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Hidden under Bronze Age barrows: prehistoric finds (Final Palaeolithic, Mesolithic and Neolithic) excavated at the Muziekberg in Ronse (East Flanders, BE)

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1. Introduction

In the framework of a research project focusing on the prehistoric occupation of the Upper Scheldt basin¹ control excavations of two assumed remnants of Bronze Age barrows were conducted in 1988 on the top of the Muziekberg at Ronse (East Flanders, BE; **Fig. 1**). The Muziekberg is one of the numerous Tertiary hills in the Upper Scheldt basin, situated in the southern part of the province of East Flanders. The locality is well-known for its well-preserved and unique finds of funerary pottery of Drakenstein-type dated to the Early to Middle Bronze Age found during excavations in the 19th century, more specifically in 1836 and 1875 (for a detailed description: see Deconinck, 1962, 1963, 1982; Fourny, 1985). In total 5 urns with cremation remains were found in several barrows situated in two clusters on the highest part of the Muziekberg. A first cluster of at least three barrows (n° 60, 61 & 82) was situated at the location formerly known as "De Drij Heuvelkens". A second cluster also consisting of three barrows (n° 83, 84 & 85) was located to the east in a somewhat lower landscape position at the location named "Grooten Boeckzitting".

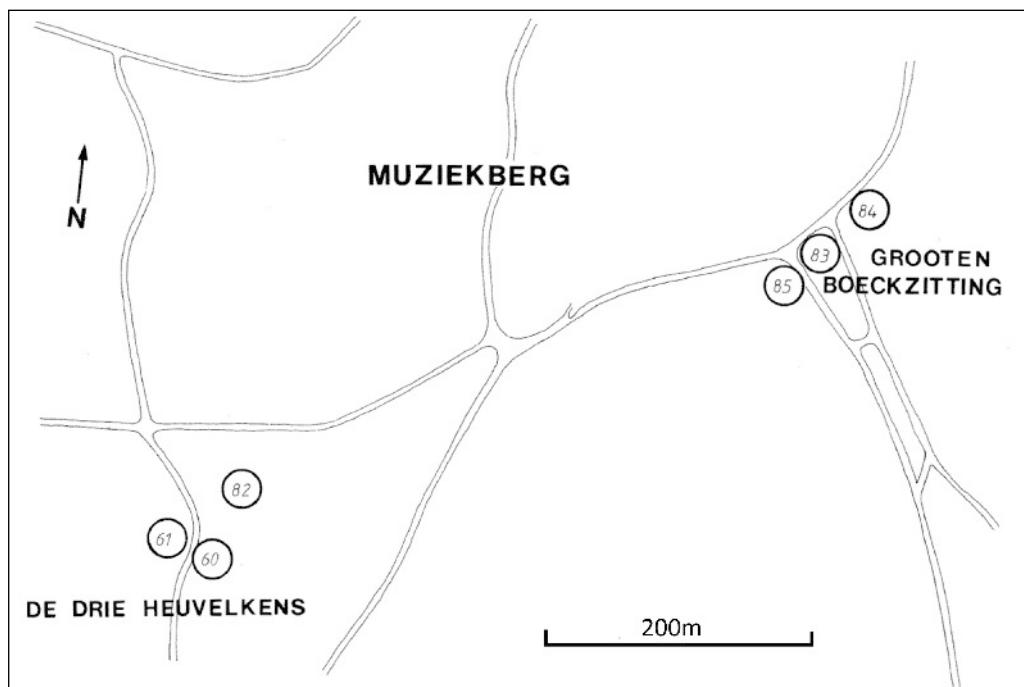


Fig. 1 – Location map of the Muziekberg with indication of the Bronze Age barrows still existing in the 19th century (based on Deconinck, 1963).

1. BTK-project entitled "Wetenschappelijke valorisatie en cultureel educatieve integratie van het archeologisch verleden van Ronse", directed by the "Geschied- en Oudheidkundige Kring van Ronse" (1987-1988).

Since the excavations of the 19th century the top of the Muziekberg underwent several changes which seriously impacted the preservation of these barrows. In the first cluster a small watchtower was built on top of one of the Bronze Age barrows (n° 60), while deforestation and the plantation of a vineyard led to the lowering or even total destruction of the other barrows. The barrows in the second cluster on the other hand were perturbated by road and house construction. Despite this, a survey in 1988 led to the identification of two possible barrow remnants at these two locations. In order to verify this, two trenches were excavated which surprisingly yielded prehistoric remains. One of these excavations revealed a small lithic assemblage dating to the Mesolithic, most of which was retrieved from a presumed windthrow feature. Under the second barrow remnant, however, *in situ* lithic artefacts were collected in the upper part of a Forest Podzol, the latter confirming the formerly presence of a barrow. Both small assemblages will be presented in this paper from a techno-typological perspective. In addition, some microwear observations will be discussed.

2. Excavations

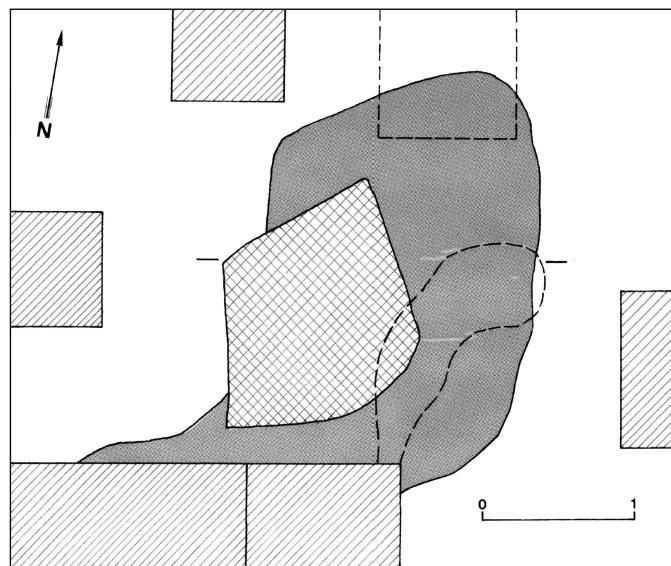


Fig. 2 – Plan of the presumed natural pit feature at the location of the former barrow n° 82.

A first trench (17 x 17 m) was investigated within the "De Drij Heuvelkens" cluster at the level of a weak elevation that was interpreted as a possible remnant of one of the barrows (most likely n° 82) excavated in the late 19th century. At the "Grooten Boeckzitting" a comparable elevation, tentatively identified as barrow n° 85, was excavated by means a second trench (13 x 14 m).

2.1. Site "De Drij Heuvelkens"

Although the excavations did not confirm the presence of a barrow, they yielded a small assemblage of lithic artefacts, most of which date to the Mesolithic. These artefacts were partly (N = 406; see below: Tab. 1) collected by means of shovelling from the shallow sub-surface within the Diestian sands and are considered surface-finds. However, the majority of artefacts (N = 715) was collected by means of dry sieving (3 mm mesh) from within a pit situated more or less in the centre of the trench (Fig. 2). Some small charcoal fragments could be collected too, but not enough to produce a ¹⁴C date. According to Roger Langohr

and Bert Baes (Geology department, UGent) the pit most likely concerns a windthrow feature, measuring *ca.* 2.6 x 0.9 m, and having a maximum depth of 0.9 m below the plough-layer. It is filled with homogenous dark brown sand presenting a very compacted iron Bs-horizon at its base, indicating that it concerns a rather ancient feature (Fig. 3). Some Diestian sandstones with clear traces of "capping" occur intermixed with the lithic artefacts. Most likely these originate from the cryoturbated sandstone layer in which the pit was embedded.

The upper part of this feature (Fig. 3) was disturbed by a recent pit (*ca.* 1.2 x 1.2 m), most likely related to the excavations of the 19th century. Edouard Joly (1875 in Deconinck, 1982) mentions the discovery of a central burial structure bordered by sandstones in which two Drakenstein-urns were found. The disturbance most likely corresponds to the deep trench he dug in order to excavate this burial. This is corroborated by the discovery of some small

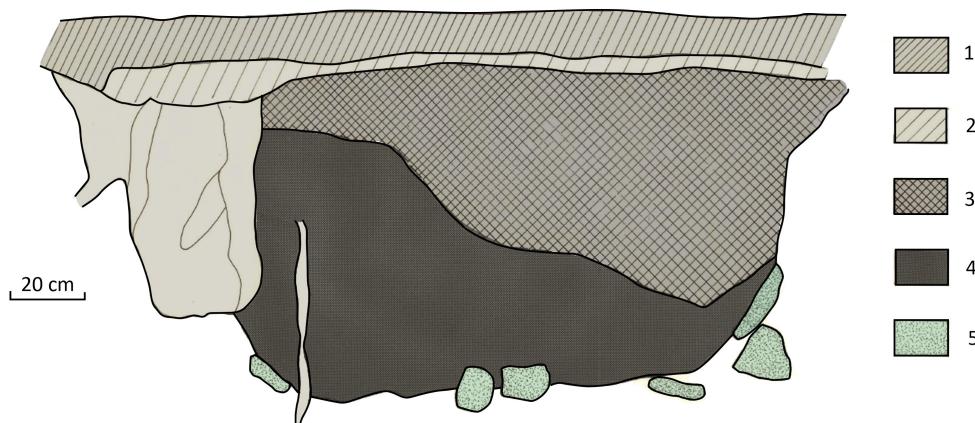


Fig. 3 – Cross-section of the presumed natural pit feature at the location of the former barrow n° 82.
 Key: 1. Actual A-layer; 2. Disturbed layer; 3. 19th century trench; 4. Compact dark grey sandy fill;
 5. *In situ* sandstones with capping.

pottery fragments and small charcoal fragments within its fill². E. Joly also mentions the presence of some kind of circular stone structure situated at 3 to 3.5 m away from this central grave: « ... un espace de trois à trois et demi, était un amas de grosses pierres brutes ferrugineuses élevées soigneusement au niveau du sol environnant le tertre et inclinées vers le centre du tumulus » and « à extrême circonférence du tertre se trouvaient ça et là quelques grosses pierres ... évidemment posées avec intention ». However, we have serious doubts concerning the anthropogenic origin of these stone structures, as similar stone "arrangements" have been found during our excavations. At several locations stone packs have been observed, built up of obliquely to vertically positioned sandstones and forming a more or less circular configuration. However, according to Roger Langohr these "stone packs" are the result of cryoturbation of underlying sandstone layers, as demonstrated by their overall vertical inclination and presence of capping or silty crust (Langohr, 2024).

2.2. Site "Grooten Boeckzitting"

At this locality the excavations were more successful. The discovery of a Forest Podzol or Iron Podzol (determination Roger Langohr, UGent), typical of forest vegetation (Edelman, 1960, 1962; Lamberts & Baeyens, 1963; De Coninck *et al.*, 1986; Sevink *et al.*, 2023) allowed us to confirm the presence of a barrow partly excavated in the 19th century (Fig. 4-7). Traces of the former excavation trench, covering almost the entire eastern half of the original barrow surface, were found during the recent excavation (Fig. 4). Compared to the situation in the 19th century, the barrow height was considerably reduced from *ca.* 1.2 m to hardly 0.3 m. Based on the extent of the Forest Podzol, the diameter of the original barrow can be estimated to *ca.* 6.5-7 m. If the intermediate zone between the Forest Podzol and the Humic-iron Podzol (heath podzol), interpreted as the BC horizon of the latter, which developed in the upper surface of the barrow mound, is taken in consideration the barrow diameter increases to *ca.* 8/8.5 m. This is much smaller than the diameter of *ca.* 30 m mentioned by the excavators in the 19th century³ (Vander Meersch, 1837, in Deconinck, 1982) but perfectly in line with the diameter of barrow 82, which according to the old reports (Deconinck, 1963; Fourny, 1985) measured between 8 and 9 m in diameter.

2. A handful of very small fragments of handmade pottery tempered with fine chamotte (wall thickness 7 mm) was collected. They have been identified by Prof. Guy De Mulder (UGent) as belonging to the Metal Ages, more precisely the late Bronze Age or Iron Age. They definitely do not belong to the typical thick-walled pottery of the Early and Middle Bronze Age, as found during the 19th century excavations. However, a recent re-evaluation of E. Joly's legacy (Fourny, 1985) revealed that during these earlier excavations also some pottery from the Iron Age was found in these barrows.

3. This is most likely an overestimation of its diameter, as it probably not only includes the barrow but also the natural elevation on which the barrow was constructed.

Fig. 4 – Plan of the barrow with the distribution of the Iron Podzol and associated lithic artefacts.

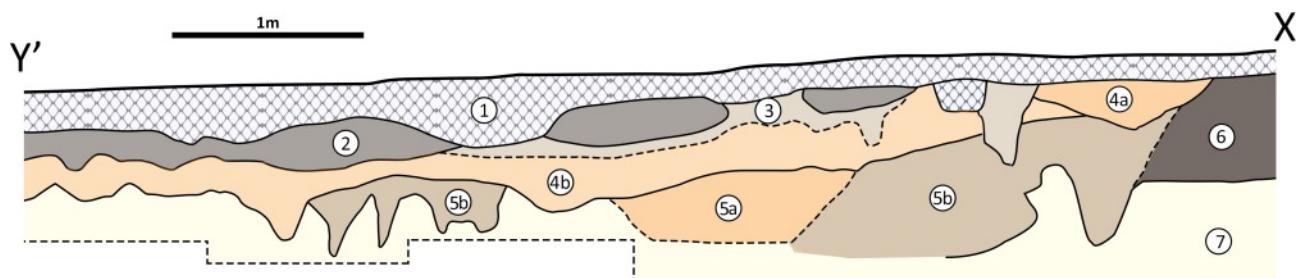
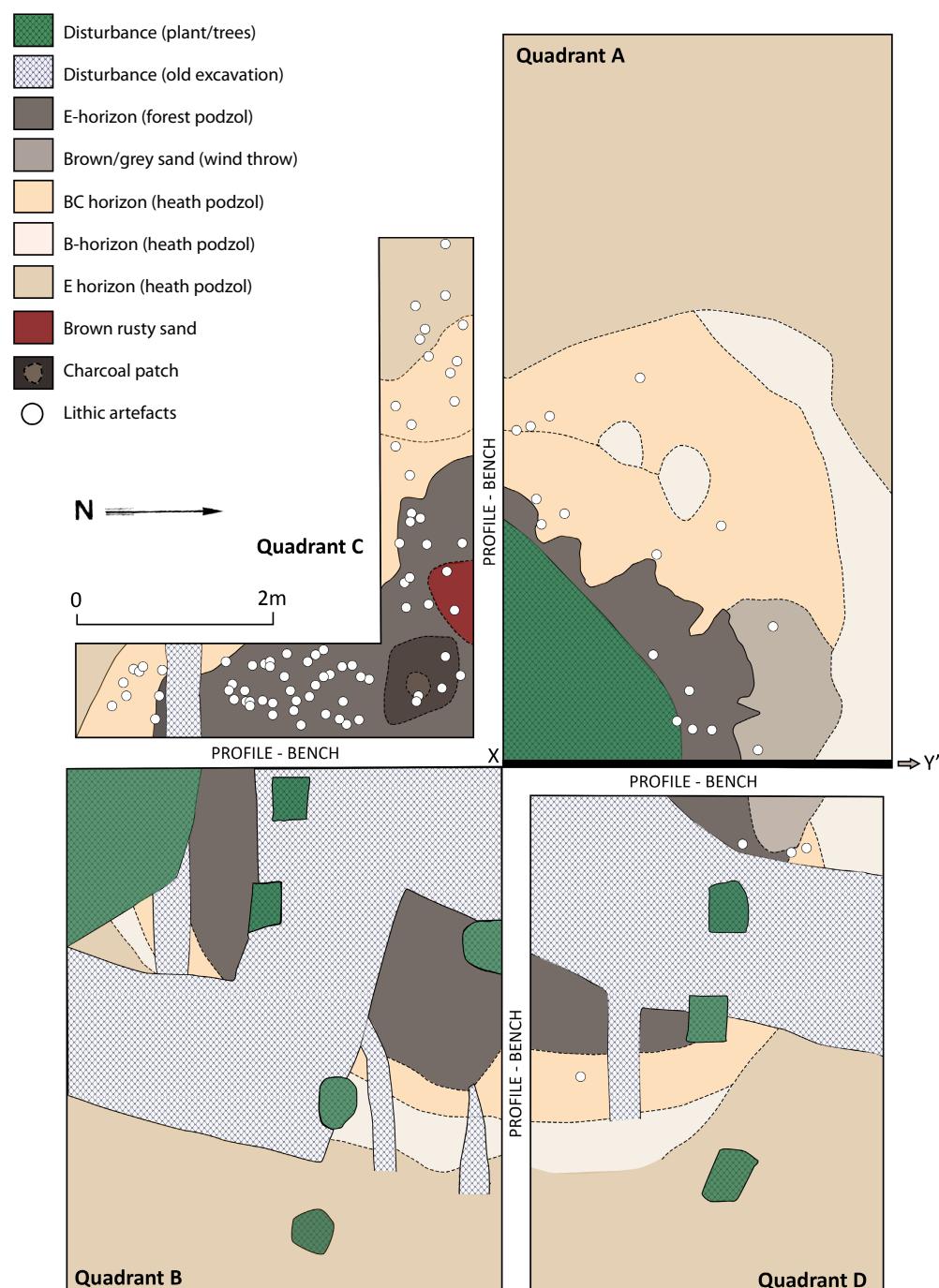


Fig. 5 – Cross-section of the barrow remnant in quadrant A. Key: 1. Recent top layer, 2. E-horizon (heath podzol), 3. Bh-horizon (heath podzol), 4. BC-horizon (heath podzol), 4a. with numerous pebbles, 5. Grey sand, possible fill of a natural feature (wind throw), 5b includes numerous pebbles, 6. E-horizon (forest podzol), 7. C-horizon with numerous clay-accumulation bands running parallel with the forest podzol.



Fig. 6 – Photo of the barrow in quadrant A. In the foreground, the outline of the Forest Podzol can be seen, while in the background the boundary of the Humic-iron Podzol is visible (Photo P. Cromb , UGent).



Fig. 7 – Photo of a cross-section of the barrow within quadrant A. To the right the Forest Podzol is clearly visible while to the left remnants of the Humic-iron Podzol can be noted (Photo P. Cromb , UGent).

Within the Iron Podzol a small assemblage of lithic artefacts, which is considered to be *in situ*, was collected by trowelling (Fig. 4). The majority of these finds situate in the upper part of the Forest Podzol. At the same level a small burnt spot, consisting of red-coloured, burnt pebbles and a limited amount of charcoal was found, tentatively interpreted as a hearth. Unfortunately, the charcoal was too limited to obtain a radiocarbon date at that time (pre-AMS).

3. Lithic assemblages

3.1. Site "De Drij Heuvelkens"

The collected assemblage consists of 1121 lithic artefacts, the vast majority clearly of Mesolithic age. Just six artefacts could be confidently assigned to the Neolithic; none of them was retrieved from the natural pit (Tab. 1). The assemblage is dominated by chips (*ca.* 50 %), followed by flakes (*ca.* 30 %) and blade(let)s (*ca.* 12.5 %). The difference in amount of chips between the assemblages from the pit and the surface is clearly due to the difference in applied excavation technique (*cf. supra*). Taking only in consideration the pit-assemblage, the frequency of chips increases to *ca.* 60 %, which is comparable to other Mesolithic sites which have been sieved. On the other hand the amount of retouched tools is quite high (*ca.* 4.5 % or *ca.* 4 % in the pit-assemblage).

Differences between both sub-assemblages are also reflected in the frequency of burnt and patinated artefacts. Compared to the surface-finds the burnt artefacts are almost three times more numerous in the pit-assemblage (*ca.* 14 % versus 38 %). However, it is not clear whether this difference is due to the burning of the uprooted tree or points to a Mesolithic fireplace that was disturbed by the uprooting of the tree. The fact that the surface collection

| | Surface finds | Windthrow | Total | % |
|--|---------------|-----------|-------|--------|
| <i>Cores (+fragments)</i> | 8 | 1 | 9 | 0.81 |
| cores with one striking platform | 5 | | 5 | |
| core with two crossed directions | 1 | | | |
| core with two opposed directions | 1 | | 1 | |
| cores with multiples striking directions | 1 | | 1 | |
| undetermined core | | 1 | 1 | |
| <i>Rejuvenation artefacts</i> | 1 | 1 | 2 | 0.18 |
| <i>Flakes (+fragments)</i> | 140 | 194 | 334 | 29.96 |
| <i>Blade(let)s (+fragments)</i> | 75 | 65 | 140 | 12.54 |
| entire | 28 | 22 | 50 | |
| proximal fragments | 17 | 17 | 34 | |
| medial fragments | 11 | 12 | 23 | |
| distal fragments | 18 | 14 | 32 | |
| <i>Chips</i> | 142 | 416 | 558 | 50.04 |
| <i>Debris</i> | 8 | 10 | 18 | 1.61 |
| <i>Microburin</i> | 1 | 0 | 1 | 0.09 |
| <i>Tools</i> | 21 | 27 | 48 | 4.30 |
| <i>Artefacts with possible use retouch</i> | 3 | 1 | 4 | 0.36 |
| <i>Hammerstones</i> | 1 | 0 | 1 | 0.09 |
| <i>TOTAL</i> | 400 | 715 | 1115 | 100.00 |
| <i>Neolithic artefacts</i> | 6 | 0 | 6 | |

Tab. 1 – General typological composition of the lithic assemblage from the Muziekberg "De Drij Heuvelkens".

includes more patinated artefacts than the pit-assemblage (ca. 12 % versus ca. 2 %) most likely is due to the more severe burning of the latter. On most artefacts the patina is weakly developed and has a blueish-white colour.

3.1.1. Raw material

All artefacts are made of flint. The principal raw material is a medium fine to medium coarse-grained flint of very good quality. Its overall colour is light to dull grey, either homogenous, in bands or spotted. It is provided with a beige, rather fresh cortex and closely resembles Ghlin flint, a raw material which crops out in the Mons region (Denis, 2014; Collin, 2016; 2019). It might originate from the top of the Spiennes Formation, on the transition towards the Ciply-

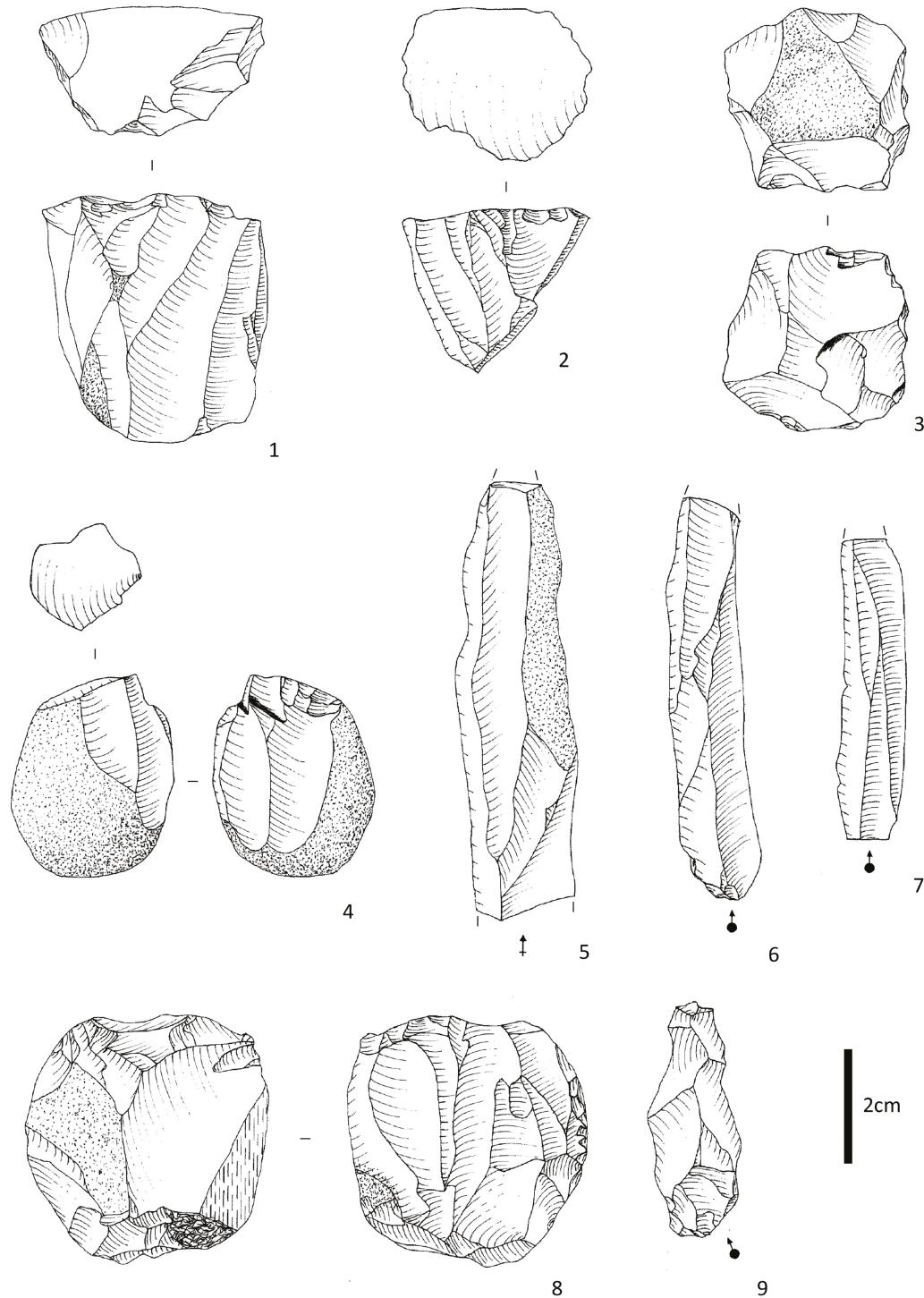


Fig. 8 – Cores, unretouched blades and rejuvenation artefacts from the Muziekberg "De Drij Heuvelkens".

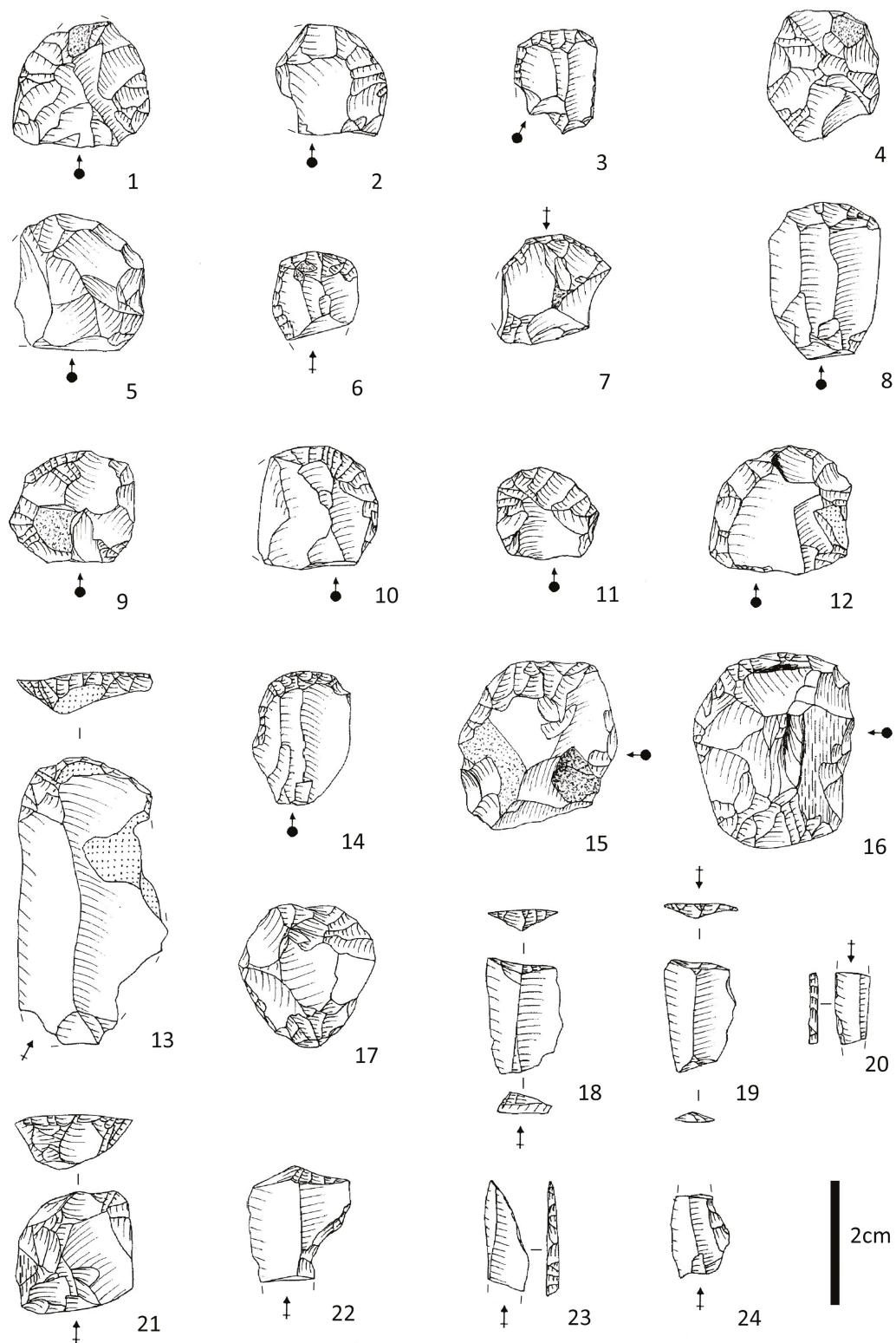


Fig. 9 – Scrapers, microliths and microburin from the Muziekberg “De Drij Heuvelkens”.

Malogne Formation (Collin, 2019: 140). The presence on some artefacts of anterior weathering, *e.g.* patina and/or natural surfaces, indicates that the Ghlin nodules were retrieved from the surface, *i.e.* from secondary outcrops. Nearly all blade(let)s (Fig. 8:5-8:7) and tools (Fig. 9 & 10) are made of this flint. The presence of four Ghlin cores (Fig. 8:3 & 8:8) demonstrates knapping at the spot. Based on the dimensions of the longest blade fragments (Fig. 8:5-8:6; Fig. 10:2) a length of > 7-8 cm of the used plaquettes can be deduced.

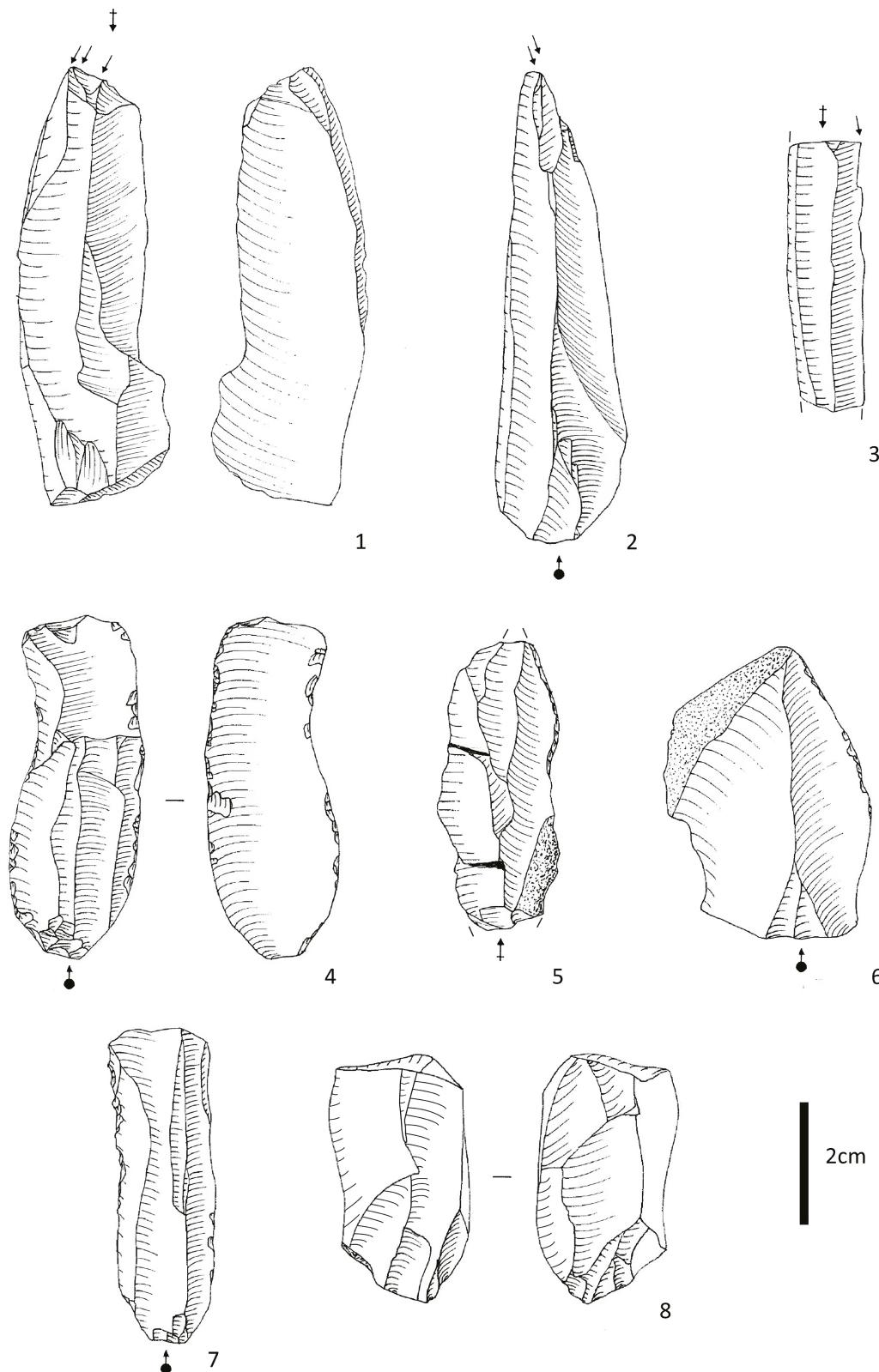


Fig. 10 – Burins, retouched artefacts and strike-a-light from the Muziekberg “De Drij Heuvelkens”.

A limited number of artefacts clearly is produced on a more local flint of inferior quality knapped from small (25-45 mm diameter) rolled pebbles that occur in the Diestian sands (Fig. 8:1 & 8:4). It concerns rather fine-grained flint of brownish colour spotted with lighter inclusions and presenting numerous traces of weathering (frost fractures) and anterior patina.

3.1.2. Cores and rejuvenation products

In total nine cores or core fragments have been collected, only one from the treefall feature. Most cores are unipolar (Fig. 8:1, 8:2 & 8:4) displaying negatives of both small bladelets and flakes. Most unipolar cores are made on local flint (Fig. 8:1 & 8:4), of which one performed on a very small pebble (Fig. 8:4). A pyramidal unipolar core (Fig. 8:2), covered by a thick white patina, stands out by its better quality flint. Most unipolar cores have a flat and oblique striking platform. The largest unipolar core (Fig. 8:1), probably made on a large flake, has a somewhat faceted striking platform, clearly in order to shape the platform edge. Traces of preparation of a lateral crest have been observed on the back of two unipolar cores (Fig. 8:2).

The remaining cores are all made on good-quality Ghlin flint (Fig. 8:3 & 8:8). An irregular specimen displays two opposed, non-overlapping knapping directions and flake negatives; most likely it represents the final stage in the knapping process. This is corroborated by the presence of clear percussion traces at one side of the core, suggesting that this core was reused as hammerstone at the end of the knapping process. Similar traces have been found on two other Ghlin cores, an undetermined fragment and a core with crossed, non-overlapping knapping directions (Fig. 8:8). The latter stands out by its much more refined debitage as indicated by the presence of negatives of rather parallel blade(let)s, a faceted striking platform and a lateral crest preparation connected to a cortical zone. A last core in Ghlin flint (Fig. 8:3) has centripetal flake negatives and a cortical back.

Despite the presence of (limited and rather sloppy) crest preparation on at least three cores, just two rejuvenation artefacts have been collected. One is a crested blade in Ghlin flint (Fig. 8:9), the other is a flake most likely produced to readjust the platform edge.

3.1.3. Knapping products

The mean dimensions of the complete blade(let)s amount to *ca.* 34 mm (length), 13.5 mm (width) and 4.5 mm (thickness). The mean width and thickness of the blade(let) fragments is very similar, resp. *ca.* 12 mm and *ca.* 3.5 mm. True blades are rather rare (Fig. 11). A series of 33 blade(let)s and fragments has been analysed in detail, indicating that the vast majority (*ca.* 70 %) has a very regular morphology characterised by parallel to subparallel edges and ribs (Fig. 8:5, 6 & 7). The dorsal negatives are generally limited to between 1 and 3 negatives (*ca.* 70 %), rarely between 4 and 5 (*ca.* 21 %) and occasionally more than 5 (*ca.* 9 %). Most

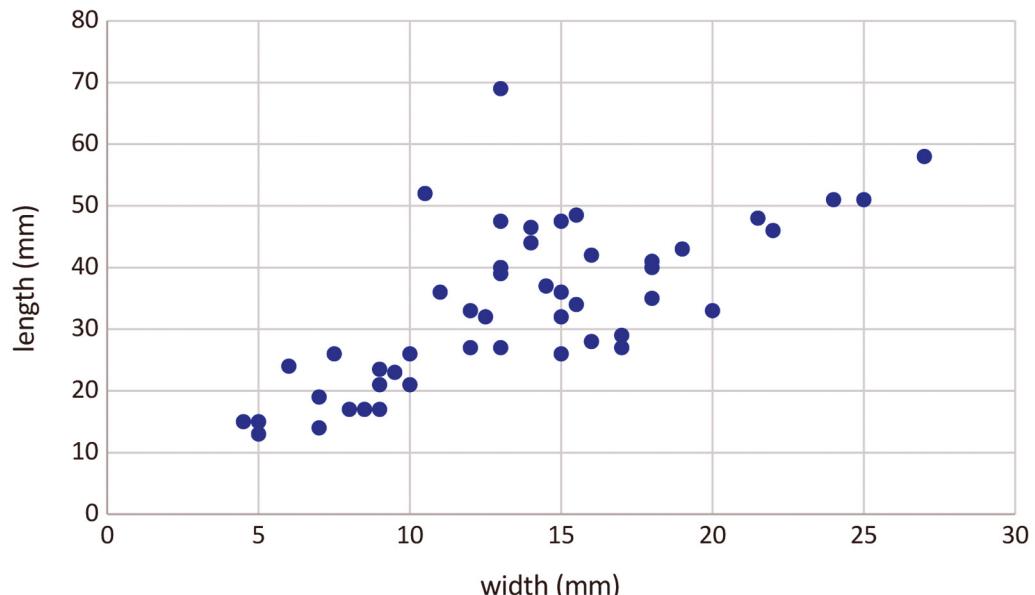


Fig. 11 – Length-width ratio of the blade(let)s from the Muziekberg “De Drij Heuvelkens”.

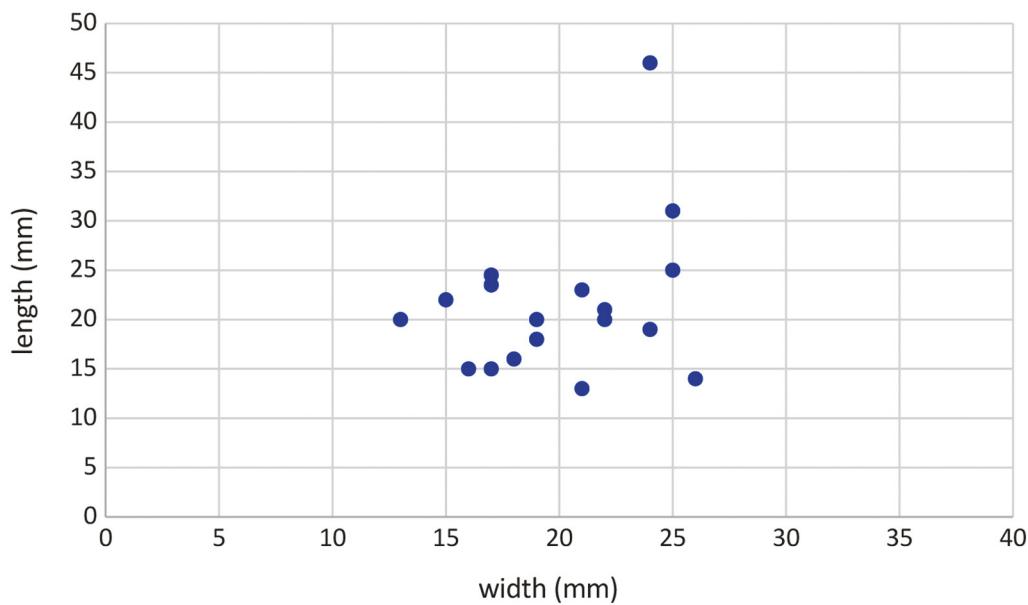


Fig. 12 – Length-width ratio of the scrapers from the Muziekberg “De Drij Heuvelkens”.

negatives are unidirectional (75 %), bidirectional negatives being limited to *ca.* 18 % of the analysed bladelets. This is in line with the dominance of unipolar cores (*cf.* 3.1.2). The ventral face is mostly straight (*ca.* 36 %), followed by weakly twisted (*ca.* 33 %) or weakly concave (*ca.* 21 %). In cross-section most bladelets are triangular or trapezoidal (each *ca.* 45 %). The ventral faces display very few stigmata. Percussion bulbs are frequently absent (*ca.* 42 %) or weakly developed (*ca.* 58 %). Well-developed bulbs are totally absent. Bulb scars and lips are present on resp. *ca.* 9 % and 17 % of the analysed bladelets. Core edge rejuvenation either by retouching or abrasion has been observed on *ca.* 33 % of them, however never in a very extensive way. Most butts are plain (*ca.* 61 %), to a lesser extend punctiform (*ca.* 30 %) and rarely linear or dihedral. They are rather small (mean length 8.2 mm) and thin (mean thickness 3.75 mm). Distal knapping fractures, such as hinge fractures, only occur incidentally (*ca.* 6 %). Cortex remains are present on *ca.* 24 % of all bladelets.

3.1.4. Retouched tools

Scrapers

Scrapers are the absolute dominant tool-type representing almost ¾ of the toolkit (Tab. 2; Fig. 9:1-9:17 & 9:21). Most of them have been collected from the natural pit. The vast majority is made on small and relatively thick flakes with a mean length of *ca.* 21 mm, width of 19.5 mm and thickness of 7.5 mm. Most unbroken scrapers are between *ca.* 15 mm and 25 mm long and wide (Fig. 12) and look very standardized. Except for two (Fig. 9:7), they all have a distal rounded scraping front made of long, oblique and direct retouches, which often continue along both sides. In two cases (Fig. 9:3) the scraper front has a somewhat angular shape.

Two scrapers (Fig. 9:16 & 9:17) can be classified as double scrapers, among which a specimen made on a relatively thick rejuvenation flake (Fig. 9:16) displaying two lateral oblique fronts. Finally, two scrapers are made on the distal end of a blade (Fig. 9:13).

Retouched flakes and blades

Just four artefacts (Tab. 2) display regular retouches. A heavily patinated flake has two shallow notches on its distal end, however it is not entirely clear whether these are intentional. A complete blade (Fig. 10:5) presents small, direct and regular retouches along its medial and distal part of the right edge. Finally, we mention a small blade fragment broken in a retouched notch (Fig. 9:24).

| | Surface finds | Windthrow | Total | % |
|--|---------------|-----------|-------|--------|
| <i>Scrapers</i> | 11 | 24 | 35 | 72.92 |
| <i>Scraper on blade (+ fragments)</i> | 2 | 2 | 4 | |
| <i>Scraper on flake (+ fragments)</i> | 6 | 20 | 26 | |
| <i>Double scraper</i> | 2 | 0 | 2 | |
| <i>Fragments</i> | 1 | 2 | 3 | |
| <i>Retouches flakes</i> | 2 | 0 | 2 | 4.17 |
| <i>Notched flake</i> | 1 | 0 | 1 | |
| <i>Retouched flake</i> | 1 | 0 | 1 | |
| <i>Burins</i> | 2 | 1 | 3 | 6.25 |
| <i>Burin on natural edge</i> | 1 | 1 | 2 | |
| <i>Burin on truncated end</i> | 1 | 0 | 0 | |
| <i>Strike-a-light</i> | 1 | 0 | 1 | 2.08 |
| <i>Splintered piece</i> | 1 | 0 | 1 | 2.08 |
| <i>Retouches blades</i> | 1 | 1 | 2 | 4.17 |
| <i>Bladelet broken in notch</i> | 0 | 1 | 1 | |
| <i>Bladelet with partial retouch</i> | 1 | 0 | 1 | |
| <i>Microliths</i> | 3 | 1 | 4 | 8.33 |
| <i>Crescent</i> | 1 | 0 | 1 | |
| <i>Small backed bladelet</i> | 1 | 0 | 1 | |
| <i>Symmetrical trapeze</i> | 1 | 1 | 2 | |
| <i>TOTAL</i> | 21 | 27 | 48 | 100.00 |
| <i>Artefacts with possible use retouch</i> | 3 | 1 | 4 | |
| <i>Neolithic artefacts</i> | 6 | 0 | 6 | |
| <i>Hammerstone</i> | 1 | 0 | 1 | |
| <i>Polished axe fragment</i> | 1 | 0 | 1 | |
| <i>Polished flake</i> | 2 | 0 | 2 | |
| <i>Arrowhead fragment</i> | 1 | 0 | 1 | |
| <i>Retouched blade fragment</i> | 1 | 0 | 1 | |

Tab. 2 – Typological composition of the retouched tools from the Muziekberg “De Drij Heuvelkens”.

Burins

Among the three burins, just one can be identified with certainty as a typical burin. It concerns a burin made on a long and wide regular blade in a good-quality flint type different from the rest of the assemblage (Fig. 10:1). The used flint is a light-grey, coarse-grained variant clearly of non-local origin. Three burin blows were struck from a truncated end situated in the proximal part of the blade. A second long blade in Ghlin flint (Fig. 10:2) shows negatives of two possible fine burin blows situated on the distal right edge. Doubts also exist about the intentional character of the small negative along the right edge of a regular blade (Fig. 10:3). Most likely it concerns an accidental burin blow linked to the distal fracture.

Microliths and waste products

Only four microliths were recovered during the excavations. Two of them (Fig. 9:18 & 9:19), made in Ghlin flint, can be classified as trapezes made on narrow regular blade(let)s (width 11 to 12 mm). Both belong to the type of symmetrical trapezes. One of them (Fig. 9:18) presents a *languette* fracture on the ventral side of the proximal truncation, indicating its use as arrowhead. A medial microburin on a somewhat wider blade (Fig. 9:22) might be

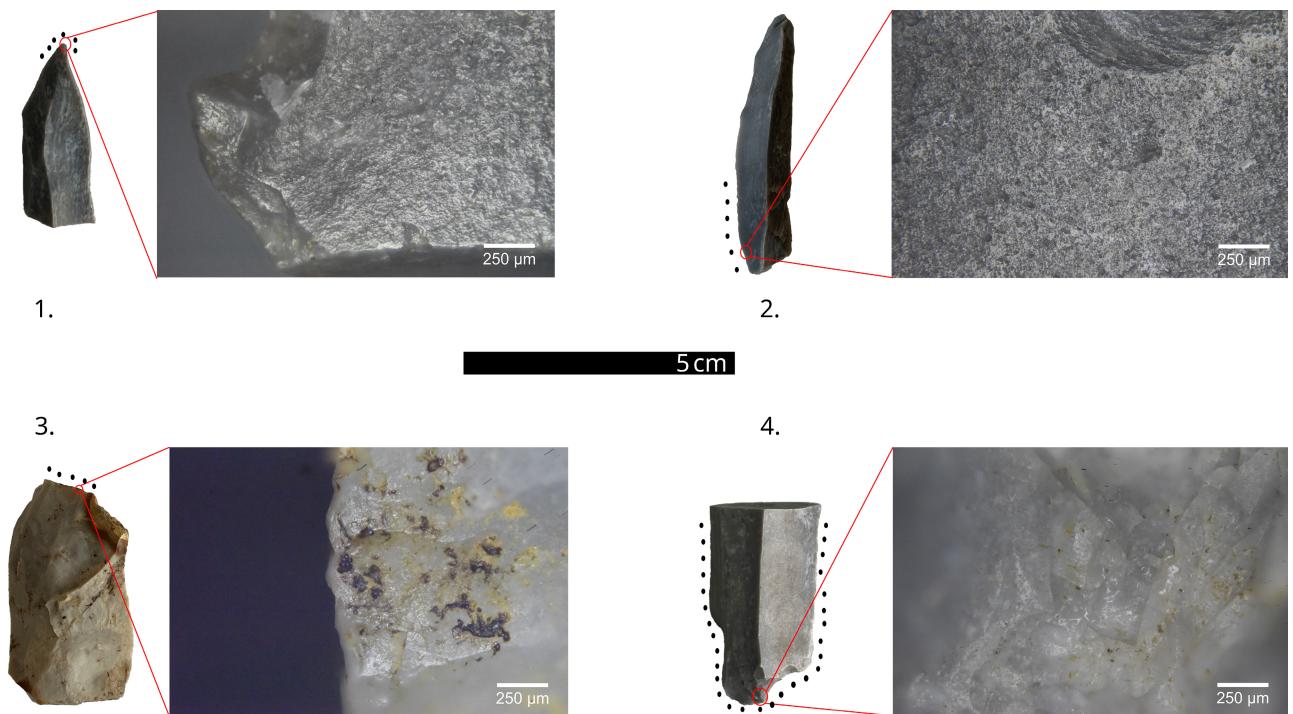


Fig. 13 – 1. rough and greasy, bright, domed polish with parallel directionality on a blade indicative of piercing fresh hide; 2. rough and matt, bright, domed polish in a transversal directionality with sports of smooth and matt, very bright, flat polish on a blade indicative of dry hide scraping with mineral additive; 3. rough and greasy, bright, domed polish in transversal directionality, and black, greasy, patchy residue on a splintered piece indicative of wedging hard animal material, probably bone; 4. smooth and matt, very bright, flat mineral polish with transversal directionality that is a bit abrasive in nature with some mineral residues on a strike-a-light.

connected to the production of trapezes. It displays a combination of an oblique fracture, typical of the microburin technique, and a transvers (accidental?) fracture within a notch.

Besides these two trapezes, fragments of a possible crescent (Fig. 9:23) and small backed bladelet (Fig. 9:20) have been found. The former is made on local flint, while the latter might be produced on Ghlin flint.

Other finds

A (frost?) flake has been classified as a splintered piece (Fig. 10:8), based on the presence of numerous flat negatives on both sides starting from two opposite directions. As a result, one flake end is heavily crushed and thinned. A thick (11 mm), broad (21 mm) and very regular blade fragment in Ghlin flint (Fig. 13:4) displays a double notched proximal end which is clearly rounded as a result of intense use. It has been identified as a strike-a-light.

Finally, four artefacts with small irregular and discontinues retouches have been classified as artefacts with possible use retouches. It concerns a cortical flake (Fig. 10:6) and two regular blades, one in Ghlin flint (Fig. 10:4) and another in medium fine-grained dark grey flint of good quality (Fig. 10:7). The "retouched" edge of the latter displays a somewhat microdenticulated morphology.

Neolithic artefacts

All six artefacts identified as belonging to the Neolithic are made of (medium) coarse-grained light grey flint, known as Spiennes-flint. Besides a hammerstone on a core fragment, most fragments belong to polished axes. Besides two polished flakes, a heavily burnt axe cutting edge was collected showing traces of intense posterior flake knapping and crushing. The latter resulted in an intense rounding of the former cutting edge. A very small pointed distal fragment has been tentatively classified as an arrowhead fragment, while a last Neolithic artefact is a distal fragment of a cortical regular blade with a regularly retouched right edge.

Microwear analysis

A sample of 22 artefacts was subjected to microwear analysis. The selection was influenced by the state of patination and burning of the specimens. A screening of all tools and blades analysed in detail was conducted to determine possible use related damages. The combination of low- and high-power approach was used to determine characteristics of edge damage and polish in order to interpret contact materials and movement of use. A Zeiss AxioZoom V16 motorised microscope system with up to 112x digital magnification, and an Olympus BX53 metallographic microscope with 5x, 10x, 20x objectives and with a Nikon D750 DSLR camera and Best Scientific 1.9x coupler were used for the analysis. Micrographs were captured with Helicon Remote software and processed with Helicon Focus software. The artefacts were cleaned prior analysis with dishwashing soap and water. During the analysis, they were repeatedly cleaned with lighter fluid.

The artefacts generally display some degree of post-depositional surface modification (PDSM), mostly soil abrasion. In 4 cases (*ca.* 17 %) this prevented further analysis.

Most tools were used on animal matter (*ca.* 52 %), some plant (13 %) and inorganic (*ca.* 4 %) were also interpreted, and on almost 9 % of the tools no traces were identified (Tab. 3).

| Contact mat./type | Blade(let)s (fragment) | | | | Blade(let)s with possible use retouch | | Microlith fragment | Retouched flake | Scrapers | | | | Splintered piece | Strike-a-light |
|-------------------------|------------------------|-----------|---|---------|---------------------------------------|---------|--------------------|-----------------|----------|---------|----------|----------|------------------|----------------|
| | butchery | whittling | | cutting | piercing | planing | scraping | | scraping | cutting | drilling | scraping | | |
| <i>Animal</i> | 1 | | | | 1 | | 1 | | 1 | 1 | 1 | 5 | | 1 |
| <i>bone/antler</i> | | | | | | | | | 1 | | | | | |
| <i>antler</i> | | | | | | | | | 1 | | | | | |
| <i>hard</i> | | | | | | | | | | | 1 | | | 1 |
| <i>Bone?</i> | | | | | | | | | | | 1 | | | |
| <i>indetermined</i> | | | | | | | | | | | | | | 1 |
| <i>hide</i> | | | | 1 | | | 1 | | | 1 | | 5 | | |
| <i>dry</i> | | | | | | | | | | | | 1 | | |
| <i>dry with mineral</i> | | | | | | | 1 | | | 1 | | | | |
| <i>fresh hide</i> | | | | 1 | | | | | | | | 4 | | |
| <i>meat/bone</i> | 1 | | | | | | | | | | | | | |
| <i>meat and bone</i> | 1 | | | | | | | | | | | | | |
| <i>Inorganic</i> | | | | | | | | | | | | | | 1 |
| <i>pyrit</i> | | | | | | | | | | | | | | 1 |
| <i>PDSM</i> | | 2 | | | 1 | | | | | | | | 1 | |
| <i>Plant</i> | | 1 | | 1 | | | 1 | | | | | | | |
| <i>medium hard</i> | | | | 1 | | | 1 | | | | | | | |
| <i>non-Si plant</i> | | | | 1 | | | | | | | | | | |
| <i>indetermined</i> | | | | | | | 1 | | | | | | | |
| <i>wood</i> | | 1 | | | | | | | | | | | | |
| <i>hard wood</i> | | 1 | | | | | | | | | | | | |
| <i>Unspecific</i> | | | 1 | | | | | | | | | | | |
| <i>hard</i> | | | 1 | | | | | | | | | | | |
| <i>indetermined</i> | | | 1 | | | | | | | | | | | |
| <i>Indetermined</i> | | | | | | | | 1 | | | | | 1 | |

Tab. 3 – Summary table of the usewear traces detected on artefacts from the Muziekberg “De Drij Heuvelkens”.

Among the animal related traces, hide scraping is the most common (26 %), from which the highest amount is related to fresh hide scraping. Traces include rounded to very rounded edges, rough and greasy, bright, flat, pitted polish in a band along the edge in a transversal directionality. Dry hide scraping was also interpreted on one tool (ca. 4 %) and one used zone shows the use of mineral during the scraping of dry hide (Fig. 13:2). Traces are very similar to fresh hide except the polish is matt not greasy. In case of mineral additives, bright, flat, matt, smooth spots appear within the polish. Scraping of antler and meat/bone were detected on one-one used zone respectively. Traces include invasive edge scarring on the dorsal side, rounded edges, rough to smoothening and matt, bright, pitted polish in a transversal directionality for antler scraping. Butchery was inferred from small edge scars appearing alternatively on both the dorsal and ventral side, rounded edges, rough and greasy, bright, domed polish in a parallel directionality banded along the edge with spots of bright, smooth and greasy polish. There were two used zones connected to hard animal, one in drilling and one in wedging motion (Fig. 13:3). Polish is smooth and greasy, bright, flat or domed. In the case of the wedge it is connected to overlapping invasive edge scarring.

Plant processing include cutting and planing of medium hard vegetal material, and whittling of hard wood. Common characteristics of these traces are the rough and matt, bright, flat, sometimes pitted polish. Edge scars are overlapping, the edge is very rounded and the polish has parallel/diagonal directionality with the whittling motion. In case of planing, scars are small and closely related with transversal polish directionality. Cutting created overlapping short edge scars and parallel directionality.

Inorganic contact material was connected to one used zone on a blade with double notch (13:4). The overlapping invasive edge scars, rounded edges and smooth and matt, very bright, flat mineral polish in transversal and diagonal directionality and mineral residues support the interpretation of the tool as a strike-a-light.

The microwear study was very limited compared to the whole assemblage, therefore drawing conclusions on the function of the site is not possible. However, it is clear that hide processing constituted a very important activity, with an emphasis on fresh hide working.

3.2. Site "Grooten Boeckzitting"

This much smaller assemblage (N = 181; **Tab. 4**) differs in many respects from the one collected at "De Drij Heuvelkens". Most artefacts (N = 122) were found in the Iron Podzol underneath the burial mound, the remaining ones in the surrounding soil and the sediments of the burial mound. The latter are to be considered as finds in a secondary position. The relatively low frequency of chips among the *in situ* finds (ca. 40 %) results from the excavation technique, in which no soil sieving was applied. This in turn biases the frequency of larger artefacts, explaining the relatively well-representation of retouched tools (ca. 4 %). Ca. 31 % of the artefacts is burnt, most of them are situated in and around the fireplace. Only few artefacts display a patina (N = 9), mostly of a blue-white colour.

3.2.1. Raw material

The raw material spectrum is completely different compared to the assemblage recovered at "De Drij Heuvelkens". It is much more heterogenous, although one type of flint seems to be dominant. It concerns a dark grey, medium coarse-grained flint provided with a fresh, beige

| | Iron Podzol | Secondary context | Total | % |
|---------------------------------|-------------|-------------------|------------|---------------|
| <i>Cores (+fragments)</i> | 3 | 2 | 5 | 2,76 |
| <i>Rejuvenation artefacts</i> | 5 | 3 | 8 | 4,42 |
| <i>Flakes (+fragments)</i> | 32 | 30 | 62 | 34,25 |
| <i>Blade(let)s (+fragments)</i> | 25 | 5 | 30 | 16,57 |
| <i>Chips</i> | 46 | 21 | 67 | 37,02 |
| <i>Burin spall</i> | 1 | 0 | 1 | 0,55 |
| <i>Tools</i> | 5 | 3 | 8 | 4,42 |
| <i>scrapers</i> | 3 | 1 | 4 | |
| <i>burins</i> | 1 | 1 | 2 | |
| <i>retouched flakes</i> | 1 | 1 | 2 | |
| TOTAL | 122 | 67 | 181 | 100,00 |

Tab. 4 – General typological composition of the lithic assemblage from the Muziekberg "Grooten Boeckzitting".

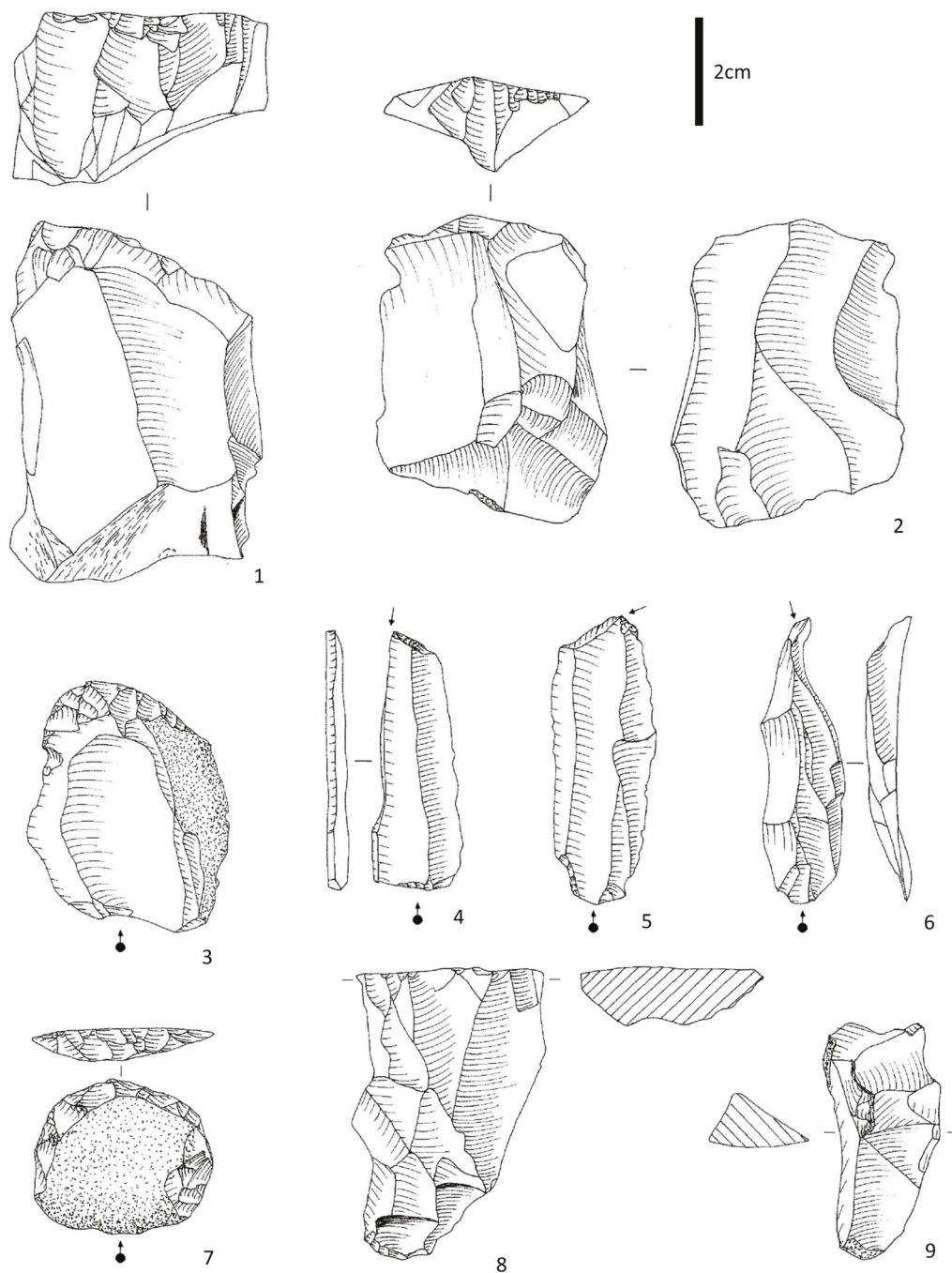


Fig. 14 – Lithic artefacts from the “Grooten Boeckzitting”.

cortex, represented by *ca.* 32 % of the entire *in situ* assemblage (burnt and patinated artefacts included). The origin of this relatively good-quality flint most likely situates in the nearby Haine basin. It is tentatively identified as Upper-Turonian flint. The remaining *ca.* 30 % of the assemblage is produced mainly on dark brownish flint ranging from relatively fine-grained to medium coarse-grained with a weathered cortex of presumed local origin. A few artefacts are made in fine-grained translucent beige flint. Two artefacts – a flake and a chip – are made of white quartz.

3.2.2. Debitage products

Little can be said about the knapping characteristics since the few cores are mostly fragmentary (except for one unipolar specimen) or reused as tool (*cf.* 3.2.3). However, the presence of rather numerous crested blades/flakes (N = 5; **Fig. 14:6 & 14:9**) and core flank

removals (N = 2; Fig. 14:8), nearly all in Upper-Turonian flint, indicates a clear investment in the preparation and rejuvenation of the cores. This is corroborated by the presence of some relatively regular blade(let)s in this exotic flint (Fig. 14:4 & 14:5). On the other hand bladelets made in local flint varieties seem rather short and irregular.

3.2.3. Retouched tools

Among the scrapers there are two made on the distal end of a cortical flake in local flint (Fig. 14:3 & 14:7). For the production of the two remaining scrapers a core remnant in Upper-Turonian flint was used (Fig. 14:1 & 14:2). A first specimen (Fig. 14:2) is made on a core with multiples knapping directions, and presents steep retouching. Similar retouches are found on the second specimen (Fig. 14:1), however, these might also be interpreted as crest preparation. Two regular blade(let)s in Upper-Turonian flint are determined as burins. A first one is a typical burin on truncation (Fig. 14:4), presenting a burin spall negative along its left edge. The second burin (Fig. 14:5) presents a transvers burin blow starting from the right edge. Additionally some irregular retouch, possible linked to its use, is present on both edges. Connected to this, we mention the presence of a burin spall also in Upper-Turonian flint. Among the retouched flakes, one specimen is made on a core flank rejuvenation flake (Fig. 14:8).

4. Discussion

4.1. Site "De Drij Heuvelkens"

Although the excavations did not yield new evidence concerning the Bronze Age barrow at location n° 82, they allowed us to seriously question the reconstruction proposed by E. Joly in the 19th century in which he claims the presence of peripheral stone structures around the central burial. Our excavations revealed that these stone packs most likely are natural in origin and were created by cryoturbation processes. This is further corroborated by the complete absence of such features in the contemporaneous barrows excavated both in the 19th century and in 1988 at the nearby site of "Grooten Boeckzitting" (cf. 2.2). This absence can be explained by the lack of sandstone layers in the shallow subsoil in that area. Furthermore, one may wonder whether the fact that the central burial in barrow n° 82 spatially coincides with an older, presumably natural feature (windthrow) is purely accidental. Maybe this spot was one of the few locations where Bronze Age people could easily dig a burial pit, as the underlying sandstone layer was already disturbed and almost free of hindering stones. Of course this remains highly speculative, but nevertheless plausible.

Clearly, the most important result of the recent excavations is the discovery of a Mesolithic site at the location of the former barrow n° 82. Although no *in situ* finds could be collected, the lithic assemblage seems very homogeneous in various aspects such as raw material composition, technology and tool typology. Only few older or younger finds could be identified. A burin on truncated end made on a long blade most likely dates to the Final Palaeolithic, while a small amount of artefacts made in mined flint clearly refer to Neolithic activities on the spot. The latter perfectly fit with the few lithic artefacts collected by E. Joly during his excavations, including a polished axe in diorite and a tanged arrowhead with barbs⁴.

Overall the Mesolithic assemblage bears several characteristics of Late Mesolithic lithic industries from the Rhine-Meuse-Scheldt region. Except for a crescent, the few microliths are clearly of Late Mesolithic signature. This particularly holds for both trapezes, which are however rather narrow and short compared to most trapezes found in the Upper Scheldt basin (Robinson *et al.*, 2013), e.g. at Oudenaarde-Donk (Blancquaert, 1989), Kerkhove-

4. E. Joly also mentions the discovery of two "knives", one in white flint and a second in black translucent flint, a borer in the same flint as the latter as well as two small almond-shaped "arrowheads" in grey-brown flint. It is not clear whether the latter need to be consider as Neolithic leaf-shaped arrowheads or Mesolithic leaf-shaped microliths with invasive retouch, typical of the Middle Mesolithic and frequently found in the Upper Scheldt basin (Crombé & Vandendriessche, 2020).

Stuw (Vandendriessche *et al.*, 2019; Vandendriessche, 2022) and Saint-Ghislain/Sirault-Les Cavions (Van Assche & Dufrasnes, 2005). In addition, symmetrical trapezes are very rare on the latter sites, which mainly include asymmetrical, rectangular and rhombic types, some provided with flat ventral retouches at their base. The best parallels for the trapezes from the Muziekberg are found in very late assemblages, such as the Swifterbant culture sites of Doel-Deurganckdok and Bazel-Sluis (Messiaen *et al.*, 2022) dated to the 5th millennium cal BC. Interesting, the latter are generally produced without the application of the microburin technique, which might also explain the absence of microburins at the Muziekberg. The only specimen found is too broad to be connected to the production of both narrow symmetric trapezes. However, the absence of microburins might also indicate that both trapezes were not produced on the spot but entered the site inserted in the prey. One of the trapezes indeed displays clear impact traces resulting from its use as projectile tip.

Similarities with the 5th millennium lithic industries from the Scheldt basin are also apparent in the scraper morphology and size. At the above-mentioned Swifterbant culture sites, scrapers are usually shorter than 20 to 25 mm and often made on rather thick flakes (Messiaen, 2020). However, similar small scrapers are also encountered on older Mesolithic sites sometimes in large quantities, e.g. at the nearby Early Mesolithic site of Kerkhove-Stuw (Vandendriessche *et al.*, 2019; Vandendriessche, 2022). Furthermore the Ghlin cores with percussion traces found at the Muziekberg might correspond to so-called faceted tools, a specific tool type within 5th millennium assemblages (Messiaen *et al.*, 2022; Halbrucker *et al.*, 2022).

The small assemblage from the Muziekberg also fits technologically with Late Mesolithic knapping traditions. The regularity of the blade(let)s clearly refers to the application of the Montbani knapping style (Rozoy, 1968) mostly in an unidirectional way. Apparently, these bladelets were produced with little core preparation and rejuvenation, which might be related to the specific form of the principal raw material, *i.e.* Ghlin flint. It is known that this flint generally occurs as plaquettes of 2 to 10 cm thick (Collin, 2019), presenting natural edges which can be directly used as crests for blade production. The predominance of relatively small, plain platforms, the straight to slightly concave profiles, the weak development of butts in combination with the near absence of bulb scars are attributes which exclude direct percussion with a hard or soft stone hammer. Whether they refer to the application of indirect percussion, a knapping method assumed to be predominant during the Late Mesolithic (Pelegrin, 2000, 2006; Allard, 2017), is difficult to assess. According to J. Pelegrin (2000: 77, footnote 3) the distinction between indirect percussion and direct percussion with a soft hammer (wood, antler, ...) is very difficult to make when dealing with small blades or blade(let)s, as those from the assemblage of the Muziekberg. The smallest blade(let)s (< 12 mm) were selected for microlith production, while the larger ones were occasionally used without further retouching to process plants and animal material (hide, bone). Flakes were the main blanks for scraper production.

The absolute predominance of Ghlin flint is another interesting characteristic of the Muziekberg assemblage. In an exhaustive inventory M. Van Assche (2005: 54) mentions that in the region of Ath and Mons, situated to the south(east) of the Muziekberg, Ghlin flint was only occasionally (< 3-5 %) used in the Mesolithic, even during the Late Mesolithic and on sites close to the assumed outcrop area. However, an intensive use of Ghlin flint comparable to the Muziekberg assemblage is observed within the lithic industries of the first farming communities belonging to the *Linearbandkeramik* and Blicquy traditions in the Ath region (Allard, 2005; Denis, 2014), yielding on average 60 % to 80 % of artefacts in Ghlin flint.

Based on the above observations (narrow and short symmetric trapezes, possible presence of faceted tools, intensive knapping of Ghlin flint, ...) it is very tempting to date the small assemblage from the Muziekberg to the final phase of the Late Mesolithic, *i.e.* the late 6th to 5th millennium cal BC, a date which in absence of absolute dates needs to be considered purely hypothetical. However, if future research in the Upper Scheldt basin would confirm this, it could mean that, just like in the Lower Scheldt basin (Crombé *et al.*, 2015), hunter-gatherers persisted until the 5th millennium cal BC, in close proximity of the first

agropastoral communities of the *Linearbandkeramik* and Blicquy - Villeneuve-Saint-Germain cultures. Building on this, the fact that both used the same flint in a very extensive way may even imply close contact. But again, this asks for further confirmation by means of the discovery of new and better preserved Mesolithic sites in the area.

From a typo-functional point of view the site of the Muziekberg is also rather exceptional, in particular due to the predominance of scrapers in combination with only few microliths. Unfortunately microwear analysis only yielded limited results due to severe post-depositional processes, such as patination, soil abrasion, and burning. Nevertheless the observed traces indicate that animal processing, in particular the preparation of (fresh) hides was most likely the main activity performed on the site. In this sense, the site of the Muziekberg differs from two nearby Late Mesolithic sites in the Upper Scheldt basin, Kerkhove (Vandendriessche *et al.*, 2019) and Oudenaarde "Donk" (Blancquaert, 1989). On both these sites, situated in the former Scheldt floodplain, little evidence of hide working has been attested; instead bone/antler working (Oudenaarde) and medium/hard plant processing (Kerkhove) formed the main activities. All this might point to important intersite functional differences between hilltop and valley sites during the Late Mesolithic in the Upper Scheldt basin, although much more research is needed to confirm this.

4.2. Site "Grooten Boeckzitting"

Due to its small size, it turns out to be difficult to date this assemblage. However, based on the knapping characteristics and the presence of two burins, the assemblage made in Upper-Turonian flint can be tentatively attributed to the Final Palaeolithic, although this remains speculative. Whether this also applies to the artefacts in local flint is unclear. At best, the irregular blade(let)s in local flint can be attributed to the (Early) Mesolithic. A younger age, however, can be excluded given the complete absence of Neolithic artefacts and raw materials, e.g. mined (Spiennes) flint. The latter is somewhat surprising since numerous Neolithic artefacts have been reported in the immediate surroundings of the excavated barrow (Cromb  , 1986; 1989).

5. Conclusion

Although the control excavations did not yield much supplementary information regarding the Bronze Age funerary practices, they allowed us to get a better view on the prehistoric occupation of one of the highest tertiary hills in the Upper Scheldt basin. The discovery of a Late Mesolithic site is interesting as most known Mesolithic sites in this area belong to the Early and Middle Mesolithic, while the Late Mesolithic occupation remains less documented (Van Maldegem *et al.*, 2021). Also, the discovery of *in situ* artefacts possibly dating to the Final Palaeolithic site is exceptional for the area.

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Abstract

This paper reports on the control excavation of two presumed remnants of Bronze Age barrows, situated on the top of a tertiary hill, known as the Muziekberg (Ronse, Prov. East Flanders, BE). Although the excavations did not provide much information on these barrows, they yielded two small lithic assemblages which are rather unique for the Upper Scheldt basin. A first assemblage, largely retrieved from a natural feature, can be dated to Late Mesolithic. Compared to similar assemblages from the Scheldt basin, it stands out by the high frequency of Ghlin-flint and the absolute predominance of scrapers among the retouched tools. The latter mainly seem to be used for (fresh) hide processing. A second, much smaller lithic assemblage was collected from the top of a Forest podzol, which had formed under a Bronze Age barrow. In absence of diagnostic artefacts and radiocarbon dates, this assemblage could only be tentatively attributed to the Final Palaeolithic.

Keywords: Ronse (Prov. East Flanders, BE), Scheldt basin, Final Palaeolithic, Mesolithic, Neolithic, microwear analysis, Bronze Age, barrows.

Samenvatting

Controle opgravingen van twee vermoede grafheuvelrestanten op de Muziekberg (Ronse, Prov. Oost-Vlaanderen, BE) leidde onverwacht tot de ontdekking van prehistorische lithische vondsten. Een eerste assemblage bevond zich in een vermoedelijke natuurlijke structuur (windval) en dateert uit het laat-mesolithicum. Kenmerkend zijn de hoge frequentie van Ghlin-vuursteen en de dominantie van schrapers. Deze laatste werden vooral gebruikt voor het bewerken van (verse) huiden. De tweede, kleinere assemblage werd aangetroffen in de top van een bospodzol, die zich onder een grafheuvellichaam had ontwikkeld. Bij afwezigheid van gidsfossielen is deze assemblage moeilijk precies te dateren; een datering in het finaal-paleolithicum lijkt het meest plausibel.

Trefwoorden: Ronse (Prov. Oost-Vlaanderen, BE), Scheldebekken, finaal-paleolithicum, mesolithicum, neolithicum, gebruikssporenonderzoek, bronstijd, grafheuvels.

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