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THE CHEŁM MASSIF AREA – AN AURIGNACIAN SETTLEMENT ENCLAVE IN THE SOUTH-WESTERN POLAND

The authors present the results of several years of research work in the Chełm Massif region (south-western Poland, the Province of Opole). During the rescue excavations preceding A-4 Motorway construction new Upper Palaeolithic sites have been discovered. Besides already known archival sites, surface verification and some other successive finds of related chronology, St. Anna Mountain area appears a dense enclave of Upper Palaeolithic settlement. Obtained sources indicate undoubtedly the connection with the so-called Aurignacian cultures. Comparison of this material with Polish Aurignacian sites and with the inventories from Moravia and Lower Austria show strong formal similarities among these regions.

KEY WORDS: Chełm Massif Area, Upper Palaeolithic, settlement, Aurignacian Culture

INTRODUCTORY REMARKS

The research of the Aurignacian sites in Poland dates back to the second half of the 19th century just before Aurignacian was distinguished by H. Breuil as a separate cultural unit of the Upper Palaeolithic. Mamutowa Cave in Wierzchowie explored by J. Zawisza and Góra Puławska excavated by N. Krisztafowicz and later by S. Krukowski, constitute to the first regularly conducted research work (Krukowski 1939-1948). More than 130 years have already passed since the first Aurignacian discoveries were made in Poland. Now owing thanks to very intensive field research, we already know notable amount of Aurignacian sites in Poland, and our knowledge of the character of this settlement has considerably increased. The history of the research of the Polish Aurignacian sites has already been presented in the literature on several occasions (Kozłowski J. K. 1965; Chmie-

lewski 1975; Sachse-Kozłowska 1978). However, it is worth mentioning that the most important monographic works concerning the phenomenon of the Aurignacian culture come from the 1960's and the 1970's. It was the time of the most intensive research which assumed the character of both field work and theoretical studies. The pre-war excavations and the post-war studies of the sites in the Krakow area became the basis for the most complete, comprehensive and, even now, most accurate monograph of Polish Aurignacian Cultures written by E. Sachse-Kozłowska (1978). In the following years greater interest in other stages of the Palaeolithic is perceptible, which undoubtedly resulted from the lack of new Aurignacian discoveries. They were generally limited to single find discoveries of „Aurignacoid” character, often without stratigraphic contexts.

In view of the above, the discovery of a new site connected with the Aurignacian Cultures in the Chełm Massif area, surrounded additionally by several other sites with generally Upper Palaeolithic chronology seems to be especially interesting. All the more so that apparently except for site Piekary IIa near Kraków (Sitlivy et. al. 1999; Kozłowski J. K. 2001) and Deszczowa Cave near Kroczyce (Cyrek 2001), it is the only region in Poland where

the investigations of the Aurignacian have been recently carried out. The scope of this article is the issue of the Upper Palaeolithic settlement within the discussed region. Apart from the comprehensive presentation of all the collected sources from several sites, it also aims at presenting comprehensive analyses of known Polish Aurignacian assemblages and consequently their place in a wider, Central European contexts.

GENERAL GEOMORPHOLOGICAL SETTING OF THE CHEŁM HUMP

The Chełm Massif region, where all sites under discussion are located, is a physiographical unit covering area of more than 300 square kilometres. It is the highest element of the Silesian Upland. It is a vast culmination, a massif structured of dolomites and Middle-Triassic limestone. The unit spreads out from Krapkowice through Strzelce Opolskie to Tarnowskie Góry, where the Tarnogórski Hump begins (Kondracki 1978, 374-375).

Geological structure of the Chełm Massif region is complex. It is composed of the pre-Tertiary and Tertiary sediments, often with visible tectonic disturbances, and of Quaternary deposits. Triassic rapid and a deep furrow in the form of tectonic ditch to the south of it are principal elements of pre-Ter-

tiary relief. St. Anna Mountain is the highest located component of the local relief and a relic of volcanic activity. It has a shape of small plateau of ca. 0,8 km² at the approximate height of 385 m above sea level. In the south-eastern part the plateau forms the top of St. Anna Mountain (400 m); (Fig. 1). Middle-Triassic limestone occurring in the massif area displays considerable state of weathering in the highest parts of the layers, very frequently to the depth of 4-6 m. The weathered waste is in the form of rubble and its surfaces are very often karsified (Garczyńska 1977).

Quaternary sediments, which cover the discussed region, with loess sediments occurring in their upper parts, have differentiated origin and lo-



Fig. 1. St. Anna Mountain and Wysoka village – view from the north-west. The highest area in the Chełm Massif region.

cally are notably thick. Main features of the Quaternary relief are fluvioglacial plains, moraine plains, and characteristic features of loess areas' relief, especially in the locality of Leśnica, Ujazd Śląski and in the vicinity of Góra Św. Anny (St. Anna Mountain) village. The most characteristic types of the loess relief around St. Anna Mountain are kettle valleys, small gullies, undulating hilly surfaces and loess escarpments on slopes of hills (Kida 1996).

Weathered wastes of limestone rocks were the fundamental source for loess sediments of the Chełm Massif region. The waste is structured of very differentiated material, like limestone rubble, huge rock fragments, sandy and silt-grade mate-

rials. The latter is the main source for loess material in this region (also from glacial and fluvioglacial sediments). The sources of material for loess relief of St. Anna Mountain were located not far off. The material was transported by wind at dozens of kilometres in dust storm conditions and deposited locally on wet ground (Garczyńska 1977).

Field investigations proved that loess sediments of the Chełm Massif region display all basic criteria of typical loess area. According to literature, they do not belong to the so-called loess-derived sediments (loess-like formations of different origin – not aeolian). Their age should be related to the last phases of Vistulian glaciation (Jary, Kida, Śnihur 2002).

FROM THE HISTORY OF RESEARCH

First Upper Palaeolithic sites in the Chełm Massif region were discovered in the 1920's. In 1928 H. Kurtz found flint artefacts on the top of the hill called Kamienna Góra (ca. 310 m above sea level) in the vicinity of Ligota Dolna (Kurtz 1930). The second discovery took place on the hill called Wzgórze Wiatraczne (ca. 378 m), near Wysoka village, at the foot of St. Anna Mountain culmination, where a local school teacher collected a small assemblage (Lindner 1937). In the men-

tioned publication term „the Aurignacian Culture of St. Anna Mountain type” was proposed on the basis of those discoveries. The pre-war period provided other sites with scarce flint artefacts attributed to the Stone Age (e.g. Kurtz 1930). One of them is Wysoka 32 site, which will be discussed (Fig. 2).

In the post-war years (1959) J. K. Kozłowski carried out verifying field prospection on the sites in the Chełm Massif region. In Ligota Dolna (site No. 1) the research gave negative effect mainly

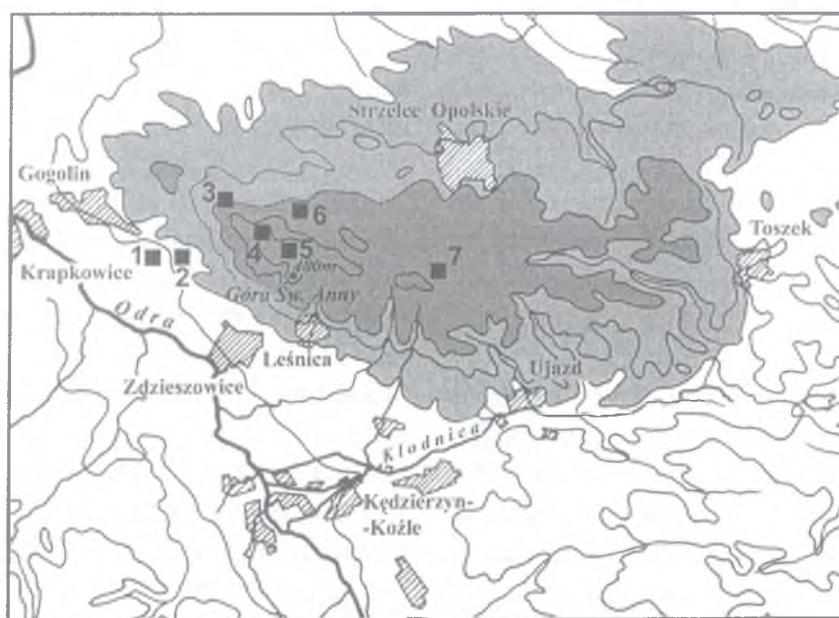


Fig. 2. Upper-Palaeolithic sites in the Chełm Massif area. 1 – Zakrzów 41; 2 – Zakrzów 40; 3 – Ligota Dolna 1; 4 – Wysoka 57; 5 – Wysoka 4; 6 – Wysoka 32; 7 – Olszowa A.

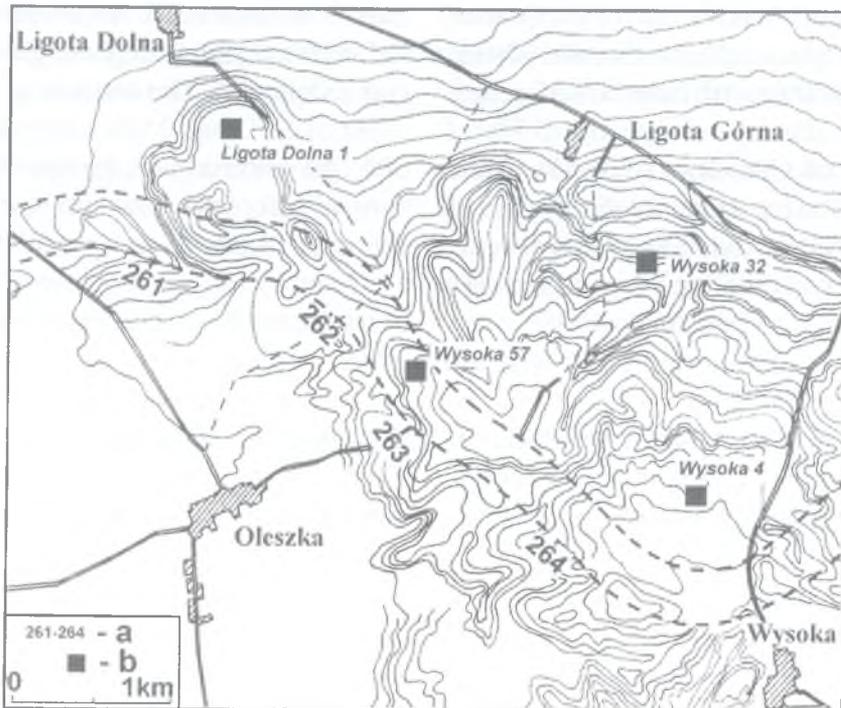


Fig. 3. Upper-Palaeolithic sites in the vicinity of Wysoka village (a – kilometres of motorway; b – archaeological sites).

because of notable destruction of the hill by a quarry. Similarly, in Wysoka (site No. 4) no new material was found. Both, sites and the inventories from German researchers' collections were taken into consideration in monographic works about Palaeolithic settlement in St. Anna Mountain region (Kozłowski J. K. 1960) and the Palaeolithic in Upper Silesia (Kozłowski J. K. 1964).

Other attempts at field verification of archive sites carried occasionally by various researchers were also unsuccessful. Field prospection carried out within the frame work of AZP (archaeological field prospection of Poland) programme did not deliver any new data concerning discussed issues, though it helped ordering archive data and introducing current numbers of sites within individual towns and villages.

During investigations at the end of 1990's in the Chełm Massif region the authors again verified the sites mentioned above and acquired a small but characteristic collection in Wysoka 4 (Bronowicki, Masojć 2000). New material was found also in Wysoka 32. The remaining material presented below comes from recently discovered sites, like Wysoka 57, Zakrzów 40, Zakrzów 41 and Olszowa A (Fig. 2, 3).

The authors carried out investigations concerning the Upper Palaeolithic in the Chełm Massif area in years 1998-2001. At that time, during archaeological observations accompanying the motorway construction in the St. Anna Mountain area new prehistoric sites were discovered. One of them was already mentioned – Wysoka 57. During the field work three lithic concentrations were examined. Simultaneously with investigations in Wysoka 57, other field activities like verification of already known Palaeolithic sites, field prospecting in the neighbouring area and rescue excavations in other prehistoric sites were conducted. It should be emphasized that all mentioned activities were carried out by the Wrocław Branch of the Institute of Archaeology and Ethnology, Rescue Excavations Team, Polish Academy of Science headed by Professor Bogusław Gediga. The results of the excavations have been already partially reported (Bronowicki, Masojć, Bobak 1999a,b; Bronowicki, Gediga, Masojć 2002; Bronowicki, Masojć 2000, 2001; Masojć 1999); nevertheless the inventories explored in 2000 have not been presented yet. They allowed a new view on the phenomenon of the Upper Palaeolithic in this region.

SOURCES

All Upper Palaeolithic sites from the Chełm Massif region are presented below. Succession and numbering of sites according to Figure 2.

1. Zakrzów 41, Krapkowice district

The authors discovered the site in May 2000 year, as a result of archaeological supervision on the A4 motorway construction. The exploration, in 2000 year, was conducted by T. Wojnicki, MA and A. Stanisławski, MA. The site is located nearby overbridge No. 71, A4 motorway, on the right side of a small, unnamed watercourse running from south to north, by the road from Zakrzów to Wygoda hamlet. It is situated on strongly undulated plain. Upper Palaeolithic artefacts were found in the lowest part of the site with Holocene alluvial sediments, situated on the watercourse. It suggests that they were not found in original position. They were accompanied by numerous materials dating from the Late Palaeolithic to late Middle Ages (Gediga et al. 2001).

A small group of Upper Palaeolithic artefacts was distinguished in assemblage of ca. 10 000 flint specimens dating mainly from the Mesolithic. There were distinguished also Late Palaeolithic, Neo-

lithic and Bronze Age – Halstatt period finds. The Upper Palaeolithic assemblage included 8 artefacts: 5 pieces of debitage, a retouched blade (Fig. 4:1) and 2 typical Aurignacian carinated burins (Fig. 4:2).

2. Zakrzów 40, Krapkowice district

The authors discovered the site in April 2000 year, as a result of archaeological supervision on the A4 motorway construction. It is situated on the top of a hill on the already mentioned watercourse. The site neighbours eastward with Zakrzów 41. Its base is structured of heavy till comprising great amount of local rock debris.

Majority of artefacts (ca. 1 000 specimens) is most probably connected with production of cordiform arrowheads, dated back to the Bronze Age – Halstatt period (Gediga et al. 2001).

The Upper Palaeolithic artefacts were found only on surface. They were concentrated in southernmost part of the site. The assemblage is composed of 7 artefacts: a broken retouched blade (Fig. 5:1); a perforator with additional retouched edge (Fig. 5:2); a few pieces of debitage (Fig. 5:3), a multiple, multinegative dihedral burin (Fig. 5:4), and an opposed platform core for blades (Fig. 5:5).

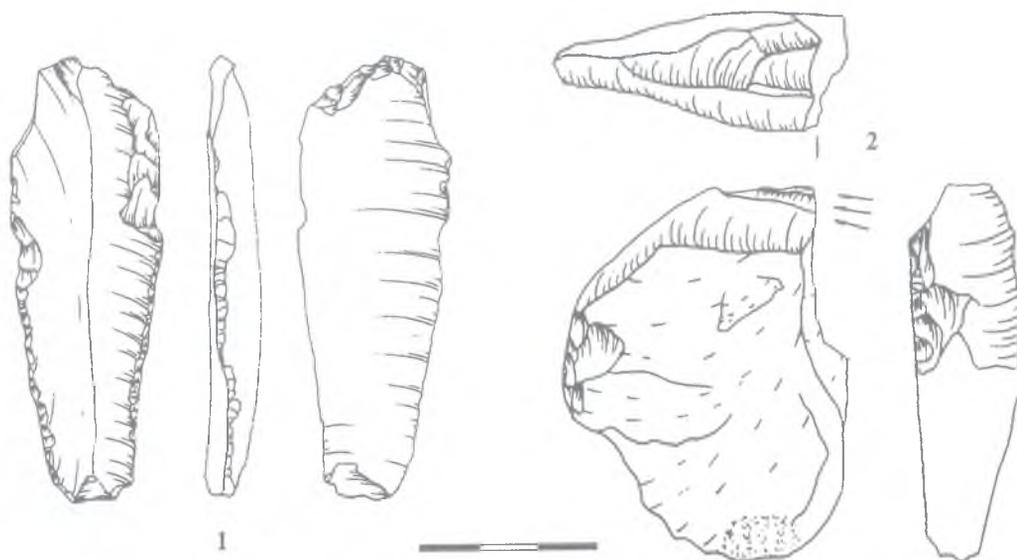


Fig. 4. Zakrzów 41. Selected materials.

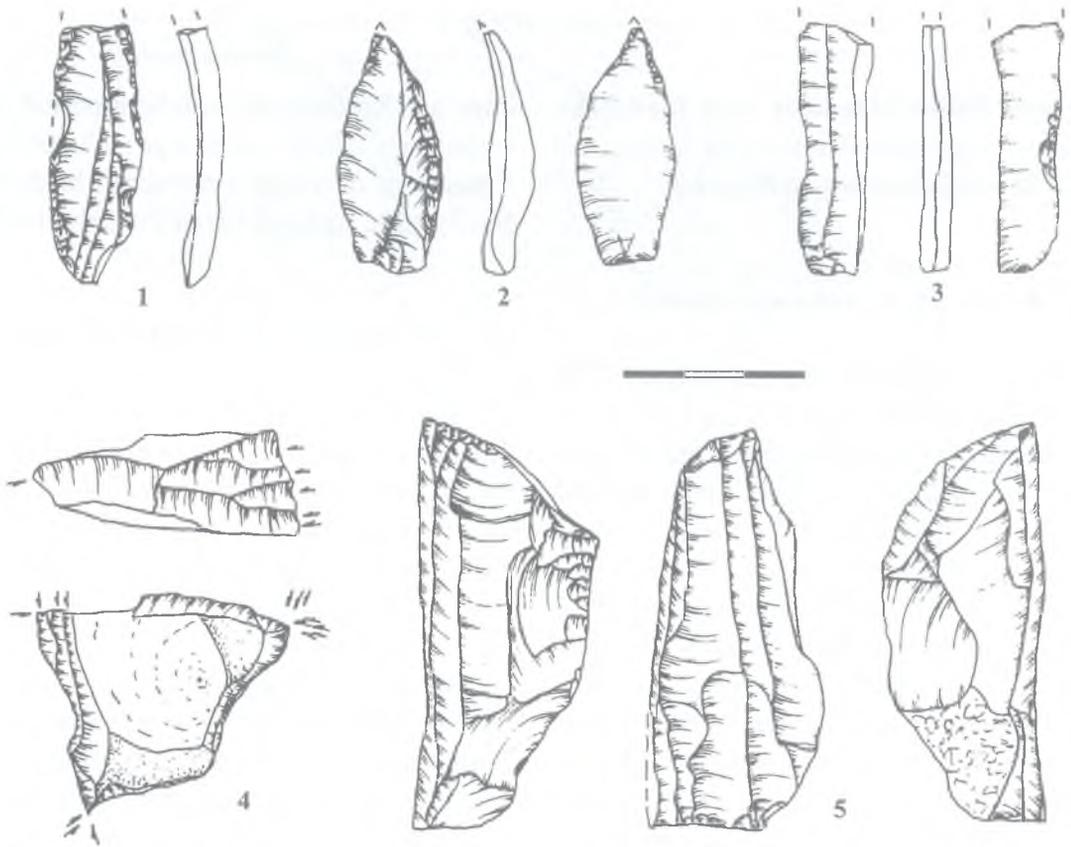


Fig. 5. Zakrzów 40. Selected materials.

3. Ligota Dolna 1, Strzelce Opolskie district

The site is located on the top of a hill called Kamienna Góra (310 m above sea level). At present it is difficult to verify the site. It seems that a quarry has destroyed greater part, if not the whole site. In 1928 H. Kurtz found several white-patinated flint artefacts in sub-surface layer of limestone detritus (Kurtz 1930). Only four specimens are more

characteristic (cf. Kozłowski 1964, 56-57): a carinated core or eventually an end-scraper with additionally retouched edges (Fig. 6:1), a regular end-scraper on blade (Fig. 6:2) and a typical Aurignacian nosed end-scraper (Fig. 6:3). The site was recognized as an Aurignacian site of St. Anna Mountain type as early as in the pre-war period (Lindner 1937). Later J. K. Kozłowski confirmed that opinion (1960; 1964).



Fig. 6. Ligota Dolna 1. Selected materials (acc. Kozłowski J. K. 1964).



Fig. 7. Wysoka 57. View of the hill dominating over the site.

4. Wysoka 57, Strzelce Opolskie district

The site was discovered and partially explored in July 1998 year, as a result of archaeological supervision on the A4 motorway construction. Works were continued in July and August 2000 year.

The main part of the site is located within already constructed A4 motorway (km 262+350-262+650). Taking into account extreme scatter of artefacts, its area exceeds 200 ares. It is situated on south-west slopes and on the top of an unnamed hill (north-west part of the Massif). Limestone rocks surmount the top of the hill (361 m above sea level), dominating over the excavated area. It has form of a crest extending from south-east to north-west (Fig. 7). From northern side it is limited by a deep karst profiled valley. Difference of height between the lowest part of the site and the hill's top exceeds 40 m.

Three flint concentrations were explored during the excavations (I/98, I/00, II/00). Additionally, at the hill's top, several probing trenches provided about 60 artefacts (Fig. 8). Both materials from 1998 and 2000 were in similar stratigraphic position. A layer of limestone detritus with fractions of dusty and sandy material lay immediately below forest humus in the northern

part, neighbouring steep slope and on the top of the hill. The thickness of the layer was varied: from ca. 0,30 m to 1,50 m. Compact, horizontally stratified strata of limestone rocks were situated below (Fig. 9). In this part artefacts were found only in present humus and in the roof of detritus. The southern and western parts of the site were covered by a thick layer of loess deposits with limestone debris. In this part contact area of the layer with solid rock was not observed. Artefacts were discovered in humus and roof of loess. Surfaces of the most inclined places covered by loess were cut by small and shallow erosive gullies running according to slope. They were filled with till, gravel and sparse rock fragments. No flint artefacts were found there.

The above observations show the sub-surface character of the position of archaeological material.

Concentration I/98

The assemblage from 1998 contains 180 white-patinated flint artefacts and a conjectural stone tool (limestone point). Owing to typological and technological features and the state of preservation (no patina), three other artefacts were excluded from the Palaeolithic collection. They represented most probably the Neolithic period (a core fragment,

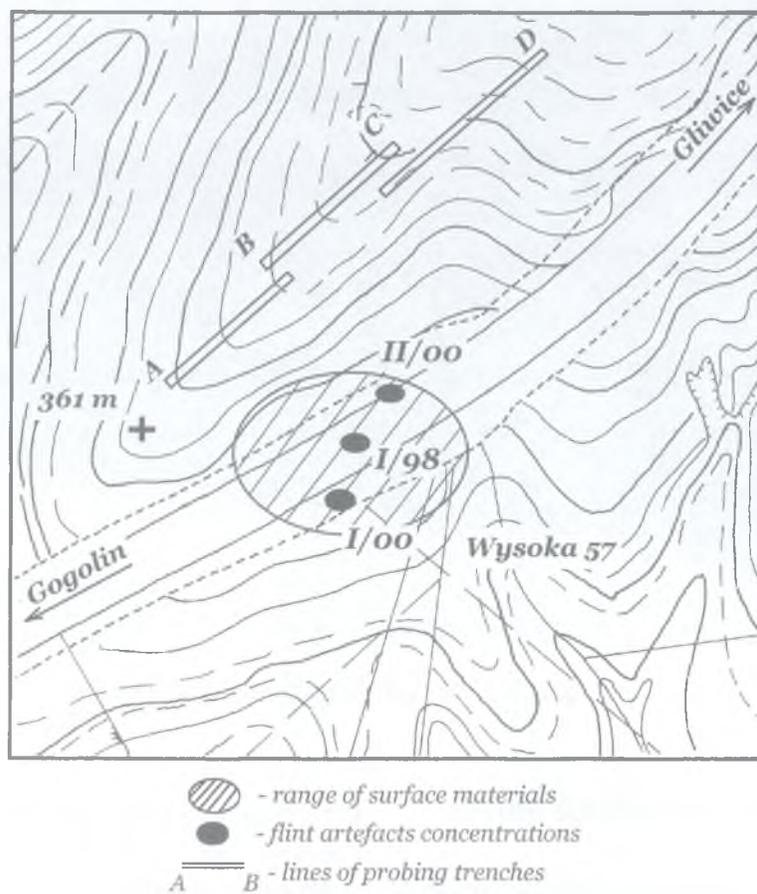


Fig. 8. Wysoka 57 – topographic plan (scale 1:10 000).



Fig. 9. Wysoka 57. Profile of the upper parts of the limestone deposits.



Fig. 10. The neighbouring area of Wysoka 57.

2 flakes). Other specimens were considered as undoubtedly Upper Palaeolithic components.

The collection includes 8 cores. All of them represent advanced stages of core exploitation; they are extremely shortened and reduced. At least in two cases the negatives visible on the cores testify to the production for blades and bladelets (Fig. 11:2,3), two other cores have flake negatives, which is undoubtedly the effect of advanced stages of exploitation. Because of bad flint quality, small and thick blades predominate, though 7 cm long specimens are also present (Fig. 12:9,11) and, considering proportions of some other fragments they might be even bigger. Cores, debitage and tools indicate considerable predominance of single platform core exploitation, but there are also three cores with changed orientation (Fig. 11:1,2,6). Possibly one of them is a core – like a burin (Fig. 11:6). Core preparation processes were limited mainly to the preparation of the striking platform and afterwards to its rejuvenation. Preparation was made usually by a single, lateral blow. Only one core with changed orientation demonstrates not only the remains of striking platform preparation but also of back and sides of a core (Fig 11:2).

The stock contains 35 tools. Burins are the most numerous in the reconstructed inventory – 9 pieces, including the specimens on retouched end, angled (Fig. 12:1) as well as central (Fig. 12:8) and double ones (Fig. 12:4). One of the burins has a flat negative of burin spall removal on the ventral face of a blade (Fig. 12:1). There are also two burins on unprepared end (Fig. 12:2,9), one of them on a huge chunk previously used as a core (Fig. 12:2), and three dihedral burins (Fig. 12:5,13,14). In addition, the core with changed orientation mentioned above (Fig. 11:6) may be possibly treated as a doubled core-like burin (dihedral + on truncation).

End-scrapers are represented by five specimens. The most typical form is an end-scraper with slightly rounded high scraper head, made on an alternate retouched blade from a single platform core (Fig. 12:11). The blade is massive, broad and slightly bent. Probably it was a double end-scraper, but because of the breakage it is difficult to decide. Among other end-scrapers, there are: a high form made on chunk, a fragment of a tiny, transversal end-scraper on blade (Fig. 12:19), another transversal form on cortical flake (Fig. 12:18) and one atypical end-scraper on chunk.

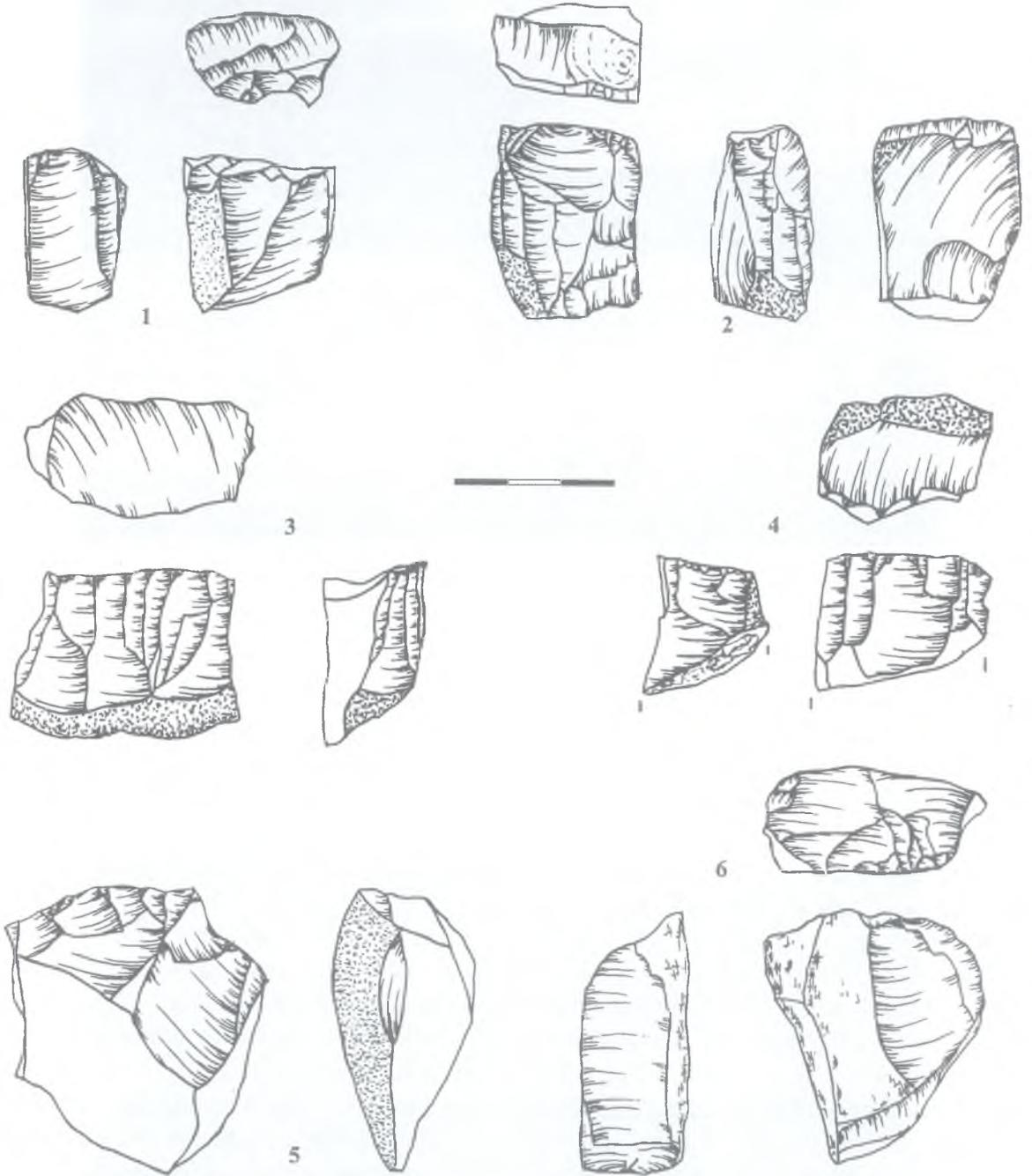


Fig. 11. Wysoka 57. Concentration I/98. Cores.

Tools in the concentration contain also two combined tools, which are a combination of dihedral burins and end-scrapers (Fig. 12:13,14), a denticulate specimen, two perforators – one with flat retouch on one side (Fig. 12:12) and the other one on retouched blade

with flat retouched edge (Fig. 12:10). One fragment of a typical Aurignacian retouched blade occurred. It is a distal part of a blade with convergent, characteristic scalar retouched edges (Fig. 12:16). The collection also contained a proximal fragment of a tool (frost dama-

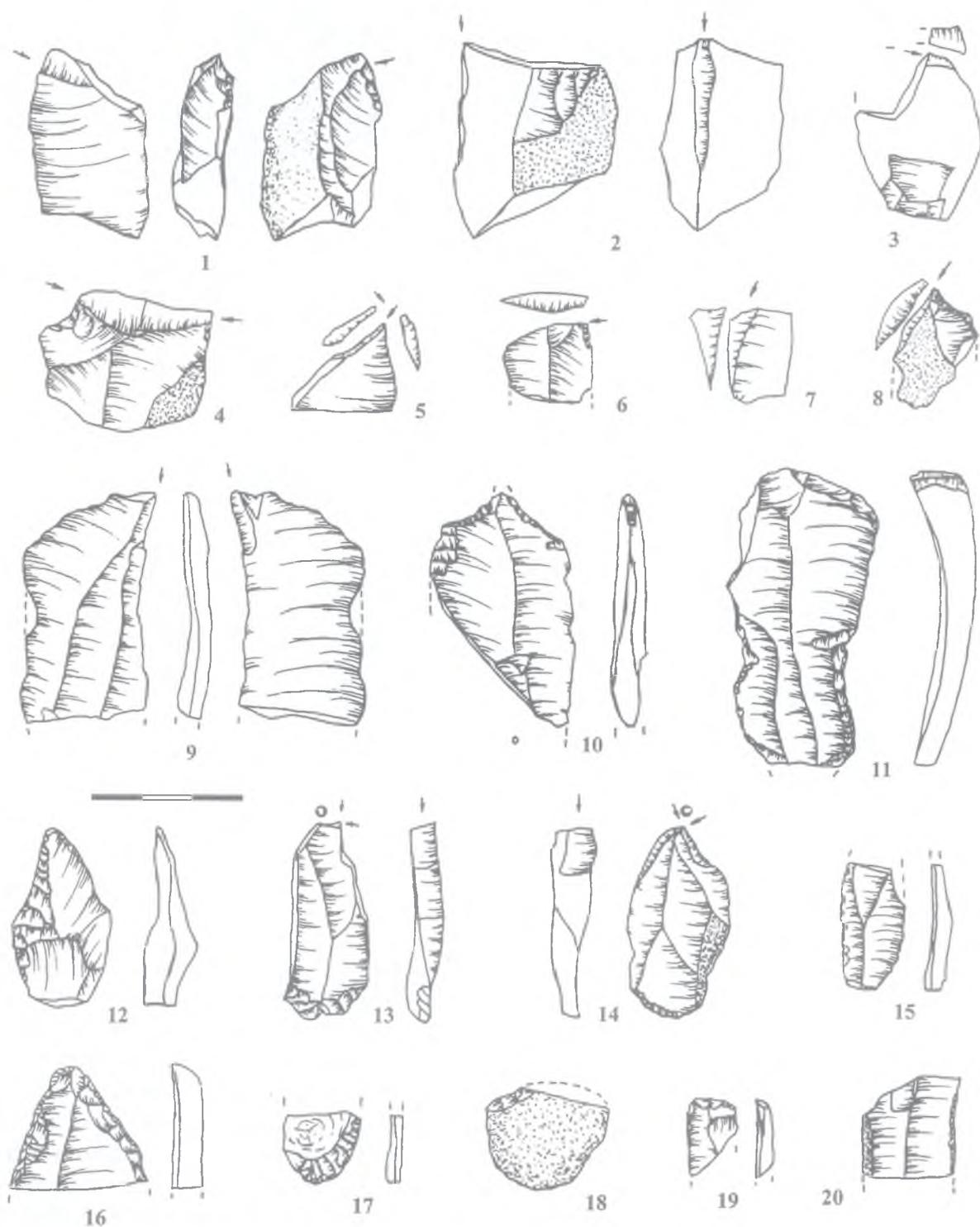


Fig. 12. Wysoka 57. Concentration I/98. Selected tools.

ged) – most probably a blade with flat, lamellar retouch (Fig. 12:17).

13 retouched blades and flakes, mainly fragmentarily preserved, difficult to describe typologically in detail complete the list of tools. A frag-

ment of the proximal part of a slender blade, very regular in proportions, with functional retouch should be distinguished (Fig. 12:15).

A conjectural limestone point (the single macrolithic stone tool, mentioned above), with regard

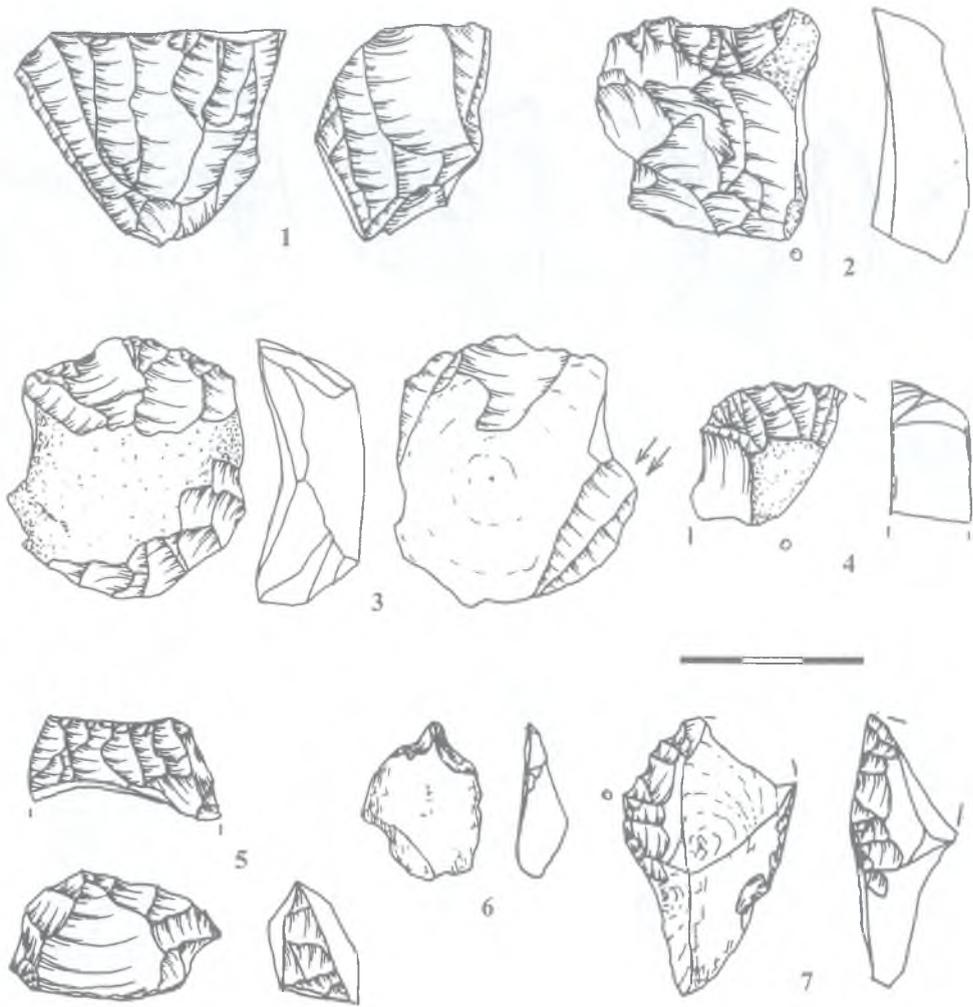


Fig. 13. Wysoka 57. Concentration I/00. Cores and selected tools.

for the specific raw material it was made of, has no strict analogies in Upper Palaeolithic assemblages (Bronowicki et al. 1999a, Fig. 5).

Concentration I/2000

In this assemblage 289 flint artefacts have been distinguished, including 11 cores and 40 retouched specimens. Among the tools there were three end-scrapers: one with a slightly concave scraper head (Fig. 13:2), a fragment of carinated end-scraper, and another fragment on chunk (Fig. 13:4,7). The most numerous tool category is represented by burins – 13 pieces (Fig. 14). There are no burins on retouched end at all. Other types occur in similar proportions: five dihedral burins, central (Fig. 14:6,9,10), as well as angled (Fig. 14:3), five burins on unprepared end (Fig. 14:1,2,7) and three on broken end

(Fig. 14:4,8). In the group of burins on unprepared ends a typical carinated form is worth marking out (Fig. 14:1). Most of the burins have been prepared on regular blades, partly broken and in part from the stage of core preparation process (Fig. 14:3).

Among the remaining retouched specimens there are also two perforators, both with well separated prongs. One of them has a prong prepared in a similar way to Clactonian retouch (Fig. 13:6). There are also two combined tools, namely a high end-scraper on chunk with a burin on unprepared end (Fig. 13:3) and a burin on broken end with a delicate perforator (Fig. 14:5).

The category of tools is complete with the group of 13 retouched blades and flakes, 4 chunks partly retouched and 3 unspecified tool fragments. One of the blades has an edge formed as a saw.

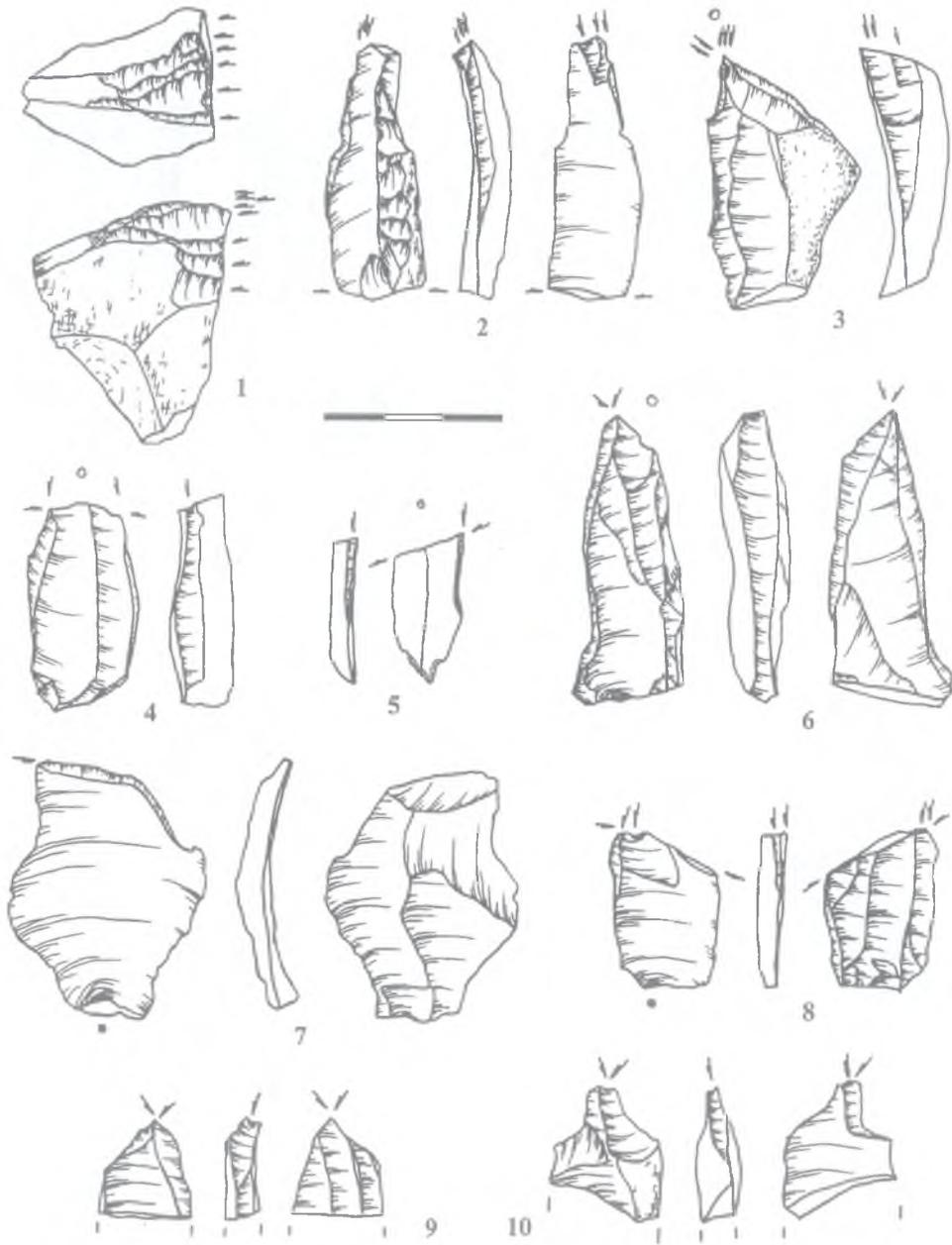


Fig. 14. Wysoka 57. Concentration I/00. Burins.

There is relatively great number of characteristic forms from core preparation and core rejuvenation stages. Next to two core tablets and two rejuvenation blades (outrepassé) eleven crested blades and flakes have been collected.

The group of cores is relatively uncharacteristic. It includes three single platform cores, one of them for blades and bladelets with prepared striking platform and with traces of back preparation (Fig. 13:1). Other cores represent initial stages with single ne-

gatives: 4 whole pieces and 4 pieces fragmentarily preserved (Fig. 13:5).

Numerous debitage, quite a lot of chunks and two pieces of flint raw material complete the inventory from concentration I/2000.

Concentration II/2000

In this inventory 332 flint artefacts have been distinguished, including 5 cores and 43 retouched specimens. The group of end-scrapers is represen-

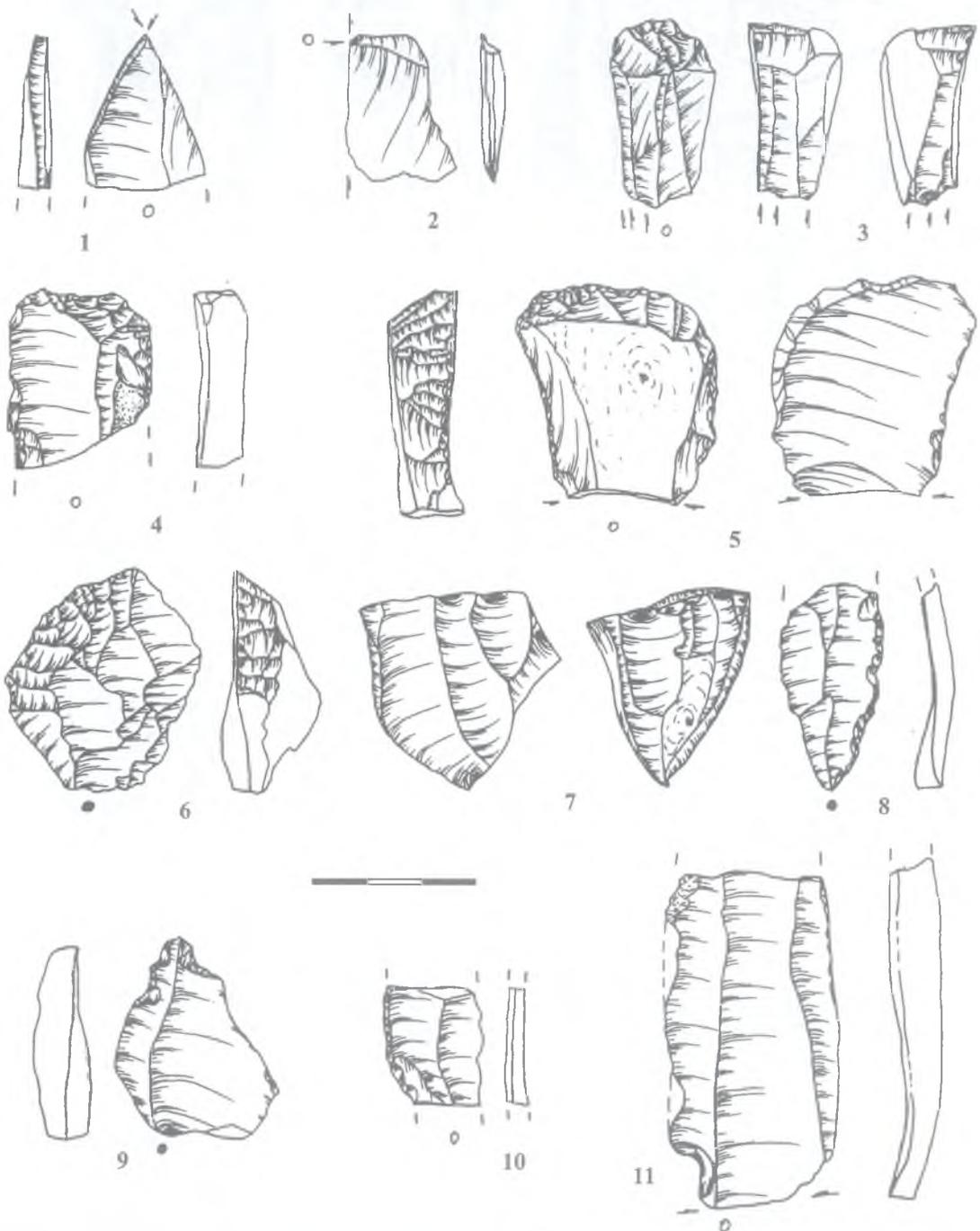


Fig. 15. Wysoka 57. Concentration II/00. Selected tools and a core (7).

ted by two forms, one of them made on chunk (Fig. 15:5). It is a high end-scraper with strongly bent scraper head, partly placed also on one of the edges. The other end-scraper is a form with straight scraper head on a fragment of Aurignacian blade (Fig. 15:4).

Other tools include an oblique side-scraper with high retouched edge (Fig. 15:6). The group of combined tools is represented by only one specimen: a typical carinated end-scraper combined with a multi-negative burin on unprepared end (Fig. 15:3).

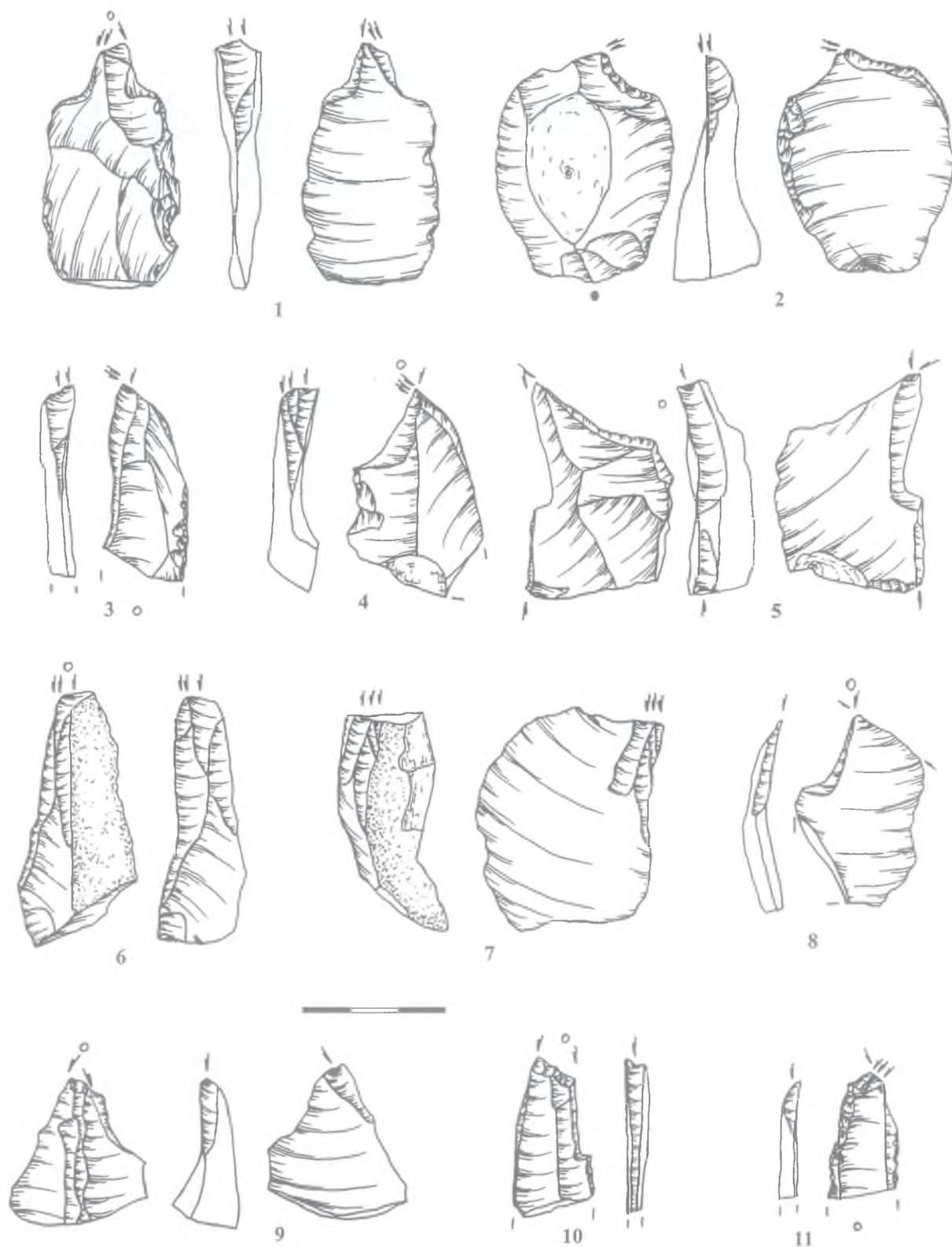


Fig. 16. Wysoka 57. Concentration II/00. Burins.

The most numerous category – burins, contains 15 pieces. Among them there are dihedral forms (Fig. 15:1; 16:1,3-5,8,9,11). One of them is a frag-

ment of retouched blade with burin in its proximal part (Fig. 16:11). Next to six dihedral forms two burins on retouched end occurred, one of them

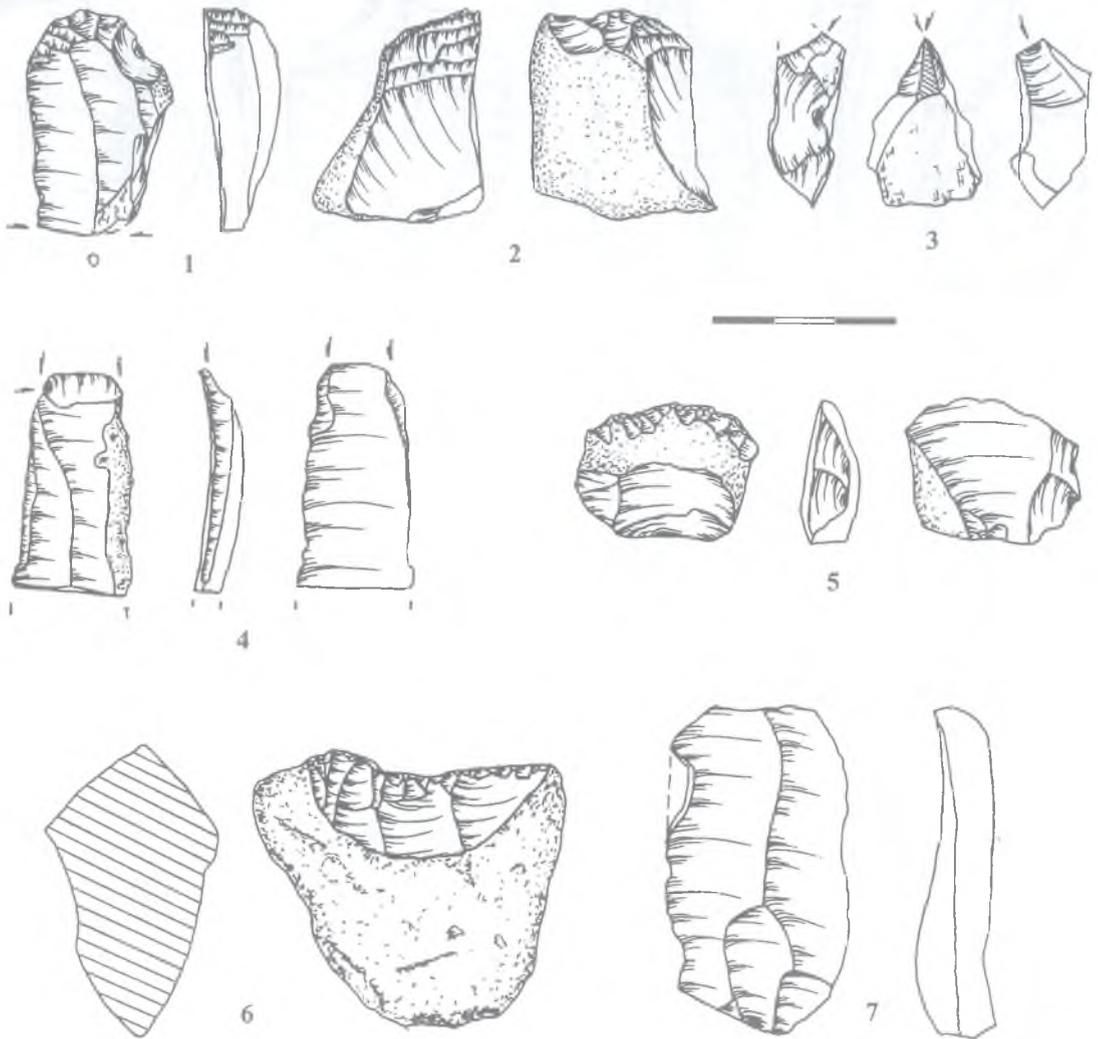


Fig. 17. Wysoka 57. Selected materials from the hill top.

doubled (Fig. 16:2,10), three burins on broken end (Fig. 15:2; 16:8) and three burins on unprepared end (Fig. 16:6,7). Additionally, one of the specimens is a double form (dihedral + on retouched end); (Fig. 16:5). Similarly to the concentration I/00 most of the burins were prepared on regular blades, some of them with bigger number of removed burin spalls (Fig. 16:4,6,7).

Among the remaining tools, a perforator (Fig. 15:9), 14 retouched blades (Fig. 15:8,10,11) and 8 retouched flakes have been collected.

In the group of five cores there are two specimens with changed orientation, for blade and flake production (Fig. 15:7), two initial cores and a core fragment. The concentration included also a group

of numerous core preparation products, like 19 primary and secondary crested blades, single core tablets and rejuvenation blades. Moreover eight probable burin spalls have been distinguished.

The top of the hill

The collection obtained as a result of probing excavations at the top of the hill contains 63 artefacts including twelve retouched forms. The group of end-scrapers includes two specimens: a carinated form (Fig. 17:1) and a high end-scraper on a chunk with straight scraper end (Fig. 17:2). Tools include four burins: a central dihedral burin, a doubled angled dihedral burin (Fig. 17:3,4), a single burin on retouched end and a single form on unprepared

Artefact categories		Wysocka 57 Wierzchowina	Wysocka 57 Concentration I/98	Wysocka 57 Concentration I/00	Wysocka 57 Concentration II/00
I	Single platform core	-	4	3	-
	Opposed platform core	-	-	-	-
	Changed orientation core	-	3	-	2
	Initial core	-	1	4	2
	Core fragment	2	-	4	1
	Crested blade	-	4	11	19
	Core tablet	1 (?)	1	2	1
	Rejuvenation blade	-	2	2	1
	Total:	3	15	26	26
II	Flake	12	68	100	95
	Blade	5	23	31	57
	Chip	10	17	23	61
	Chunk	16	21	66	42
	Total:	43	129	220	255
III	End-scraper	2	5	3	2
	Burin	4	9	13	15
	Perforator	-	2	2	1
	Side-scraper	-	-	-	1 (?)
	Retouched blade (Aurignac)	-	1	-	1
	Combined tool (scraper + burin)	-	2	1	1
	Combined tool (burin + perforator)	-	-	1	-
	Denticulated tool	-	1	-	-
	Retouched blade	2	3	8	14
	Retouched flake and chunk	2	10	9	8
	Tool fragment	2	1	3	-
	Limestone tool	-	1	-	-
Total:	12	35	40	43	
IV	Burin spall	3	2	3	8
TOTAL:		61	181	289	332
	Raw material	-	-	2	-
	Artefacts of younger chronology	2	3	5	1

Fig. 18. Wysocka 57. The structure of flint assemblages (I – cores and products of core preparation and rejuvenation; II – debitage including chips and chunks; III – tools; IV – burin spalls).



Fig. 19. Wysoka 4. View of the site form the south-west.

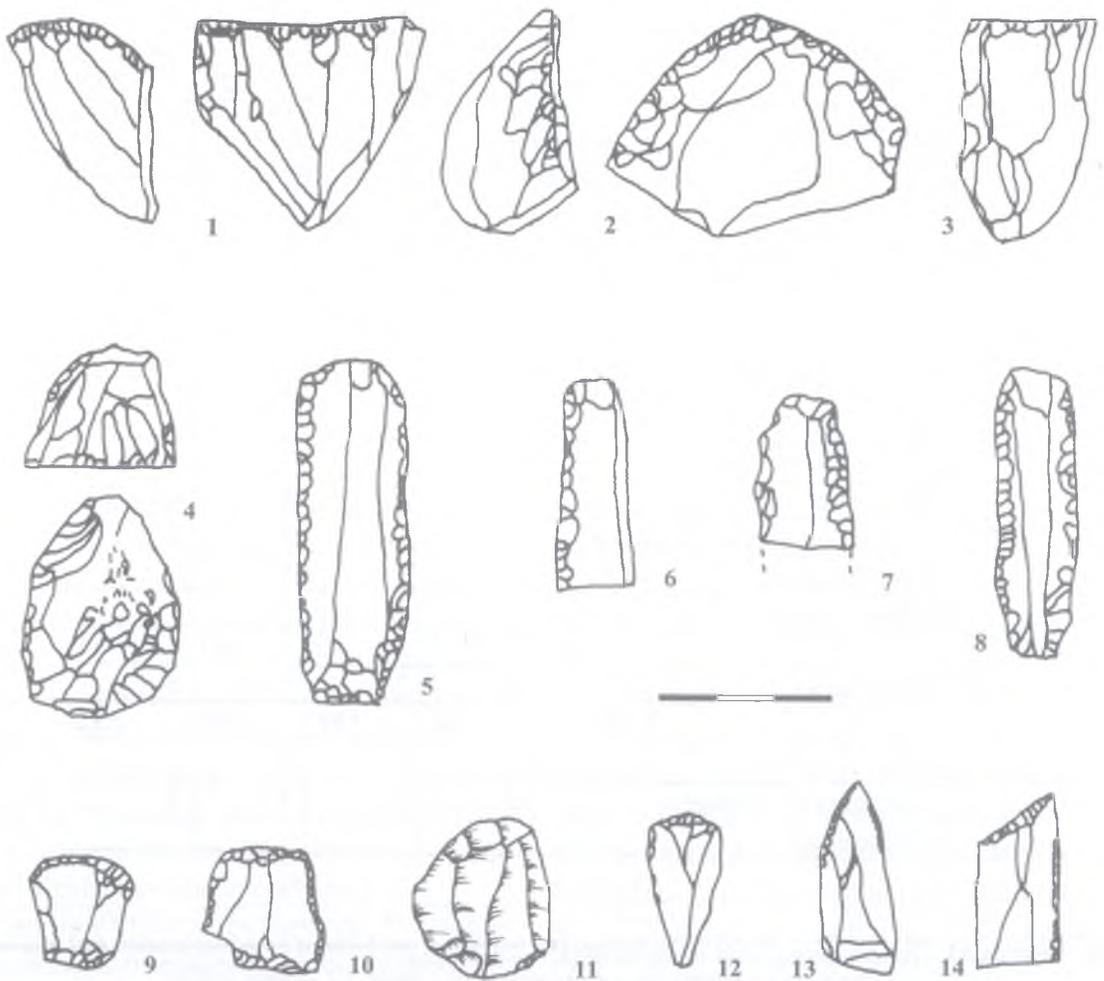


Fig. 20. Wysoka 4. Selected artefacts (acc. Kozłowski J.K. 1964).

end. The doubled form was prepared on a massive, broken blade with trapezoid section (Fig. 17:3). Among other tools there is also a strongly polished, broad retouched blade (Fig. 17:7), two retouched chunks – one of them is a massive form with slightly concave retouched edge (Fig. 17:6), an alternating retouched flake and two fragments of retouched specimens. The group of four cores from this inventory contains two uncharacteristic forms and two specimens of younger chronology (Mesolithic?). The debitage contains 43 artefacts predominated by a group of chunks. Three burin spalls, apparently from burins on retouched end, should be also mentioned.

5. Wysoka 4, Strzelce Opolskie district

The site is located on the top of a hill called Wzgórze Wiatraczne (378 m above sea level). It is a small hump situated from east to west, nearby Wysoka and Góra Św. Anny (St. Anna Mountain) villages. The top of the hill, formerly an arable area, currently is a waste land. A brick building of former windmill dominates over the hill (Fig. 19).

The site was discovered by Wasser – a local teacher, in the pre-war period. Later H. Lindner, G. Raschke and J. K. Kozłowski penetrated it (Kozłowski 1964). H. Lindner (1937) and J. Andree (1939) published the entire material from German researchers' collections. The assemblage counted several artefacts, but only a few of them were accessible in the Silesian museums after the war. Among the most interesting finds there were four retouched blades described as the Aurignacian (Fig. 20:5-8), an end-scrapers on blade (Fig. 20:12), end-scrapers on flakes (Fig. 20:2,4,9-11) and two oblique truncations (Fig. 20:13-14). Also three single-platform cores for blades exploitation were distinguished (Fig. 20:1,3) with several other finds. Basing on the previous agreements, J. K. Kozłowski stated precisely the taxonomic affiliation of this material to the middle phase of Aurignacian (Kozłowski J. K. 1964, pp. 98-99).

In 2000 year the authors again verified the site. Probing trenches were situated on the top of the hill, exactly in the place of pre-war discoveries. Excavations did not bring expected results; only 2 flint flakes were found in present humus.

Slightly different situation was observed in the arable area, on the north-west slope of the culmination, about 150 m to north-west from the mill. At the beginning several flint artefacts were found in the area of a few ares. Probing excavations gave negative effect, but the arable humus provided dozens of artefacts. Discovered concentration seems to be the new one and the collection should not be identified with the assemblage from the top of the hill. Thus, it should be assumed that at least two Upper Palaeolithic concentrations of artefacts were situated in Wysoka 4. They must be considered independently.

The assemblage from the concentration of 2000 year counted 64 artefacts. There were 5 cores. Beside 2 flint concretions with initial traces of preparation, there were distinguished: a single-platform core for blades and flakes, with traces of striking platform and the flank preparation (Fig. 21:1); a changed orientation core (Fig. 21:2); and the third, a bit more problematic specimen, which can be treated either as a core (single platform form with narrow striking platform) or a multinegative dihedral burin (Fig. 21:3). The premise that it is a burin is the fact that this specimen is made on flake.

Apart from the cores there are also 11 tools, among them two end-scrapers (Fig. 21:4,5), three burins (Fig. 21:6-8), retouched blades and their fragments (Fig. 21:9-12) and a retouched flake. One of end-scrapers is a specimen on flake with relatively flat scraper head (Fig. 21:4), the other has rounded scraper head on the Aurignacian retouched blade (Fig. 21:5). Among burins, a fragment of a confirmed burin is present (Fig. 21:8), a multinegative dihedral specimen (Fig. 21:7) and a burin on truncation (Fig. 21:6). A very interesting specimen occurred among retouched blades – it is a fragment of one-sided retouched blade, which could be interpreted in various ways (Fig. 21:12).

10 chunks and fragments with traces of preparation, 28 flakes and 10 fragments of blades (Fig. 21:14-16) complete the assemblage.

6. Wysoka 32, Strzelce Opolskie district

First flint material from the site was obtained in the pre-war period, when the unknown number of artefacts was found (described generally as Stone

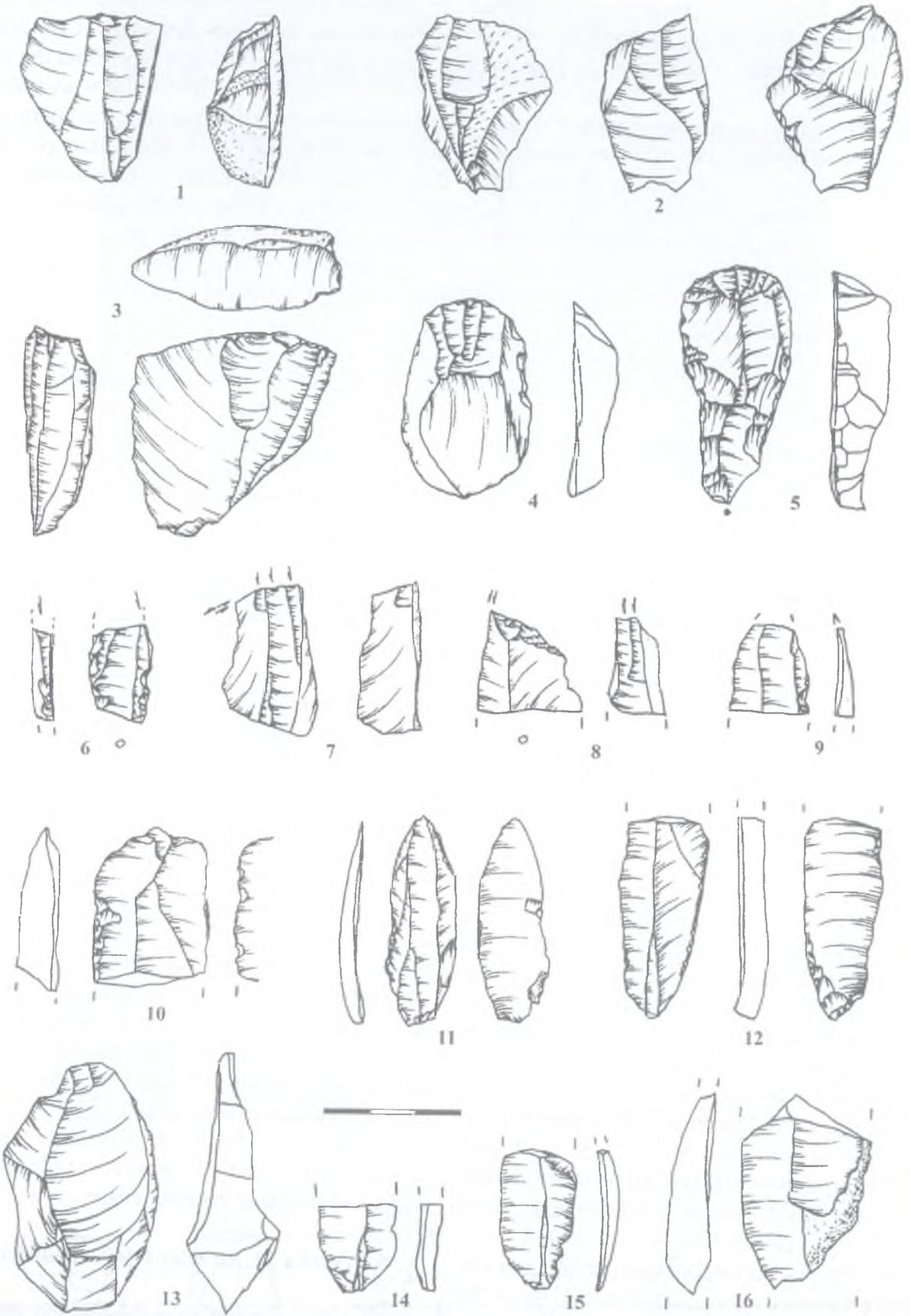


Fig. 21. Wysoka 4. Selected artefacts.

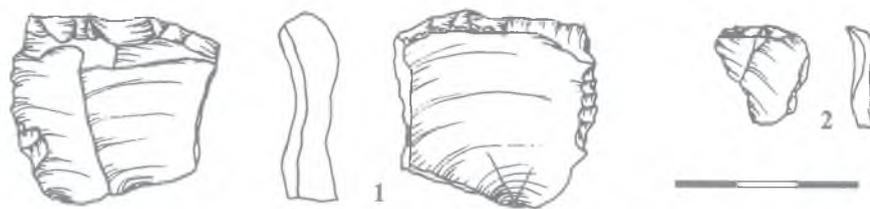


Fig. 22. Wysoka 32.

Age); (archive of SOZ, Opole). It is located on the top of a small culmination on the left side of the road, more or less halfway from Wysoka to Ligota Górna. During the verification of the site, in 2000 year, the authors collected three blue-white patinated specimens: a massive end-scrapers on flake with straight scraper head and additional edge retouch (Fig. 22:1), a small end-scrapers on flake (Fig. 22:2) and a flake.

7. Olszowa A, Strzelce Opolskie district

The authors and D. Bobak discovered the site in September 1998 year, as a result of archaeologi-

cal supervision on the A4 motorway construction. At present it is situated in the motorway zone. It is located on the top of a local culmination (ca. 285 m above sea level), which is a watershed of two small unnamed watercourses – tributaries of the Kłodnica river. The hill is structured of till and gravel fractions with great amount of stone debris. Rescue excavations resulted in discovering of several dozens of flint artefacts most probably related to the settlement of the Globular Amphora culture (Bronowicki et al. 1999b) and 5 white-patinated probably Palaeolithic finds. The latter group comprises a partially retouched flake, a flake from the core preparation phase and three other flakes.

ANALYSIS OF FLINT ASSEMBLAGES

The sources presented above are of different scientific value. Wysoka 57 is exceptional owing to its representative and adequate material for comprehensive analyses with other Polish Aurignacian assemblages. The authors are convinced of the cultural affiliation of the concentrations from Wysoka 57 to Aurignacian. It is confirmed by the presence of the following tool types: carinated end-scrapers, Aurignacian retouched blades, end-scrapers on blades with Aurignacian retouch and a group of characteristic burins. Absence of artefacts typical of other Palaeolithic units in such a numerous collection is additional confirmation of the above suggestion. Other sites, like Wysoka 4, Ligota Dolna 1, although in our opinion also undoubtedly of Aurignacian character, form good background for the rich inventories from Wysoka 57. The context of the occurrence of finds suggests that the sites might have been encampment remains, but small artefact col-

lections prompt that they are only important elements in the Aurignacian settlement network in the Chełm Massif region. Other sites are much poorer in finds and their features do not indicate so evidently their affiliation to Aurignacian. Typical carinated burins from Zakrzów 41 seem to advocate this, but other small collections must be generally described as Upper Palaeolithic. The Chełm Hump with the St. Anna Mountain forming a distinct accent in the Silesian Upland, undoubtedly played an essential role in the Palaeolithic settlement. Would it not be a mistake to decline the possibility of presence of other Upper Palaeolithic cultural complexes by identifying too eagerly these small collections with the Aurignacian Culture?

In connection with the above remarks, the authors will focus their detailed analysis on the structure of assemblages from Wysoka 57. Examining the structure of the particular assemblage's

Trench Category	Top of the hill		I/98		I/00		II/00	
	Σ	%	Σ	%	Σ	%	Σ	%
End-scrapers	2	16,6	5	14,7	3	7,5	2	4,7
Burins	4	33,6	11	32,4	15	37,5	16	37,3
Retouched blades	2	16,6	4	11,7	8	20,0	15	34,8
Perforator	-	-	2	5,9	2	5,0	1	2,3
Retouched flakes	2	16,6	10	29,4	9	22,5	8	18,6
Other	2	16,6	2	5,9	3	7,5	1	2,3

Fig. 23. Wysoka 57. Percentage relations in tool groups in the four concentrations.

toolkit from Wysoka 57, several regularities can be observed. Percentage comparison of particular concentrations and a part of the inventory from Wysoka 57 are presented in Fig. 23. In spite of occurrence of the archaeological materials in the secondary position and possibly their incomplete character, the similarity in ratio of particular tool categories in four distinguished concentrations is worth emphasizing. Basic features of the presented assemblages are as follows:

1. Notable predomination of burins over the end-scrapers (adequately ca. 30-40% and ca. 5-20%);
2. Constant presence of retouched blades, among which scarce Aurignacian retouched blades appear;

3. A great number of retouched flakes and chunks (15-30%);
4. Constant presence of perforators, combined tools (mainly end-scraper + burin) as well as a side-scraper and a denticulated tool.

On the account of a small number of cores in all concentrations in the site, there cannot be said much about the ways of a core preparation. However, they seem to have uniform cultural character. It is confirmed by predomination of exploitation of blade cores from single striking platform, without visible traces of the technique used in double-platform core. There is visible also advanced exploitation of a core leading to changes of orientation and microlithic form in final phases of preparation.

CHRONOLOGICAL ISSUES

Because of specific deposition of cultural material in the sites of the Chełm Massif area, no data for chronostratigraphy and absolute dating have been obtained, which is a frequent weakness of Polish Aurignacian sites. Most numerous stratigraphical data for absolute dating provided Kraków-Spadzista C site. The Aurignacian lithic material is most probably dated there to period Arcy – Stillfried B (Kozłowski J. K. et al. 1975, pp. 67-68). Similarly oscillate two radiocarbon dates from Kraków-Spadzista A and Piekary II (Kozłowski J. K., Kozłowski S. K. 1977). On the other hand, radiocarbon dates from Moravia (Stránska skalá, Milovice) occur within the limits of 33-29 Kyr BP (De-

nekamp interstadial), which suggests very close chronology. In general, the limits of the chronology of Aurignacian can be set from 35 till even 20 Kyr BP, i.e. in phases: Denekamp – Arcy – Stillfried B of interpleniglacial period (Kozłowski J. K., Kozłowski S. K. 1977, p. 126; Svoboda 1994, p. 125).

J. K. Kozłowski (1996) especially emphasized possible continuity of the Aurignacian culture after warm episodes of the interpleniglacial's decline. Sites in Lower Austria dated to the 20 Kyr BP (Langmannerdorf, Alberndorf) and some surface collections from Moravia (Malomeřice Borki, Tvarožna) are the confirmation of settlement from the

beginnings of 2nd Pleniglacial. Chronology of those inventories, described as Epi-Aurignacian, is located within the limits of 23-20 Kyr BP. It is possible that sites from Upper Silesia dated stratigraphically (Lubotyń 10, Zubrzyca N) have approximate chronologies. Beside predominating surface collections, in both sites single finds showing Aurignacian features in the bottom of the Upper Younger Loess were found. Sedimentation of this loess took place between 25-20 Kyr BP, which corresponds to the dating of the youngest Aurignacian assemblages in Lower Austria (Kozłowski J. K. 1996, pp. 83-84).

Absence of absolute dating from Wysoka 57 is responsible for the fact that the only method to define the relative chronology of the inventories more precisely is the determining of their formal features and the similarities with well-dated sites. Such comparisons show affiliation of the site from Wysoka with younger phases of the Aurignacian culture. However, there are no sufficiently convincing arguments for including the inventories from Wysoka to Epi-Aurignacian. Similarities to the Zwierzyniec Type inventories suggest the chronology closer to site Spadzista C Street in Kraków.

COMPARISON OF POLISH AURIGNACIAN ASSEMBLAGES WITH WYSOKA 57

The Aurignacian technocomplex in Poland has been known from more than thirty sites (cf. Sachse-Kozłowska 1978 – Catalogue of sites in Poland). Despite that, only few inventories are of satisfactory value enabling various analyses and studies. The evaluation of sources has been exhaustively discussed by Sachse-Kozłowska (1978). In this paper the predomination of surface collections was stressed, the difficulties in geological dating because of disturbances in stratigraphic situation (secondary position of finds) and finally, absence of stratigraphic sequences of Aurignacian assemblages. All this causes understandable difficulties while analysing this stage of the Upper Palaeolithic settlement in Poland, all the more because this cultural unit shows strong internal differentiation. Namely, among the Aurignacian assemblages in Poland several characteristic groups of inventories, according to the quantity of particular tool categories, could be distinguished.

Polish Aurignacian assemblages could be divided into four basic varieties (Sachse-Kozłowska 1978; Kozłowski J.K. 1989):

1. Zwierzyniec Type Assemblages (Kraków-Zwierzyniec I, Kraków-Spadzista C). The group is characterised by predomination of burins (40-55%) over end-scrapers (29%) and retouched blades (9-13%);
2. Piekary Type Assemblages (Piekary II, Kraków-Wawel). In this group end-scrapers predominate (60%), while burins (25%) and retouched blades (10%) are in minority. Additional differentiating

feature of those inventories is the presence of numerous massive, wide blades (the most common width: 30-40 mm);

3. Sowiniec Type Assemblages (Kraków-Sowiniec) – with end-scrapers predominating over burins;
4. Góra Puławska Type Assemblages (site I, II). Typical for small carinated end-scrapers (55%), numerous retouched bladelets of Dufour type (ca. 32%) and few burins and retouched blades.

In so far as the three first groups of assemblages represent variants of the typical Aurignacian Culture, the materials from Góra Puławska are affiliated with the Krems – Dufour Culture. Separated position in the Polish Aurignacian is occupied by the material from Wierzchowie (Mamutowa Cave), where numerous bone points of Mladeč type and characteristic forms of flint artefacts occurred, difficult for mutual correlation. The connection with the other Upper Palaeolithic cultures is not excluded (Kozłowski J. K., Kozłowski S. K. 1977).

Comparing the inventories from Wysoka 57 with Polish Aurignacian assemblages, the closest analogies are visible with the collections of the Zwierzyniec Type. It manifests first of all in predomination of burins over the group of end-scrapers. Another typical feature is the constant presence of retouched blades and single characteristic Aurignacian forms. With regard to burin quantities in relation to the end-scrapers, the inventory from Kraków-Spadzista C (stratum 7) shows closer percentage to Wysoka 57, than the inventory from Kraków-Zwierzyniec I. On the contrary, when presence



Fig. 24. Distribution of selected Aurignacian sites in central Europe (after: Sachse-Kozłowska 1978, Oliva 1987, Svoboda 1994, Vencel 1977, Bánesz 1968, Hahn 1972, 1977, Kozłowski J. K. 1996):

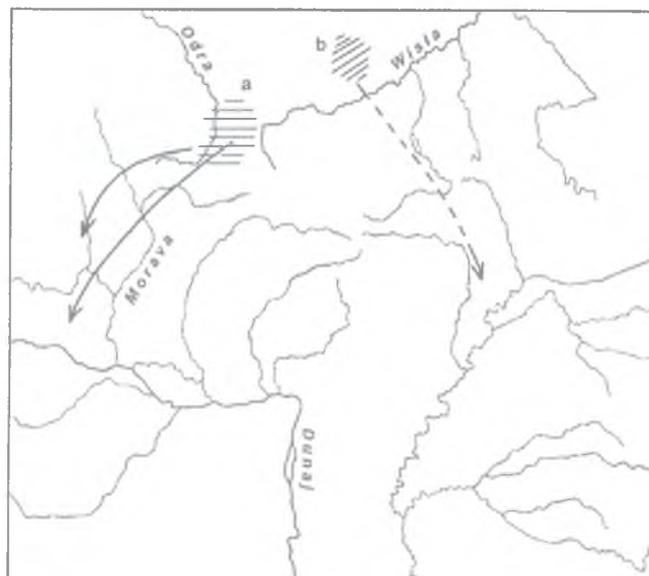
1-3: Wysoka 57, Wysoka 4, Ligota Dolna 1; 4-8: Dzierżyszław 8, Lubotyń 10 i 11, Pietrowice Wielkie 4B, Racibórz Studzienna 8+12, Zubrzyce N; 9-16: Bębło – Jaskinia w Żytniej Skale, Kraków-Przegorzały I, Kraków-Sowiniec I/II, Kraków-Spadzista street A, B, C, Kraków-St. Bronisława Hill, Kraków-Wawel, Kraków-Zwierzyniec I, Wierzchowie – Mamutowa Cave; 17: Piekary II, Ila, III, IV; 18: Jaksice; 19: Góra Puławska I, II; 20-21: Olsztyn – Zamkowa Dolna Cave, Deszczowa cave (Poland); 22-25: Předmostí, Přestavlký, Pavlovice, Lhota; 26: Mladeč Caves; 27-30: Ondratice II, Dobrochov, Uřčice, Slatnice; 31-35: Karolín, Nová Dedina, Belov, Žlutava, Lhotka; 36-41: Brno-Stránská skála, Brno-Maloměřice Borki II, Tvarožná, Brno-Kohoutovice, Vedrovice, Vojkovice; 42-50: Bečov, České Meziříčí, Holeděč, Hradsko-Kanina (Mělník), Mutějovice, Nesuchyně, Praha-Nebušice (Jenerálka), Praha-Dáblice (Czech Republic); 51-57: Alberndorf, Willendorf II, Grossweikersdorf, Getzersdorf, Langmannersdorf, Senftenberg, Krems-Hundssteig (Austria); 58-64 : Barca I, Barca II, Kechnec, Seňa, Svetlá, Haligovce, Polov-Gyňov (Slovakia).

of retouched blades and bladelets of Dufour type is concerned, the assemblage from Kraków-Zwierzyniec seems to be closer to Wysoka 57. Disregarding these small differences, the material from Wysoka 57 undoubtedly should be linked to the assemblages of the Zwierzyniec Type.

Characteristic assemblages of the final phases of the Aurignacian (so called Epi-Aurignacian), distinguished among the others in the territory of Moravia and in Lower Austria (Oliva 1987; Svoboda 1994; Kozłowski J. K. 1996) deserve a separate comment. Similarly to the Zwierzyniec Type inventories, they are characterised by the predomination of burins. Typical features of the youngest assemblages are high proportions of carenoid

burins and presence of several specific types of burins, like Slatnice burin type and Kohoutovice burin type (Oliva 1987, pp. 94-95). Besides, a small amount of short end-scrapers on blades and flakes and scarce retouched blades are typical features.

There are no closer analogies in Wysoka 57 with Epi-Aurignacian assemblages. Yet, the authors are convinced that geographical aspect plays very important role in searching for analogies and for connections among particular inventories and regions. Analysis of the distribution map of main Polish Aurignacian sites and selected Central European sites (Fig. 24) shows closer conjunction of the Chełm Massif region with the Moravian Gate



a - erratic flint sources from Silesia

b - Cracow Jurassic Flint sources

Fig. 25. Directions of distribution of Polish flint sources in the Aurignacian (acc. Kozłowski J. K. 1996).

and the Moravian sites located to the south of it, than with the separated Aurignacian enclave of Little Poland. The group of sites in Little Poland shows more connections (e.g. flint sources economy) with the Aurignacian assemblages from eastern Slovakia (Fig. 25). Similarly, the sites from Silesia show economical connections with Moravia and Lower Austria. Close relations resulting from typological premises and flint imports, of sites from Kraków area with the Slovakian settlement (Kechnec, Tibava, Barca) have already been suggested in literature (Kozłowski J. K. 1964). Those connections prove the important role of Carpathian passes in mutual contacts.

The Moravian Gate must have played similarly important role in mutual contacts within the Silesian sector. Sparse Aurignacian sites on the northern side of the Gate, with the northernmost St. Anna Mountain, are undoubtedly the result of penetration from Moravia. Among the sites placed in foreground of the Moravian Gate the sites: Pavlovice, Lhota or Přestavlky located on one of the left tributaries of the Morava river should be mentioned (Svoboda 1994). Three groups of Aurignacian sites can be generally distinguished in Moravia (Oliva 1987). Two of them are situated in the

Morava river-basin in the foreground of the Moravian Gate. The first one, with Mladeč caves, is located west of Olomunec (Olomouc). Another one is located slightly to the west of Gottwaldov. Finally, the third group, with Stránska skála cave, is located in the Brno area, within the Svitava river-basin. Mutual typological and economical connections prove that the Aurignacian societies crossing the Moravian Gate, most probably searching for good quality sources, penetrated the local environment going far to the north (Wysoka 57) even though convenient quality flint outcrops were approachable much closer.

Among the Moravian assemblages, similarly to the Polish inventories, the differentiation in main tool groups is visible. It is observed e.g. in predomination of end-scrapers or burins (Svoboda 1994, Table 13). Inventories with end-scrapers dominating over burins appear in two mentioned groups of sites in the Morava river-basin, in the area of Gottwaldov, but in the third group – west of Olomunec (Olomouc) proportions become similar to the Chełm Massif assemblages.

The Aurignacian in Moravia fully corresponds to the inventories from Lower Austria (e.g. Willendorf, Senftenberg), at the same time being isolated

geographically from Slovakian, Polish (Little Poland) and Czech sites. Enormous number of sites in Moravia (more than one hundred) stands in a striking contrast to several poor finds and the very low number of assemblages (about ten, e.g. Hradsko-Kanina) from the Czech area (Fridrich, Vencel 1994).

In spite of strong similarities to the Zwierzyniec Type Inventories, there are more premises advocating that the sites of the Chełm Massif region should be numbered as the northernmost part of the Lower Austrian – Moravian Group of Aurignacian culture.

FINAL REMARKS

The results of the research on the oldest human activity in the Chełm Massif region presented above demonstrate beyond any doubt important role of the discussed area in the prehistoric settlement. This was suggested by J. K. Kozłowski in the early 1960's, when only two poor surface collections were known. The authors' recent investigations have fully confirmed these hypotheses. Such a big agglomeration of settlement located in relatively small area – sites in Ligota Dolna 1, Wysoka 4 and Wysoka 57 are located on just a few square kilometres – seems to confirm the intensity of Aurignacian settlement. Described inventories from Wysoka 57 show strong affiliations to the Aurignacian sites known from Little Poland, qualified as Zwierzyniec Type assemblages (Kraków-Zwierzyniec I, Spadzista Street C). On the other hand, the area under discussion seems to affiliate with the Lower Austrian – Moravian Group of Aurignacian culture, which is indicated both by the formal resemblance of local sites and by the cartographic reasons (very close location of Moravian and Silesian sites). Originating from the southern regions, Aurignacian settlement in the Central Europe reached Silesia across the Moravian Gate. The discoveries from the Chełm Massif region confirm the

use of this route by human groups of Aurignacian culture. It commends to consider the role (so far depreciated); (Kozłowski J. K. 1964, p. 210) of Moravian Gate equally to the Carpathian passes as a bridge in populating by the Aurignacian societies the area of present Poland.

It must be stressed that the scientific potential of Wysoka 57 site and the whole Chełm Hump has not been fully exhausted. Two main directions of research, which should be developed, are clearly visible. The first and easier would be the continuation of the investigations on the top of the hill in Wysoka 57. During every prospection single finds have been discovered on that extensive plateau despite the difficulties in access (dense forest bedding). On the other hand, it is quite probable that there is a cave in St. Anna Mountain, especially near Wysoka 57 site, which has been suggested by geomorphologists, considering the area's relief and the developed karst phenomenon (H. Chmal's oral information).

* * *

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