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THE MESOLITHIC SITE OF LOMMEL-GELDERHORSTEN

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1. Introduction.

The Caris collection contains surface-finds of the site of Lommel-Gelderhorsten (Geerts, Vermeersch, 1984). Because these surface-finds, which include artefacts with surface retouch, form a quite homogeneous assemblage and because they probably originate from a restricted area, they are worth discribing in greater detail.

2. Geographical situation.

On the territory of the municipality of Lommel (Northern-Belgium, prov. Limburg) the Kempen Plateau (SE of the municipality) merges into the Kempen Plain (W and N of the municipality). The watershedline between the basin of the Meuse river and the basin of the Scheldt river runs through the municipality from SE to NW (Baeyens, 1974).

The site of Lommel-Gelderhorsten is situated in the SW of the municipality, W of the watershedline, near the Baalse Gracht, which belongs to the basin of the Grote Nete river (river Scheldt-basin) (Baeyens, 1974 : 16). The Kattenbosserheide, where the site is situated, belongs to a large drift-sand area extending from the N to the SE of the municipality.

We know very little about the exact situation and extent of the site (Geerts, Vermeersch, 1984) (fig. 1). The co-ordinates of the

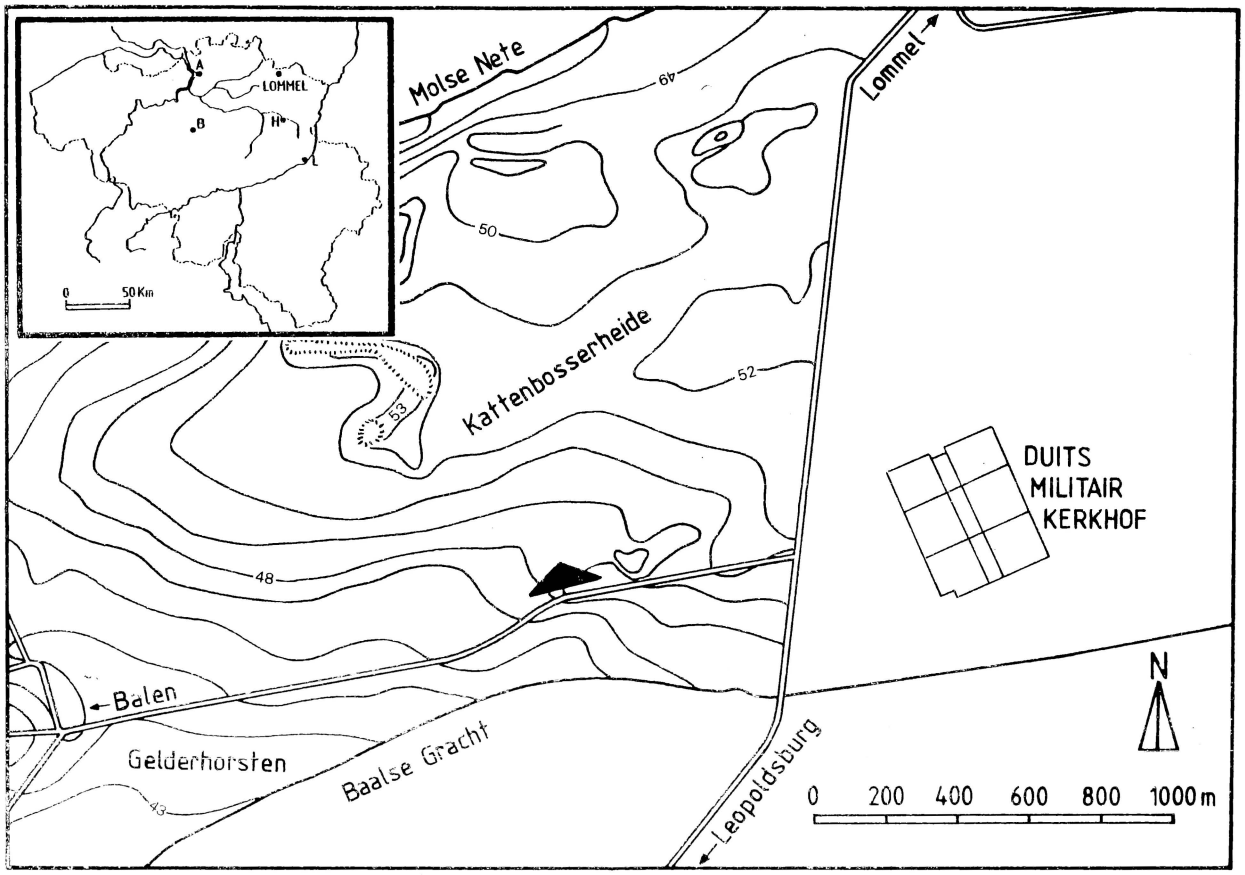

Fig. 1 : Situation of the site of Lommel-Gelderhorsten, indicated by the triangle.

site, based on notations made by Theo Caris on a road map of Lommel (Geerts, Vermeersch, 1984), are 51°11'18" N and 5°17'30" E (M.G.I., 1974) Kaart van België, 1/25.000, 17 3/4 Lommel-Overpelt).

The site is situated on a dry to moderately drained sandy soil with a distinct humus and/or iron B horizon with a shallow gravel-substrate (T-Zbg and t-Zdg) (Baeyens, 1974).

3. The archaeological material.

3.1. Raw materials.

841 artefacts (table I) were collected from the site of Lommel-Gelderhorsten. 79 % of those artefacts were made of flint and 21 % of Wommersom-quartzite. The number of artefacts displaying frost-cracks is small, only 3 %. The frost-cracks seem to be anterior to the debitage. 10 % of the artefacts are fire-cracked. All artefacts show a slight wind-polish.

The flint that was processed very likely originated from the gravel terraces of the Kempen Plateau. Only rolled flint nodules were used as raw material. The flint is very heterogeneous in structure. Very often the colour of the flint is greyish with light spots, though brown flint material also occurs. The nodules were small. Some 30 % of the artefacts exhibit cortical surfaces. Wommersom-quartzite occurs commonly at the site.

3.2. Cores and core rejuvenation products (table II).

All cores are small and exhausted (between 20 mm and 40 mm maximum dimension). They display denticulated edges of the striking platforms. In their final stage of utilization almost all the cores served for the production of elongated flakes and bladelets. The debitage strategy included the production of single crested blades (fig. 1, 10).

Cores with one striking platform (fig. 2, 1-3) are nearly as numerous as cores with two striking platforms. None of the cores with one striking platform are flaked circumferentially.

Cores with two opposed striking platforms (fig. 2, 4-5 and 7) and cores with two crossed striking platforms (fig. 2, 6) occur with simi-

Table I : General composition according to main artefact classes.
F : Flint; W : Wommersom-quartzite.

	F	W	Tot.	%
Cores	24	6	30	3,57
Core rejuvenation products	11	7	18	2,14
Flake fragments	191	23	214	25,45
Blades + flakes	184	68	252	29,96
Blade fragments	101	38	139	16,53
Burin-blows	4	0	4	0,48
Chips	12	0	12	1,42
Tools	134	38	172	20,45
Total	661	180	841	100,00
%	78,60	21,40	100,00	-

Table II : Classification of cores and core rejuvenation products.
F : Flint; W : Wommersom-quartzite.

Cores	F	W	Tot.
one striking platform	11	0	11
Opposed striking platforms	6	1	7
Crossed striking platforms	5	1	6
Discoïdal	1	0	1
Globular	0	2	2
Irregular	1	2	3
Total	24	6	30

Core rejuvenation	F	W	Tot.
Crested blade	5	5	10
Core side	2	2	4
Tabular flake	4	0	4
Total	11	7	18

lar frequencies. The core with two opposed striking platforms in fig. 2, 4 was flaked on opposite sides. Flaking on the same side and on adjacent sides also occurs. The striking platforms on the core with two opposed striking platforms form sharp edges with the opposite flake removal sides (fig. 2, 7). A discoïdal core (fig. 2, 8), a globular core (fig. 2, 9) and some irregularly shaped cores also are present.

3.3. Debitage products.

Although debitage products occur in the artefact collection of the site, they are underrepresented with respect to the tools. This very probably is a result of the field survey and collecting methods (Geerts, Vermeersch, 1984).

There is only a very small number of complete debitage products having a maximum dimension at 10 mm or less. These chips were not included in the classification of the complete debitage products according to the modules of Leroi-Gourhan (Leroi-Gourhan, 1966).

Based on the classification of the complete debitage products (table III) (fig. 2, 11-16) it appears that laminar flakes (module D) and elongated flakes (module C) are the most important categories. Wommersom-quartzite was, in comparison with flint, preferentially used for flaking laminar flakes. It also appears from the classification that complete debitage products are rarely longer than 50 mm.

The proximal and the distal fragments of bladelets, which occur with equal frequency, are more numerous than the medial fragments (table IV). Most of the proximal and medial fragments have a length between 10 mm and 20 mm. Most of the distal fragments have a length between 10 mm and 30 mm.

The "style of debitage" can be characterised as the Coincy-style (Rozoy, 1978), bladelets rarely exhibit a regular shape and dorsal surfaces generally display two facets. Wommersom-quartzite debitage products do not appear to be more regularly shaped than those in flint.

Table III : Classification of the complete debitage products according to the modules of Leroi-Gourhan (Leroi-Gourhan, e.a., 1966).

F : flint; W : Wommersom-quartzite.

		F	W	Tot.
Module A	$L/B < 1$	36(19.57 %)	11 (16.17 %)	47 (18.65 %)
$1 < L \leqslant 2$		23	10	33
$2 < L \leqslant 3$		12	1	13
$4 < L \leqslant 5$		1	0	1
Module B	$1 \leqslant L/B < 1.5$	46 (25 %)	17 (25 %)	63 (25 %)
$1 < L \leqslant 2$		19	8	27
$2 < L \leqslant 3$		22	6	28
$3 < L \leqslant 4$		4	3	7
$4 < L \leqslant 5$		1	0	1
Mocule C	$1.5 \leqslant L/B < 2$	46 (25 %)	7 (10.29 %)	53 (21.03 %)
$1 < L \leqslant 2$		18	1	19
$2 < L \leqslant 3$		16	5	21
$3 < L \leqslant 4$		9	1	10
$4 < L \leqslant 5$		3	0	3
Module D	$2 \leqslant L/B < 3$	37 (20.11 %)	17 (25 %)	54 (21.43 %)
$1 < L \leqslant 2$		2	4	6
$2 < L \leqslant 3$		15	4	19
$3 < L \leqslant 4$		12	5	17
$4 < L \leqslant 5$		5	3	8
$5 < L \leqslant 6$		2	1	3
$8 < L \leqslant 9$		1	0	1
Module E	$3 \leqslant L/B < 4$	18 (9.78 %)	10 (14.71 %)	28 (11.11 %)
$2 < L \leqslant 3$		3	2	5
$3 < L \leqslant 4$		9	1	10
$4 < L \leqslant 5$		1	3	4
$5 < L \leqslant 6$		3	3	6
$6 < L \leqslant 7$		1	1	2
$8 < L \leqslant 9$		1	0	1
Module F	$4 \leqslant L/B < 6$	1 (0.54 %)	5 (7.35 %)	6 (2.38 %)
$3 < L \leqslant 4$		0	1	0
$4 < L \leqslant 5$		0	2	2
$5 < L \leqslant 6$		1	2	3
Module G	$6 \leqslant L/B < 10$	0 (0 %)	1 (1.47 %)	1 (0.40 %)
$7 < L \leqslant 8$		0	1	1
TOTAL		184 (100.00 %)	68 (100.00 %)	252 (100.00 %)

Table IV : Classification of blade fragments.

F : flint; W : Wommersom-quartzite.

Length in mm	Proximal			Medial			Distal		
	F	W	Tot.	F	W	Tot.	F	W	Tot.
5 ≤ L < 10	2	1	3	4	0	4	1	0	1
10 ≤ L < 15	13	3	16	11	3	14	6	5	11
15 ≤ L < 20	14	2	16	7	4	11	6	2	8
20 ≤ L < 25	6	1	7	2	2	4	8	2	10
25 ≤ L < 30	3	3	6	1	1	2	9	3	12
30 ≤ L < 35	2	1	3	0	0	0	1	1	2
35 ≤ L < 40	0	1	1	0	0	0	2	0	2
40 ≤ L < 45	0	0	0	0	1	1	1	0	1
45 ≤ L < 50	0	0	0	0	0	0	1	0	1
50 ≤ L < 55	0	0	0	0	0	0	1	1	2
80 ≤ L < 85	0	0	0	0	0	0	0	1	1
TOTAL	40	12	52	25	11	36	36	15	51

3.4. Tools (table V).

For the description of the tools the typology of J.G. Rozoy (1968) was used.

3.4.1. End-scrapers.

End-scrapers, especially small end-scrapers (broken end-scrapers on a blade, circular end-scrapers, thumbnail scrapers), are numerous. The scrapers on a flake (25 pieces) are slightly more numerous than the scrapers on a blade (22 pieces).

All long end-scrapers on a blade are made of Wommersom-quartzite (fig. 3, 1). In contrast, the short end-scrapers on a blade (fig. 2, 2-3) are of flint. The slightly convex scraper-front of a short end-scraper on a blade (fig. 3, 3) was resharpened. The number of broken end-scrapers (fig. 3, 4-6) is remarkably high, about 30 % of the total number of scrapers. The single end-scrapers on a flake (fig. 3, 7-8) were almost always made on small flakes. The circular scrapers (fig. 3, 9-10) are twice as numerous as the thumbnail scrapers (fig. 3, 11). A very small end-scraper (fig. 2, 12) displays fire crackes.

3.4.2. Additional tool types.

Other common tools like borers, "alésoirs" , burins, combination tools (fig. 3, 16) retouched flakes (fig. 3, 17), retouched blades and bladelets (fig. 3, 18-19) are present, but far less numerous than end-scrapers.

Borers and "alésoirs" (borer shaped by alternate retouch) occur with equal frequency. The working edge of an "alésoir" (fig. 3, 13) occurs on the proximal end of a bladelet. It was shaped by normal steep retouch on the proximal end of the right edge and ventral oblique retouch on the proximal end of the left edge. The flat retouch on the left edge (dorsal side) and the right edge (ventral side) were probably caused by utilization. One heavily patinated "alésoir" seems to be an older component of the collection.

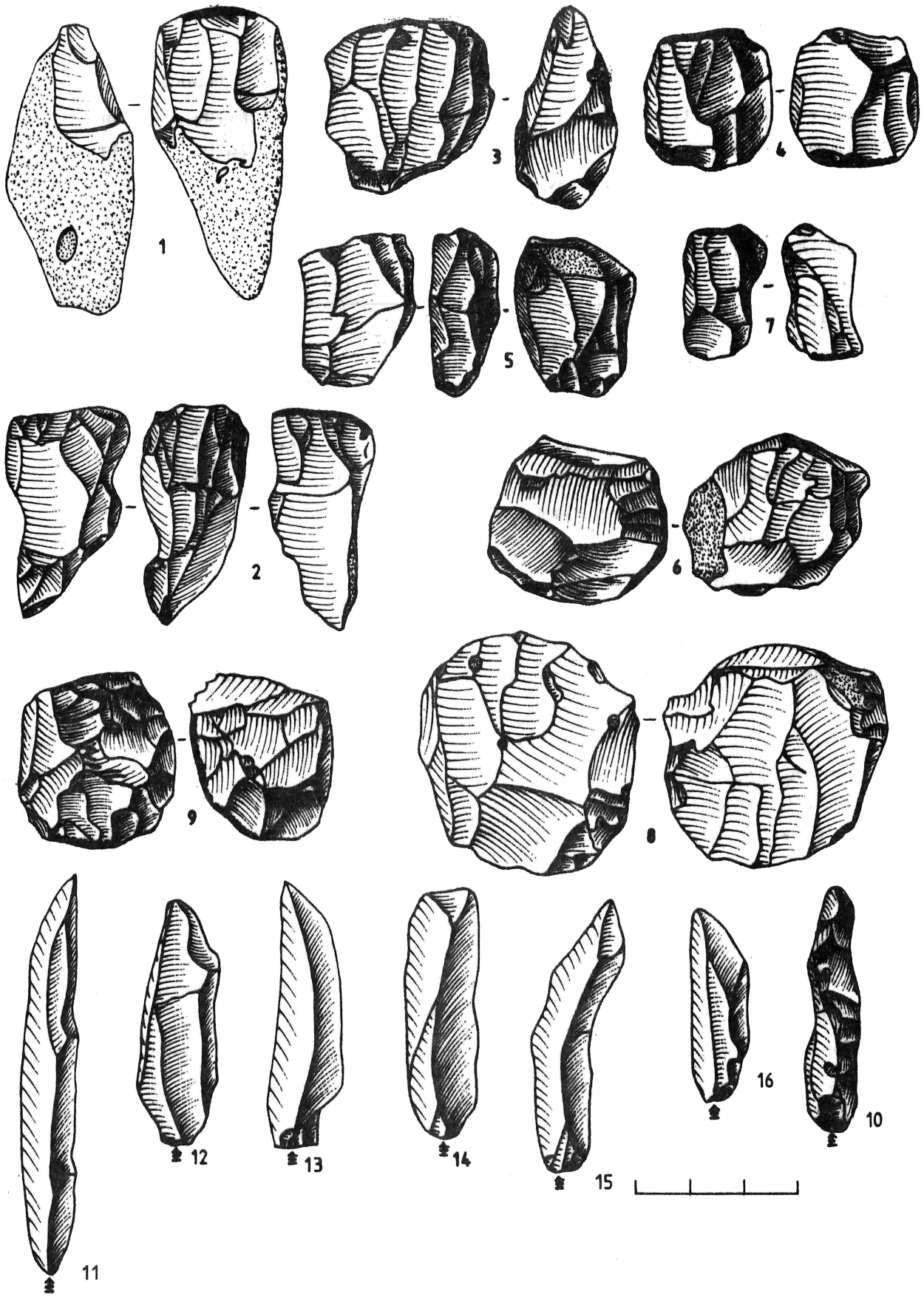

Fig. 2 : 1-3 : cores with one striking platform; 4-5 and 7 : cores with two opposed striking platforms; 6 : core with two crossed striking platforms; 8 : discoïdal core; 9 : globular core; 10 : single crested blade; 11-13 : Wommersom-quartzite bladelets; 14-16 : flint bladelets.

Only two burins occur. Fig. 2, 14 shows a burin on truncation. From a typological point several blades exhibiting continuous retouch forming one straight lateral edge (e.g. fig. 3, 15) could be considered to date from the epipalaeolithic period. Because various kinds of flint occur in the collection, it isn't possible to make a division between artefacts on this basis.

3.4.3. Points with unretouched base.

Points with unretouched base, especially obliquely truncated points, occur infrequently. Generally, the proximal ends have been truncated to form the point (fig. 3, 20-21). Five obliquely truncated points bear the truncation on the left side, three on the right side. Fig. 3, 22 shows a unilaterally backed point of Wommersom-quartzite.

3.4.4. Crescents.

Crescents, all of flint, are rare (fig. 3, 23). Three crescents display a lateralisation to the right, only the large crescent bears the lateralisation to the left.

3.4.5. Backed bladelets.

Backed bladelets form about 21 % of the microlithic component of the assemblage. (Large) bladelets were preferred to small bladelets. The number of backed bladelets obtained from Wommersom-quartzite is quite important.

Fragments of small backed bladelets (fig. 4, 3-4), fragments of backed bladelets, and truncated backed bladelets (fig. 4n 5-6) occur most frequently. Fragments of small backed bladelets and fragments of backed bladelets (fig. 4, 7) always exhibit blunting on their left edge. Three out of four truncated backed bladelets display a straight blunted right edge. A small truncated backed bladelet, of which the left edge is blunted, shows additional retouch along the right edge (fig. 4, 8).

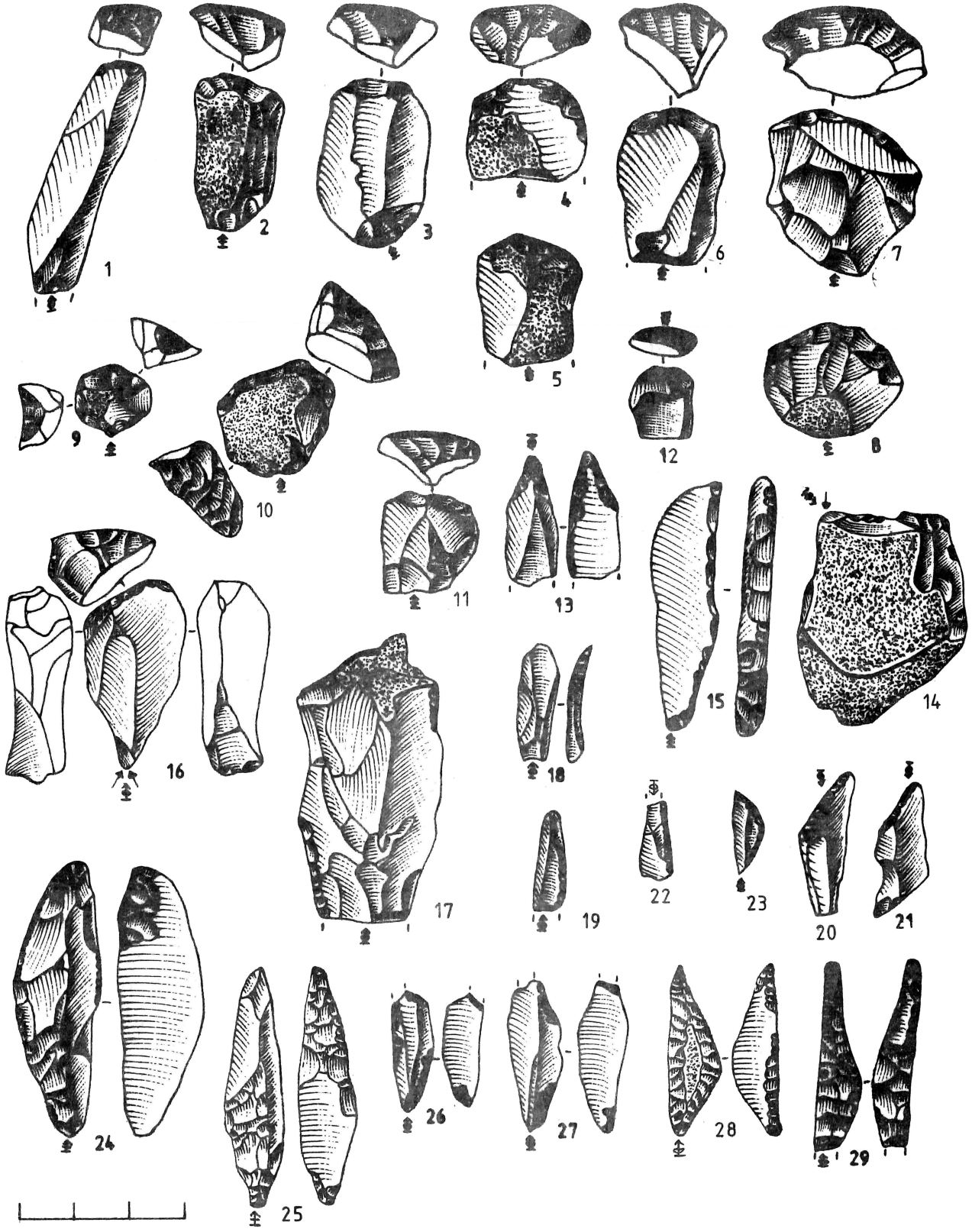

Fig. 3 : 1 : long end-scraper on a blade; 2-3 : short end-scrapers on a blade; 4-6 : broken end-scraper on a blade; 7-8 : single end-scraper on a flake; 9-10 : circular scraper; 11 : thumbnail-scraper; 12 : mini scraper; 13 : "alésoir"; 14 : burin on truncation; 15 : blade with continuous retouch; 16 : combination tool; 17 : retouched flake; 18-19 : retouched bladelets; 20-21 : obliquely truncated points; 22 : unilaterally backed point; 23 : crescent.

3.4.6. Triangles.

Triangles, especially scalene triangles, are numerous (fig. 4, 9-12). Five scalene triangles bear the truncations on the left, two on the right; all are manufactured in flint.

Truncated scalene triangles also occur at the site (fig. 4, 13-14). The lateralisation of the truncated scalene triangles appears twice to the left and once to the right. Long truncations are never as markedly convex as those of the truncated scalene triangles of Weelde-Paardsdrank (Huyge, Vermeersch, 1982 : 171). The truncations always intersect, again in contrast to the truncated scalene triangles of Weelde-Paardsdrank.

The elongated scalene triangles always bear the truncations on the left (fig. 4, 15). Wommersom-quartzite was preferentially used for the manufacture of elongated scalene triangles. The concave truncations of the Muge triangle (fig. 4, 16) were obtained by means of very steep retouch. The side opposite to the truncations of the isoscele triangle (fig. 4, 17) displays proximal and distal retouch.

3.4.7. Points with surface retouch.

The technique of surface retouch was commonly used at the site of Lommel-Gelderhorsten. The group of the points with surface retouch, primarily composed of mistletoe points and triangles with surface retouch, is by far the most frequent element of the microlithic toolkit : 33 % of the total number of microliths. About two-thirds of the microliths with surface retouch are made of flint, the others of Wommersom-quartzite.

The dorsal side of the mistletoe point in fig. 3, 28 is almost totally covered with flat retouch. On the ventral side, only the pointed extremities and the straight edge are retouched. The Wommersom-quartzite mistletoe point in fig. 3, 29 is completely covered with surface retouch on both the dorsal and ventral side. Two mistletoe points do not have typical characteristics. The support of the first is a blade (fig. 3, 24) and the dorsal side was retouched with large flat retouch, having little in common with the fine surface retouch on other points. The dorsal side of the second point (fig. 3, 25) was only proximally

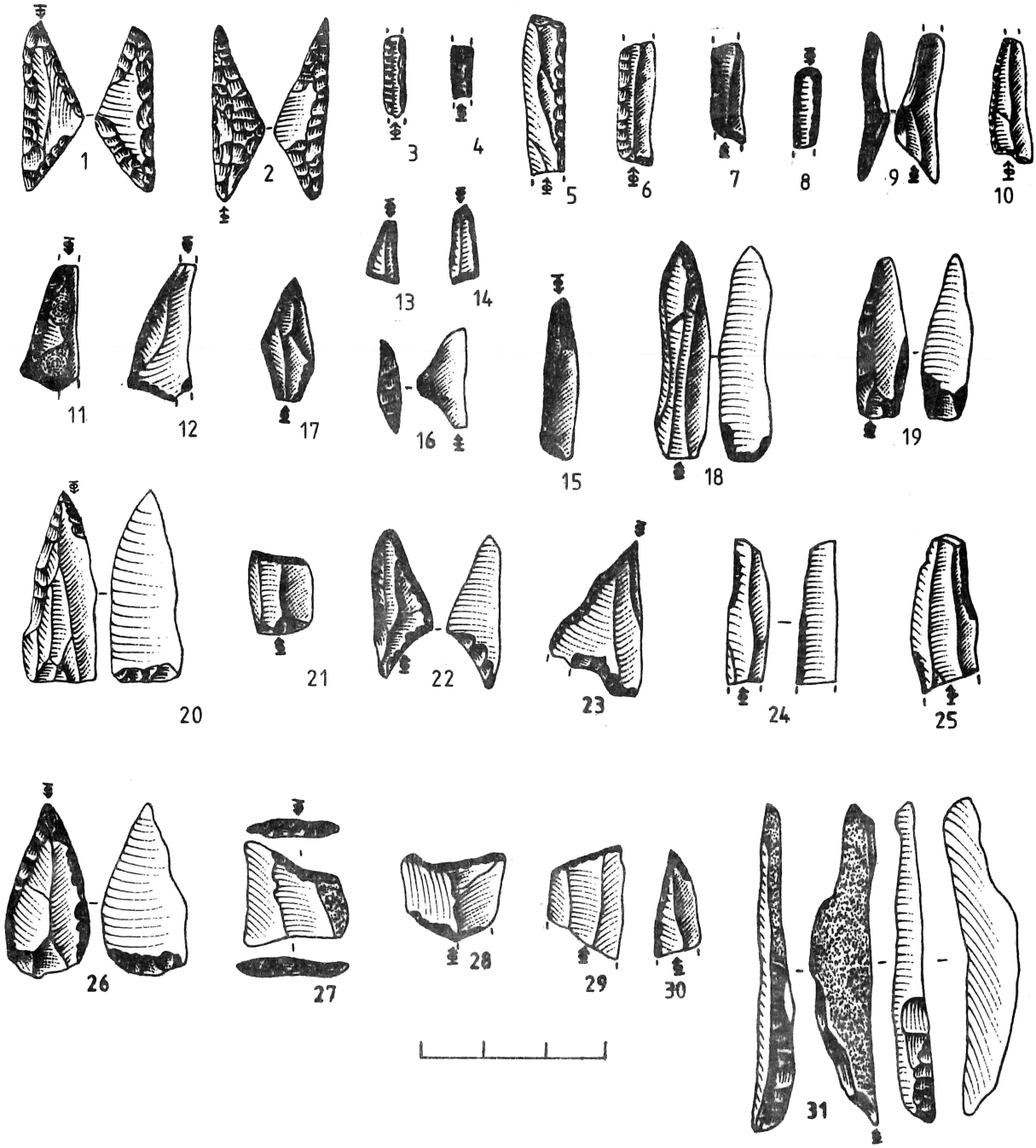

Fig. 4 : 1 : scalene triangle with surface retouch; 2 : elongated scalene triangle with surface retouch; 3-4 : small backed bladelets; 5-6 : truncated backed bladelets; 7 : fragment of a backed bladelet; 8 : small truncated backed bladelet; 9-12 : scalene triangles; 13-14 : truncated scalene triangles; 15 : elongated scalene triangle; 16 : Muge triangle; 17 : ioscele triangle; 18-20 : Tardenois point; 21 : rectangular trapeze; 22-23 : danubian points; 24-25 : bladelets with off-set retouch; 26 : leaf-shaped point; 27-28 : transverse arrowheads; 29-30 : fragments of microliths; 31 : burin-spall.

retouched, while the ventral side was only distally retouched. We consider them both as preforms. Two other microliths displaying surface retouch could be considered as "accidents de taille". During the manufacture of the pointed extremeties of the mistletoe points, part of the bladelet broke off (fig. 3, 26-27).

The dorsal side of the scalene triangle on fig. 4, 1 is almost completely covered with surface retouch. On the ventral side, only the pointed extremities and the side opposite to the truncations are retouched, as on some of the mistletoe points. Dorsal retouch completely covers the elongated scalene triangle on fig. 4, 2. Here also, only the pointed extremities and the side opposite to the truncations are retouched on the ventral side.

3.4.8. Points with retouched base.

The group of the points with retouched base is only represented by Tardenois points. All except two of them are of Wommersom-quartzite (fig. 4, 18-20). A clear tendency towards surface retouch can be noticed on all Tardenois points. Three Tardenois points are oriented distally, the other three proximally.

3.4.9. Trapeze.

Only one trapeze was found. Fig. 4, 21 shows a short rectangular trapeze shaped on a regular bladelet. Both truncations were obtained by steep retouch, and are lateralized to the right.

3.4.10. Points of danubian type.

The side opposite the truncations of the first point of danubian type displays medially and distally oblique retouch (fig. 4, 22). The concave small truncation displays ventral retouch. The second point of danubian type has a clearly preserved "piquant-trièdre" (fig. 4, 23).

3.4.11. Montbani-blades.

Two flint bladelets with off-set retouch occur, but they can hardly be called typical (fig. 4, 24-25), because they are made on bladelets of Coincy style of debitage.

3.4.12. Tools of neolithic affinity.

As in nearly all surface collections, tools of neolithic affinity are present. There is no difference between the kind of flint used for these tools and the kind of flint used for the other tool-types.

The left edge of a leaf-shaped arrowhead displays steep retouch (fig. 4, 26). The proximal and the medial part of the right edge show oblique small retouch, the distal part shows flat retouch. The base was only retouched on the ventral side with oblique retouch.

Two transverse arrowheads also occur. The dorsal side of the first one (fig. 4, 27) displays some cortex. The small base was retouched on the ventral side with small oblique retouch. The second transverse arrowhead (fig. 4, 28) bears oblique truncation with steep retouch at its proximal end. Distally, a straight concave truncation with steep retouch occurs.

3.4.13. Fragments of microliths.

Four fragments of microliths were recovered. Two of them still bear part of a truncation (fig. 4, 29) and one of them has preserved part of a backed edge (fig. 4, 30). The last one is a bladelet in which both the proximal and distal end have broken off, and which displays an irregularly flat retouch on the right edge.

3.5. Microburins and burin-blows.

3.5.1. Microburins.

Microburins do not occur, although on at least one microlith (the point of danubian type on fig. 4, 23) traces of microburin-technique can be clearly observed.

3.5.2. Burin spalls.

The four burin spalls in the collection are all of flint. The bulb of percussion of one burin spall (fig. 4, 31) was removed by flat retouch. This artefact could also be classified as an atypical borer.

Table V : Tool inventory list. F : Flint; W : Wommersom-quartzite.

	F	W	Tot.	%
1. Long end-scraper on a blade	0	3	3	1.81
2. Short end-scraper on a blade	5	0	5	3.01
3. Broken end-scraper on a blade	13	1	14	8.43
4. Single end-scraper on a blade	9	2	11	6.63
5. End-scraper on a retouched flake	1	1	2	1.20
6. Circular scraper	5	1	6	3.61
7. Thumbnail-scraper/mini scraper	4	0	4	2.41
8. Other end-scraper on a flake	2	1	3	1.81
15. Thin truncated flake	3	0	3	1.81
16. Thin retouched flake	2	0	2	1.20
19. Borer/"alésoir"	8	0	8	4.82
21. Dihedral burin	0	1	1	0.60
22. Burin on truncation	1	0	1	0.60
25. Divers	1	1	2	1.20
26. Blade with a cuncave truncation	0	2	2	1.20
29. Blade with distal retouch	1	0	1	0.60
30. Blade with continuous retouch	6	0	6	3.61
33. Partially backed bladelet	1	0	1	0.60
36. Bladelet with an arched end	1	0	1	0.60
39. Bladelet with an Ouchtata Type retouch	1	0	1	0.60
42. Bladelet broken in a notch	1	0	1	0.60
45. Bladelet with distal retouch	0	1	1	0.60
48. Obliquely truncated point	6	1	7	4.22
49. Idem (distal point)	1	0	1	0.60
51. Unilateraly backed point	0	1	1	0.60
58. Crescent of circle	3	0	3	1.81
60. Large crescent	1	0	1	0.60
62. Fragment of a small backed bladelet	3	3	6	3.61
63. Truncated small backed bladelet	1	0	1	0.60
64. Backed bladelet	1	0	1	0.60
65. Fragment of a backed bladelet	4	1	5	3.01
66. Truncated backed bladelet	3	1	4	2.41
68. Scalene triangle	7	0	7	4.22
69. Truncated scalene triangle	3	0	3	1.81
71. Elongated scalene triangle	1	2	3	1.81
74. Muge triangle	1	0	1	0.60
77. Isocele triangle	1	0	1	0.60
78. Mistletoe point	13	5	18	10.84
79. Triangle with surface retouch	5	2	7	4.22
80. Other microlith with surgace retouch	1	0	1	0.60
81. Point with rounded base	0	1	1	0.60
82. Point with oblique base	0	1	1	0.60

87. Tardenois point	2	4	6	3.61
94. Short rectangular trapeze	1	0	1	0.60
105. Point of danubian type	2	0	2	1.20
118. Bladelet with off-set retouch	2	0	2	1.20
119. Tool of neolithic affinity	3	0	3	1.81
Total	130	36	166	9 9.93
Fragments of microliths	4	2	6	
Total tools	134	38	172	

4. Intersite comparison.

We can associate the site Lommel-Gelderhorsten on typological grounds with other sites such as Oirschot V (Bohmers, Wouters, 1956; Rozoy, 1978), Gent-Port Arthur (Rozoy, 1978), Netersel (Bladel) (Arts, Deeben, 1977), Nijnsel 1 (Heesters, 1967), Haagakkers (Heesters, 1971), Achterste Brug (Gendel, Leysen, 1984). They all are mesolithic sites where points with surface retouch are plentiful and where trapezes are rare of absent.

It is very striking that at Lommel-Gelderhorsten, Netersel (Bladel) and Oirschot V (here we can only consider the tools) between 20 % and 30 % of the artefacts were made of Wommersom-quartzite. The distance from these sites to the Wommersom-quartzite outcrop is, respectively 50 km, 68 km, and 80 km. The percentage of Wommersom-quartzite artefacts is remarkably lower at Achterste Brug, Haagakkers and Nijnsel I, respectively 7 %, 1 %, and 4 %. These sites are situated between 67 and 88 km from the outcrop. The remote situation of these sites from the outcrop has probably influenced the use of Wommersom-quartzite. However, one should also consider a chronological argument for the scarcity of Wommersom-quartzite (Gendel, 1982).

The common toolkit is represented frequently on most sites, with the exception at Gent-Port Arthur. On all the sites, scrapers form a very important group in the common toolkit. The single end-scrapers on a flake and retouched end-scrapers on a flake are predominant at Oirschot V and Gent, whereas single end-scrapers on a flake are by far the most numerous group at Achterste Brug. Although broken end-scrapers on a blade are predominant at the site of Lommel-Gelderhorsten, single end-scrapers on a flake are also important.

At Lommel-Gelderhorsten, mistletoe points are the most important within the group of the points with surface retouch, which is the main group of microliths at the site. This also occurs at the site of Netersel (Bladel). It is remarkable that atypical mistletoe points on rather large bladelets occur on both sites. At Gent-Port Arthur mistletoe points, triangles with surface retouch, and points with rounded base are present in equal proportions. Mistletoe points are rather scarce at Oirschot V, while points with rounded base and oblique base and triangles with surface retouch are frequent. The histogram of the

site Nijnsel I (Heesters, 1967) also shows leaf-shaped points with surface retouch to be the most numerous group of the points with surface retouch, followed by triangles with surface retouch. According to the histogram of the site Haagakkers (Heesters, 1971) triangles with surface retouch are most frequent there. This also is true at Achterste Brug. However, at Achterste Brug many fragments of microliths with surface retouch were found that could not be determined to belong to a certain type of microlith. As far as can be determined, Wommersom-quartzite frequently was used for making points with surface retouch, even on sites where Wommersom-quartzite is scarce, for example Achterste Brug.

At Gent-Port Arthur, as well as at Oirschot V, backed bladelets are the most numerous component of the microlithic toolkit. At Netersel (Bladel) and Lommel-Geldenhorsten backed bladelets are nearly as common as the points with surface retouch. They also are present at Nijnsel I, but not as numerous as points with surface retouch and points with unretouched base. At Achterste Brug, they only are the fourth most common group of microliths. Backed bladelets are scarce at Haagakkers. As already stated, at Gelderhorsten large backed bladelets are more numerous than small backed bladelets. This is also true for Achterste Brug. At Gent-Port Arthur we find almost exclusively small backed bladelets and at Netersel (Bladel) and Oirschot V there is a preference for small backed bladelets to large ones. For both other sites (Haagakkers and Nijnsel I) we do not have any information about the width of the backed bladelets.

Triangles are, on most sites, an important group of microliths with the exception at Netersel (Bladel) where there are no triangles at all. Scalene triangles are especially numerous. At Lommel-Gelderhorsten, the Muge triangle and the truncated scalene triangles attract our attention. Truncated scalene triangles are also present at Haagakkers, Achterste Brug, Nijnsel II (Heesters, 1967) and Weelde-Paardsdrank Sector 1 (Huyge, Vermeersch, 1982). Gelderhorsten only shows typological resemblance with sites as Haagakkers and Achterste Brug. The other two sites must be considered as late mesolithic sites because of the occurence of numerous trapezes. However, points with surface retouch are also well represented at these two sites. At Nijsel II, triangles with surface retouch are the most important group

of microliths.

At Gent, Haagakkers, and Nijnsel I, points with unretouched base are as common as points with surface retouch. At Oirschot V, Gelderhorsten and Achterste Brug points with unretouched base are less numerous.

Together with the points of danubian type, the short rectangular trapeze poses the problem of the homogenity of the collection of Lommel-Gelderhorsten, as the trapezes do in Gent and the danubian point at Achterste Brug. At Oirschot V, the atypical trapezes could essentially form part of the artefact collection. Indications are the lateralisation to the left (in the late mesolithic period of the region nearly all trapezes display the lateralisation to the right) and the fact that the trapezes are manufactured on bladelets of Coincy style of debitage (Rozoy, 1978 : 168).

It seems that the microburin-technique was rarely applied at sites with industries with points with surface retouch and without trapezes, but we must take into account possible collecting bias at the sites. At Oirschot V the index of microliths except for backed bladelets to microburin is 14.1, at Achterste Brug 13.2, and at Gent 39. At the late mesolithic site of Weelde-Paardsdrank this index descends to 1.3 at Sector I and 0.7 at Sector 4 (Huyge, Vermeersch, 1982 : 202). At Nijnsel I, one microburin occurs. At Lommel-Gelderhorsten, Netersel (Bladel), and Haagakkers microburins are absent.

5. Conclusions

On basis of tool typology, one could divide the sites discussed above into two groups : one group where points with surface retouch are predominant and the other group where backed bladelets occur most frequently, but where points with surface retouch are also very numerous (Vermeersch, 1984 : 186). The nearly complete absence of trapezes and microburins seems to reinforce the individuality of these two groups. The very rare presence of trapezes also points to a date older than 8.000 BP for these two groups. On this basis we can place these sites in the early mesolithic period (Vermeersch, 1984 : 185). Unfortunately this can not be confirmed by the C14 dates listed below. One must however consider these dates in a critical way (Gilot, 1984).

- Oirschot V (Lanting, Mook, 1977)
  - hearth b 8.030 ± 50 B.P. (GrN-1659)
  - hearth c 6.230 ± 50 B.P. (GrN-2172)
  - other hearth 7.510 ± 60 B.P. (GrN-1510)
- Nijnsel I (Lanting, Mook, 1977)
  - hearth in concentration I 7.635 ± 75 B.P. (GrN-6087)
  - hearth in concentration III 7.310 ± 85 B.P. (GrN-6088)
- Haagakkers (Lanting, Mook, 1977)
  - posthole of a sunken hut 8.075 ± 50 B.P. (GrN-6840)
- Achterste Brug (Leysen, 1984)
  - hearth 5.390 ± 50 B.P. (GrN-12022)
  - dispersed charcoal 8.050 ± 50 B.P. (GrN-12023)

The great importance of the points with surface retouch in both groups suspects a distinct chronological position within the early mesolithic period. Already on early mesolithic sites such as Neerharen-De Kip (Lauwers, Vermeersch, 1982) and Schulen III (Lauwers, Vermeersch, 1982) the mistletoe points occurs. But the frequent appearance of points with surface retouch is of a much later date (Vermeersch, 1984 : 193). On this basis, the sites discussed above date from an intermediate position between early mesolithic sites, such as Neerharen-De Kip and Schulen III, and the late mesolithic sites with trapezes, where points with surface retouch also frequently occur.

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