



MESOLITHIC CAMPSITE FROM NOWE MIASTECZKO (WESTERN POLAND)

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A b s t r a c t. Archaeological site 1 in Nowe Miasteczko has been known since the mid-1920s. It is most often associated with a La Tene period cemetery of the Gubin group of the Jastorf culture. Since September 2022, archaeological excavations have been carried out at the site in connection with an ongoing construction project. The research identified a younger Mesolithic phase of the site occupation. Recovered from the fills of archaeological features were flint artefacts, bone remains, macroscopic plant remains with accumulations of hazelnut shells (*Corylus avellana*), and samples for absolute dating.

K e y w o r d s: races of occupation, younger Mesolithic, hazelnuts

INTRODUCTION

Archaeological research at site 1 in Nowe Miasteczko (AZP 67-16/114) is connected with a construction project involving the construction of a sports hall at School Complex No. 1. The work has been carried out in stages since mid-September 2022 by Pracownia Archeologiczna Dr Jarosław Lewczuk from Zielona Góra in cooperation with Rafał Niedźwiecki, MA.

Nowe Miasteczko is a small town in Nowa Sól District, Lubuskie Province. It is situated in the Wzgórze Dalkowskie [Dalków Hills] mesoregion (318.42) in the western part of the Wał Trzebnicki [Trzebnica Embankment] macroregion (318.4). From the west and north, the mesoregion is bounded by the valleys of the Bóbr and Oder Rivers, to the south by the Szprotawa Valley, and to the east by the Ścinawa Depression. The Dalków Hills are a series of hills criss-crossed by ravines and deep dry valleys. The predominant features of the landscape are end-moraine ridges and outwash or periglacial denudation plains, with most of the area covered with long gently undulating slopes. The average



elevation is 134 m a.s.l., with a maximum of about 162 m a.s.l., and a minimum of 68 m a.s.l. (PARZÓCH 2021: 256–257). The site itself lies in the southern part of the village and is located within the playing field at School Complex No. 1 in Nowe Miasteczko (Fig. 1). Traces of prehistoric and early medieval occupation have been recorded on a terrace with an average elevation of 95.50 m a.s.l. The area then slopes down to the valley of a small watercourse with elevations from 89 to 91 m a.s.l. The watercourse is known as the Biała Woda and is a left tributary of the Odra River (Fig. 2). The hills and slopes are built of fine crystalline sands with insertions of fine gravel. The valley of the Biała Woda is built of layers of peat and humus.

Site 1 in Nowe Miasteczko is a multicultural site with distinct phases of occupation in the Stone Age and Early Iron Age (more specifically the Older and Younger Pre-Roman period). It yielded both settlement and sepulchral materials.

The site was accidentally discovered in 1926 when preparing the ground for the construction of a playing field. An official rescue excavation was carried out at that time by Wilhelm Hoffmann, acting on behalf of the Silesian Museum of Handicraft and Antiquities in Wrocław (*Schlesisches Museum für Kunstgewerbe und Altertümer*) (DEMIDZIUK 2000). This research resulted in the discovery of six burials dating to the A1-A2 phase of the Younger Pre-Roman period and associated with the Gubin group of the Jastorf culture (Vermehrung der... 1929: 304).

It is also worth noting that eight stray flint objects from the area were donated to the museum in 1926 (Vermehrung der... 1929: 293). They were recorded in the museum's inventory book of archaeological objects (Altertumsmuseum Breslau) for 1925–1926 (MAW:MA/A/293) under the number 2502:26, four of them with drawings

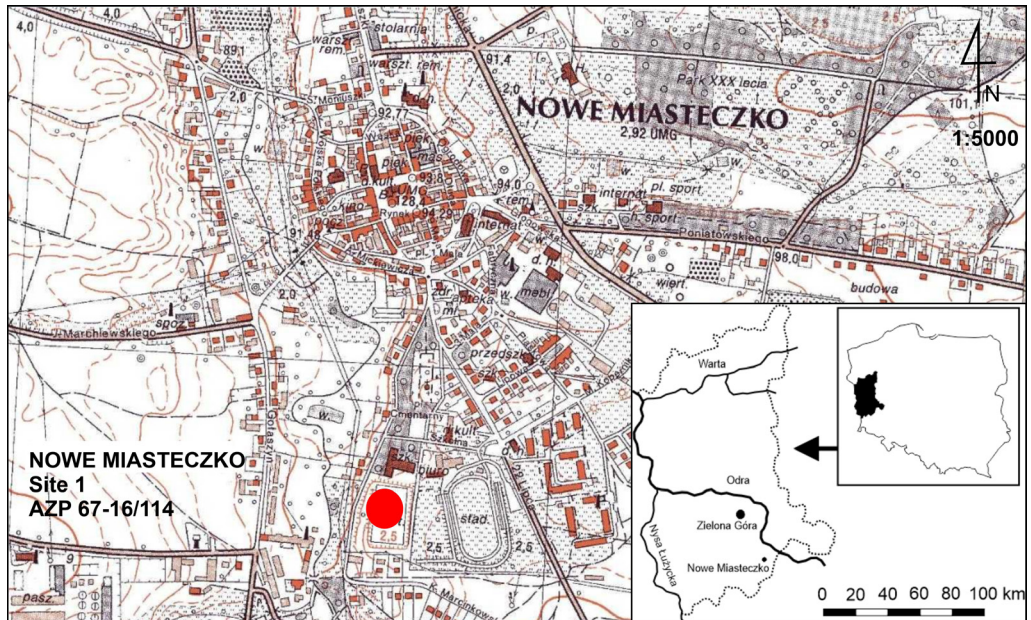


Fig. 1. Nowe Miasteczko Commune, Lubuskie Province, site 1. Location of the site (Drawing: R. Niedźwiecki)

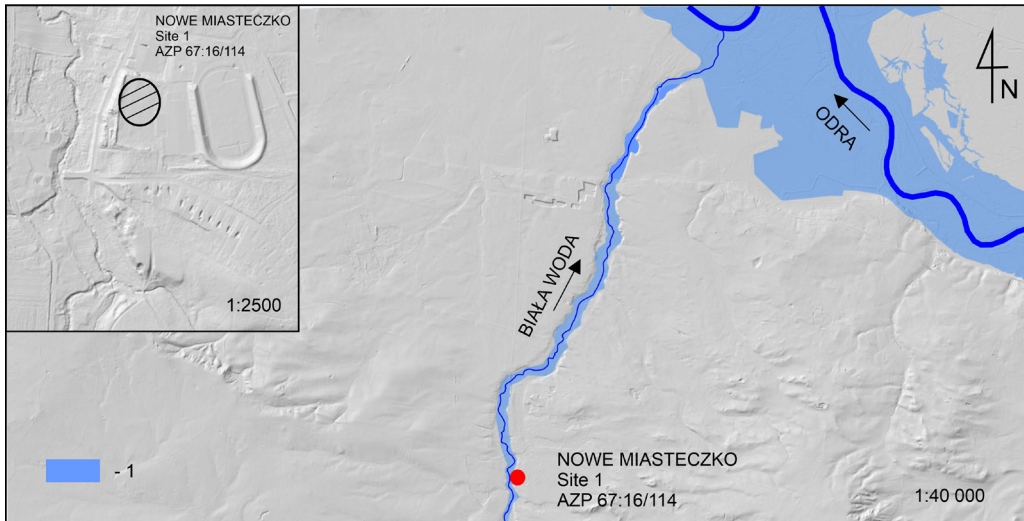


Fig. 2. Nowe Miasteczko site 1, Lubuskie Province. Digital terrain model (Drawing: R. Niedźwiecki). 1 – floodplain

(Fig. 3). However, these finds must be approached with some degree of caution. The first flint in the assemblage resembles some form of core (Fig. 3: 1), and the next two may be blade forms (Fig. 3: 2, 3). The last specimen is probably a natural flint chunk (Fig. 3: 4). This find was included in a list of flint artefacts in a study on the Middle Stone Age in Silesia (ROTHERT 1936: 71). Another official archaeological survey took place in June 1929, conducted by the same archaeologist. It resulted in the discovery of several settlement features, some of which can be cautiously dated to the Older Pre-Roman period. The last time Hoffmann conducted research at the site was in November 1929, when he discovered nine burials of the Pomeranian culture, dating from the Older Pre-Roman period (APW:82.171.0.1.682). It should be noted that in the meantime the museum in Wrocław was receiving reports of isolated finds of artefacts from the area. One of these reports mentions the discovery of early medieval sherds (*Altschlesische Blätter* 1929: 63; KACZKOWSKI 1971: 20). The materials from fieldwork carried out in 1926 have been fully published (TACKENBERG 1929: 241–250;

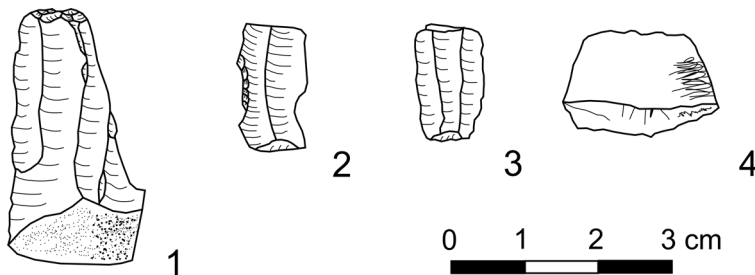


Fig. 3. Nowe Miasteczko site 1, Lubuskie Province. Flint objects donated to the Silesian Museum of Handicraft and Antiquities in Wrocław in 1926 (*Księga ewidencyjna...* 2502: 26) (Drawing: R. Niedźwiecki)

DOMAŃSKI 1975: 122–123), while only one grave assemblage from the 1929 research has been published (KLEEMANN 1931: 239–241; MALINOWSKI 1981: 149).

The research carried out during the first phase of the construction project in 2022–2023 established that the surface of the site had been extensively transformed: the top of the hill had been levelled and the excess soil had been moved to the north-western and western slopes. In total, eleven features have been recorded: nine prehistoric features, one dated to the early Middle Ages and one of undetermined chronology. It should be noted that these are essentially features that were overlooked in the course of previous excavations, particularly those of June 1929, as well as those that survived despite the earthwork carried out during the levelling of the pitch. Most of these features were of insignificant thickness, as they were preserved only in the bottom part. In addition, in the northern part of the pitch the remains of earthwork fortifications dating from the mid-1940s were uncovered (Fig. 4).

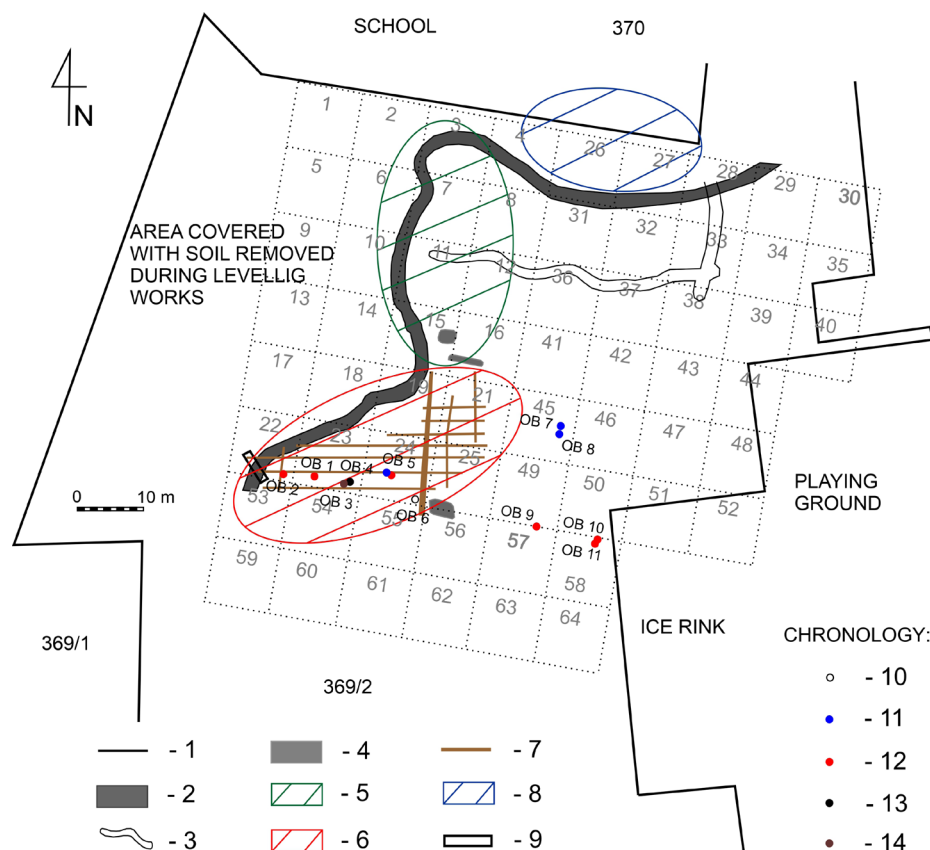


Fig. 4. Nowe Miasteczko site 1, Lubuskie Province. Plan of the site with the excavation grid marked. (Drawing: R. Niedźwiecki). 1 – construction project boundary; 2 – humus layer sloping down towards north and west; 3 – military trenches; 4 – modern pits; 5 – area of W. Hoffmann's excavations of 1926; 6 – area excavated in June 1929; 7 – Hoffmann's test trenches; 8 – area excavated in November 1929; 9 – test trench; Chronology: 10 – undetermined; 11 – Mesolithic; 12 – Younger Pre-Roman period; 13 – Roman period; 14 – early medieval

Among the features discovered between 2022 and 2023 were three Mesolithic features, and this article aims to present their analysis in the context of chronology, cultural attribution, and finds of macroscopic plant remains.

MATERIALS AND METHODS

Presented here are three Mesolithic features discovered at site 1 in Nowe Miasteczko, designated as features 5, 7 and 8. Archaeological material in the form of flint artefacts was found in two features (7 and 8), and it was only macroscopically analysed. The raw material analysis was based on the division into three groups according to the internal structure and transparency of the siliceous mass (DMOCHOWSKI 2006). Basic measurements were taken: width, length and thickness of the artefacts. The thickness of flakes and blades was measured on the bulb of percussion and outside it. The typological classification follows the work of Z. Bagniewski (BAGNIEWSKI 1979), while the technological analysis follows the work of M. Inizan and colleagues (INIZAN et al. 1992). For the dorsal surfaces of the flint artefacts, attention was paid to the presence of cortical or natural surfaces and the course of the negatives of previous removals (unidirectional, multidirectional). The type of butt was then described in terms of its nature: linear, flat or retouched. For the ventral surfaces, attention was paid to the form of the bulb: delicate or prominent. It was noted whether the surfaces or edges showed hinged removals and whether the flints bore traces of exposure to high temperature.

Two samples of archaeobotanical material were collected from these features: 7 g of moist macroscopic plant remains from the fill of feature 7, and 33 g of this type of material from feature 8. In addition, 11 and 26 small bone fragments were found in features 7 and 8, respectively.¹ Taking into consideration the findings of a study of the bone material from the Mesolithic dwelling feature from Pomorsko in Sulechów commune, it seemed reasonable to submit the samples for anthropological analysis (KOBUSIEWICZ, KABACIŃSKI 1991). In that dwelling, in addition to animal bones (red deer, roe deer and small ruminants), human remains were identified in the fill: skull bones and fragments of long bone shafts. According to the authors of the study, the Pomorsko find testifies to the practice of cannibalism by Mesolithic communities. In Nowe Miasteczko, samples of organic material were taken from two features (5 and 8) for absolute dating, which was carried out at the Laboratory of Absolute Dating in Kraków. The method used was liquid scintillation counting (LSC), often referred to as the conventional method (WALANUS, GOSLAR 2009).

Archaeobotanical samples were examined using a stereoscopic microscope at the W. Szafer Institute of Botany of the Polish Academy of Sciences (IB PAN). They

¹ The bone materials from features 7 and 8 were submitted for examination to Dr E. Nowacka-Chiari of the University of Zielona Góra. In feature 7 charred human bones have been identified: there is one fragment of long bone, and the remaining few are heavily fragmented. In feature 8 there are burnt bones, but it is difficult to determine whether they are human bones, as they are few and strongly fragmented (oral information).

contained charred plant remains. Carpological analysis was carried out using the morphological-comparative method, by observing the analysed specimens under a stereoscopic microscope with magnifications of up to 40×. The determinations were cross-checked with specimens from a comparative collection of fruits and seeds (IB PAN). Charcoals were determined on the basis of anatomical features observed in three anatomical sections of wood, using a reflected light microscope at magnifications of 100 to 500×. Taxonomic identification was based on comparing diagnostic features with wood anatomy atlases (SCHWEINGRUBER 2021) and specimens from the comparative collection of IB PAN. It is worth noting that the majority of trees and shrubs from Poland do not have sufficiently clear diagnostic features to allow their identification to the species level, and for this reason they are usually identified to the genus level. However, species names are often given when a genus is represented in the local flora by a single species (LITYŃSKA-ZAJĄC, WASYLIKOWA 2005).

RESULTS

Mesolithic features

The first feature was discovered in September 2022. It has been radiocarbon dated to the Stone Age (inv. no. PR.2 C14). This was one of the pits of feature 5, which during the fieldwork was initially interpreted as belonging to a damaged double burial of the Gubin group of the Jastorf culture, from phases C1/C2-D1 of the La Tene period. The pit was irregular in shape, 0.5×0.7 m in diameter and up to 0.2 m thick, with a trough-shaped section. The fill was intense black charcoal-saturated material. No datable archaeological material was found (Fig. 5). It is difficult to say anything more about the original function of this feature. It may have been a slightly sunken hearth.

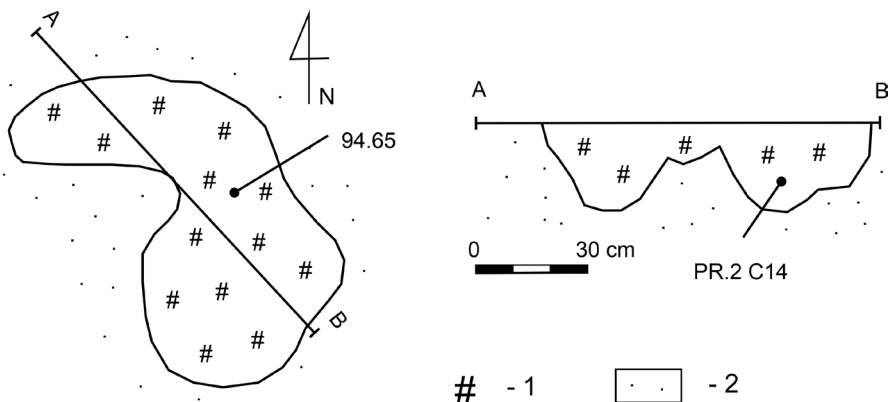


Fig. 5. Nowe Miasteczko site 1, Lubuskie Province. Pit from feature 5 (Drawing: R. Niedźwiecki).
1 – intense black fill; 2 – natural

The other two Stone Age features were recorded in May 2023, during works associated with the second phase of construction of the sports hall, involving the construction of the water supply, sewage and drainage systems (Fig. 6). The stratigraphy was as follows:

- a horizontal layer of humus mixed with crushed stone 0.1 m thick,
- a sub-base layer of dark yellow sand, 0.15 m thick, sinking towards the north and ending just above feature 7, where it was 0.3 m thick. It was probably formed using heavy construction equipment: its even, geometric shape suggests the effect of a bulldozer blade during the levelling of the pitch surface in the 1920s.

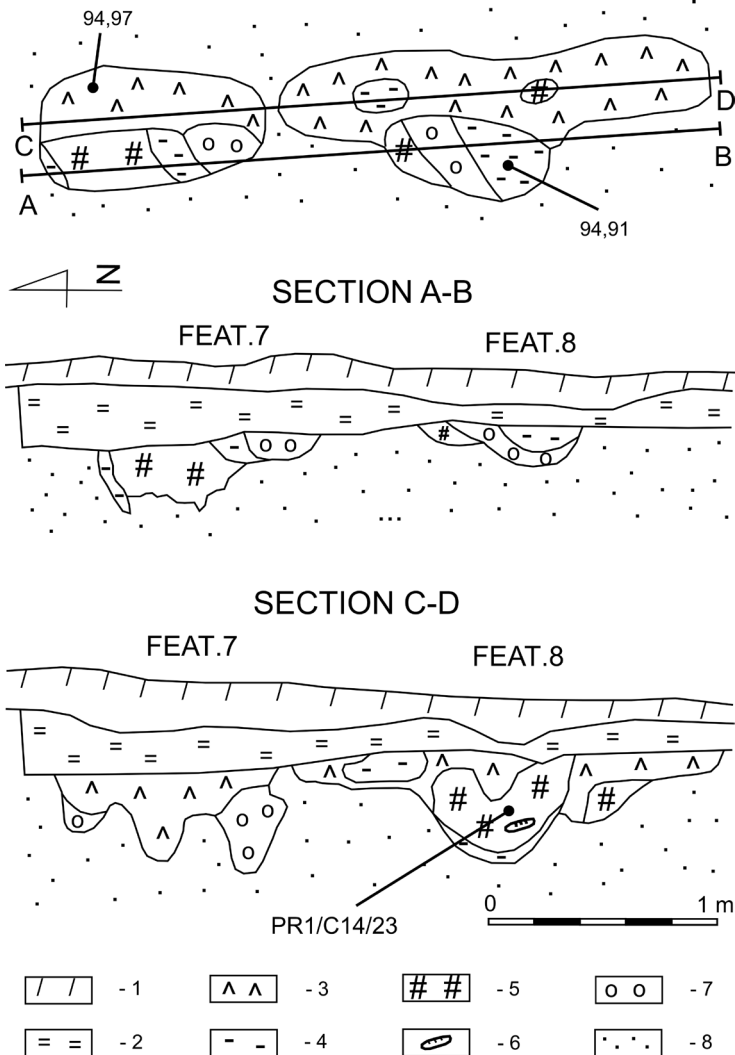


Fig. 6. Nowe Miasteczko site 1, Lubuskie Province. Features 7 and 8 (Drawing: R. Niedźwiecki). 1 – humus; 2 – dark yellow sand; 3 – fill: brown/black sand; 4 – light brown/black fill; 5 – black fill; 6 – stone; 7 – fill: yellow/black sand; 8 – natural layer

Feature 7 was oval in plan, measuring 0.6×1.0 m, while feature 8 was elongated and measured 0.80×1.80 m. Both were cut with two cross-sections. In the A-B section, feature 7 was 0.20 m thick and was filled with sand of a light brown colour changing to black, eventually passing into a yellow fill with black patches. Feature 8 was trough-shaped and 0.15 m thick with less distinct boundaries, and it was filled with black sand and yellow sand with black patches, eventually passing into light brown fill with black patches.

In section C-D, feature 7 was irregular in shape and up to 0.35 m thick. The fill consisted of brown sand with black patches and yellow sand with black patches. Feature 8 was trough-shaped, 0.44 m thick, with a depression in the central part. The fill was mostly brown sand with black patches. In one area the fill was sand of intense black colour, and the lower part of the depression was filled with light brown sand with black patches. Within the intensely black part of the fill, eight small stones were recorded. The largest pebble measured 7×8.5 cm, and the rest were on average half that size. The stones had no clear alignment, with no signs of chipping or impacts, and they showed no traces of exposure to high temperatures.

It seems highly likely that features 7 and 8 were the remains of one larger dwelling which survived in this form because the original ground surface and the upper part of the feature were damaged in the 1920s. The central part may have been shallower because the semi-sunken dwelling was dug from the shorter walls and soil was pushed towards the entrance. The 0.6×0.6 m intensely black area within the fill in feature 8 is most likely the remains of a hearth.

Flint material

The fill of feature 7 yielded 27 flints, with another 130 retrieved from the fill of feature 8. This is not a large assemblage, despite the additional hand-sieving of the excavated fills with a 4×4 -mm mesh sieve. Baltic erratic flint was used as raw material for flint working. The vast majority of the inventory (63 pieces) was made from opaque erratic flint in various shades of grey, with trace amounts of milky coloured erratic flint also present. Another group consists of artefacts made of transparent erratic flint in brown shades (25 pieces). A small number of objects were made of opaque erratic flint with Bryozoa visible in the structure (5 pieces).

The assemblage recovered from feature 7 (Table 1) includes a microburin (Fig. 7: 1), a bladelet (Fig. 7: 2), a flake (Fig. 7: 3), and an overpassed blade (Fig. 7: 4). There are five pieces with preserved cortical or natural surfaces, and heat marks were found in nine cases. There are 23 chunks classed as undetermined. The assemblage recovered from the fill of feature 8 includes three blades (Fig. 7: 5, 12, 13), a curved blade (Fig. 7: 6), two flakes (Fig. 7: 7, 14), a trapeze (Fig. 7: 8), a slightly convex scraper (Fig. 7: 9), a convex scraper with retouch (Fig. 7: 10), and a notched tool (Fig. 7: 11) (Table 1). In addition, a total of 10 overpassed and rejuvenation blades were found, made from both erratic matt flint and opaque flint with Bryozoa. The dorsal surface is in most cases natural, while three pieces have scars from removals. Flat butts predominate, followed by linear butts, and in two cases retouched butts were found. The



Fig. 7. Nowe Miasteczko site 1, Lubuskie Province. Selected flint materials (Drawing: R. Niedźwiecki).
 1 – direction of removal; 2 – direction of ripples; 3 – natural/cortical surface

ventral surfaces have prominent bulbs, with visible ripples, and in one case a hinge was observed on the distal edge (Fig. 7: 15). There were also elongated scales (6 pieces) made from erratic matt flint (3 pieces) as well as translucent flint (3 pieces) (Fig. 7: 16 A), and scales (12 pieces) made from translucent flint (Fig. 7: 16 B) (Table 1).

In feature 8 there are 50 pieces with preserved cortex or natural surfaces, while the effects of high temperatures were found in 21 cases. There are 91 chunks in the assemblage which were classed as undetermined, most of them up to 5 mm in size with preserved cortex or natural surfaces.

In terms of size, the collection presented can be divided into several groups. One group is that of initial flakes and overpassed blades 8 to 13 mm wide, 12 to 18 mm long and 2 to 3 mm thick. These are larger forms, often with the original surface preserved,

Table 1. Nowe Miasteczko site 1, Lubuskie Province. Artefact characteristics

| Artefact | Length [mm] | Width [mm] | Bulb thickness [mm] | Dorsal surface | | Ventral surface | | Figure |
|------------------------------------|-------------|------------|---------------------|------------------------|----------------------|-----------------|---------------|---------|
| | | | | Multidirectional scars | Unidirectional scars | Prominent bulb | Delicate bulb | |
| microburin | 20.6 | 9 | 2.8/4 | + | – | + | – | 7: 1 |
| bladelet | 17.8 | 5.4 | 2.5/1 | + | – | – | + | 7: 2 |
| flake | 8 | 6.8 | 1.2/1.6 | – | + | + | – | 7: 3 |
| overpassed blade | 5.9 | 10 | 2/1.5 | – | – | + | – | 7: 4 |
| blade | 27.7 | 9.7 | 2/2.4 | – | + | – | + | 7: 5 |
| blade | 12.1 | 5.3 | 1.6/1 | + | – | – | + | 7: 6 |
| flake | 8.7 | 6.7 | 2/2 | – | + | – | + | 7: 7 |
| trapeze | 8.7 | 10 | 2/– | – | + | – | – | 7: 8 |
| scraper | 13.6 | 11.7 | 3.6/– | + | – | – | + | 7: 9 |
| scraper | 19.8 | 12.3 | 7.7/– | – | – | – | – | 7: 10 |
| notched tool | 22.3 | 10–13 | 6.5/– | – | – | – | – | 7: 11 |
| blade | 24.7 | 8.3 | 4/2.7 | – | + | – | + | 7: 12 |
| blade | 20 | 8.8 | 3.6/1 | + | – | – | + | 7: 13 |
| flake | | 6.6 | 2/2.5 | + | – | – | + | 7: 14 |
| overpassed and rejuvenation blades | 12–18 | 8–13 | 2–3 | + | + | + | – | 7: 15 |
| elongated scales | > 10 | > 5.5 | 0.5–2 | + | + | + | – | 7: 16 A |
| scales | > 8 | > 12 | 0.4–1.6 | + | + | + | – | 7: 16 B |

mostly from the initial stages of core exploitation. Some of the flakes and chunks may be evidence of testing of the raw material for its suitability. Another group is made up of flakes 6 to 6.8 mm wide, 8 to 12 mm long and 1.2 to 2 mm thick. There is one flake removed from the side, which may be evidence of an attempt to correct the flaking surface.

The largest blade forms range from 8 to 10 mm in width, are over 25 mm long and 2 to 4 mm thick. The largest blade has a retouched butt. The retouching of the proximal part was intended to improve the grip in the haft. On the other hand, curved blades with a triangular cross-section were not seen as blanks and were discarded. It is possible that they are reflect attempts to straighten the flaking surface.

Bladelets range from 6 to 8 mm in width, 12.7 to 17.8 mm in length and 1.6 to 2.5 mm in thickness. The frequency of blades, bladelets and flakes with negatives of multidirectional removals on the dorsal side is slightly higher than that of specimens with unidirectional removals. There is also a group of bladelets and flakes ending in a hinge on the distal edge. The preserved butts are mostly flat, followed by linear butts. The latter may attest to the use of the soft hammer method in flint knapping. Elongated scales fall within the size range of up to 5.5 mm wide, up to 10 mm high and 0.5 to 2 mm thick. Scales are up to 12 mm wide, up to 8 mm high and 0.4 to 1.6 mm thick. The scales come from the various stages of debitage, as waste products from core exploitation or tool preparation.

The characteristics of the flint artefacts indicate that single-platform blade and blade-and-flake cores were used. The use of blade and blade-and-flake cores with changed orientation seems better confirmed. Taking into account the size of the debitage, the

cores could be up to 30 mm in size. The intended product was blades up to 10 mm wide, which were later worked to produce insets. The significant number of flakes may be indicative of poor-quality cores limiting the production of blades. The presence of rejuvenation flakes indicates the repair treatments to correct the platform. Both hard and soft hammers were probably used. The former was used in preparatory stages and for repairs of the flaking surface, and to a lesser extent in the initial phases of core exploitation in the production of blades and flakes. The soft hammer, on the other hand, was preferred for blade production during the core exploration proper.

The group of tools is represented by the trapezoidal inset, which was made from a blank 10 mm wide and 2 mm thick. A structural defect in the raw material, in the form of a crack, appears to have caused it to be discarded from further processing and use. The short flake scrapers range from 11.7 to 12.3 mm in width, 13.6 to 19.8 mm in height and 3.6 to 7.5 mm in thickness. The notched tool was made from a flat lump of flint with notches on both sides. The microburin, which was a waste product from the preparation of the inset, should be classed as toolmaking waste. It represents a pseudo-microburin form, meaning that it was broken after the notch was made.

Plant remains

In both features containing botanical material, the presence of charred hazelnut (*Corylus avellana* L.) shell fragments was recorded among the fruit and seed remains (Fig. 8). They were abundant considering the small volume of the samples: 54

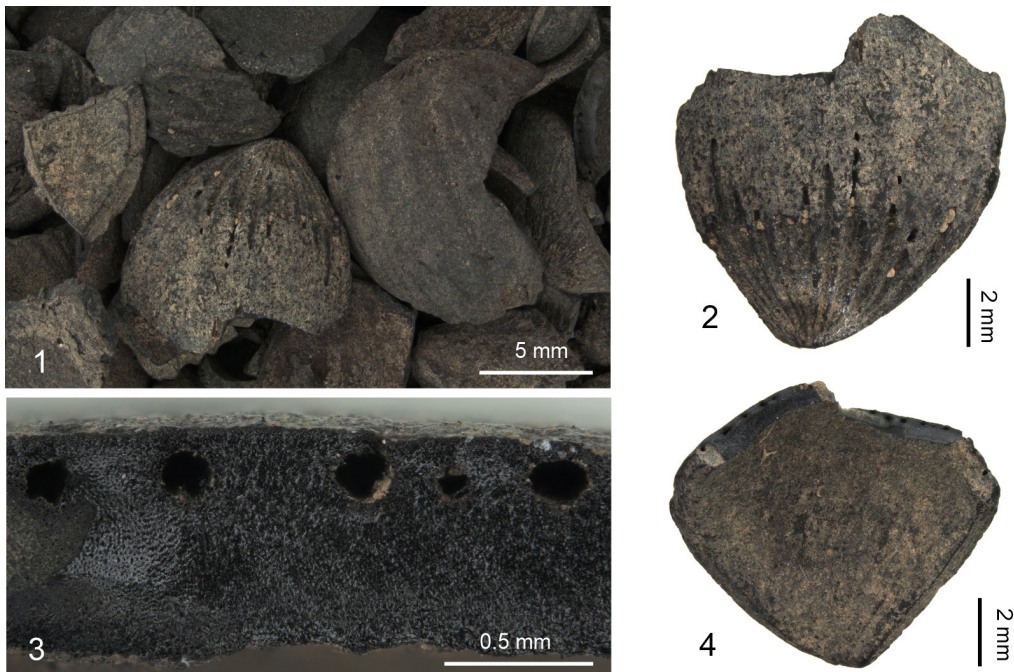


Fig. 8. Nowe Miasteczko site 1, Lubuskie Province. 1–4 – hazelnut (*Corylus avellana* L.) shells. (Photos: K. Stachowicz)



Fig. 9. Nowe Miasteczko site 1, Lubuskie Province. 1, 2 – twigs of mistletoe (*Viscum album*); 3, 4 – mistletoe parasitizing on pine; pine forest near Międzyrzecz (Lubuskie Province). (Photos: K. Stachowicz – 1, 2; M. Moskal-del Hoyo – 3, 4)

fragments were found in feature 7, whereas as many as 171 were identified in feature 8. Hazelnut shell fragments are marked by the presence of circular oil channels visible at the transverse sections (LITYŃSKA-ZAJĄC, WASYLIKOWA 2005: 246) (Fig. 8: 3, 4).

Charcoals were also recorded in both features, among which 100 fragments per sample were determined. Two taxa were identified: Scots pine (*Pinus sylvestris* L.) and common mistletoe (*Viscum album* L.) (Fig. 9: 1, 2). Pine clearly prevails in both samples, with mistletoe appearing sporadically, represented by two fragments in feature 7 and five in feature 8. Most of the pine remains are from branches, among which shoots were also found. Many display traces of fungal activity. This may suggest that branch wood was used, probably harvested from the forest litter.

DISCUSSION AND CONCLUSIONS

What is surprising in the analysed collection of flint artefacts is the low proportion of finished tools; the inventory is extremely poor in this respect. The presence of the trapeze allows the inventory to be generally dated to the younger Mesolithic period. Further indication of this is the almost exaggerated miniaturisation and the reliance exclusively on erratic raw materials despite their inferior quality.

As mentioned, two charcoal samples were taken for absolute dating from features 5 and 8 (Fig. 10). Both samples were taken from the lower parts of the fills. It should be noted that charcoals of natural origin were not found to be present in the study area. In the case of feature 8, the absolute age is as expected and agrees with the retrieved archaeological material. For the pit from feature 5, however, the radiocarbon age obtained was a surprise. This result is not verifiable and can be regarded as unrepresentative (SCHILD 1989). If we assume that the pit is related to the presence of a Mesolithic community, then this absolute age determination is the only confirmation of this. The measurement error in the age determinations presented is between 60 and 80 years. OxCal v4.4.4 software (BRONK RAMSEY 2021) was used to calibrate the dates.

The interpretation of the ^{14}C dates is influenced by the calibration curve from the mid-7th to the mid-6th millennia BC, in its section covering 7400–6400 BP. For the sample from feature 5 (MKL 6033), a date of 6600 ± 60 con BP was obtained, which at 68.3% probability results in an interval of 5613–5482 CalBC. At a 95.4% confidence level, the calibrated range is 5635–5416 CalBC. For the sample from feature 8 (MKL 6275), a date of 7150 ± 80 con BP was obtained, which at 68.3% probability translates into an interval of 6082–5972 CalBC. At a 95.4% confidence level, this is 6222–5847 CalBC. These results indicate at least two episodes of Mesolithic occupation in the area. In view of the above data and the technological and typological analysis of the flint artefacts, the discovered settlement traces can be linked to the western cultural circle of the Lowland tradition and recognised as a post-Maglemose site, presumably of the Komornice culture. This is the timeframe of the climatic optimum of the

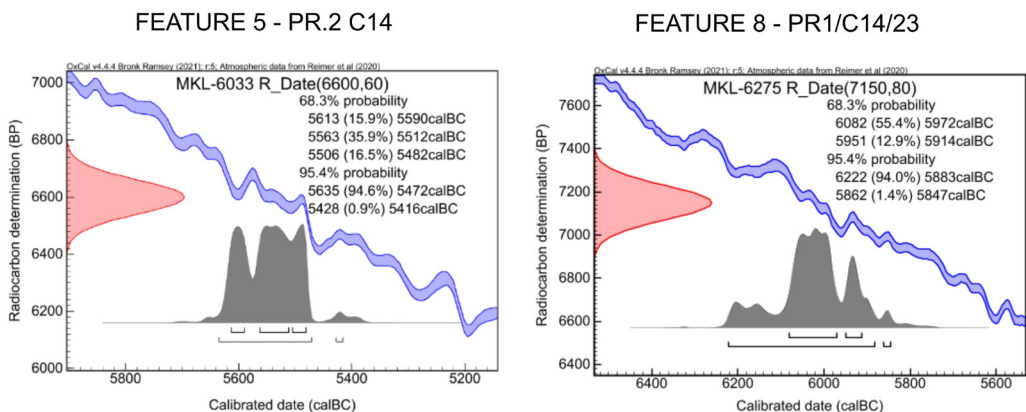


Fig. 10. Nowe Miasteczko site 1, Lubuskie Province. ^{14}C dates for the pit from feature 5 and for feature 8

Holocene, i.e. the Atlantic phase, in which hunter-gatherer communities preferred to settle on the tributaries of the Oder River (BAGNIEWSKI 1979: 73). This trend is particularly evident in the density of the settlement network along latitudinal watercourses such as the Śląska Ochla, Czarna Struga or Krzycki Rów (PRZECHRTA 1998). At that time, Mesolithic communities used multi-seasonal settlements and encampments (BAGNIEWSKI 1976; KOBUSIEWICZ 1999: 123–126). Several dwellings associated with Mesolithic occupation are known from the Middle Oder River basin (Krzekotówek 8, Pomorsko 1, Siedlisko 16). In one variant, the semi-sunken dwellings had entrances in the form of tunnels on one of the short walls. In another variant, the entrance was located directly on one of the longer walls. In most features hearths were discovered. The semi-sunken dwellings from Siedlisko were oval in plan, with lengths ranging from 6 to 2.3 m and widths ranging from 4.5 to 2.3 m. Assuming that features 7 and 8 were originally one larger feature, its length would be around 2.9 m, similar to features 2 and 3 from the encampment at Siedlisko 16 (BAGNIEWSKI 1982b)

Only two taxa were identified among the charcoals: pine and mistletoe. The presence of mistletoe among pine charcoal may indicate an accidental collection of this plant, which, as a parasite of trees and shrubs (SENETA, DOLATOWSKI 2001) may have grown on pine trees. Of the three subspecies of mistletoe in Poland, there is one, *V. album* subsp. *austriacum* (Wiesb.) Vollm., whose hosts are coniferous trees and shrubs, mainly pine. It is the second most common subspecies of mistletoe in Poland, as *Viscum album* L. subsp. *album*, growing mainly on deciduous trees, is by far the dominant (ISZKUŁO et al. 2020). Mistletoe draws water, mineral salts and assimilates from its host, so it has a negative impact on the development of the host tree, as well as on stands when more trees are colonised. Furthermore, the site of mistletoe penetration into the host presents favourable conditions for fungal infection, which can further weaken the host organism (ISZKUŁO et al. 2020).

Hazelnuts are often found among plant remains at archaeological sites from the Mesolithic period. Interestingly, they are found mainly in the form of large accumulations of nut shell fragments, which are mostly preserved in a charred form and occur in combination with post-consumption remains (ZVELEBIL 1994; KUBIAK-MARTENS 1999; HOLST 2010; BISHOP et al. 2015; CROMBÉ et al. 2023). Hazelnuts have a particularly high fat content (62 g fat per 100 g fresh weight) and are rich in protein (KUBIAK-MARTENS 1999). Their high nutritional value and their ready availability in the local environment made them one of the most important plants harvested and used by Mesolithic communities in Europe (ZVELEBIL 1994; KUBIAK-MARTENS 1999; BISHOP et al. 2015; CROMBÉ et al. 2023). In western Poland, hazelnut remains have also been recorded at hunter-gatherer group sites, including an exceptionally large accumulation at Krzyż Wielkopolski (Pobiel 10 site: BAGNIEWSKI 1985; Krzyż Wielkopolski: LITYŃSKA-ZAJĄC 2014). Based on ethnographic and experimental data, charred nut shells are presumed to have originated from nut roasting. Wood was burned on a layer of sand and then, as the fire died down, the nuts were placed in hot charcoals mixed with heated sand and roasted at a temperature of approximately 300°C for a short period of time, thus maintaining the nutritional value while protecting the harvest from

fungal attack (mould fungi). Features with charred hazelnut shells from the Duvensee site in northern Germany are interpreted in this way (HOLST 2010: 2874). The Mesolithic features with hazelnut shell fragments at Nowe Miasteczko site 1 bear further finds from Poland, confirming the important role of hazelnuts in the diet of Mesolithic communities. The absence of hazel charcoal in the Mesolithic features suggests that hazelnuts were not necessarily collected in the immediate vicinity of the encampment, although their roasting points to the relatively close proximity of hazel trees. Indeed, one of the purposes of roasting hazelnuts may have been to reduce their volume and weight to make them easier to transport (HOLST 2010: 2874). Assuming that hazelnut roasting took place during the ripening period, hazelnut collection and processing by the Mesolithic people at the encampment most likely took place in late summer/early autumn (HOLST 2010: 2874).

The absolute dates falling within the Atlantic phase of the Holocene indicate that the encampment developed during the climatic optimum. Interestingly, *Viscum* is among the important plants that serve as climatic indicators. Already in the early years of research into the postglacial vegetation history, IVERSEN (1944) noted that the presence of *Viscum* pollen, along with that of *Hedera* and *Ilex*, was indicative of improved climatic conditions and average temperatures in the warmest month of the year exceeding 16°C. Thus, the occurrence of *Viscum* charcoal indicates a warm summer and a temperature in January not lower than -8°C (SOBKOWIAK-TABAKA et al. 2020).

The discovery of traces of occupation from the younger Mesolithic, despite the almost complete destruction of the original surface of the site, should be seen as a success. The state of preservation of the features along with the very modest flint inventories retrieved from them pose considerable difficulties in interpreting the data. As regards establishing the chronology of the site, the results of absolute age determinations were extremely helpful. In terms of land use, the available data paint a picture of a site that was settled by Mesolithic groups more than once. The location of the encampment allowed easy access northwards to the Oder Valley and the Nowa Sól Depression, areas where more intensive occupation is recorded. To the south, on the other hand, it allowed access to the Przemków Plain, which offered richer food resources to hunter-gatherer groups.

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