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LATE MESOLITHIC DWELLING OBJECT IN POMORSKO
(WESTERN POLAND)

The object under discussion is a kind of dugout dwelling partially sunk into dune sands. It was located on top of a dune in an area that was attractive to hunters and gatherers because it bordered by a lake with a large ice-marginal valley nearby. Bones associated with hearths within the dugout indicate that hunting red-deer and roe-deer had been one of the basic means of sustenance of the single family which exploited the dwelling over at least several seasons. Radiocarbon dates as well as the typology and technology of the flint assemblage found with the dugout point to a Late Mesolithic (Atlantic) age for the dwelling. Burned human bones found in the hearth, obviously treated along with the animal remains as kitchen waste, suggest that cannibalism had been practiced at the site. Inside the dugout a cash of pre-cores and cores of flint was found, as well as traces of hematite powder (ochre), probably imported from Rydno (Central Poland). Wear-traces analysis of the flint suggests it was used for processing animal tissue.

The site in Pomorsko 1, Sulechów county, Zielona Góra voivodship, was investigated by means of the excavation method in the years 1969–1971 by Michał Kobusiewicz of the Department of Archaeology of Great Poland, Institute of History of Material Culture in the Polish Academy of Sciences.

Measured from the centre of the village of Pomorsko, the site is situated 2250 m NNE off the Sulechów–Brody highway, and 1500 m in straight line SE off the centre of the village of Brzezcie. In the south it borders directly with a flat decline now filled with a layer of organic sediments several metres thick (Fig. 1). The gyttja of the reservoir has been industrially exploited in modern times. In Late Pleistocene and Holocene it was a water reservoir on whose banks a prehistoric settlement used to concentrate.

The dune on which the site is located is transverse, several kilometres long and at times 10 m high, measured from its present foot (Fig. 2). It is situated on the edge between the third and first terrace level of the Warsaw-Berlin marginal valley. The dune came into being during the dune-formation phase of Dryas III. From the same period originate lime-and-sand silts and a thick layer of gyttja adhering to the dune on the NE line, thus providing evidence for the then existence of a water reservoir. During the Holocene five phases of dune-winding took place, caused by human interference which destroyed the vegetation that had been stabilizing the dune surface (Fig. 3).

The site Pomorsko 1 had been inhabited in several periods: in the Late Paleolithic, the Mesolithic, the Bronze Age and in the late Middle Ages. The object in question was dug into remains of a Late Paleolithic camp,

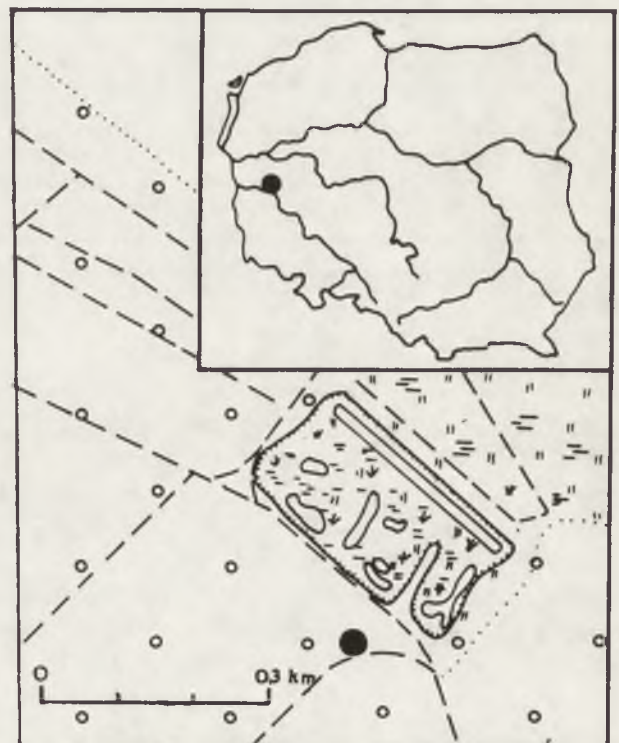


Fig. 1. Pomorsko, Sulechów county. Location of the Site 1



Fig. 2. Pomorsko, Site 1. General view of the dune on which the dugout is located

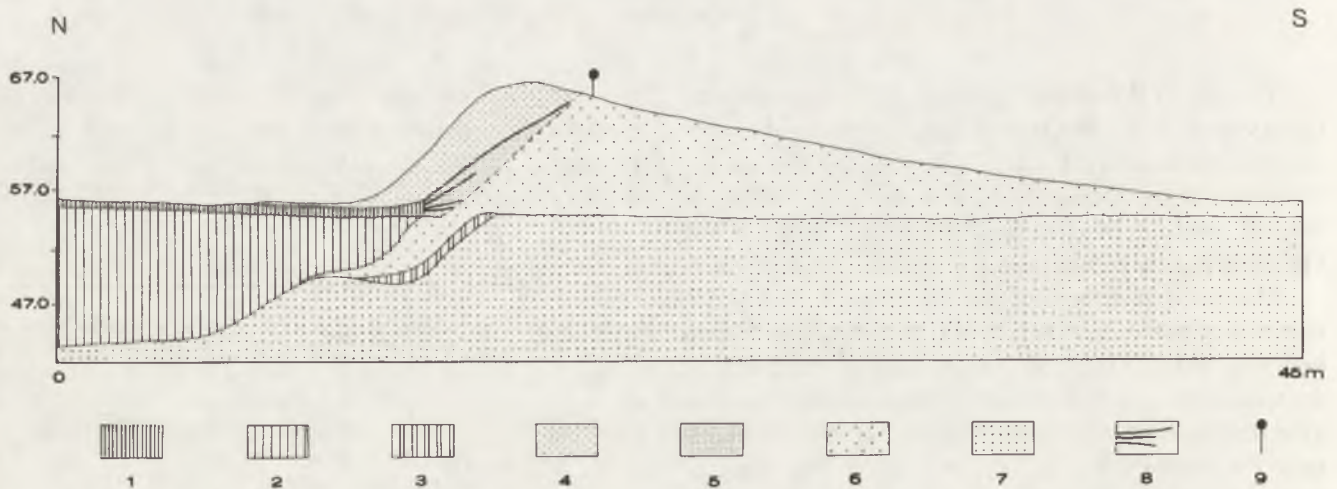


Fig. 3. Pomorsko. Schematic geological section of the dune and the southern part of the glacial trough (Nowaczyk et al. 1985)

1 - peat, Subboreal and Subatlantic periods, 2 - gyttja, end of the younger Dryas to the beginning of the Atlantic period, 3 - lacustrine, Alleröd, 4 - youngest aeolian sands, 5 - aeolian sands from the Atlantic to Subatlantic periods, 6 - aeolian sands of older series, beginning of the younger Dryas, 7 - terrace sands, 8 - humic strata of fossil soils, Subboreal and Subatlantic periods, 9 - the Site 1

while above it were discovered pottery pieces of the Lusatian culture, present only down to 0.4 m below the surface of the original dune. The outline of the object was visible only at the depth of 0.5–0.6 m, and was best traceable at the depth of 0.8–1 m. In order to avoid mixing up the materials originating from the object with younger materials, only such artefacts were considered which laid in the strata below 0.5 m down the original dune surface, the strata being safely empty of the Lusatian culture artefacts. A bigger problem was to distinguish between the Mesolithic and Late Paleolithic flint artefacts which might have found their way into the object. In

the case of cores and retouched tools typology was used. Classifying the debitage (260 specimens in all) by means of this method would be risky and for this reason no description or analysis of the debitage will be provided in this paper.

DUGOUT DESCRIPTION:

The shape of the dugout in Pomorsko resembles a quadrangle of dimensions 5×4 m. Its longer axis runs precisely along the NS line (Fig. 4). The outline of the dugout's borders is not always legible since it has been reconstructed basing on differences in colouring between the sands of the dune and the filling of the pit. At

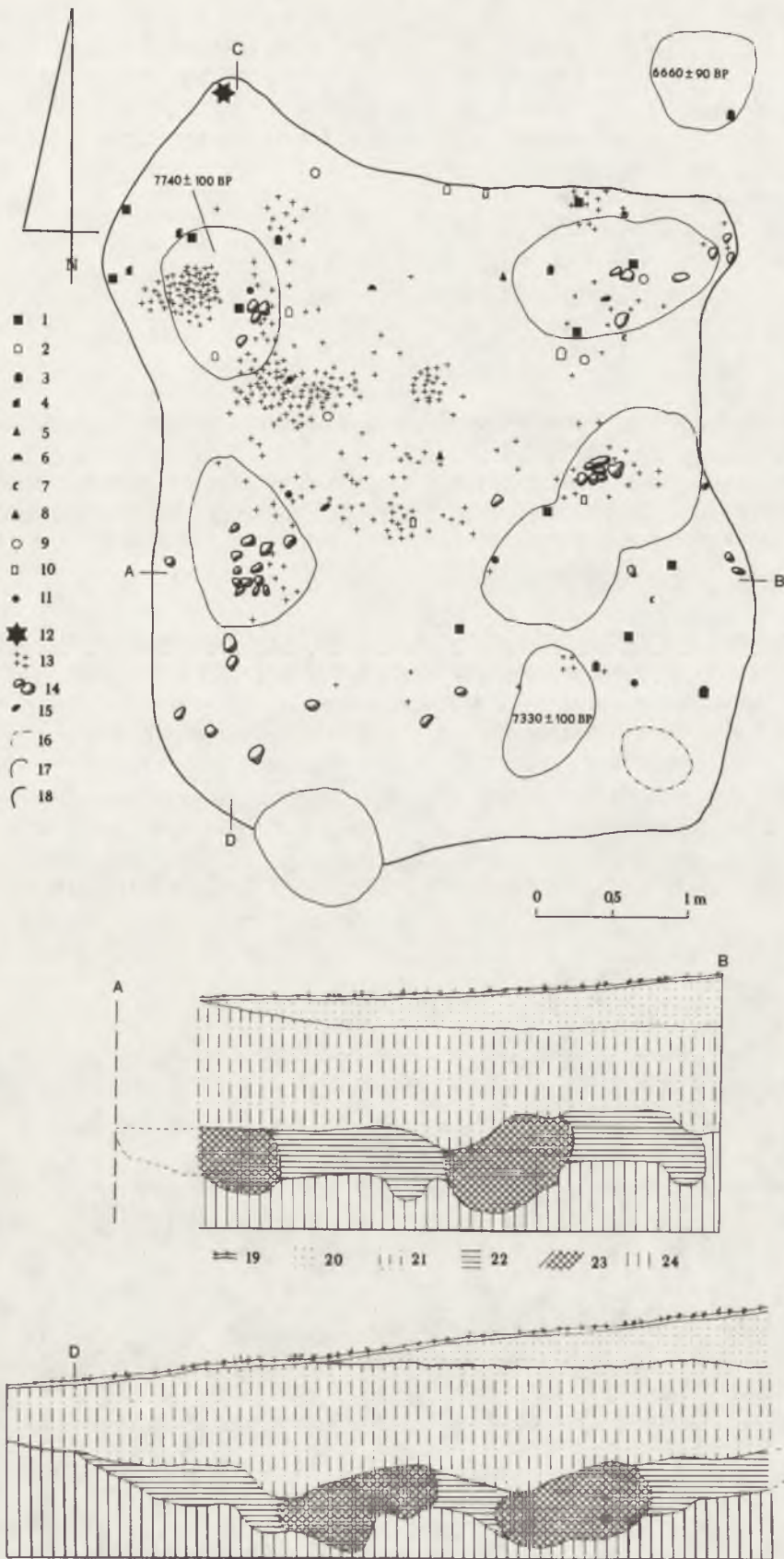


Fig. 4. Pomorsko, Site 1. Plan and profiles of the dugout

1 - cores, 2 - scrapers, 3 - end-scrapers, 4 - truncations, 5 - triangle, 6 - trapeze, 7 - microburins, 8 - backed piece, 9 - groovers and perforators, 10 - blade with a notch for microburin blow, 11 - retouched blades and flakes, 12 - cash of cores, 13 - bones, 14 - stones, 15 - hammer-stones, 16 - the extent of the hematite stain, 17 - range of the hearths, 18 - boundaries of the object, 19 - modern humus, 20 - modern blown sands, 21 - dune sands, 22 - fill of the dugout, 23 - hearths, 24 - gleys

places the grey filling smoothly passes into the colour of the dune subsoil. The S-N profile (C-D, Fig. 4) reveals that the bottom of the object had a slightly hollow bowl-like shape, while the E-W profile (A-B, Fig. 4) shows a flat bottom. The depression angle of the side walls cannot be reconstructed, neither are there any data for reconstructing the roofing. The layers of the fill at the bottom lie directly on a layer of light gleys. The maximum depth of the object was at least 0.6 m off the then surface and the hearths inside, sunken into the bottom, at places reached down to 0.9 m (Fig. 5).

Inside the object six distinct concentrations of ash and charcoal were found, distinguished by their intensively black colouring. The concentrations, of considerable thickness at times, are clearly the remains of hearths. Within the four largest ones burnt stones, up to 0.15 m in diameter, were found. Such stones also appeared outside the hearths, chaotically distributed over the south-western area of the object (Fig. 4). Cores and retouched tools were fairly evenly distributed over the whole area of the object except for the south-western part. No concentrations of debitage were noticed. Distinct concentrations of burnt bones came to light in the north-western and central parts of the object only. Scattered single bones laid everywhere except for the south-west corner. The north-west corner of the object yielded a collection of flint artefacts – 8 cores and 1 flake – dug into the wall. In south-east corner was found an oval lens of hematite dust, ca. 0.5×0.4 m in size and ca. 0.2 m thick, pink in colour (Fig. 4).

Outside the dugout, directly in the vicinity of the

north-east corner another small fireplace came up, its colouring alike to that of the hearths inside the object. The good state of preservation of charcoals, stone concentrations in the hearths, distinct concentrations of burnt bones as well as of the hematite lens proves that the object was almost intact.

All flint artefacts were made of erratic Baltic cretaceous flint, most probably collected over the vicinity from the surfaces of formations of the last glaciation.

CORES:

In all 9 whole and 1 core fragment were found.

Single platform cores for blades – 3 specimens. One short pre-core, 4.0×5.0×3.5 cm in size, had been much heated in fire. The 2 remaining specimens are microlithic, maximally used. In both cases the striking surfaces are nearly all way round. One of them (Fig 6: 1) has the striking platform prepared with a single blow, the other (Fig. 6: 2) with several.

Double platform core for microblades – 1 microlithic specimen, maximally used. Opposite platforms, formed with single blows, incline at an acute angle to the common flaking surface (Fig. 6: 3).

Cores with changed orientation – 5 specimens. 2 cores for flake, poorly prepared for treatment, maximally used. The negatives of flaking surfaces are multidirectional (Fig. 6: 4). One had been burnt in fire. 3 cores for blades. One of them has considerable dimensions (6.0×4.8×2.4 cm) worked from a massive flake. It has two striking platforms, one being the striking platform of the flake under discussion and the other prepared with a few



Fig. 5. Pomorsko, Site 1. Hearths inside the dugout placed directly on gleys

blows. Regular negatives of the two flaking surfaces criss-cross at an acute angle (45°). Two remaining specimens, with a changed orientation, are small and poorly prepared. Negatives of the flaking surfaces are multidirectional (Fig. 6: 5).

RETOUCHED TOOLS:

In all, 29 retouched tools and their fragments were found in the object. One of them is undoubtedly a Late Paleolithic specimen of a tanged point with little marked retouch of the tang on the ventral side. The remaining 28 specimens are typologically Mesolithic products.

End-scrapers on the blade – 2 specimens. The first is very slim, worked from a fairly flat excellent blade struck off from a single platform core. The scraping edge is slightly arched, medium steep, low and slightly denticulated (Fig. 6: 6). The other specimen had been worked from a massive, rather stumpy blade. The scraping edge is almost straight, slightly sinuous, medium high, not very regular (Fig. 6: 7).

End-scrapers on the flake – 3 specimens. The first made of a fairly regular, cortical flake. The scraping edge is asymmetrical, much rounded, rather steep, of medium height, made with not very regular retouching (Fig. 6: 8). The two remaining end-scrapers are microlithic, made of very small flat flakes. The scraping edges are delicate, poorly rounded, one flat (Fig. 6: 9) and the other medium steep.

Scrapers – 4 whole specimens and one fragment. All worked from massive or very massive stumpy flakes (Fig. 6: 10–13). One made of a cortical flake retouched on the ventral side. One of the scrapers had been much heated in fire.

Truncations – 2 specimens. The first (Fig. 6: 14) worked from a regular blade struck off from a single platform core, with the truncation strongly oblique, a little arched and regularly retouched. The other specimen (Fig. 6: 15) is worked from a regular “lame à crête”, probably struck off from a single platform core. The truncation is straight, steeply and fairly high retouched, and oblique. One edge had been totally retouched with micro-retouch.

Groovers – 3 broken specimens. The largest, made of a flake and much burnt, has a broken working point (Fig. 6: 17). The other, made of a flat flake (Fig. 6: 16), has an unsymmetrically placed working point situated at the proximal end. The third specimen (Fig. 6: 18), worked from a massive flake, has the working point also situated at the proximal end.

Perforators – 1 broken working point of a specimen, much burnt.

Retouched blades – 3 whole specimens and 1 fragment. Two are nearly excellent blades struck off from single platform cores. One carries regular retouch along the side edge (Fig. 6: 19). The other has the edges covered with micro-retouch. Both are burnt.

Retouched flakes – 2 specimens, one massive and the other delicate and flat. Parts of the edges in both cases are covered with minute retouch.

Microliths – 1 medium high trapeze (Fig. 6: 20), 1 very small scalene triangle (Fig. 6: 21), 1 very small microlithic backed piece (Fig. 6: 22).

Microburins – 2 specimens (Fig. 6: 23).

Blades with a notch for microburin blow – 1 specimen worked from a slim blade struck off from a double striking platform core (Fig. 6: 24).

CASH OF CORES:

In the north-west corner of the dugout a collection of 8 cores (one which later got lost) and 1 flake articulating to one of the cores was found (see Fig. 4). The cores were in a compact concentration. All were made of erratic cretaceous flint. 3 specimens are initially struck. The largest (Fig. 7: 3) is made of a split lump of flint. The rough surface of the split had been used as the striking platform. The striking platform edge had been a bit prepared with small retouch at places tangent to the two flaking surfaces which remain separated are formed by rare negative of flat, quite large flakes. The second (Fig. 8: 3) has the single flat cortical flake struck off with a hard hammer, probably in order to prepare the striking platform. There no other traces of preparation for treatment. The third specimen (Fig. 7: 2) is made of a very massive natural flake. The two opposite striking platforms has been prepared by striking off a few flakes at the narrower points of the lump. One of the preparation flakes of the core platform was present in the collection.

The remaining 4 specimens are cores for blades. The first is a fine slim single platform core. The striking surface goes nearly all way round and is composed of negatives of regular blades. The surface of the striking platform is well prepared, the edge of it not so. No other traces of preparation for processing were noticed. The back of the core is covered by cortex smoothed in glacial transport (Fig. 8: 2). Next three cores are multiplatform cores; it seems that the oldest one was always a blade striking surface, and the successive ones – flake striking surfaces. Even though the specimens had not been fully exploited, no traces of preparations for further processing were observed (Fig. 7: 1, 4; 8: 1).

STONE ARTEFACTS:

3 stone hammers were found inside the object. All had been made of erratic stones. Two of them, of fine-grain granite and preserved intact, carry wear (clearly visible places where the material had crumbled away or got scraped off) on two opposite ends (Fig. 9: 1, 2). The third specimen, partially destroyed by fire, is of medium-grained granite and reveals poorly visible wear traces (Fig. 9: 3).

Functional analysis of flint artefacts was done by Małgorzata Winiarska-Kabacińska, of the Poznań Ar-

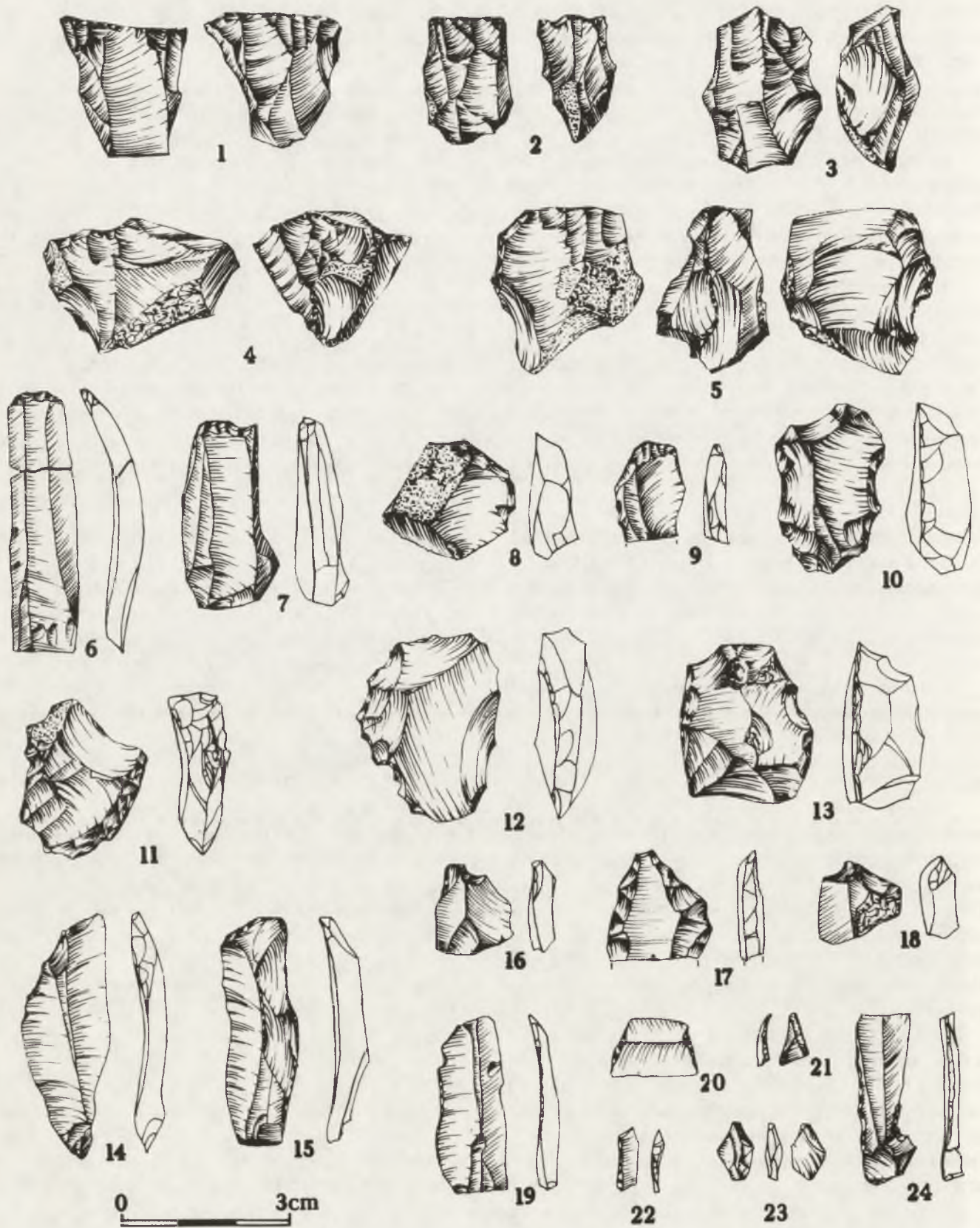


Fig. 6. Pomorsko, Site 1. Material from the dugout

1, 2 - single platform cores for blades, 3 - double platform core for bladelets, 4 - multiplatform core for flakes, 5 - multiplatform core for blades, 6-9 - end-scrapers, 10-13 - scrapers, 14, 15 - truncations, 16-18 - groovers, 19 - retouched blade, 20 - trapeze, 21 - triangle, 22 - microtruncation, 23 - microburin, 24 - blade with notch for microburin blow
 Drawn by J. Sawicka

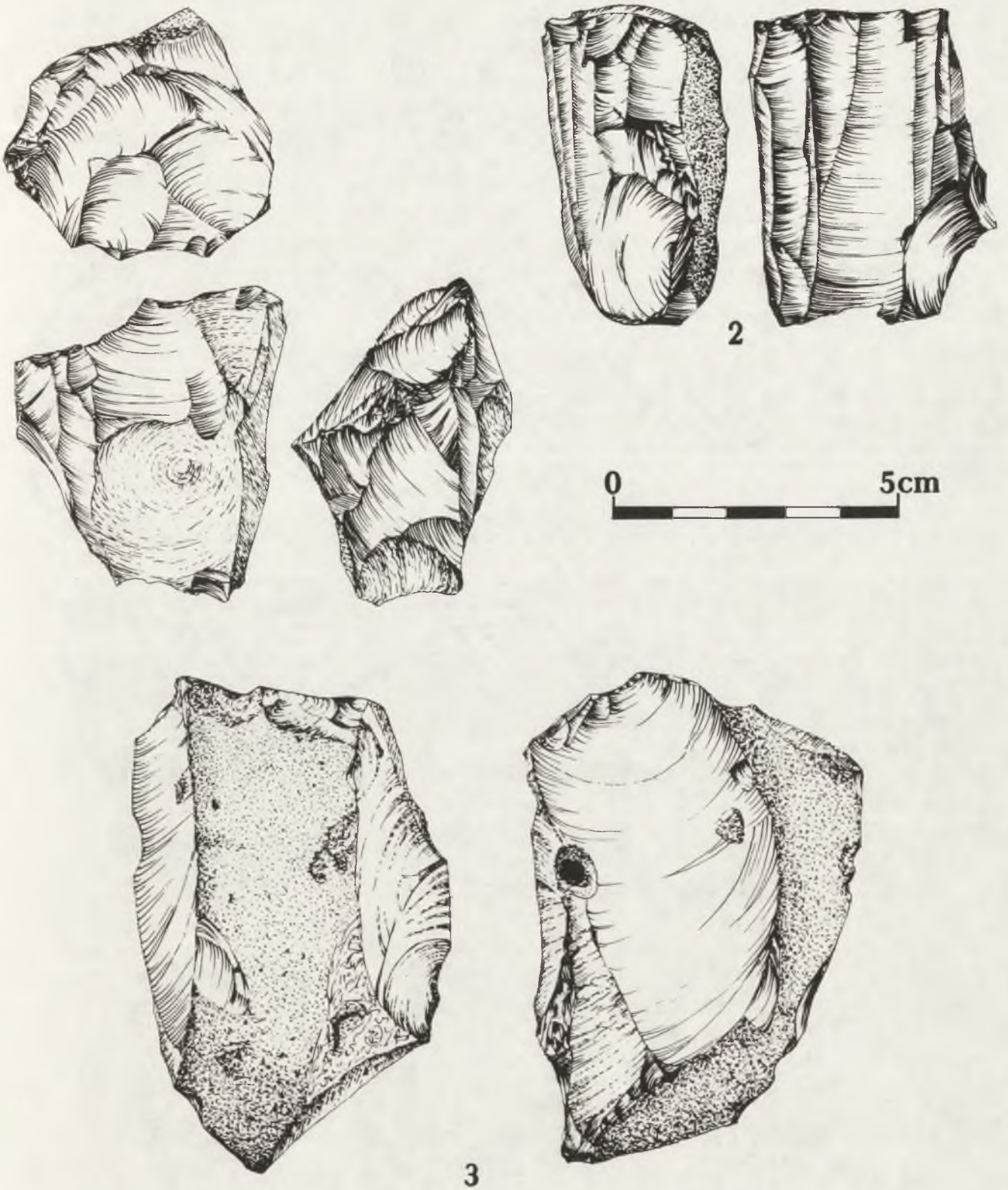


Fig. 7. Pomorsko, Site 1. Cores from the cash

Drawn by J. Sawicka

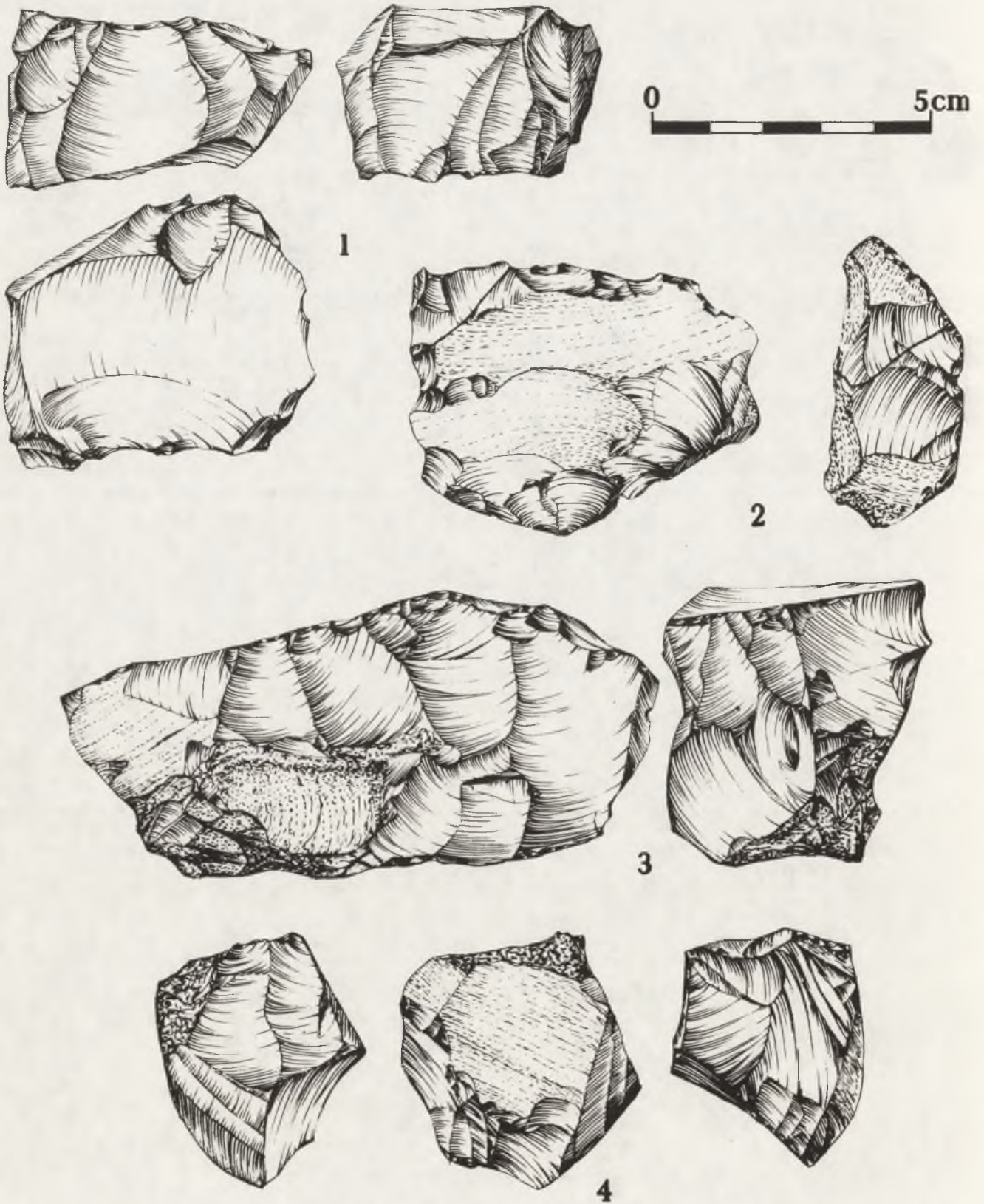


Fig. 8. Pomorsko, Site 1. Cores from the cash

Drawn by J. Sawicka



Fig. 9. Pomorsko, Site 1. Hammer-stones from the dugout
 Drawn by J. Sawicka

archaeological Museum. 20 tools and 5 cores were submitted to observation. All flint material was first cleaned by soaking in a 15% solution of NaOH, by 15 minutes and

then cleaned with acetone. Metallographic microscope Metallux (Leitz) was used in this work, with magnification of 100× and 500×.

On 9 tools polishing and striations formed during use were noticed. The raw materials, with which the tools had been in contact during their use, were as follows: hide (end-scraper, scraper), meat (scraper), hide and meat (end-scraper) meat and bone (truncation), hide and meat and bone (end-scraper) and wood? (trapeze). In two cases the processed material could not be identified. Majority of the tools were used for performing transverse – scraping movements (Fig. 10: 1-4, 6, 8) or longitudinal – cutting ones (Fig. 10: 4-6, 9) with some tools having been used both for scraping and cutting (Fig. 10: 4). Although the perforator (Fig. 10: 7) carries distinct wear traces it was impossible to determine the activities it had been used for. The arrangement of wear traces on the trapeze (Fig. 10: 5) allows to assume with a high degree of certainty that it had been originally placed in a wooden haft.

Functional analysis of the cores did not reveal traces of polishing produced in result of their secondary use as tools. The only traces observed are the effects of striking

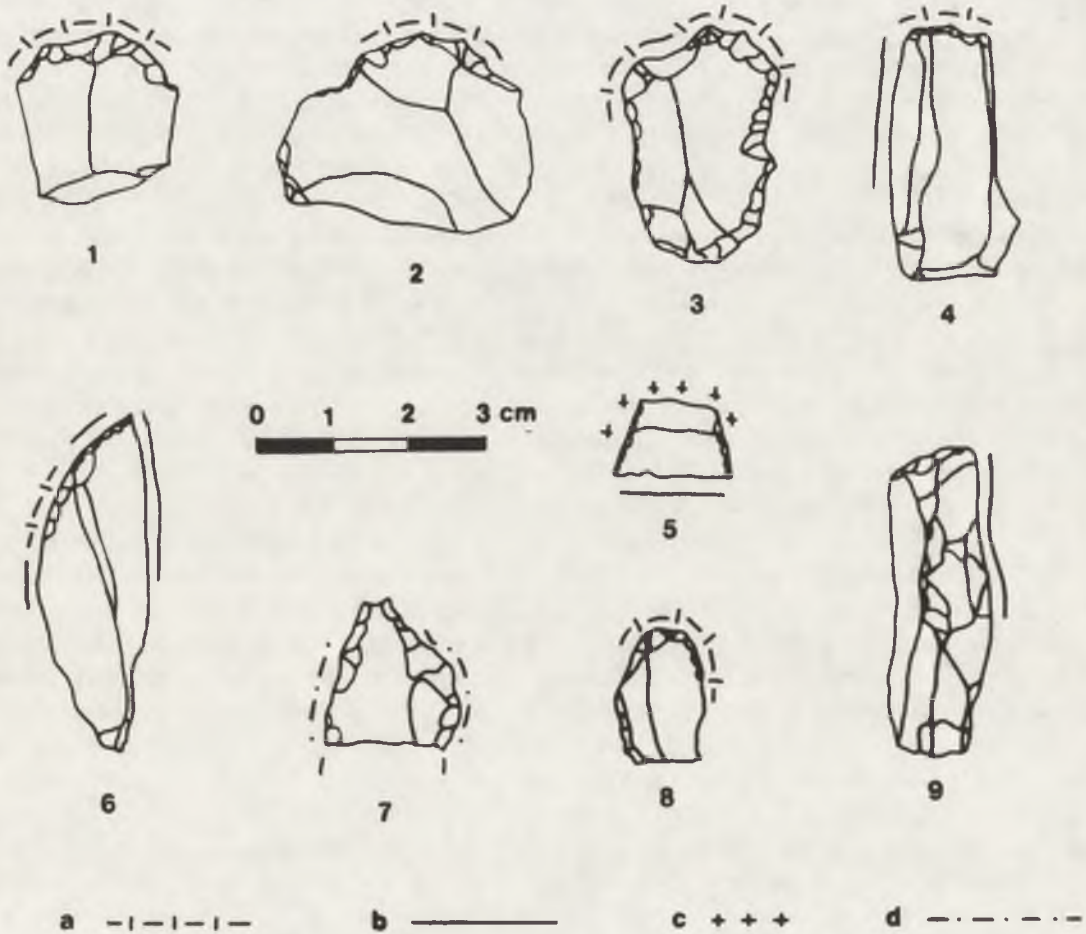


Fig. 10. Pomorsko, Site 1. Flint tools with wear traces

a - transverse movement, b - longitudinal movement, c - movement in the haft, d - undetermined movement

off the debitage. Since the cores had been very much exploited and the edges of striking platforms much crumbled, it was impossible to define the kind raw material of which the hammers had been made.

The nature and distribution of the observed wear traces permit stating that the main labour performed in the dugout were activities connected with processing raw material of animal origin. There are no data which would allow a reconstruction of the organization of labour within the object under discussion.

BONE REMAINS:

Numerous burnt bones were found in the fills of the hearths as well outside them within the dugout (Fig. 4). The state of preservation of some of them was good enough to permit determining to what species they belong.

Anthropological analysis of human bones was performed by Andrzej Malinowski from the Institute of Physical Anthropology of the Adam Mickiewicz University in Poznań. Among the identified bones over 100 fragments of the cranium and shafts of long bones of an individual dead at the age Infans I/Infans II were found, together with several fragments of human bones whose age could not be determined.

Analysis of burnt animal bones, carried out by Daniel Makowiecki of the Zoology Department, Poznań Academy of Agriculture, revealed the presence of 40 pieces of red-deer bones and 7 pieces of roe-deer bones. Since further 10 fragments were not as well preserved they were ascribed to the deer family, and 3 to a group of small ruminants.

CHRONOLOGY:

Two samples of charcoal from the hearths inside the object and one sample from the hearth outside were submitted to radiocarbon analysis. It was performed in the Radiocarbon Laboratory of the Institute of Physics, the Silesian Polytechnic at Gliwice, under the supervision of Mieczysław F. Pazdur. The charcoals from inside the dugout yielded the following dates: sample no 2 (Gd-2700) – 7330 ± 100 bp; sample no 10 (Gd-2704) – 7740 ± 100 bp. Sample no 9 from the outside hearth produced the date of (Gd-2701) – 6660 ± 90 bp.

All the dates acquired belong to the Atlantic period. The relatively high differentiation of dates gained from inside the dugout may be explained in terms of rejuvenation of the sample by later admixture. The dating from the hearth outside the dugout – younger than the dating inside by at least a few hundred years – proves that the outside hearth cannot be linked with the dugout and that Mesolithic settlement at the site probably had lasted longer than the period of the dwelling's existence. This is also indicated by the great abundance of typologically Late Mesolithic flint artefacts found at other trenches in the vicinity. The assumption is consistent with geomorphological observations. After the first basic dune-for-

mation phase of younger Dryas there had occurred 5 Holocene dune-winding phases brought about by man's settlement activity. Phase II dated by radiocarbon method lasted from ca. 7100 bp to ca. 4100 bp (Nowaczyk et al. 1985) and thus it would correspond to the dates acquired from the hearths in the dugout and the hearth outside. In general terms, the flint inventory found inside the object typologically corresponds to Atlantic assemblages of the Polish Lowland. It should be therefore ascribed to Late Mesolithic.

We know of a few objects similar to the one discussed at the present paper. Among closest analogues is the dwelling object in Bartkowo, Leszno voevodship, situated 100 kilometres SE of Pomorsko. It is located on a dune lying on the terrace of the Barycz river. Its shape, size and fill type are much similar to the Pomorsko construction. The radiocarbon dating 5750 ± 40 bp (GrN-6663) of the Bartkowo object, though much younger than the Pomorsko dating, links it with younger Mesolithic (Bagniewski 1973; 1976). Again, B. Gramsch (1976) places in Late Mesolithic the complex of 27 dwelling objects discovered in Jühnsdorf, Kr. Zossen, Brandenburg, located ca. 140 kilometres west of Pomorsko. The objects are characterized by irregular shapes, with hearths frequently found much below the surface. On the average, their sizes are roughly similar to the sizes of the Pomorsko and Bartkowo objects. Slightly farther, 400 kilometres SE of Pomorsko the site at Rydno by Skarżysko-Kamienna, Kielce voevodship yielded two hollow oval objects: Rydno XIII/59 – Late Mesolithic (Schild et al. 1975), and the other Rydno IV/57 – poorly legible of Early Mesolithic age (Schild 1967). Both are located on sand-and-gravel terraces of the Kamienna river near Skarżysko. In Trzebca near Kłobuck, voy. Częstochowa (ca. 270 kilometres SE from Pomorsko) B. Ginter (1971) found a Late Paleolithic dwelling object of the Sviderian culture, which resembles the Pomorsko dugout. A cash of pre-cores and initially struck cores consisting of 9 specimens was also found inside.

SUMMARY:

The presented data allow stating that at the site in Pomorsko were found remains of a dwelling object partially sunk into the earth. Radiocarbon dates and typology of flint artefacts indicate Late Mesolithic (Atlantic) age of the dugout. Judging by its size the dugout must have been inhabited by a single family. Absence of flint artefacts and of animal bones at the south-western part of the object suggests that a shake down might have been situated at that spot. The number of the hearths, the thickness of the burnt material layer and a high amount of charcoal in the hearths suggest that the dugout had been exploited over a longer period of time and at least over several seasons. The faunal remains found in there do not allow to state whether settlement had been seasonally re-occurring at a certain season of the year or whether it lasted uninter-

rupted the whole year round. Processing of raw materials of animal origin, ie, flaying animal flesh and tanning hides, had been an important economic activity within the dugout and in its vicinity.

The dugout had been constructed at a strategic point on the top of a wide, high dune on the southern bank of a biggish lake surrounded by thick forests of the Atlantic period. Ca. 2 kilometres off south runs the border of the Warsaw-Berlin marginal valley. The valley, with the Oder flowing along it, had been an attractive hunting territory and a comfortable communication route. Hunting red-deer and roe-deer had been one of the basic means of sustenance of the dugout's inhabitants.

Human bones, found in the hearths and their vicinity, burnt just as the animal ones and mixed with the latter – in other words, treated in an identical way – suggest that cannibalism had been practiced at site. The fact that nearly a half of all bones found on the site are human bones and that they had been treated along with animal remains as kitchen waste is an evidence that cannibalism in question had not been magical or ritual: human flesh had been treated simply as a food. Human bones do not appear to be remains of a grave, either. The known premeditated burials in the Mesolithic presented a defined ritual, eg Janiławice, Skierniewice voyevodship

(Chmielewska 1954) or Pierkunowo (Głosik 1969). The ritual had probably been known to the hunters from Pomorsko as well.

The excavated Late Mesolithic dugout had been an important element in the lives of its inhabitants. It was not only a shelter, a place for preparing food and for working; it must have been considered a safe place in which particularly valuable articles could have been kept, and such undoubtedly were the cash of cores and hematite dye which had been transported probably from the region of Skarżysko-Kamienna (Rydno) 400 km off Pomorsko in straight line. The absence of whole hematite grains suggests that the dye had been transported in powdered form.

A comparison of the sizes of cores found in the cash and awaiting further processing with cores from the fill of the dugout points at a very intensive and maximal exploitation of flint material by the Late Mesolithic population of the region. This is yet another piece of evidence about the difficulties in procuring flint at that period on the Lowland in north-western Poland. This factor have found reflection in the flint-working technology of the population inhabiting those territories.

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