepted to this day (cf. Kabaciński, Sobkowiak-Tabaka 2010, 146–149; Sobkowiak-Tabaka 2011, 82–83; 2014).

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