

## Recent investigations at the Middle Palaeolithic site of St. Geertruid – *De Kaap* (Limburg, NL)

Ann VAN BAELEN, Yannick RACZYNSKI-HENK, Phil GLAUBERMAN,  
Gunther NOENS, Jan-Willem DE KORT & Jos DEEBEN

### 1. Introduction

The site of *De Kaap*, located near the village of St. Geertruid (Fig. 1), forms one of the richest and most intensely studied Middle Palaeolithic surface sites in The Netherlands. It is the largest of a regional cluster of Middle Palaeolithic surface sites and as such has played an important role in the formulation of hypotheses regarding Middle Palaeolithic settlement dynamics in the Meuse basin around Maastricht (Roebroeks, 1988; Groenendijk & de Warrimont, 1995; Kolen *et al.*, 1999).

Following the discovery of the site by Marcel De Puydt in 1881 (De Puydt, 1887), lithic artefacts have been collected here throughout most of the 20th century (Ophoven & Hamal-Nandrin, 1951; Roebroeks, 1980, 1981; Wouters, 1980; Groenendijk & de Warrimont, 1995; de Warrimont, 1997, 2002). As a result, a large collection of technologically and typologically Middle Palaeolithic artefacts is known besides many Neolithic finds presumably related to the nearby flint mines of Rijckholt – St. Geertruid. Based on techno-typological characteristics of the surface finds, the Middle Palaeolithic artefacts of *De Kaap* have been attributed to the Late Acheulean (Roebroeks, 1980) and early Weichselian (de Warrimont, 2002). Most of these have been found at the south and west-facing edges of the plateau of *De Kaap*, at places where erosion processes have removed an unknown amount of the loess cover and have exposed the underlying gravel deposit. However, the current interpretation of the Middle Palaeolithic artefacts from *De Kaap* is problematic because no data on the stratigraphic origin of these Middle Palaeolithic surface finds, nor any independent age estimations are available.

To address these problems, a project investigating the Middle Palaeolithic occupation at *De Kaap* has been set up as an independent, but related part of the larger *Neolithic Rijckholt Flint Mine Project* (2008-2012) of the *Cultural Heritage Agency of the Netherlands*; Deeben *et al.*, 2011). The aims of this project are threefold and focus on:

1. documenting and absolute dating of the stratigraphic sequence present at *De Kaap*;
2. correlating these stratigraphic observations with the results of previous augering campaigns (Rijks Geologische Dienst, 1962-1984; Henk, 2006) and the existing regional chronostratigraphic framework (e.g. Mùcher & Vreeken, 1981; Vreeken & Mùcher, 1981; Vreeken, 1984; Meijs, 2002; Meijs *et al.*, 2012);
3. gaining insight into the formation processes responsible for the different stratigraphic units.

These data will contribute to the assessment of the stratigraphic provenance and age of the Middle Palaeolithic artefacts and help to answer the question whether *in situ* Middle Palaeolithic sites might have been preserved on the plateau. On a wider scale, these results will also contribute to the future management of the site. This article presents the first preliminary results of the 2010-2011 fieldwork.

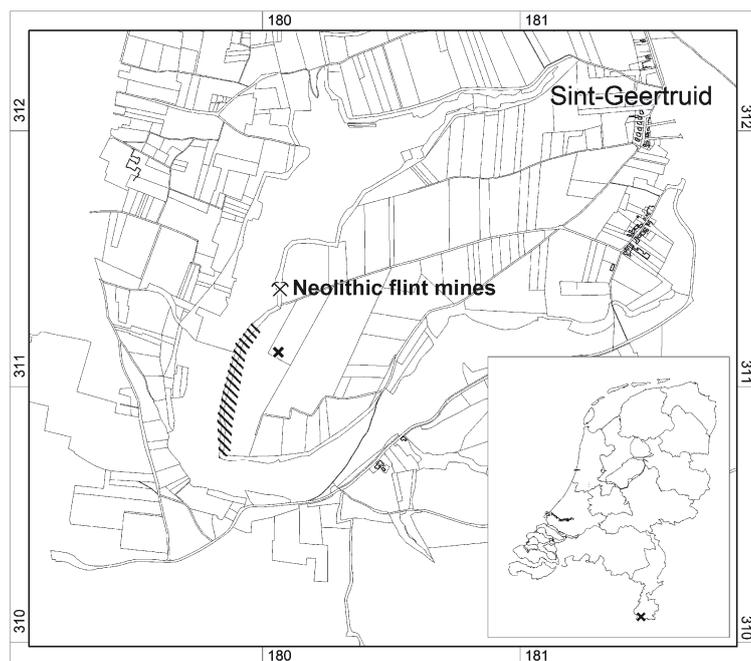


Fig. 1 - The location of the research area (insert) and of St. Geertruid-De Kaap. The position of the trench (x), the area with the Middle Palaeolithic surface artefact scatters (hatching) and the Neolithic flint mines are indicated.

## 2. Research method

In the course of October 2010 an augering campaign was executed in the research area. The cores were done by hand, using an Edelman auger with a diameter of seven centimetres. A W-E transect of deep cores reached from the edge of the plateau on to the highest point, perpendicular to the terrace edge. Based on the results from this transect, an area for further investigation was selected, located in the western part of the plateau at approximately + 121 m NAP, in an area where the loess cover was still quite thick, yet all the layers identified in the cores were still within reach (and safety limitations) of excavation by digger (Fig. 1). On this location, a trench of 5 by 10 m wide and ca. 4,5 m deep was dug mechanically in October 2011. The different sections of the trench were cleaned and documented and samples were taken from the northern and western sections (including samples for OSL-dating, grain size analyses, mineralogy and micromorphology). Investigation of

these samples is still on-going and the results of these analyses will be discussed in a later publication.

## 3. Some preliminary results

The general geological and stratigraphical sequence at *De Kaap* is composed of three important components. At the base of the sequence, the chalk bedrock of the Maastricht Formation is present (Bosch & Felder, 2000), overlain by fluvial terrace deposits of the St. Geertruid terrace deposited by the Meuse (i.e. *Laagpakket van St. Geertruid*, Beegden Formation; van den Berg, 1996; van den Berg & van Hoof, 2001; Westerhoff & Weerts, 2003). On top of these, a series of loess deposits is present (*Laagpakket van Schimmert*, Boxtel Formation; Schokker et al., 2003). Only deposits belonging to the last category were observed in the trench during the 2011 fieldwork.

The observed sequence starts at the base of the trench with a layer of clayey loess, light grey to reddish grey in colour (Fig. 2, unit 1). A core in the lowest part of the trench shows that this layer of sediments continues for at least another three metres. The clay particles in the top of this section are most likely the result of illuviation through soil formation, identifying it as a Bt-horizon. This layer is truncated by a thin layer of gravel (Fig. 2, unit 3). Two generations of frost wedges (Fig. 2, unit 2) can be observed in the Bt-horizon, one of which is also truncated by the gravel layer, whereas the presence of gravel within the infill of other wedges indicates that a second, younger generation departed from the gravel layer itself.

Locally the gravel layer is overlain by a decalcified orange loamy deposit of variable thickness containing yellow lenses and some dispersed gravels. On top of this orange

loamy horizon, and elsewhere directly overlying the gravel deposit, lies a yellow loamy calcareous deposit (Fig. 2, unit 4) followed by a greyish calcareous tundra soil (Fig. 2, unit 5). This part of the sequence shows evidence of intense cryoturbation.

The sequence continues with brown-yellowish calcareous loamy deposits (Fig. 2, unit 6). The interface between calcareous and decalcified sediments (Fig. 2, interface unit 6-7) is found at approximately 2,25 m below the surface. This is evidence of the Holocene soil formation, also indicated by the presence of the current Bt-horizon (Fig. 2, unit 8) immediately underneath the present plough soil (Fig. 2, unit 9). This indicates that the original A- and E-horizons were lost through erosion somewhere during the Holocene. Higher up on the plateau, these soil horizons are better preserved; they have been identified during the coring programme.

The upper Bt-horizon resulted from soil formation during the Holocene. The greyish cryoturbated tundra soil which is present lower in the stratigraphic sequence, can probably be correlated to the Nagelbeek horizon, a marker horizon generally found at the base of the Brabant or Upper Loess. It is commonly dated to the onset of MIS 2 (Vleeshouwer & Damoiseaux, 1990; Gullentops *et al.*, 2001). At several locations within the wider area an important erosion level, the so-called Patina discordance, is found somewhat below the Nagelbeek horizon (Meijs, 2002). At these locations, this discordance is overlain by 10-20 cm reworked deposits. This stratigraphic unit, which forms the division between the Haspengouw and Brabant or Middle and Upper Loess respectively, forms a more or less horizontal deflation horizon and is thought to reflect extremely cold and dry climatic conditions. The formation of the Patina discordance is also placed around the onset of the Upper Pleniglacial (MIS 2), slightly before the formation of the Nagelbeek horizon (Meijs, 2002).

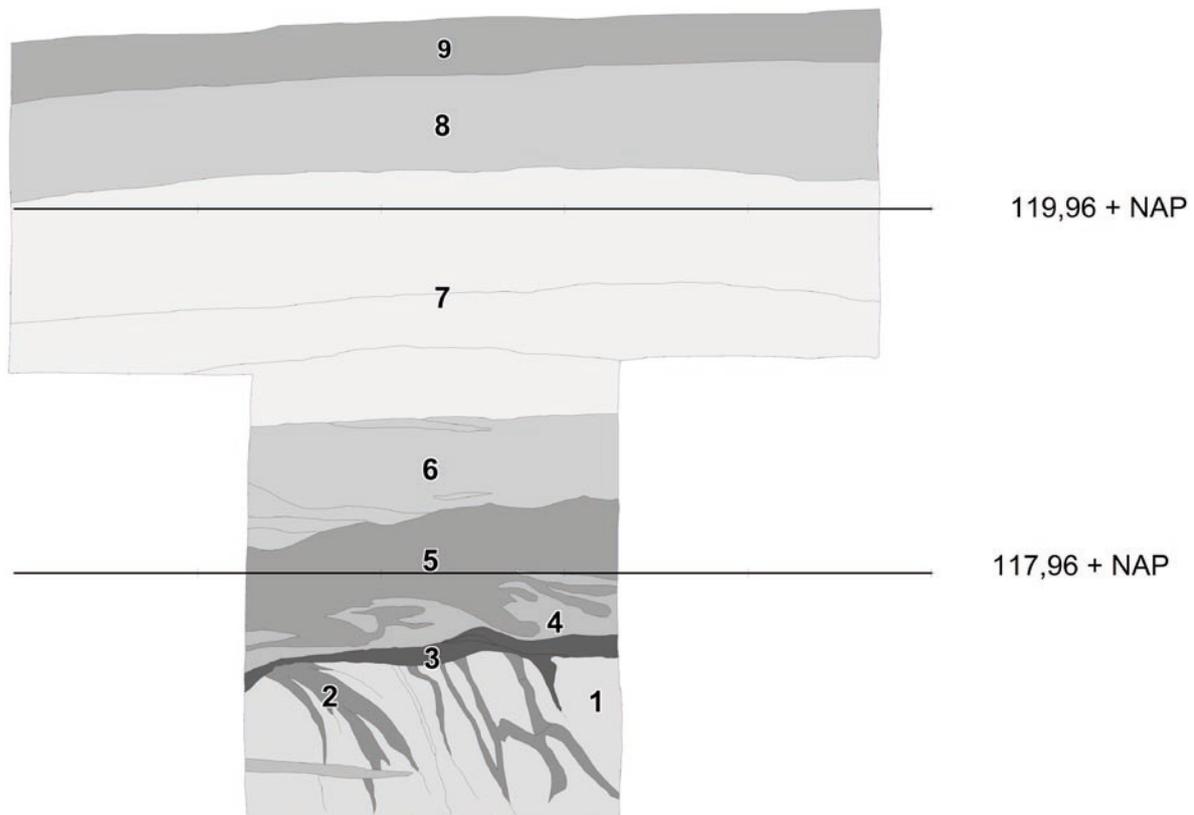


Fig. 2 - Northern section of the trench at De Kaap. Numbers are referred to in the text.

At present, we tentatively postulate that the orange decalcified loamy deposit containing yellow lenses alongside some dispersed gravels, together with the overlying yellow loamy calcareous deposit might correspond to the sequence described above, also referred to as Patina Complex (Meijs, personal communication). The results of the micromorphological analyses which are part of the sampling strategy outlined above will elucidate this. The Bt-horizon at the base of the sequence is likely part of the Rocourt pedocomplex, but pending the results of the sample analyses an attribution to an older interglacial or even an older (or younger) interstadial cannot yet be excluded.

During the documentation of the section, three lithic artefacts were found in the southwest corner of the trench, approximately 3,6 m below the present surface (Fig. 3). Two of these artefacts, an *éclat débordant* and a discoid core (*sensu* Van Peer *et al.*, 2010) broken though frost-action, are moderately fresh but display a certain lustre. Both artefacts were found in association with the orange decalcified loamy deposit containing yellow lenses and some

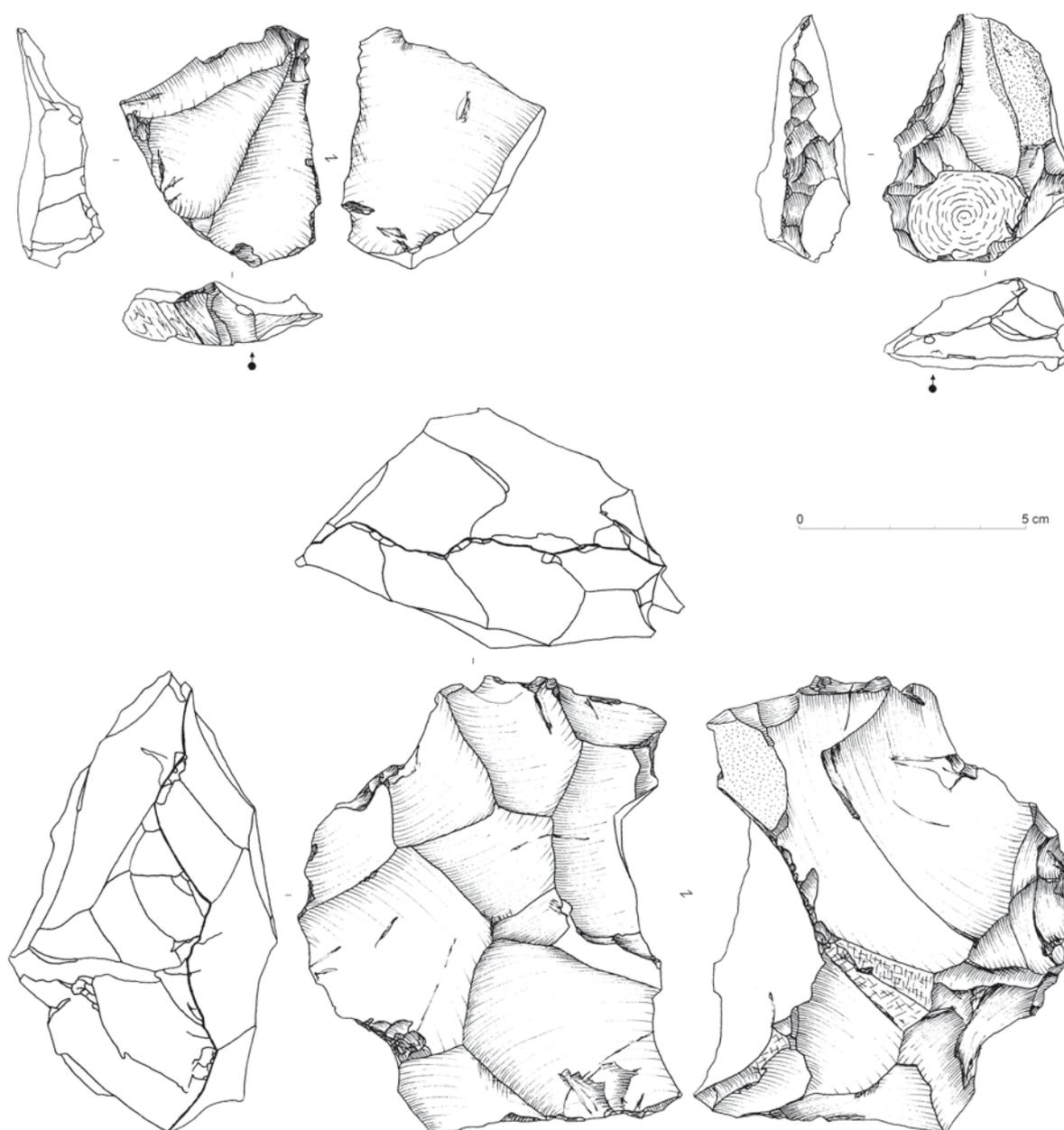


Fig. 3 - Lithic artefacts found during the 2011 fieldwork at De Kaap.

dispersed gravels, which is here tentatively interpreted as part of the Patina Complex. A third artefact, a denticulate, is strongly patinated and was found among the gravels lying on top of the Bt-horizon somewhat more to the north. Its condition differs from the two other pieces, suggesting a different taphonomic history. From a typo-technological point of view, all three artefacts can clearly be attributed to the Middle Palaeolithic. The relevance of this different taphonomic history needs to be established yet. The Middle Palaeolithic artefacts collected on the surface display an equally heterogeneous range of post-depositional alterations.

#### 4. Conclusion

The discovery of Middle Palaeolithic lithic artefacts in stratigraphic context at approximately 3,6 m underneath the present surface at *De Kaap* is of great importance because it provides information on the possible origin and age of the Middle Palaeolithic surface finds that have been collected at the edges of the plateau of *De Kaap*. In a more general sense, it may also serve as a tool to shed more light on the nature of the surface artefact scatters in terms of their place in and relation to regional land-use patterns. Results from an earlier attempt at Colmont near Heerlen proved inconclusive (Verpoorte *et al.*, 2002), but the discovery of the artefacts in the trench has shown that the surface scatters are most likely the edge of one or several sub-surface ‘veils of stone’ (cf. Roebroeks *et al.*, 1992) and that more buried sites are to be expected in the loess deposits of *De Kaap* and other, similar areas of South-Limburg, opening new possibilities for the study of Neanderthal occupation in The Netherlands. However, the stratigraphical analysis of the loess sequence is work in progress and a more detailed assessment of the chronostratigraphic context of the 2011 finds and their wider implication will have to await the results of OSL-dating and micromorphological analyses.

#### Acknowledgments

We would like to thank Erik Meijs and Jeroen Schokker for their valuable comments and suggestions during the fieldwork and Erik Meijs for his comments on earlier drafts of this paper.

### Bibliography

BOSCH P. W. & FELDER W. M., 2000. *Geologie van Zuid-Limburg en omgeving* (CD-ROM, versie 1.1), Nederlands Instituut voor Toegepaste Geowetenschappen TNO, Den Haag.

DEEBEN J., DE GROOTH M. E. T., DE KORT J. W., LAUWERIER R. C. G. M. & TER SCHEGGET M. E., 2011. *Archeologisch onderzoek in de omgeving van het prehistorische vuursteenmijnveld te Rijckholt - St. Geertruid. De resultaten van 2008 en 2009*, Rapportage Archeologische Monumentenzorg 202, Rijksdienst voor het Cultureel Erfgoed, Amersfoort.

DE PUYDT M., 1887. Quelques constatations relatives à la station néolithique de Sainte Gertrude. *Publications de la Société Historique et Archéologique dans le Duché de Limbourg*, 24: 39-56.

DE WARRIMONT J. P., 1997. De “biface lancéolé” van *De Kaap* in Sint Geertruid. *Archeologie in Limburg*, 72: 28-30.

DE WARRIMONT J. P., 2002. Midden-paleolithische artefacten uit Rijckholt-Sint Geertruid. *Archeologie in Limburg*, 90: 2-7.

GROENENDIJK A. J. & DE WARRIMONT J. P., 1995. Middenpaleolithische oppervlaktevindplaatsen in de Voerstreek. *Archeologie in Limburg*, 65: 33-45.

GULLENTOPS F., BOGEMANS F., DE MOOR G., PAULISSEN E. & PISSART A., 2001. Quaternary lithostratigraphic units (Belgium). *Geologica Belgica*, 4 (1-2): 153-164.

HENK Y., 2006. *Scratching the surface: The potential of Middle Palaeolithic surface scatters and how (not) to find them. A case study of the Hej and the Henkeput near Sint-Geertruid (Limburg)*. Unpublished MA Thesis, University of Leiden.

KOLEN J., DE LOEKER D., GROENENDIJK A. J. & DE WARRIMONT J. P., 1999. Middle Palaeolithic surface scatters: How informative? A case study from Southern Limburg (The Netherlands). In: ROEBROEKS W. & GAMBLE C. (ed.), *The Middle Paleolithic occupation of Europe*, Leiden University Press, Leiden, 177-191.

MEIJS E. P. M., 2002. Loess stratigraphy in Dutch and Belgian Limburg. *Eiszeitalter und Gegenwart*, 51: 114-130.

MEIJS E. P. M., VAN PEER P. & DE WARRIMONT

J. P., 2012. Geomorphologic context and proposes chronostratigraphic position of Lower Palaeolithic artefacts from the Op de Schans pit near Kesselt (Belgium) to the west of Maastricht. *Netherlands Journal of Geosciences – Geologie en Mijnbouw*, 91 (1/2): 137-157.

MÜCHER H. J. & VREEKEN W. J., 1981. (Re) deposition of loess in Southern Limbourg, The Netherlands: 2. Micromorphology of the Lower Silt Loam Complex and comparison with deposits produced under laboratory conditions. *Earth Surface Processes and Landforms*, 6: 335-363.

OPHOVEN M. & HAMAL-NANDRIN J., 1951. La Station Néolithique de Rijckholt-Sainte-Gertrude (1881-1951). *Bulletin de la Société Préhistorique Française*, 48: 441-452.

ROEBROEKS W., 1980. De “Middenpaleolithische” vindplaats Sint Geertruid (Limburg): Hypothesen voor nader onderzoek. *Archeologische Berichten*, 8: 7-37.

ROEBROEKS W., 1981. Ein mittelpaläolithischer Fundplatz bei Sint Geertruid (Süd-Limburg, Niederlande). *Archäologisches Korrespondenzblatt*, 11: 289-292.

ROEBROEKS W., 1988. *From find scatters to early hominid behaviour: A study of Middle Palaeolithic riverside settlements at Maastricht-Belvédère (The Netherlands)*. *Analecta Praehistorica Leidensia* 21, Leiden University Press, Leiden.

ROEBROEKS W., DE LOECKER D., HENNEKENS P. & VAN IEPEREN M., 1992. “A Veil of Stones”: On the Interpretation of an Early Middle Palaeolithic Low Density Scatter at Maastricht-Belvédère (The Netherlands). *Analecta Praehistorica Leidensia* 25, Leiden University Press, Leiden: 1-25.

SCHOKKER J., DE LANG F. D., WEERTS H. J. T. & DEN OTTER C., 2003. *Lithostratigrafische nomenclator ondiepe ondergrond. Formatie van Bostel*, Nederlands Instituut voor Toegepaste Geowetenschappen TNO, Utrecht.

VAN DEN BERG M. W., 1996. *Fluvial Sequences of the Maas: A 10 Ma record of neotectonics and climatic change at various time-scales*, Wageningen Landbouwniversiteit, Wageningen.

VAN DEN BERG M. W. & VAN HOOFF T., 2001. The Maas sequence at Maastricht, SE Netherlands: Evidence for 200 m of late Neogene and Quaternary surface uplift. In: MADDY D., MACKLIN M. G. & WOODWARD J. C. (ed.) *River basin sediment systems: archives*

of environmental change, Balkema Publishers, Lisse: 45-86.

VAN PEER P., VERMEERSCH P. & PAULISSEN E., 2010. *Chert Quarrying, Lithic Technology, and a Modern Human Burial at the Palaeolithic Site of Taramsa 1, Upper Egypt*. Egyptian Prehistory Monographs 5, Leuven University Press, Leuven.

VERPOORTE A., LANGBROEK M. & VOORMOLEN B., 2002. Het Midden-Paleolithicum van het Heuvelland. Resultaten van veldwerk te Col-mont (gemeente Voerendaal). *Historische en Heemkundige Studies in en rond het Geuldal 2002*: 133-152.

VLEESHOUWER J. J. & DAMOISEAUX J. H., 1990. *Bodemkaart van Nederland 1:50 000. Toe-lichting bij kaartblad 61 - 62 West en Oost Maastricht – Heerlen*. DLO-Staring Centrum, Wageningen.

VREEKEN W. J., 1984. (Re)deposition of loess in Southern Limbourg, The Netherlands: 3.

Field evidence for conditions of deposition of the Middle and Upper Silt Loam Complexes, and landscape evolution at Nagelbeek. *Earth Surface Processes and Landforms*, 9: 1-18.

VREEKEN W. J. & MÜCHER H. J., 1981. (Re) deposition of loess in Southern Limbourg, The Netherlands. 1. Field evidence for conditions of deposition of the Lower Silt Loam Complex. *Earth Surface Processes and Landforms*, 6: 337-354.

WESTERHOFF W. E. & WEERTS H. J. T., 2003. *Lithostratigrafische nomenclator ondiepe ondergrond. Formatie van Beegden*. Nederlands Instituut voor Toegepaste Geowetenschappen TNO, Utrecht.

WOUTERS A., 1980. De Middenpaleolithische Vindplaats Sint Geertruid (L). Afbeeldingen en beschrijvingen van Middenpaleolithische artefacten uit vondstcomplexen uit de omgeving van Sint Geertruid. *Archeologische Berichten*, 8: 38-106.

#### Abstract

Since its discovery in the late 19<sup>th</sup> century, the surface site of *De Kaap* has produced a large collection of Middle Palaeolithic lithic artefacts, mainly found at the edges of the plateau. This paper presents some preliminary results of recent fieldwork, undertaken by means of an augering campaign, a 4,5 m deep test trench and extensive sampling. The research focuses on the description and dating of the local stratigraphic sequence and an evaluation of the possible presence and preservation of *in situ* Middle Palaeolithic remains. During the excavation of the test trench, a small number of lithic artefacts was discovered.

**Keywords:** De Kaap, St.-Geertruid, Limburg (NL), loess deposit, Meuse terrace, Middle Palaeolithic, surface scatter.

#### Résumé

Depuis sa découverte à la fin du XIX<sup>ème</sup> siècle, le site de plein air de *De Kaap*, a livré une grande collection d'artefacts lithiques du Paléolithique moyen, principalement trouvés en bordure de plateau. Cet article présente quelques résultats préliminaires de la campagne de sondages à la tarière et de la fouille d'une tranchée de test, d'une profondeur de 4,5 m, ayant fait l'objet d'un échantillonnage extensif. L'étude s'est focalisée sur la description et la datation de la séquence stratigraphique et sur l'évaluation de la présence de vestiges du Paléolithique moyen *in situ*. Durant le creusement de la tranchée de test, quelques artefacts lithiques ont été découverts.

**Mots-clés :** De Kaap, St.-Geertruid, Limbourg néerlandais (NL), gisement loessique, terrasse de la Meuse, Paléolithique moyen, diffusion surfacique.

Ann VAN BAELEN  
Prehistoric Archaeology Unit  
Katholieke Universiteit Leuven  
Celestijnenlaan 200E box 2409  
BE - 3001 Heverlee  
*ann.vanbaelen@arts.kuleuven.be*

Yannick RACZYNSKI-HENK  
Ex-Situ Silex  
Vrijheidslaan 646  
NL - 2321 DV Leiden  
*y.raczynskihenk@ex-situ.nl*

Phil GLAUBERMAN  
Department of Anthropology  
University of Connecticut  
354 Mansfield Rd. Unit 1176  
USA - Storrs, CT 06269-1176  
*philip.glauberman@uconn.edu*

Gunther NOENS  
*gunther.noens@gmail.com*

Jan-Willem DE KORT  
Jos DEEBEN  
Rijksdienst voor het Cultureel Erfgoed  
(Cultural Heritage Agency of the Netherlands)  
Smallepad 5  
NL - 3811 MG Amersfoort  
*j.w.de.kort@cultureelerfgoed.nl*  
*j.deeben@cultureelerfgoed.nl*