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BEYOND THE SITE

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"De wetenschap is geen perfect instrument, maar het is wel het best mogelijke instrument. Net zoals de democratie niet het perfecte, maar wel het best denkbare systeem is."
(van Springel 1999:4).

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Abstracts

1 Introduction

The Maastricht-Belvédère gravel- and loess quarry is situated on the left bank of the river Meuse (Maas), near the Dutch city of Maastricht (province of Limburg). Research of the local Pleistocene sequence initially started as a small scale project, focusing on individual artefact discoveries, geo-archaeological section observations and 'site' orientated studies. Over the years it developed into a comprehensive and multidisciplinary research project, in which the focal point altered towards the excavation and analysis of large continuous artefact distributions.

Chapter 1 produces a general historical, theoretical and methodological framework for the interpretation lithics in terms of spatial 'human' activities. Since the first human implements were recognised by Frere and de Perthes (Frere 1800; Daniel 1972; Roe 1981), through the revolutionary work of Smith (1894) and the innovative impulses of *New Archaeology* (Binford and Binford 1966) a setting was created for behavioural theory building. However, the Isaac – Binford debate shed light on taphonomy and site-formation processes and illustrated that we should be very cautious with the integrity and interpretation of early settlement (land use) systems. Nevertheless, it became clear that if we want to understand past behaviour we should leave the 'single site' focus and concentrate on an analysis 'beyond the site'. This can ultimately spotlight the spatial dynamics of lithic artefact technologies, which are in most cases the only behavioural remnants traceable on a palaeo-landscape.

In general, the main target of this thesis is twofold. On the one hand the elaborate lithic inquiry (*i.e.* artefact descriptions and conjoining) presents a way of understanding and interpreting a technological landscape at Maastricht-Belvédère. The high density Site K patch offers in that way a starting point and can be seen as a 'key site' in this thesis. On the other hand it provides a unique dataset, which can be generally used for future comparative research. Therefore, this study can also be seen as a detailed site-report.

Conjoining of artefacts together with a lithic analysis proved to be an essential 'tool' in the understanding of the Maastricht-Belvédère flint assemblages. A combination of both mentioned analytical tools shed new light on, amongst others: the reduction processes of core technologies; the complex life-histories of single stone tools in the process of production, use, re-use and recycling; the use of space by early humans on the local level; the spatial organisation of technology when viewed from an inter-site/(micro-)regional level and the taphonomic histories of artefact distributions.

2 An introduction to Maastricht-Belvédère: geology, palaeoenvironment and dating

The Maastricht-Belvédère complex fluviatile deposits of the river Meuse and the younger aeolian sequence have been studied archaeologically and geologically on many occasions. These studies resulted in the definition of a number of lithological and lithostratigraphical units, which contained relics of Middle Palaeolithic early human occupation.

After a short historical introduction, the Middle and Late Pleistocene sequence at Belvédère is briefly described in Chapter 2; dating and palaeoenvironmental data are discussed. The most interesting archaeological levels, however, were embedded in fine-grained fluviatile sediments (Unit IV), with an approximate age of 250 ka. These deposits are present on top of a complex of terrace gravels, and are overlain by a series of Saalian silt loams and Weichselian loesses. The geological situation of the main archaeological level (Saalian Unit IV) is described in slightly more detail.

3 Reconstructing a Middle Palaeolithic technology: Maastricht-Belvédère Site K

The main archaeological level documented a full interglacial fauna associated with a 'rich' Middle Palaeolithic dataset, preserved within various sites over an area of about 6 hectares. Between 1981 and 1990 excavations were carried out each year, often under considerable time pressure and sometimes right in front of the machines and by the end of 1990 eleven 'sites' had been excavated at the Belvédère locale. Some of these findspots were so well preserved that extensive refitting proved possible, *e.g.* at sites C, F and K, and inferences on former *chaines opératoires* could be drawn.

One of 'richest' sites in terms of flint quantities and interpretation value is Site K. This so-called 'classic' site is analysed in Chapter 3 and its study created a scientific setting for a further analysis beyond the 'site-level'. In other words this findspot represents a key-site for this thesis. Chapter 3 presents a typo-/technological review, refitting exercise and spatial analysis of the lithic material. After a geological interpretation of the local sediments, the dating evidence and a discussion of the research methods, a summarized typo-/technological description of the flint artefacts is given.

In total 10,912 flint artefacts were collected, consisting mainly of debitage. All stages of the reduction strategy, from

collecting the raw material through decortication to the discard of cores and tools, are represented. The reconstructed technology can generally be interpreted as the result of a 'wasteful' reduction of non-prepared cores. Also a number of well-prepared tools, fabricated on 'exotic' flint, was probably transported to the locus, to be used 'on the spot'. Topics like raw material procurement, *ad hoc* production (-modes) of flakes, cores and tools, and transport of lithics are discussed in different sections. Specific attention is paid to the results of the detailed refitting analysis. Subsequently, the artefacts, including the refitting results, of this 'rich' site are analysed and interpreted spatially. Whether this 'high density' site is exclusively the result of one consistent use of the place, or a palimpsest of several unrelated events is an important issue in the analysis.

4 Maastricht-Belvédère: the other Unit IV sites and finds

For a comparison of the Site K results, Chapter 4 presents an introduction, a typo-/technological review, some refitting and spatial results and an interpretation of the lithic material from all Maastricht-Belvédère Unit IV findspots (Sites A, B, C, D, F, G, H, and N). Besides the artefacts from the excavated areas all stray-finds, collected in several (stratigraphically) different (long) sections and finds recovered during test pit excavations, are dealt with as well (Sites L, M, O, N [level X] and the 'July 1990' test pit). Furthermore, the 'isolated' section finds recovered during the ca. ten years of research are described as one group of artefacts. It should be mentioned that Chapter 4 contains some repetition of Belvédère data presented in earlier publications (*cf.* Roebroeks 1988; Roebroeks *et al.* 1992; Schlanger 1994). This was mainly done to give an overview, as accurately as possible, of the Unit IV archaeological remains.

Excavations at Maastricht-Belvédère showed that parts of the former Meuse valley bottom must have been littered with artefacts and bones. According to the executed analyses, the large scale and continuous artefact distribution (referred to as a 'veil of stones' by Roebroeks *et al.* [1992]) displays some internal variations in artefact density and composition.

5 Patterns of behaviour: spatial aspect of technology at Maastricht-Belvédère, Unit IV

Chapter 5 presents a survey of these variations and attempts to explain them in terms of early human behaviour. Here, topics such as transport or expedient production of flakes, tools and cores, which played an important role in the formation of inter-assemblage variability, are treated. This Chapter uses some elements of Isaac's (1981) 'scatters and patches' approach and is mainly based on the model published by Roebroeks *et al.* (1992). The model stresses the equal importance of scatters and patches and shows that the find distributions should be treated as parts of 'one' single system in our search for Middle (Lower?) Palaeolithic patterns in the former landscapes.

According to some variations in artefact density, composition and conjoining potentials it is, generally, possible to distinguish two different kinds of find distributions at Belvédère. On one end of the density scale there are 'low density off-site' distributions, predominantly consisting of well-prepared scattered (isolated and/or small groups of) flakes, 'worn out' tools, minor cores and faunal remains. These scatters predominantly consist of relatively few dorsal/ventral refits. They mainly suggest a transported technology (*cf.* Site G and N).

On the other end are 'high density patches' which represent the 'classic' sites and are characterized by dense clustered appearances of large quantities of artefacts. The patches show a striking dominance of primary flint knapping debris and relatively few tools. They turned out to be 'a refitter's paradise' (*cf.* Site C, F, H and K).

These scatters and patches represent different trajectories within the life histories of Middle Palaeolithic flake technologies, *i.e.* of cores and flakes. At one end of the continuum is Site K, where reduction sequences 'started' and the degree of importation is low, except for some scrapers. At the other end there are the low density scatters of Site G and N, were flake technologies came to their end. Cores were already strongly reduced and transported flakes were transformed into retouched and worn out tools. Stated differently, the high and low density scatters may reflect different places in the spatial organisation of the technologies. It may well be, however, that this was related to the execution of different activities. The high density patches may predominantly reflect the maintenance of technology (*i.e.* the preparation of new cores, flakes and tools), while the low density scatters might relate to the actual use of these technologies in direct food procurement. It has to be stressed that this is not a 'black and white' situation as most of the Belvédère patches also reflect the 'intermediate' stages in the use-life of transported technologies. Moreover, brought-in 'toolkits' were constantly replenished, assisted or replaced by local produced implements (*cf.* Site K) and used during food related activities (*cf.* Site C). The observed technological variations between the Unit IV find occurrences (disc[oidal] *versus* Levallois) were probably for a large part related to the used (or availability of) raw materials. Technology can therefore be described as very flexible and 'binary' (*cf.* Geneste 1985). In other respects Belvédère sites show only minor variations, despite the fine scale differences. All scatters and patches can be perceived as belonging to a technological strategy, which was flake orientated and which was based on the regular transportation of items.

The information potential of the scatters and patches in the Meuse valley, discovered at Belvédère, may eventually be more fully realized when compared to Middle Palaeolithic find occurrences in nearby regions.

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Curriculum Vitae

On September 17th, 1963 I was born in Deurne (satellite town of Antwerp), Belgium. During my adolescence my parents and I lived in Deurne, as well as in Borgerhout (satellite town of Antwerp), Belgium. Between 1975 and 1982 I went to Secondary school (high school) at the *Koninklijk Atheneum Deurne* (Belgium), obtaining my Lower and Higher Secondary school diplomas on respectively June 30th, 1979 and June 18th, 1982.

Thanks to the financial support of my parents, I was fortunate to start an academic education in September 1982 in The Netherlands. I enrolled in the first year studies in History of Art and Archaeology (Leiden University, Faculty of Letters), gaining my *Propedeuse* diploma on September 21st, 1984. I then continued an archaeological study in Leiden with a specialization in Prehistory. My Masters degree in Cultural Pre- and Protohistory (Leiden University, Faculty of Archaeology) was obtained on September 29th, 1988.

Following my graduation in 1988, I did compulsory national service in the Belgian army. I signed up in June 1989 and was trained in the medical service in Gent (Belgium), to be eventually stationed in Aken (Germany). I had fulfilled my national service obligations in March 1990.

From June until December 1990 I was appointed as *Onderzoeksondersteunend assistent* (assistant) to Prof. Dr W. Roebroeks (Leiden University, Faculty of Archaeology) and continued working on the description and documentation of the Maastricht-Belvédère excavation results until the end of 1991.

Between January 1992 and May 1996 I was fortunate to start an *Assistent In Opleiding* (A.I.O., assistant) position at Leiden University (Faculty of Archaeology). During my appointment I began working on this PhD dissertation and was involved in some lecturing, fieldwork and excursions.

From May 1996 until the end of April 1998 I worked as a *gastmedewerker* (guest co-worker) at Leiden University (Faculty of Archaeology).

Moreover, between 1994 and 1999 I was privileged to be part of the NWO (the Netherlands Organisation for Scientific Research) 'Pionier' Project Paleolithicum, at the Institute of Archeology (Leiden University). This interdisciplinary research Programme, 'Changing Views of Ice Age Foragers', was aimed at a better understanding of Palaeolithic societies and their environments. It focused on the cultural adaptations of Pleistocene hunter-gatherers in Northern Europe during the last 500,000 years.

From May 1998 until September 2000 I was appointed Research Fellow at the Institute of Archaeology (University College London, United Kingdom). During this period I worked as a member of the Boxgrove Project. At the Middle Pleistocene site of Boxgrove (West Sussex, United Kingdom), a number of localities have been excavated since the early 1980s. These places of Palaeolithic activity provided detailed insights into the life and palaeoecology of the earliest 'colonisers' of Northern Europe. I was mainly involved in the lithic and refitting analysis of a locality designated Q1/B.

Between May 2001 and May 2004 I have been working as an archaeologist (*Deelprojectleider*) for the Ministry of Transport, Public Works and Water management: Project Organisation '*De Maaswerken*' (Limburg, The Netherlands). The main goals of this *Maaswerken* Project were, and still are, to reduce the probability of floods together with the development of large-scale nature areas and the extraction of gravel in the river Meuse valley of the Dutch province of Limburg. In general this means that over a distance of ca. 200 kilometres the river Meuse valley will be intensively restructured and quarried. In addition these large-scale environmental impacts create a number of 'windows into the past', which enable archaeologists to systematically investigate parts of the landscape. As a member of the Project Team Archaeology ('*De Maaswerken*'), I was mainly engaged in the planning and management of archaeological research.