Notae Praehistoricae 28-2008 : 63-71

Opglabbeek - *Ruiterskuil 2*
Late Mesolithic settlement complexity on the Kempen plateau

Erick N. ROBINSON, Guido CREEMERS & Pierre M. VERMEERSCH

Summary

This paper presents a study on the lithic assemblage found at the site of Opglabbeek - *Ruiterskuil 2*, which was excavated in 1985. The site holds great potential for research into Late Mesolithic social and technological organisation and settlement complexity within a small area. We present a hypothesis for the relationship of this site with its surrounding sites in the Meeuwen - Gruitrode - Opglabbeek region.

Keywords: Prov. of Limburg (B), Late Mesolithic, stone tools, settlement mobility, resource procurement, forager social organization.

1. Introduction

The site was discovered during an intensive field walking project carried out during the years 1984-1985[1]. The project was organised by the '*Laboratorium voor Prehistorie – Katholieke Universiteit Leuven*'[2], the '*Provinciaal Gallo-Romeins Museum*' of Tongeren[3] and the '*Archeologische Vereninging Midden-Limburg*'[4]. During the project, three members of the organisation — together with one archaeologist (Hilde Deckers) – discovered and planned an inventory of more than 300 sites in the region of Meeuwen - Gruitrode - Opglabbeek. One particular concentration of Mesolithic artefacts attracted the attention of the collaborators. An excavation was organized due to the fact that the relatively small surface concentration was already impacted by previous agricultural acitivities. With the assistance of several volunteers, the excavation itself took place during the months of July and August 1985. The re-investigation of this site was undertaken as part of one of the authors (ENR) doctoral research on Late Mesolithic trapeze technology and cultural transmission during neolithisation processes.

[1] BTK-project of the '*Ministerie van tewerkstelling en Arbeid en van begroting*', project number 25134.

[2] Under supervision of Prof. Dr. P. M. Vermeersch.

[3] Under supervision of Willy Vanvinckenroye, head of the excavation services of the museum.

[4] Under supervision of Nico Knevels, secretary.

2. Location and geographic setting

The site is situated on the Kempen plateau in the northeastern part of the municipality of Opglabbeek, some 200 metres west of a small fen (Kleine Ruiterskuil). The geographic coordinates are: X: 231,592 - Y: 193, 826 (fig. 1). The site is situated at an elevation of 85 m above sea level.

Fields, pinewoods, but also dunes, marshy depressions (fens) and heather characterise the region today. Aeolian sands cover Middle Pleistocene gravels and coarse fluvial sands, which blanket extensive areas of the Kempen plateau. When the site was discovered, the plot was occupied by agricultural activities. Nowadays, it is planted with pinetrees.

The two previously excavated Late Mesolithic sites of Opglabbeek - *Ruiterskuil 1* (ORK1) (Vermeersch *et al.*, 1974) and Meeuwen - *In den Damp 1* (Creemers & Vermeersch, 1986, 1987) lie just 700 and 1800 meters from the site respectively (fig. 1). At Meeuwen - *Donderslagheide* several Mesolithic artefacts were also found. Beside these sites there are several other concentrations of Mesolithic artefacts within the immediate vicinity of Opglabbeek - *Ruiterskuil 2* (ORK2) (Creemers, 1985; Dieltiëns, 1972; Van Gils & De Bie, 2006a: 19-25, 2006b). For example, recent work by Van Gils and De Bie (2006a) has identified a surface of at least 2 ha comprising scatters with sites from various Mesolithic periods.

The region also played a role during the neolithisation of the Kempen plateau. Finds of 'LBK-like' arrowheads at ORK1 (Vermeersch *et al.*, 1974), as well as several LBK adzes to the east (Creemers &

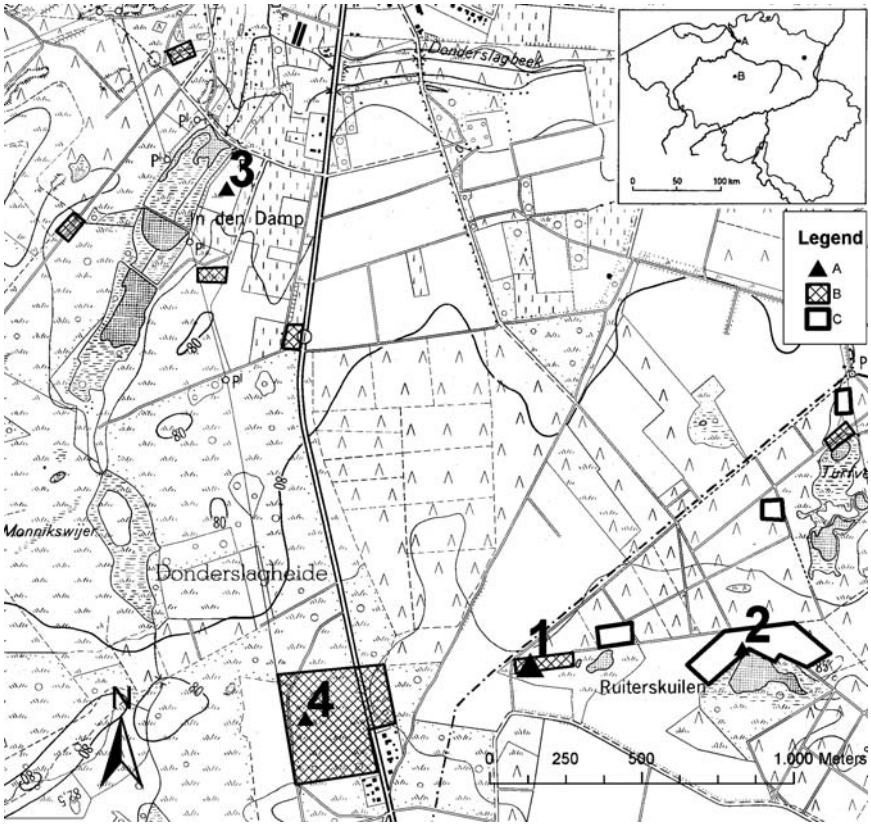

Fig. 1 — Sites in the vicinity of Opglabbeek - *Ruiterskuil 2*:
A. Excavated sites; B. Zones with surface concentrations; C. Drilling campaigns (Van Gils & De Bie);
1. Opglabbeek – *Ruiterskuil 2*; 2. Opglabbeek – *Ruiterskuil 1*; 3. Meeuwen - *In-den-Damp*; 4. Meeuwen - *Donderslagheide*.

Carolus, 1991), suggest some role of contact between Late Mesolithic hunter gatherers and *Linearbandkeramik* farmers. The Middle Neolithic finds of Meeuwen - *Donderslagheide* (Creemers & Vermeersch, 1989) are situated some 600 m west of 2.

3. Field investigations

The surface was shovel-cleaned and the position of any artefacts encountered was measured and planned, and chips were recovered from each square meter using a screen with 5 mm mesh. The sandy environment did not permit preservation of organic remains, even in carbonized form. In this study we only take into account the original *in situ* excavated material.

The excavated area was composed of sandy deposits on which a humic iron podzol had developed. The upper part of the this podzol was mixed into a ca. 25 cm thick plough horizon (Ap-horizon). The ploughing activity had destroyed most of the greyish white A2-horizon. The black humic B2h-horizon, the brown iron rich B2ir horizon, and the brownish yellow slightly weathered B3-horizon were mostly preserved. Below the B3-horizon unweathered yellow aeolian sand (C-horizon) was encountered.

The excavated artefacts were for a great deal situated in the plough horizon (Ap). Despite this, the undisturbed part of the lower soil horizons contained enough artefacts to organise a systematic excavation in a grid of one square meter. Numerous artefacts were found in the humic-iron B2 horizon of the podzol, but most of the artefacts were situated in the B3. Only a small percentage seems to occur in the C-horizon. This situation is quite comparable with Ruiterskuilen 1, where in most of the cases, the Ap rested directly on the B-horizon. Most of the artefacts in ORK1 seem to occur in the base of the B2ir or even in the B3 (Vermeersch *et al.*, 1974: 88). In Helchteren-*Sonnisse Heide* 2, most of the artefacts also occured in the lower parts of the B-horizon (Gendel *et al.*, 1985: 6-7). The situation in ORK2 is quite different from the situation in Meeuwen - *In den Damp 1*, where most of the artefacts did occur in the A2-horizon of a humic-iron podzol (Creemers & Vermeersch, 1986: fig. 2, 1987: 71). The position of the artefacts inside the soil-horizons of

a humic-iron podzol is characteristic for all post-glacial human occupations of the sandy area of the Kempen (Vermeersch, 1999, 2006). Such a position has been explained as the result of the moving down of artefacts due to bioturbation. No new sediments covered the Mesolithic artefacts. We may therefore presume that the original occupation of the area of ORK2 occurred on the surface of the landscape that still is the present landscape. Experimental work has shown that the vertical scattering of the artefacts in such condition did not significantly alter the horizontal artefact distribution, preserving thus the spatial lay-out of the settlements (Vermeersch & Bubel, 1997).

The concentration seems to be a very homogeneous one. The material most likely originates from a single occupation phase. Nevertheless, even during the excavation itself, some pottery was found. It comprises the same shapes and tempering material as the ceramics of the Iron Age of the region. This type of pottery is found across the entire plot. It belongs to a large settlement of the Iron Age and the Gallo-Roman period. Just 300 m north of ORK2 there is a large concentration of both Iron Age and Roman material. Only one sherd with everted rim, tempered with large quartz fragments which was not found during the excavation, but which was found on the surface east of the excavation possibly belongs to the Late Neolithic or Early/ Middle Bronze age period (Creemers, 1985: fig. 27:8).

3.1. Description of the concentration

The majority of finds occur in a more or less oval zone of ca. 3 x 5 metres in the area between S 14-16 & E 11-14/15 (up to 195 measured finds per square metre; fig. 2). The lithics were primarily concentrated in this area. Fragments of charcoal (not indicated on the plan) were lying especially in the western and southern part of this concentration. In the northern, eastern and southern directions, the amount of artefacts seems to diminish relatively abruptly, although the amount of artefacts rises in density again, around 20 & 24 E. In this area, the site has not been excavated sufficiently to make some sensible conclusions. To the west, the concentration of artefacts diminishes only gradually. In this area, it is also possible that the zone of habitation is quite more extensive. Trapezes and other tools were found scattered all over the excavation: they do not seem to be preferably connected with the centre of the concentration. All over the excavated area, small fragments of burnt sandstone & quartz were found. There are a few zones were theses fragments are lying somewhat more concentrated. In ORK1, larger stone structures were found. They indicated the fireplaces. In ORK2, these kinds of structures were not present.

3.2. Remarks on the plan

The plan (fig. 2) presented here has been taken over and redrawn from the plan made by the excavators. At best this plan can only be viewed as an extremely coarse determination of the spatial concentrations of the lithic assemblage discussed in this paper. A significant impediment to any sort of spatial analysis is the fact that the majority of artefacts are numbered only by the square meter in which they were found. This hinders the specific scale of resolution at which the assemblage can be analysed. We furthermore noticed the misidentification of artefacts in the original inventory list, and were thus forced to re-catagologue the assemblage without fine spatial data. For these reasons we are unable to carry out intra-site analyses that might lead to an understanding of the organization of knapping activities. This is an expected problem that researchers must contend with when re-examining older excavations. The significant contribution of this site to the study of the Late Mesolithic period in Belgium is due to its inter-site context in Meeuwen – Gruitrode - Opglabbeek, where variability of forager social organization is suggested within a small vicinity.

4. The lithic assemblage

4.1. Raw materials

The lithic assemblage of ORK2 is comprised of 1805 total artefacts. The assemblage is dominated by light to dark greyish flint (86 %) that was procured as small river pebbles in the Meuse basin. This flint is generally of a poor quality due to the numerous coarse inclusions and frost fractures within the heavily rolled pebbles. Problems of this flint for blade production are indicated by the hinge and step terminations found on the cores at ORK2 (fig. 3:1). The bad nature of most of the flint available to Mesolithic foragers at this time created restrictions on exactly how long a core could be used before expended, which no doubt had impacts on resource budgeting and settlement mobility. The evidence from ORK2 suggests that while little preparation was needed to begin knapping this flint, the various internal problems of the nodules caused many cores to be expended rather early in their reduction.

The remaining artefacts in the assemblage are comprised of the more homogenous Wommersom quartzite (14 %). This material likely arrived on site in core and/or blade form, as just one cortical flake and one flake ≥ 5 cm was recovered. Since no cores were recovered from the site, it is likely that they were transported away from the site after its occupation. A single core rejuvenation flake (fig. 3:4) is the only

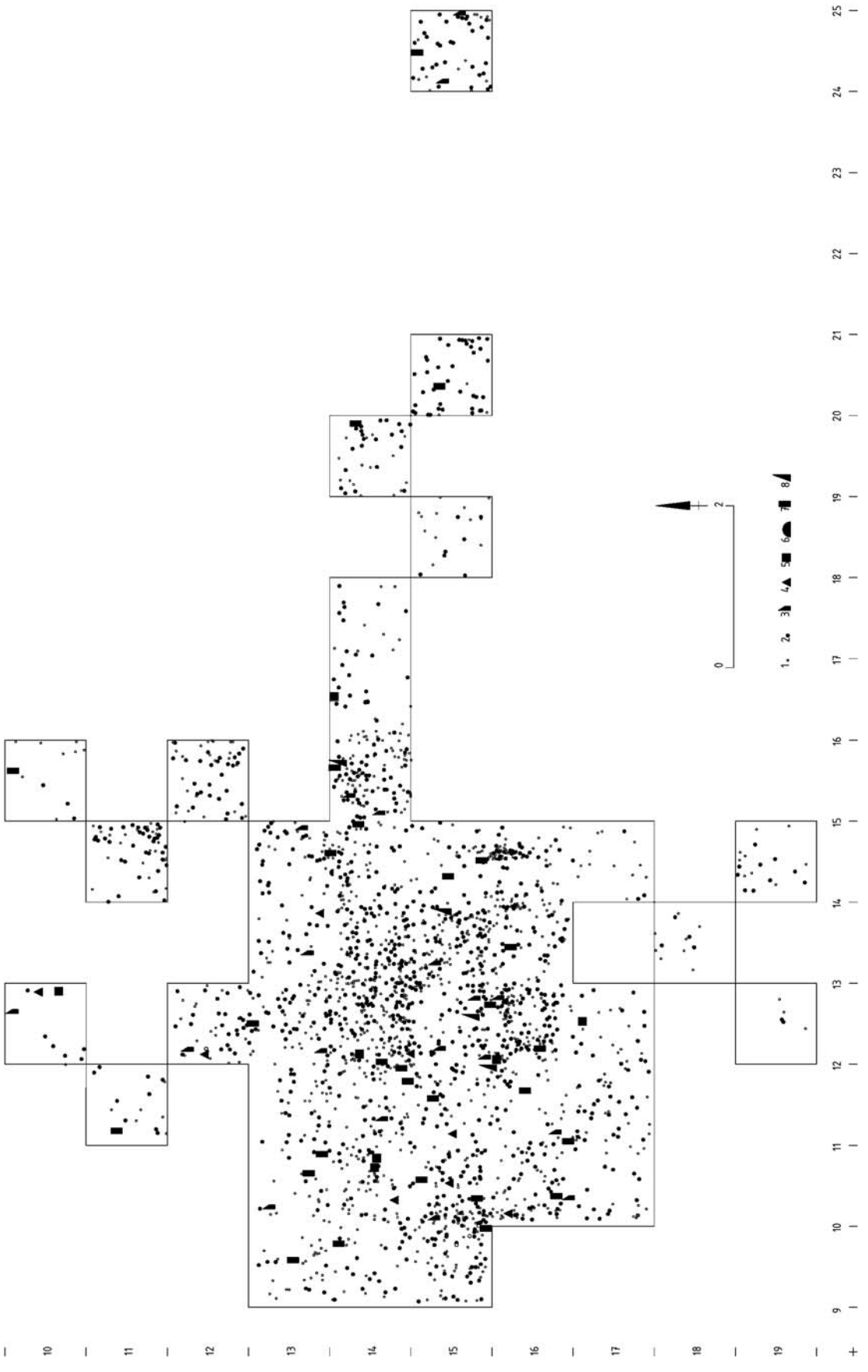

Fig. 2 — Horizontal distribution of artefacts and burnt stones:
1. Burnt fragments; 2. Flint artefacts; 3. Trapezes; 4. Microburins; 5. Cores; 6. Scrapers; 7. Retouched flakes and blades; 8. Truncated, blunted and notched blades.

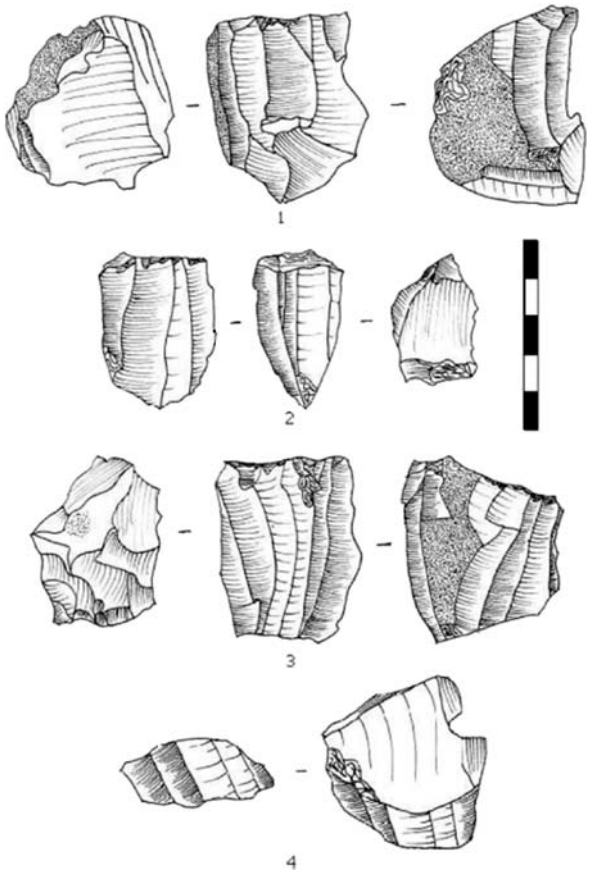

Fig. 3 — Cores (1-3) and core rejuvenation product (4).

evidence indicating that cores were ever present at the site. In total, Wommersom comprises just 8.7 % of all flakes, debris, and chips found on the site. Interestingly, while this site falls within the half of Late Mesolithic sites closest to the extraction outcrop for Wommersom (e.g. < 60 km), this material comprises well under the 22 % average found on these sites. The overall small nature of this site compared to the amount of Wommersom debitage found at nearby Meeuwen - *In den damp 1* might contribute significant knowledge concerning the distributional variability of this exotic material within smaller micro-regional scales.

4.2. Technology

The assemblage (tab. 1) is clearly indicative of Late Mesolithic regular blade and trapeze industries. The small amount of primary cortical flakes recovered from the site (4.5 % of all flakes, not including debris and chips) suggests that cores of both raw material varieties were probably brought to the site from elsewhere. Of the eight cores found at the site, seven are single platform and one is multiplatform. Platform angles are not uniform, and vary from 85-75°. While evidence of platform rejuvenation does exist (fig. 3:4), it seems that the ability to rejuvenate new platforms due to either knapping errors or poor raw material would have been restricted due to the original size of the flint pebbles that would have been used. All the cores on the site have been heavily exhausted, yet, as mentioned above, it seems that the further knapping of small bladelets would have been hindered due to the various problems encountered in the flint. Furthermore, the absence of commonly found crested blades and side-tablets suggest an overall lack of extensive rejuvenation/reorientation, which might also point to rather expedient production on this site compared to others from this time period. While no cores were found in Wommersom quartzite, the core rejuvenation tablet already mentioned indicates the likelihood of this material in core form at the site. Cores from both materials were likely knapped using the same indirect percussion technique.

Blades and blade fragments (fig. 4) make up 15 % of the total assemblage, whereas bladelets and bladelet fragments make up 7.43 %. Butts are very thin and bulbs are unpronounced. Many of the blades indicate abrasion of the proximal end. The mean length of complete blades is 4.6 cm (std. dev. = 99), width is 1.32 cm (std. dev. = 2), and thickness is 0.31 cm

(std. dev. = 09). Wommersom quartzite comprises 25.7 % of blades and 36.3 % of bladelets recovered. This material seems to be preferred for bladelet production over all its other uses in the assemblage.

Blades with regular ('Montbani') retouch comprise just 8 % of the total blade assemblage. Just five notched blades were recovered. Microburins are present in low frequencies (1.22 %), with just one produced in Wommersom quartzite. Most of the microburins were produced from notches orientated on the same side of the blade, which caused the trapezes to be lateralized to the right. 73 % of microburins occurred on the distal end of blades. Microburin sizes range considerably (fig. 4:4-5), which makes it difficult to establish specific criteria for their production. It is, however, noteworthy that just one microburin was made from Wommersom quartzite, considering its good representation in Late Mesolithic regular blade industries. This might suggest that microburins were produced to get around some of the problems caused by the production of less regular blades from flint, such as curvature or termination due to the high variability of the pebbles used.

This site is particularly remarkable because trapezes comprise the highest percentage of total microliths (98 %) from any other site of the Late Mesolithic period in Belgium[5]. Just one backed bladelet (fig. 4:6) was found alongside this very homogenous trapeze assemblage. Trapezes are represented by a majority of *trapèze à base décalée* (54 %), followed by *trapèzes de Veille* (39 %) and asymmetric trapezes (6.5 %). The microburin negative (*piquant-trièdre*) is preserved on just four trapezes (9 %), all of which are the largest *trapèzes à bases décalées*. All trapezes are lateralized to the right, and flat ventral retouch of the small truncation (*retouch inverse plate*) is present on just two specimens (4 %). 13 % of trapezes were made from Wommersom quartzite, but interestingly, this material was only used to produce *trapèzes de Veille*. A single asymmetric trapeze (fig. 4:17) was the sole fractured piece, which seems to provide evidence of an

[5]. The only other site close to this figure at the moment is the site of Verrebroek - *Aven Ackers* (Sergant *et al.*, 2007), though this site awaits further analyses.

	f	*wq*	*Totals*	*Relative frequencies*
Large flakes (> 5 cm)	33	1	34	1.88 %
Small flakes (< 4.9 cm)	207	26	233	12.91 %
Debris	352	29	381	21.11 %
Chips	571	55	626	34.68 %
Core rejuvenation products	4	1	5	0.28 %
Cores	8		8	0.43 %
Blades	21	3	24	1.33 %
Blade fragments	188	67	255	14.13 %
Bladelets	5	3	8	0.43 %
Bladelet fragments	81	46	127	7.04 %
Microburins	21	1	22	1.22 %
Retouched flakes	2	1	3	0.17 %
Truncated blades	3	2	5	0.28 %
Retouched blades	19	6	25	1.39 %
Trapezes	40	6	46	2.55 %
Backed bladelets	1		1	0.06 %
Scrapers	1	1	2	0.11 %
Totals	*1557*	*248*	*1805*	*100 %*

Tab. 1 — Lithic assemblage inventory.

impact fracture at the tip. Unlike the site ORK1, no 'Danubian-like' armatures were found at ORK2.

Lastly, artefacts indicative of hide/meat processing and other 'household' activities, such as scrapers and retouched flakes, comprise respectively just 0.11 % and 0.17 % of the assemblage. The very low frequency of scrapers is similar to the evidence from ORK1, but differs from the higher frequencies of Meeuwen - *In den damp 1* (9 %) and Weelde - *Paardsdrank* (8-10 %). Both of the scrapers from ORK2 are different from those found in these three sites, as they display much less invasive retouch, possibly suggesting their rather expedient production.

5. *Contextualizing Late Mesolithic settlement complexity in the Kempen*

The Meeuwen – Gruitrode - Opglabbeek region provides a rare opportunity for understanding the variability of Late Mesolithic sites and the relationships between the social and technological organization of foragers within a small area. This did not become immediately apparent until the reassessment of ORK2. The results of the brief study presented here suggest clear differences between the short-term ('logistic'?) habitation of ORK2, the longer-habitation of ORK1, and the likely long-term aggregation site of Meeuwen - *In den damp 1*. It should be noted that this hypothesis is just a starting point, as the only comparative analyses undertaken thus far have merely been qualitative. Nevertheless, the evidence from all three sites suggests clear differences in site structure and associative features, and lithic debitage and toolkit composition. For example, while the total ORK2 assemblage is probably around five times smaller than that of Meeuwen - *In den damp 1*, it contains a larger amount of trapezes. The limited primary cortical flakes found at ORK2 is strikingly contrasted to Meeuwen - *In den damp 1*, where large numbers of primary debitage occur. Furthermore, Meeuwen provides some of the best evidence for the utilization of Wommersom quartzite from across Belgium, due to the fact that numerous cores, preparation and rejuvenation products occur on this site. As mentioned before, the evidence from ORK2 provides a good example of the possible re-distribution of Wommersom within smaller micro-regions, after its initial dispersal from its source.

As mentioned above, the likely fireplaces from ORK1 distinguish this site from ORK2. Yet, according to total *in situ* finds, the sites are separated by a mere sixty-seven artefacts. A key difference between both sites, like that between Meeuwen - *In den damp 1* and ORK2, is in the nature of the debitage. The amount of primary cortical flakes from ORK1 is nearly twice what it is for ORK2, whereas the blades/bladelets and trapezes from ORK2 are more numerous than at ORK1.

Two of the most significant impediments to this hypothesis are:

1. no radiocarbon dates are available to be able to determine the possible contemporeneity of these three sites;
2. no economic data is available that will be able to determine the different ways in which these locales were possibly utilized.

Despite these difficulties, which are very common in sandy regions, future comparative work

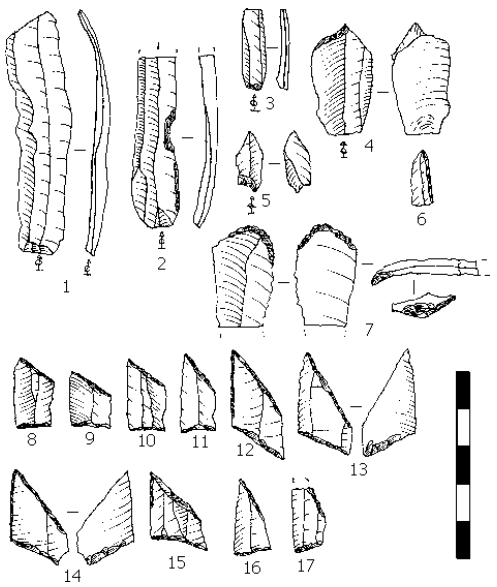

Fig. 4 — Blade (1); notched blade (2); bladelet (3); microburin (4-5); backed bladelet (6); scraper (7); *trapèze de Veille* (8-11); *trapèzes à bases décalées* (12-15); asymmetric trapeze (16-17).

between the lithic assemblages of these three sites – and other neighboring sites such as Genk - *Opglabbekerzavel* (Dieltiens, 1972), Dilsen - *Kruisven* (Mardaga, 1975), Dilsen - *Platte Lindenberg*, and Dilsen - *Dilserheide III* (Luypaert *et al.*, 1993) – will provide significant advancements and further hypothesis testing that will contribute to our under-standing of Late Mesolithic settlement complexity, social networks, ecological dynamics, and technological organization.

6. Conclusion

This study has first and foremost exhibited the value of reinvestigating older excavations in the light of new research questions. However, the problems encountered with the spatial representation of the data also highlight many of the difficulties of working with older excavations. Yet, in the end, these difficulties are insignificant compared to the overall benefits researchers gain from returning to old excavations to generate new, testable hypotheses.

The site of Opglabbeek – *Ruiterskuil 2* attests to the most homogeneous Late Mesolithic trapeze assemblage in Belgium. It also provides great insight into the distribution and utilization of Wommersom quartzite on a local scale. Most importantly, the lithic assemblage indicates a rather short-term ('logistic'?) small aggregation of Late Mesolithic foragers alongside a fen which would have been a key point in the landscape not only for game but for the collection of wild plants. These preliminary findings suggest that the Meeuwen – Gruitrode - Opglabbeek region — with its numerous fen and marshy habitats – was particularly attractive to Late Mesolithic foragers because it allowed for them to maintain settlement complexity comprised of various aggregations and smaller (familial?) dispersals that were likely guided by a combination of social and ecological dynamics. Hopefully the evidence and subsequent hypothesis presented here is refined and subjected to further in-depth analysis in the future.

Acknowledgements

We would like to thank Jessica McGinnis and Guido Schalenbourg for her assistance with figures.

References

CREEMERS G. & CAROLUS J., 1991. Enkele Bandceramische vondsten uit Noordoost-Limburg. *Notae Praehistoricae,* 11: 121-127.

CREEMERS G. & VERMEERSCH P. M., 1986. Het Jong-Mesolithisch site van Meeuwen - In den Damp 1. *Notae Praehistoricae*, 6: 107-112.

CREEMERS G. & VERMEERSCH P. M., 1987. De laat-mesolithische vindplaats van Meeuwen- *In den Damp* 1 (gem. Meeuwen - Gruitrode). *Archaeologia Belgica,* III: 71-72.

CREEMERS G. & VERMEERSCH P. M., 1989. Meeuwen - Donderslagheide: a middle Neolithic site on the Limburg Kempen Plateau (Belgium). *Helinium,* 29 (2): 206-222.

DIELTIENS H., 1972. Prehistorische vondsten van de Opglabbeker Zavel te Genk. *Limburg,* 51: 267-274.

GENDEL P., VAN DE HEYNING H. & GIJSSELINGS G., 1985. Helchteren-Sonnisse Heide 2: a Mesolithic site in the Limburg Kempen (Belgium). *Helinium*, 25: 5-22.

MARDAGA M., 1975. Dilsen (Kruisven), un site méso-lithique à débitage Montbani. *Bulletin de la Société royale belge d'Anthropologie et de Préhistoire*, 86: 93-111.

SERGANT J., BATS M., NOENS G., LOMBAERT L. & D'HOLLANDER D., 2007. Voorlopige resultaten van noodopgravingen in het afgedekte dekzandlandschap. *Notae Praehistoricae*, 27: 101-107

VAN GILS M. & DE BIE M., 2006a. Uitgestrekte mesolitische site-complexen in de Kempen. Ravels-Witgoor en Opglabbeek Ruiterskuilen-Turfven (boorcampagne 2002). *Relicta*, 1: 11-28.

VAN GILS M. & DE BIE M. 2006b. Steentijd in de Kempen. Prospectie, kartering en waardering van het laat-paleolithisch me mesolithisch erfgoed. *CAI-II. Thematisch inventarisatie- en evalutaieonderzoek. VIOE-Rapporten 02.*

VERMEERSCH, P. M. 1999. Postdepositional processes on Epipaleolithic and Mesolithic site in the sandy area of Western Europe. In: A. THÉVENIN (ed.), *L'Europe des derniers chasseurs*. Paris, Éditions du CTHS: 159-166.

VERMEERSCH, P. M. 2006. Reliability of the stratigraphy and spatial structures of Late Pleistocene and Holocene site in sandy areas: Mesolithc-Neolithic contacts in central Benelux? In: C. J. KIND (ed.), *After the Ice Age. Settlements, subsistence, and social development in the Mesolithic of Central Europe*. Stuttgart, Konrad Theiss Verlag: 297-303.

VERMEERSCH, P. M. & BUBEL, S. 1997. Postdepositional artefact scattering in a podzol: Processes and consequences for late Paleolithic and Mesolithic sites. *Anthropologie* (Brno), 35 (2-3): 119-130.

VERMEERSCH P. M., MUNAUT A. V. & PAULISSEN E. 1974. Fouilles d'un site du Tardenoisien final à Opglabbeek - Ruiterskuil (Limbourg belge). *Quartär,* 25: 85-104.

Erick N. Robinson
Research School of Archaeology
and Archaeological Science
University of Sheffield
2 Mappin Street
Sheffield S14DT
United Kingdom
E.N.Robinson@shef.ac.uk

Guido Creemers
Provinciaal Gallo-Romeins Museum
Kielenstraat 15
BE - 3700 Tongeren
GCreemers@limburg.be

Pierre M. Vermeersch
Prehistoric Archaeology Unit
K.U. Leuven
Celestijnenlaan 200E
BE - 3001 Heverlee
Pierre.Vermeersch@ees.kuleuven.be