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An Early Weichselian site at Maastricht-Belvédère (Site J)

This paper presents the preliminary results of the excavation of a site at the base of the Weichselian loess in the Maastricht-Belvédère pit. In the rich flint assemblage from this site the Levallois technique is absent. An explanation for the presence/absence of Levallois core preparation is discussed in terms of Middle Palaeolithic hunter-gatherer mobility.

1. Introduction

Since 1980 the Instituut voor Prehistorie of the Rijksuniversiteit Leiden (IPL) has been conducting archaeological research of the Maastricht-Belvédère gravel and loess quarry. Most of the archaeological levels that have been located in the quarry contain evidence for human activities dating to the penultimate (Saalian) and last (Weichselian) glacial periods. The most important archaeological level is found in fine-grained river sediments that are approximately 250,000 years old. This level, in which a number of excavations have been conducted, has yielded a rich faunal assemblage indicative of interglacial conditions, including forest elephant, rhinoceros, giant deer, red deer, and roe deer. The research being conducted is multidisciplinary, and the specialists involved have recently published a first report (van Kolfschoten/Roebroeks 1985). The senior author of this article will publish a monograph on the archaeological aspects of the research (Roebroeks in prep.).

This article reports the preliminary results of a salvage excavation of a site present at the base of the Weichselian loess in the pit. The site, Site J, was discovered by K. Groenendijk and J.-P. de Warrimont during a systematic survey of the profiles exposed in the quarry. Under severe time constraints, a group of students from the Rijksuniversiteit Leiden and volunteers, ranging in size from 10 to 25 people, excavated the site from May 12 to June 1, 1986.

2. Research methods

Little time was available for the excavation of Site J because in May 1986 it lay in the middle of the area that the Blom Company, which mines the quarry, had planned to remove next. It was decided to select an excavation strategy that would provide information about the spatial distribution of the finds over as large an area as possible.

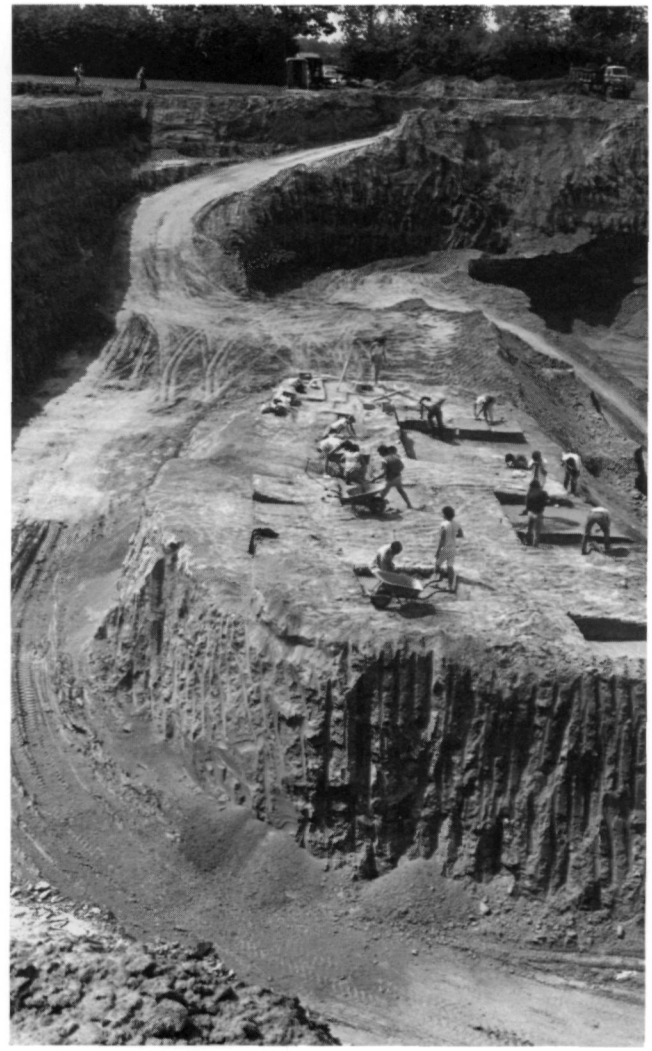

Fig. 1 The excavation in full swing; the quarrying company has excavated all around the site. [Photograph by Jan Paupit (IPL), May 1986].

Therefore, most of the finds were collected by square meter, except in an area of 23 square meters where they were individually plotted in three dimensions in order to acquire more detailed information about their horizontal and vertical distribution. Altogether we excavated approx-

imately 210 m². We estimate that by collecting finds by square meter we were able to excavate at least three times more of the area than would have been possible had we individually plotted all finds encountered. During the excavation the Blom Company removed the sediments all around our excavation area so that the site remained as an elevated platform in the middle of the quarry (*fig. 1*). The quarrying machines also cut through an important concentration of flint artefacts in the southwest part of the site. Our information about this concentration is scanty because we recovered the artefacts while being 'chased' by the quarrying machine.

3. Stratigraphy

A detailed description of the Pleistocene sediments in the quarry has been published elsewhere (Vandenberghe et al. 1985). *Figures 2* and *3* give a schematic overview of the geological context of Site J. The finds are stratigraphically situated above an Eemian paleosol (the 'Sol de Rocourt', cf. Gullentops 1954) and below the 'Horizont van Nagelbeek', a weakly developed soil dated to ca. 20,000 B.P. (Haesaerts et al. 1981). The geological matrix of Site J is the oldest Weichselian sediment found in the quarry, and has been designated as Unit 6.1 in the local lithostratigraphy (Vandenberghe et al. 1985). This unit consists of light grey loess, having a maximal thickness of 20 cm, overlain by an equally thick layer of dark grey-brown loess. The two successive layers of the unit, which have been interpreted as a soil that formed under steppe-like conditions, constitute a complex that has often been observed at the base of Weichselian loess profiles in Northwest Europe ('Sol de Warneton', *sensu* Paepe and Vanhoorne 1967). It should, however, be stressed here, that micromorphological analysis of this inferred soil complex at Belvédère did not yield any evidence for soil formation in this horizon (pers. comm. H.J. Mücher 1987). A similar complex in Seclin (Northern France) has been dated to 70,000-100,000 B.P. (Tuffreau et al. 1985). We provisionally accept this date as the best estimate of the age of the Belvédère Unit 6.1. Artefacts were distributed vertically throughout the 30-40 cm thick unit, but the majority of them were found on the border between the light grey and dark grey-brown loess. Karst formation processes that occurred after Unit 6.1 sediments had been deposited caused the archaeological layer to subside. In this relatively lower position the layer was protected from the subsequent erosion that completely obliterated Unit 6.1 to the west of the site (*fig. 2*).

4. Site J finds

Other than a few fragments of charcoal and some badly preserved molars – probably of elephant – the finds of Site J consist of flint artefacts.

Approximately 2,800 artefacts were collected, 116 of which were from the southwestern part of the site and were rescued immediately in front of the quarrying machine. At

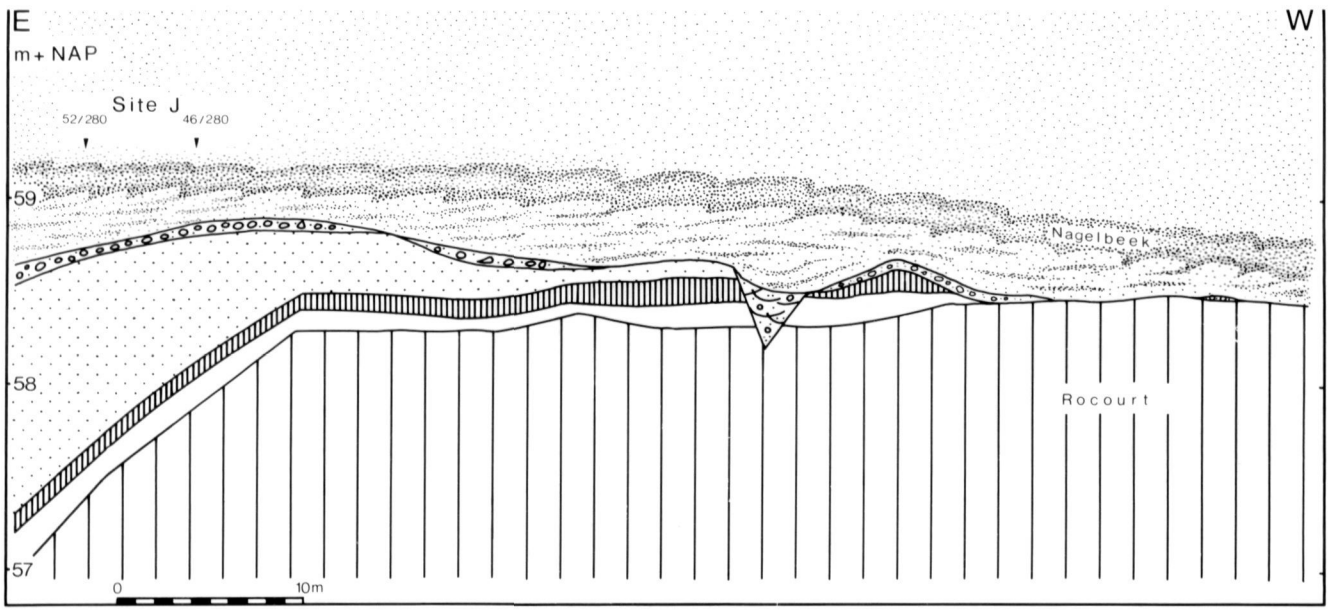

Fig. 2 Schematic profile showing the geological position of Site J. Vertical exaggeration = 10×. [Drawing by Jan Nederlof and Wil Roebroeks (IPL)].

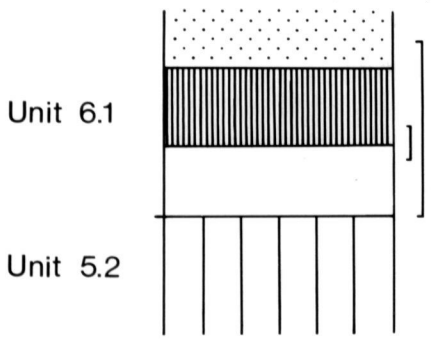

Fig. 3 Schematic profile of Site J in lithostratigraphic Unit 6.1 showing the vertical extension of the artefact distribution in the Unit and how the majority of artefacts is concentrated. 1:20. [Drawing by Jan Nederlof and Wil Roebroeks (IPL)].

this stage of the research the flint material has not yet been studied systematically; therefore, we can only provide some preliminary remarks about the technological and typological characteristics of the assemblage.

The raw material of almost all artefacts is a rather coarse-grained, grey-blue flint with a very rounded, dirty-white cortex. The naturally fractured surfaces exhibit a brown patination and water-rolled edges. Thus, we suppose that the raw material was collected from the riverbed exposed nearby at the time the site was occupied.

The worked surfaces of the artefacts have no patination and have a fresh appearance.

It is remarkable that none of the flakes seem to have been produced using the Levallois technique. Almost all the flakes have been detached by hard hammer percussion, and it looks if no systematic core reduction procedure was followed. The flakes are thick and rather heavy, and some of the outer surface of the flint nodule from which they were struck frequently remains on the dorsal side.

Most of the cores are small and have an irregular form (*fig. 4*); there are almost no blades or tools made on blades.

There is evidence that maintenance and remodification of tools were practiced at the site, although probably not on a very large scale. Partly this was done by means of the 'long sharpening technique', which involves the fabrication of a longitudinal flake along a scraper- or cutting-edge, and results in a sharp tool-margin. Evidence for frequent use of this technique has been noted for the later Saalian industries at la Cotte de St.Brelade (Jersey, Great Britain), particularly layer A (Callow and Cornford in press).

The waste products of this technique recovered at Site J include 13 renewal flakes ('Long Sharpening Flakes' or 'LSF', *fig. 5*) and 2 flake-tools bearing negatives of such flakes. Other tool-rejuvenation techniques found in the site assemblage include the removal of flakes along working-

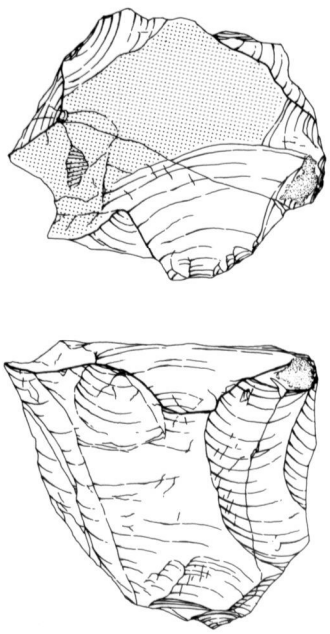

Fig. 4 Maastricht-Belvédère Site J: core. [Drawing by Jan Kolen (IPL)]. 3:4.

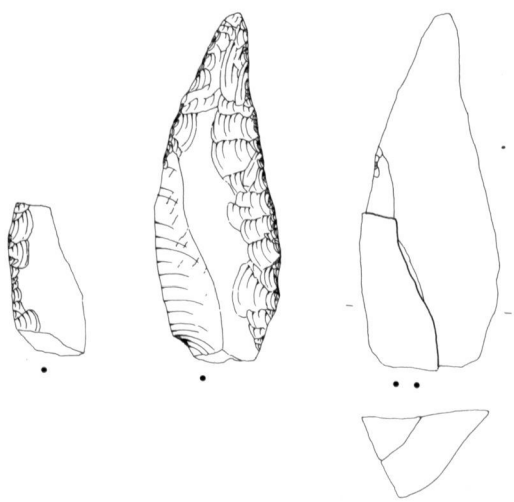

Fig. 5 Maastricht-Belvédère Site J: refitted Long Sharpening Flakes. [Drawing by Jan Kolen (IPL)] 3:4.

edges by a series of hard percussion blows and probably also the reduction of tools by continuous retouching, especially in the case of some steeply retouched scrapers (cf. Dibble 1984;1986).

There are three small flakes in the Site J-assemblage that differ from the rest of the artefacts in their raw material – they are made from light brown-grey flint with inclusions – as well as technologically – they are produced by soft hammer percussion. What remains of their striking platforms indicates that these flakes were struck off while resharpening a bifacial tool ('handaxe resharpening flakes'). The flakes were found close together in the northwestern part of the excavation.

Although these flakes appear to be handaxe resharpening flakes, no waste from initial stages in the production of the biface is represented, and no handaxe appears to have been discarded at the site. Therefore, we assume that a bifacial artefact was transported to and from the site.

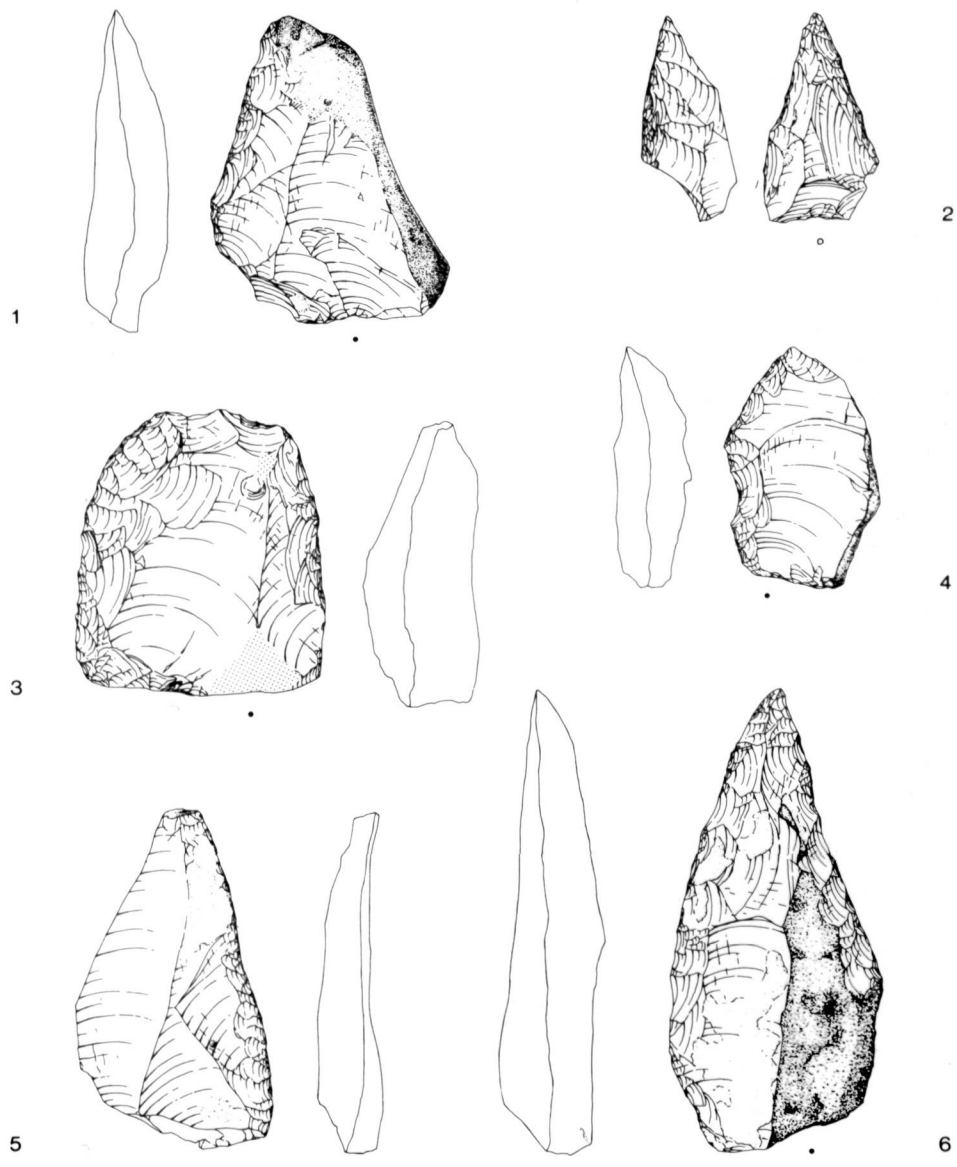

Fig. 6 Maastricht-Belvédère Site J: various scraper forms. Drawing by Jan Kolen (IPL)] 3:4.

Possibly the handaxe in question is the one found c. 200 metres away from the spot at Site E (Roebroeks 1985). This would support the hypothesis that handaxes were generally curated and '...were implements made to be taken on hunting and gathering expeditions away from the home base' (Keeley 1980).

Among the intentionally retouched pieces of the assemblage are 43 complete tools, and 38 fragmentary tools.

Approximately 51% (n = 22) of the complete tools consists of various scraperforms, including straight, convex, and concave side scrapers (*fig. 6*), four small, scraper-like tools ('raclettes', *fig. 7.1.-2*), one scraper made on a core, and several double-sided scrapers.

The retouch of the scraper working edges is generally steep and irregular; exceptionally it is flatter and scalariform. Only a few examples, for instance a flake with transverse scraper retouch, bear the characteristics of stepped 'Quina'-like flaking.

Another dominant group (n = 19: ca. 44 % of the complete tools) consists of notched pieces and tools with irregular, 'denticulate' retouch (*fig. 7.3-5*).

The remaining tools are an angle-burin and a heavy dihedral burin. This latter artefact, however, could also be interpreted as a core used for producing small, blade-like flakes.

Handaxes and other bifacially worked tools are entirely absent in the assemblage. That bifacial tools were part of the 'toolkit', however, can be inferred from the presence of the 'handaxe resharpening flakes' discussed above.

The 38 broken tools include both scraper- and denticulate-fragments. The rather low ratio of whole to broken tools (ca.1.1) suggests an intensive use of tools at the site, as does the occurrence of the tool-rejuvenation flakes mentioned above.

Among the artefacts with no intentional retouch are 50 flakes bearing use retouch; some naturally backed knives are also present in this group.

5. Provisional interpretation of the lithic assemblage.

Perhaps the most striking feature of the Site J assemblage is the total absence of the Levallois core preparation technique. In a forthcoming paper (Roebroeks et al. in prep.) we discuss an explanation for the presence/absence of the Levallois core preparation and for technological variability in general among sites in terms of Middle Palaeolithic hunter-gatherer mobility.

We suggest that prepared cores and/or their flake products were regularly transported in the Middle Palaeolithic, and that this was done to ensure the availability of cutting edges for future needs. In this respect we assume that the use of core preparation techniques reflects 'economizing

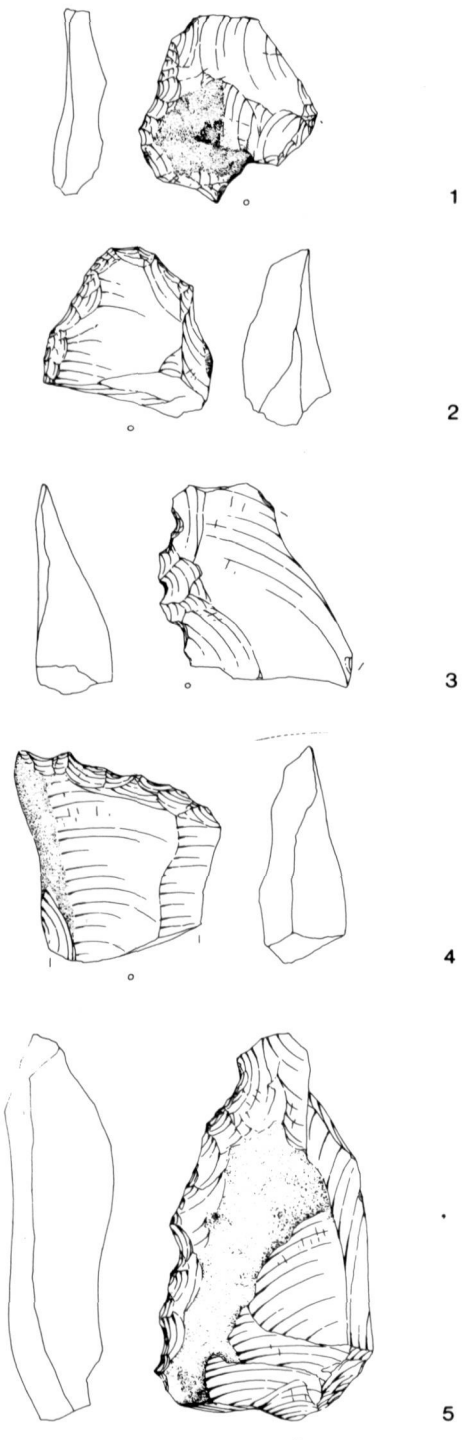

Fig. 7 Maastricht-Belvédère Site J: 1-2 'raclettes', 3-5 Denticulates [Drawing by Jan Kolen] 3:4.

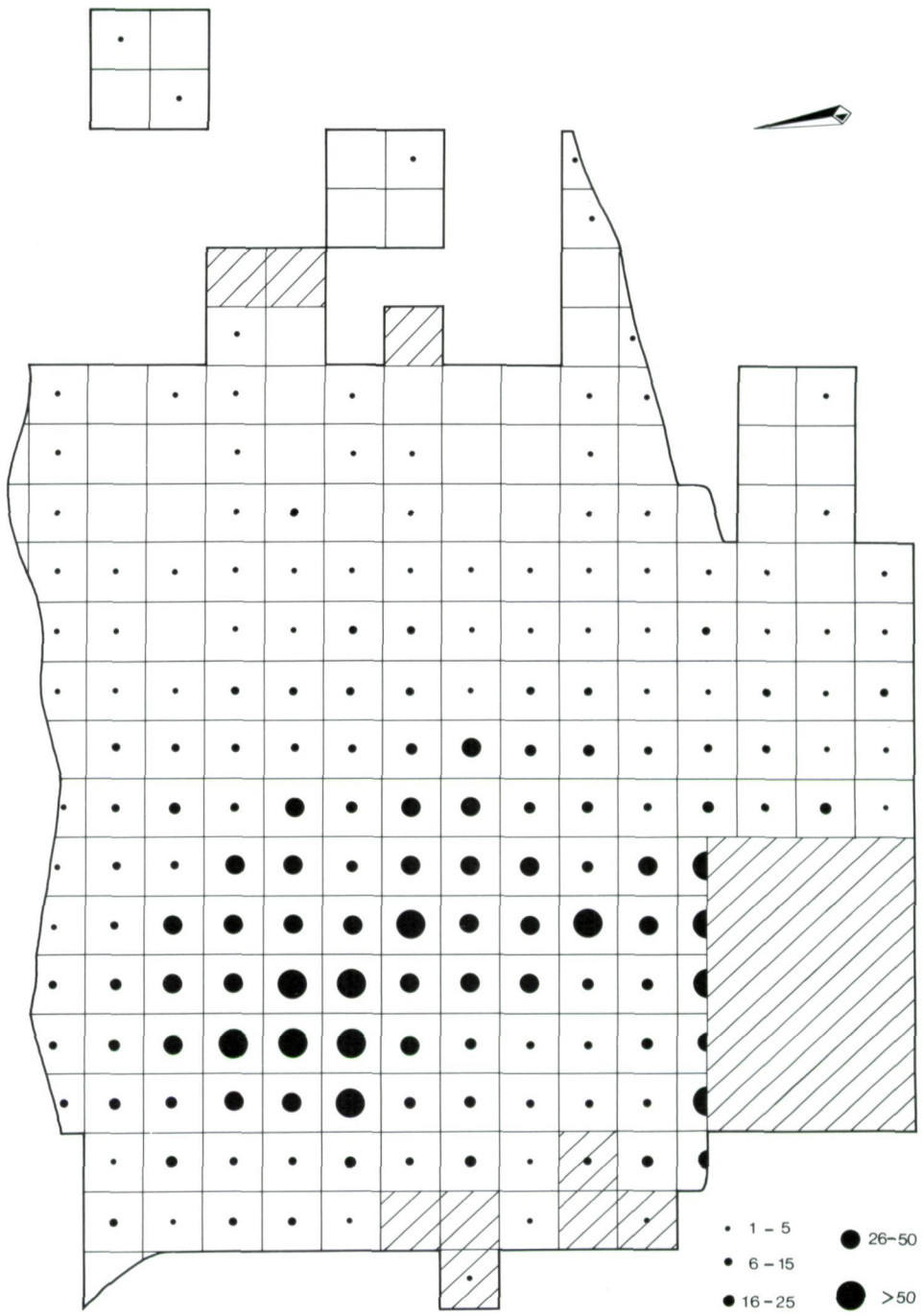

Fig. 8 Map of Site J excavation area showing the number of artefacts per square meter. The shaded areas were not systematically excavated. [Drawing by Jan Nederlof and Dimitri De Loecker (IPL)].

behaviour', except at lithic raw material procurement sites, such as Baker's Hole (Great Britain, Roe 1981), where the Levallois technique *sensu stricto* was used for the production of only one or a few flakes per core.
This interpretation of prepared cores and their endproducts as transported items is based on evidence from several Middle Palaeolithic sites. Transport of lithics in the form of Levallois cores for instance, is demonstrated for the Maastricht-Belvédère Sites C and G, both dating from the Saalian (van Kolfschoten/Roebroeks 1985; Roebroeks in prep.), and can also be inferred from the assemblage compositions of Lehringen (Thieme/Veil 1985), and the Rheindahlen 'Westwand-Fundschicht'/B1 (Bosinski 1966; Thieme 1983). Another example is the Schweinskopf volcano-site in the Neuwied Basin where transported flint flakes were found in association with debris out of local quartz material (G.Bosinski, pers. comm. 1986). Further examples are Sclayn (Otte et al. 1983) and Vollezele-Congoberg (Vynckier et al. 1986) in Belgium.
In a technological study of the Mousterian in the French Périgord region, Geneste (1985) noticed a dichotomous relationship between a Levallois assemblage type, manufactured on transported raw materials, and a non-Levallois type, made out of locally available flint. Recently this and other observed dichotomous patterns have led Binford (1986) to conclude that Middle Palaeolithic technologies in general were characterized by transported toolkits for 'planned' uses and expedient toolkits intended for uses 'on the spot'.
During the Belvédère Site J excavation two flint scatters were identified, both mainly consisting of the waste from flake- and tool production. As debris from all flintworking stages (from decortification flakes to small rest-cores) is present the conclusion seems justified that in this case tool-manufacture -at least for the most part- has been undertaken at the Site J location. Most of the raw materials used appear to have been collected from the immediate environment.
In the context of this discussion, the Site J assemblage might be interpreted as being intended for occasional or 'situational' use.
A plausible explanation for not using a transported technology might be that the tasks to be performed at Site J were largely unforeseen or 'unexpected' (cf. Binford 1986); another might be that it was simply not necessary to use the transported cores and/or tools and that cost-benefit considerations selected for the manufacture of tools from the locally available stone rather than use of the transported toolkit.

6. Future research

Future research will be concentrated mainly on accomplishing the following goals:
1) While processing the finds, we found that it was possible to fit a number of the flakes together. Following the completion of the micro-wear analysis, P. Hennekens will begin a systematic attempt to refit the artefacts collected during the excavation. Results of refitting will not only be used for the spatial analysis of the site and the technological analysis of the artefacts; they will also be used to measure the amount of horizontal displacement of the materials in order to make inferences about post-depositional processes. An interpretation of the spatial distribution of the finds has not been made yet. The horizontal distribution of the flint artefacts across the excavation is shown in *fig. 8*.
2) The study of post-depositional processes must be considered a necessary prelude to the testing of hypotheses about site function. It is obvious that the results of microwear analysis would have an important role in the formulation and testing of such hypotheses. Currently, A. van Gijn is examining a sample of the artifacts to determine if and to what extent microwear analysis can contribute to a functional interpretation of the materials. Our first idea about site function, which is based on the preliminary results of our research, is that Site J was a location where specialized activities were performed.
3) A third important goal for future research will be a comparison of Site J with other sites in Northwest Europe that are more or less the same age, such as Rheindahlen-Westwand/B1 (Bosinski 1966; Thieme 1983; Thissen 1986), Rocourt (Cahen and Haesaerts 1984), and Seclin (Tuffreau et al. 1985). This comparison will emphasize the explanation of the technological differences between Site J and these other sites.

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