

# Heek-Nienborg and Werl-Büderich: The transition from Palaeolithic to Mesolithic in Westphalia

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*This paper is dedicated to Prof. Dr. Andreas Zimmermann for his 65<sup>th</sup> birthday*

**Abstract** – An investigation of the earliest Mesolithic assemblages of Heek-Nienborg (Kr. Borken) and Werl-Büderich (Kr. Soest) gives new insights into the complex developments at the Pleistocene-Holocene transition in Westphalia, Germany. During this transition a gradual reduction in blade size can be traced in combination with an increasing number of microliths, including broad “Zonhoven points”. The occurrence of these points as well as notched and curved points in the Heek and Werl assemblages demonstrates an Ahrensburgian continuity. Furthermore, the triangular point and the elongated trapeze from Heek find parallels in the broad blade tradition of the Early Mesolithic in England. Heek-Nienborg reflects this broad blade tradition in Westphalia for the first time while Werl-Büderich represents the earliest scientifically dated Mesolithic assemblage in this region to date. The intermediate position of these assemblages show a Final Palaeolithic continuity into the Early Preboreal and therefore refute the idea of a clear cultural break between Palaeolithic and Mesolithic in Westphalia.

**Keywords** – Archaeology; Final Palaeolithic; Earliest Mesolithic; Pleistocene-Holocene transition; lithic artefacts; long blade; broad blade; Borken; Soest; Westphalia; Germany

**Titel** – Heek-Nienborg und Werl-Büderich: Der Übergang vom Paläolithikum zum Mesolithikum in Westfalen

**Zusammenfassung** – Eine Untersuchung der frühestmesolithischen Inventare aus Heek-Nienborg (Kr. Borken) und Werl-Büderich (Kr. Soest) bietet neue Einblicke in die komplexen Entwicklungen am Übergang vom Pleistozän zum Holozän in Westfalen. Während dieses Übergangs kann eine allmähliche Verkleinerung der Klingen sowie eine zunehmende Anzahl von Mikrolithen, wie zum Beispiel „Zonhovenspitzen“, in den Inventaren nachgewiesen werden. Das Vorkommen dieser Spitzen sowie einer leicht gekerbten und geknickten Spitze in den Inventaren aus Heek und Werl zeugen von einer Kontinuität aus der Ahrensburger Kultur. Des Weiteren findet die Dreiecksspitze und das langschmale Trapez aus Heek Parallelen in der frühestmesolithischen Broad-Blade-Tradition Englands. In Heek-Nienborg ist zum ersten Mal diese Broad-Blade-Tradition in Westfalen nachgewiesen. Des Weiteren repräsentiert Werl-Büderich die bisher älteste naturwissenschaftlich datierte mesolithische Fundstelle überhaupt in Westfalen. Die Zwischenposition dieser beiden Inventare zeugt von einer spätpaläolithischen Kontinuität in das frühe Präboreal und spricht damit gegen einen kulturellen Bruch zwischen Endpaläolithikum und Frühmesolithikum.

**Schlagwörter** – Archäologie; Endpaläolithikum; Frühestmesolithikum; Übergang Pleistozän-Holozän; Steinartefakte; long blade; broad blade; Kreis Borken; Kreis Soest; Westfalen; Deutschland

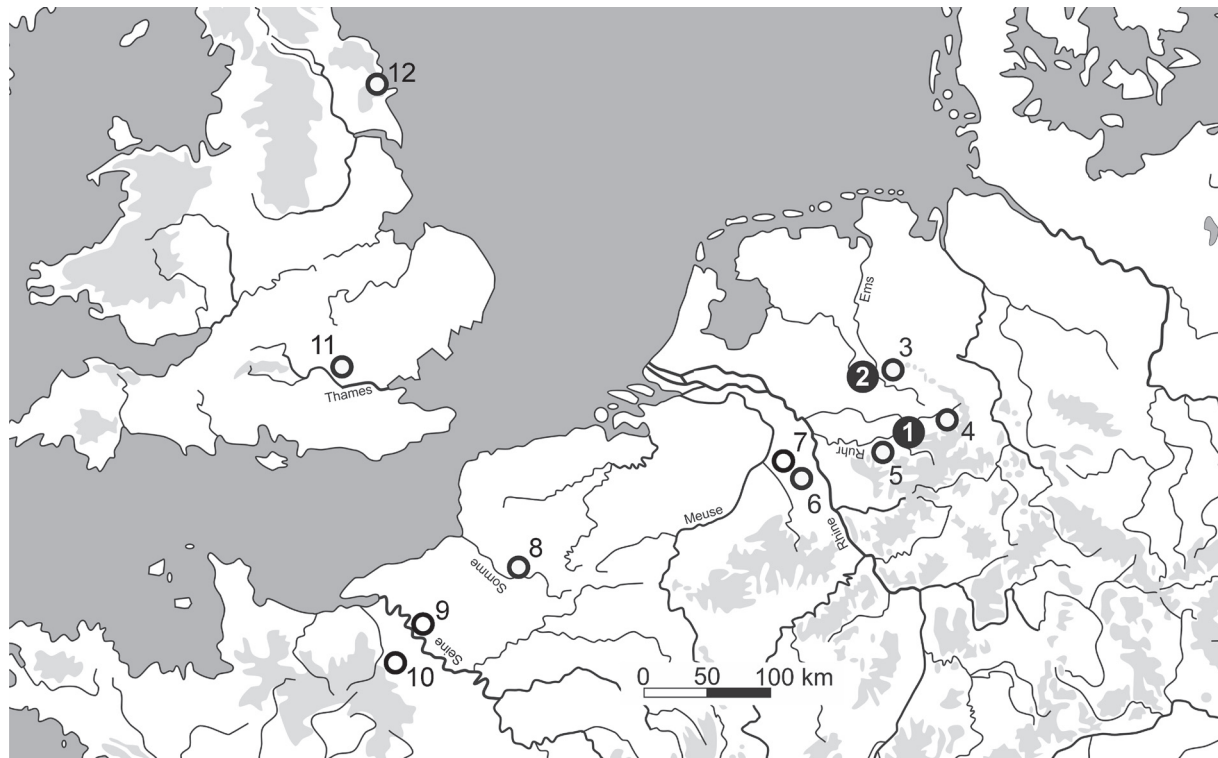
## Introduction

Around 11,700 years ago an episode of intense climatic warming ended the last Ice Age and transformed the vegetation and fauna. The hunter-gatherers living during this transition needed to adapt their hunting strategies as a response to the environmental changes. In recent years several scholars have come to realise that these technological changes at the Pleistocene-Holocene interface are far more complex than previously thought (TERBERGER, BARTON & STREET, 2009; BAALES, POLLMANN & STAPEL, 2013; ZANDER, 2016). As such the Palaeolithic-Mesolithic transition in north-western Europe is characterised by a variety of assemblages which seem to overlap in time (Fig. 1; Fig. 4). This paper aims to investigate these different cultural traditions in Westphalia in Germany where extensive

evidence for Final Palaeolithic as well as Early Mesolithic hunter-gatherers can be studied (ZANDER, 2016).

## Heek-Nienborg and Werl-Büderich between Palaeolithic and Mesolithic

The assemblage of Heek-Nienborg derives from a site in the western Münster region (Fig. 1). The site was excavated in 1993 by the Westphalia-Lippe Regional Association (LWL) as part of an archaeological survey carried out in advance of the construction of the motorway A31 (STAPEL, 2013, 161). In total 361 lithics were recovered but no organic remains. Among the finds were 12 microliths, including an isoscele triangle and an elongated trapeze, which pointed to a possible Early Mesolithic



**Fig. 1** Map showing the location of the Final Palaeolithic and Early Mesolithic sites discussed in this paper. **Analysed assemblages in Westphalia: 1 Heek-Nienborg; 2 Werl-Büderich** (white numbers in black circle). Other Final Palaeolithic and Early Mesolithic sites mentioned in this text: **3** Westerkappeln-Brennesch; **4** Hohler Stein near Rütten-Kallenhardt; **5** Hagen-Eilpe "Rieger Busch"; **6** Bedburg-Königshoven; **7** Mönchengladbach-Geneicken; **8** Belloy-sur-Somme, Dep. Somme, F; **9** Alizay, Dep. Eure, F; **10** Buhot, Dep. Eure, F; **11** Three-Ways-Warf in Uxbridge, GB; **12** Star Carr in North Yorkshire, GB (Graph: A. Zander and B. Gehlen).

occupation (**Fig. 3.3-4**). Surprisingly, the assemblage further consists of several well-made large blades of up to 76 mm length, which seemed quite unusual in the Mesolithic context (**Fig. 2; Fig. 3.5**).

Over 70% of the artefacts from Heek were made of Baltic flint which could be collected locally from the terminal moraine of the Saale/Drehnte glaciation. However, 87 lithics consisted of Western European flint. An analysis of the cortex suggests the flint derived from the primary source in south Limburg in the Netherlands. This primary source lies over 100 km to the southwest of Heek-Nienborg pointing to a cultural connection to this western region. Based on the small size of the assemblage the site of Heek-Nienborg was probably occupied for a short time, possibly during the course of a hunt.

The Mesolithic concentration of Werl-Büderich was excavated in 2011 by the commercial archaeology company artemus (**Fig. 1**). Similarly to Heek, the excavation was initiated by the LWL before the construction of the country road K18N. In total 193 stone artefacts were recovered, including five microliths (**Fig. 3.6-9**). Besides the

use of local Baltic flint for the vast majority of artefacts, a small number of blanks were made of local chert and quartzite. The artefacts from Werl are relatively small with the longest blade measuring just up to 27 mm in length (**Fig. 2**). However, one flake made of chert is considerably larger measuring up to 84 mm in length.

Moreover, the Mesolithic concentration of Werl-Büderich consists of more than 2000 fragments of bone. The majority of the faunal assemblage consists of red deer, followed by an abundant representation of roe deer and wild boar (HEINEN, 2013). According to this faunal record the site was probably occupied in an early Preboreal landscape. Unfortunately, the excavations could demonstrate that the central parts of the site were destroyed. The assemblage seems to represent a peripheral zone of a larger site which might have been occupied for several weeks. The dating of a piece of charcoal showed an early Preboreal age for the Mesolithic site of around 9400 cal BC (HEINEN, 2013, 37). Therefore, Werl-Büderich represents the earliest scientifically dated Mesolithic assemblage in Westphalia so far.

### The Palaeolithic-Mesolithic transition in Westphalia

Westphalia offers diverse evidence for the complex developments during the Palaeolithic-Mesolithic transition ranging from Final Palaeolithic Federmesser and Ahrensburgian sites to Early Mesolithic sites (ZANDER, 2016). In recent years several Westphalian sites with longer blades have been ascribed to the long blade tradition of north-western Europe (STAPEL, 2010; 2013). These long blade assemblages contain well-made long blades which are similar in length to the Ahrensburgian blades (Fig. 2). However, the typical Ahrensburgian tanged points are missing and instead these assemblages consist of an increasing number of microliths. Unfortunately, due to the lack of organic material long blade sites in Westphalia have not been scientifically dated so far. According to the sites in France and Great Britain this tradition can be dated to the Pleistocene-Holocene interface (BEMELLI ET AL., 2014; BIARD & HINGUANT, 2013; BARTON, 1998; FAGNART, 1991). In the long blade assemblages from sites in the Département Eure in north-western France – Buhot and Alizay – different forms of backed points and microliths are combined. In Buhot “Zonhoven points” and obliquely truncated bladlets were found together with a couple of “Maurie points”. In Alizay trapezoid microliths (short double truncations) are combined with lanceolate straight backed points. These points and the double truncations seem to be typical projectiles for Final Paleolithic sites of the Auvours-type industries of Western France (see NAUDINOT 2008 for definition, chronological setting and further references). In France and Western Germany, “Maurie points” are characteristic for late Allerød inventories (BAALES, 2013; BAALES et al., 2001; GRIMM, 2004; NAUDINOT, 2008; WEBER et al., 2011, 281 ff.; HEIDENREICH, 2012). The radiocarbon dates for Alizay stray between approx. 9700 and 9000 calBC (BEMELLI et al., 2014). Unfortunately there are no radiocarbon dates for Buhot.

Another transitional tradition with well-made large blades is the so called broad blade tradition. This tradition is characteristic for the Early Mesolithic in England (CLARK, 1954; JACOBI, 1978). In Western Germany to date only Bedburg-Königshoven in the Rhineland has been defined as a possible broad blade assemblage (Fig. 1; Fig. 2) (STREET, 1998). This assemblage dates the broad blade tradition in the Rhineland into the early Preboreal and thus the earliest Mesolithic. The assemblage from the earliest Mesolithic aurochs-

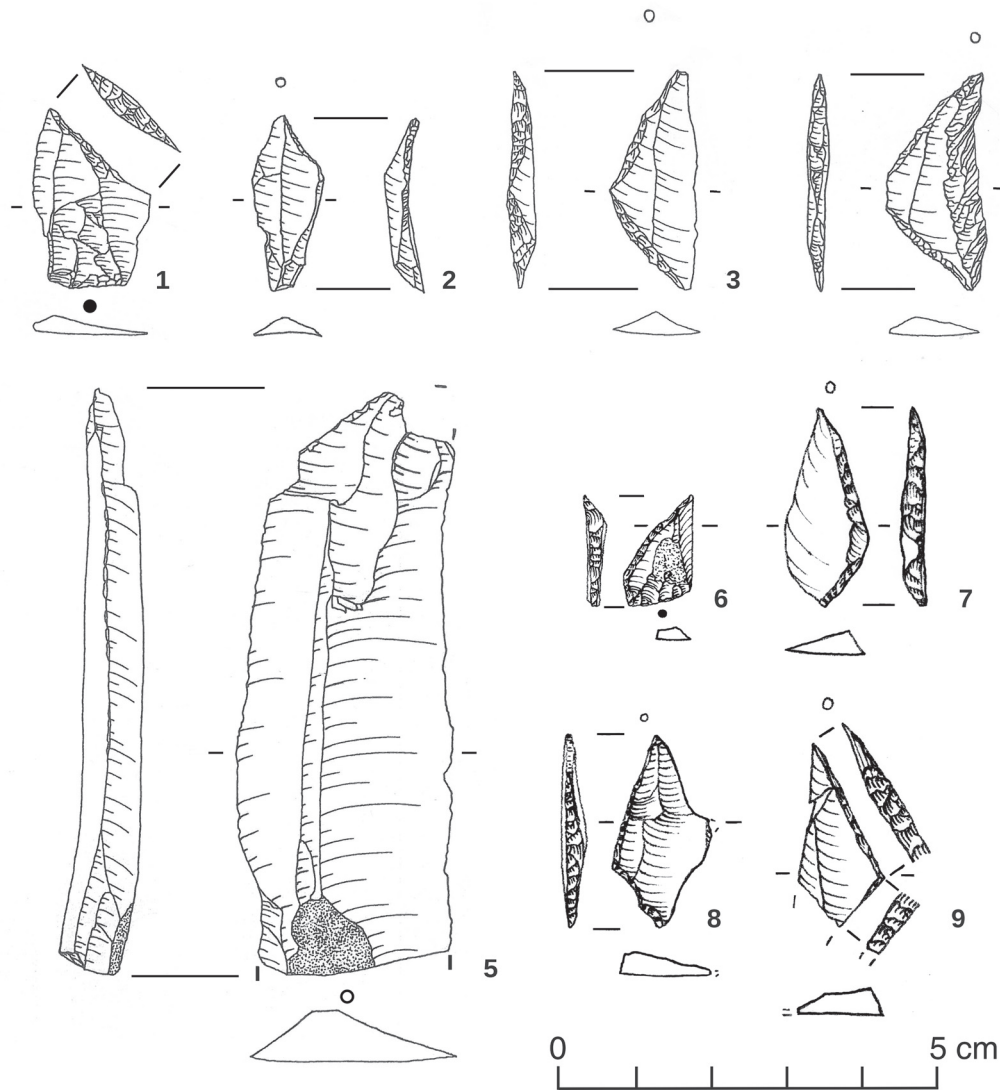
Site / Tradition	Maximum length of blades (mm)
Heek-Nienborg / broad blade	76
Werl-Büderich / Earliest Mesolithic	27
„Hohler Stein“ / Ahrensburgian	134
Westerkappeln-Brennesch / long blade	122
Bedburg-Königshoven / broad blade	96
„Am Rieger Busch“ / Early Mesolithic	38

Fig. 2 Sites in Westphalia and the Rhineland: Comparison of the maximum length of blades.

site of Mönchengladbach-Geneicken must be mentioned in this context (HEINEN, 2014, 300 ff.). The AMS date of approx. 9470 calBC (see Fig. 4) in combination with some of the microlith types and large blades point to a possible connection with the broad blade tradition. Moreover, Geneicken is situated in the Lower Rhine area close to the broad blade site of Bedburg-Königshoven. However, this is only a preliminary proposal which should be clarified through further investigations of the assemblage by the excavator Martin Heinen.

A comparison of the different maximum lengths of the blades reveals a development from large blades in the Ahrensburgian and long blade traditions to smaller blades in the Early Mesolithic (Fig. 2). Heek-Nienborg previously has been addressed as a long blade assemblage (STAPEL, 2013). However, when comparing the different maximum lengths the blades from Heek fit best into the range of the broad blades, similar to Bedburg-Königshoven. The assemblage of Werl-Büderich consists of relatively small blades, which are similar in length to Early Mesolithic sites, such as “Am Rieger Busch” in Hagen-Eilpe, Westphalia (SCHNEID, 2013, 186). Nevertheless, one very large flake made of chert hints at the production of larger blanks at the site. As the assemblage merely reflects the fringes of a former camp, the larger blades may have not survived in the archaeological record.

The different lengths of the blades raise the question of differing raw material availability. Wolfgang Taute (1968, 175) already noted that some Ahrensburgian sites in Northern Germany had access to the same raw material but decided to produce differently sized blades. A similar behaviour can be observed with the long blade assemblages in Three Ways Wharf in Uxbridge. The flintknappers of the long blade sites actively

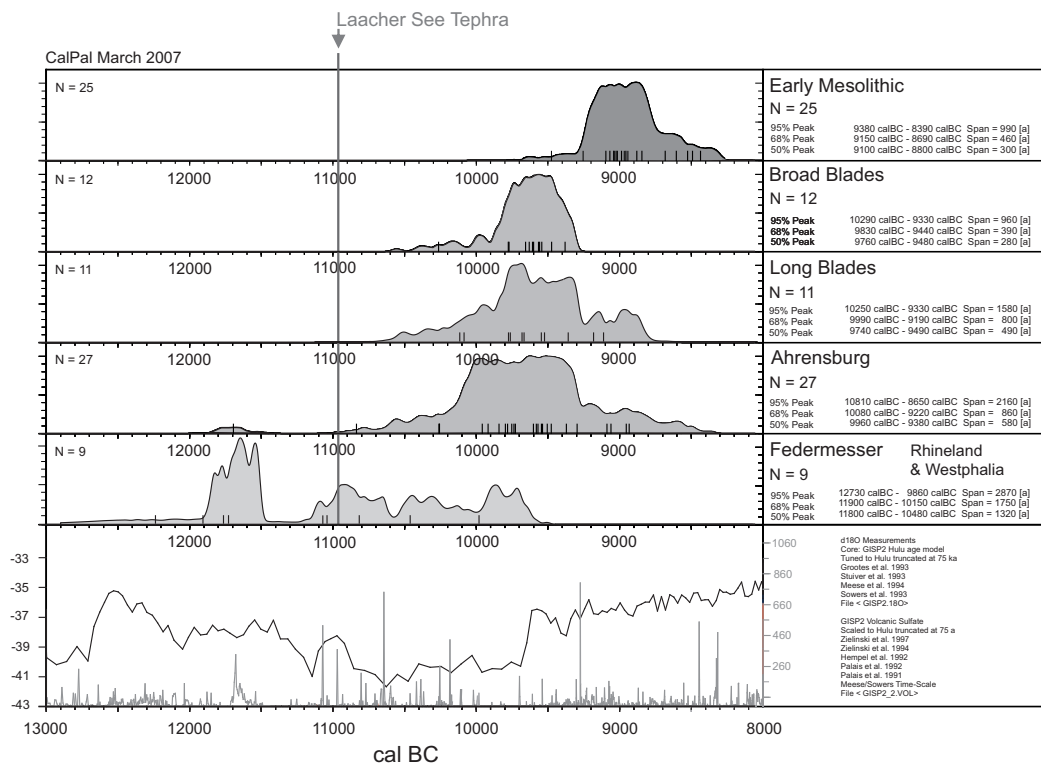


**Fig. 3** A selection of the lithic artefacts from Heek-Nienborg and Werl-Büderich. Scale: 1:1. **Heek-Nienborg:** 1 Zonhoven point; 2 Concave truncated point; 3 Isosceles triangle; 4 Elongated trapeze; 5 One of the broad blades. **Werl-Büderich:** 6 Zonhoven point with a unilateral edge retouch; 7 Rhombic slightly bend point; 8 Slightly notched point; 9 Fragment of a triangle (Drawings: LWL-Archäologie für Westfalen/J. Piesniewski; Universität zu Köln/B. Gehlen; Graph: A. Zander and K. Vogl).

chose larger nodules than the Early Mesolithic knappers, who had access to the same raw material (LEWIS & RACKHAM, 2011, 43). A study of the different raw materials used in Heek-Nienborg shows no apparent preference for Baltic or Western European flint to produce the larger blades. Therefore, the production of longer blades at the Palaeolithic-Mesolithic interface seems to be based on techniques and traditions rather than simply on raw material availability.

Some of the microliths from Heek-Nienborg and Werl-Büderich are reminiscent of the Ahrens-

burgian microlith types (Fig. 3). For instance, the broad points with a simple oblique retouch bear resemblance to the points from the Ahrensburgian cave site "Hohler Stein" near Rütten-Kallenhardt, Westphalia (Fig. 3.1; 6) (TAUTE, 1968, Tab. 55-56). These broad microliths which are referred to as "Zonhoven points" are characteristic for the Final Palaeolithic in northwestern Europe. Moreover, the concave truncated point from Heek and the rhombic slightly bend point and the slightly notched point from Werl demonstrate an Ahrensburgian continuity (Fig. 3.2; 7-8) (TAUTE, 1968, Tab.



**Fig. 4** Calibration of AMS-dates from different sites reflecting the chronological overlap of the cultural traditions at the Palaeolithic-Mesolithic transition (Calibrated with Calpal 2007 – WENINGER, 1986; WENINGER & JORIS, 2008; Data from BEMELLI ET AL., 2014; DARK, 1998; GRAMSCH, 2000; MAIER & RICHTER, 2012; SCHNEID, 2013; STREET ET AL., 1994; WEBER ET AL., 2011; data for broad blades from CRC 806, project D4, unpublished [Bedburg-Königshoven and Mönchengladbach-Geneicken; GEHLEN et al., in prep.]. Data assembled by A. Zander; Graph: W. Schön and B. Gehlen).

55-56; BAALES, 1990, 85; ZANDER, 2016). On the other hand, the elongated trapeze and the isosceles triangle from Heek point to a connection with the English broad blade tradition (Fig 3.3-4) (CLARK, 1954, 101-102).

## Conclusion

The transitional character of Heek-Nienborg and Werl-Büderich in combination with the early Mesolithic date of Werl allow a reconstruction of the complex developments at the Palaeolithic-Mesolithic interface in Westphalia. The assemblages directly link Palaeolithic and Mesolithic traditions in Westphalia with certain Ahrensburgian continuities. Heek-Nienborg represents the first defined broad blade assemblage in this region and therefore reflects this English Facies of the Early Mesolithic. The early date of the assemblage of Werl-Büderich suggests an intermediate position between the broad blade tradition and the Early Mesolithic with a considerable reduction

in artefact size. As this study has demonstrated, the transition from Palaeolithic to Mesolithic in Westphalia was a gradual and complex development, which lasted over several centuries (Fig. 4). Consequently, this cultural change does not align to climatic changes, with Palaeolithic technology extending into the warming period.

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## Note

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