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Alles was zählt...

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Georg Roth

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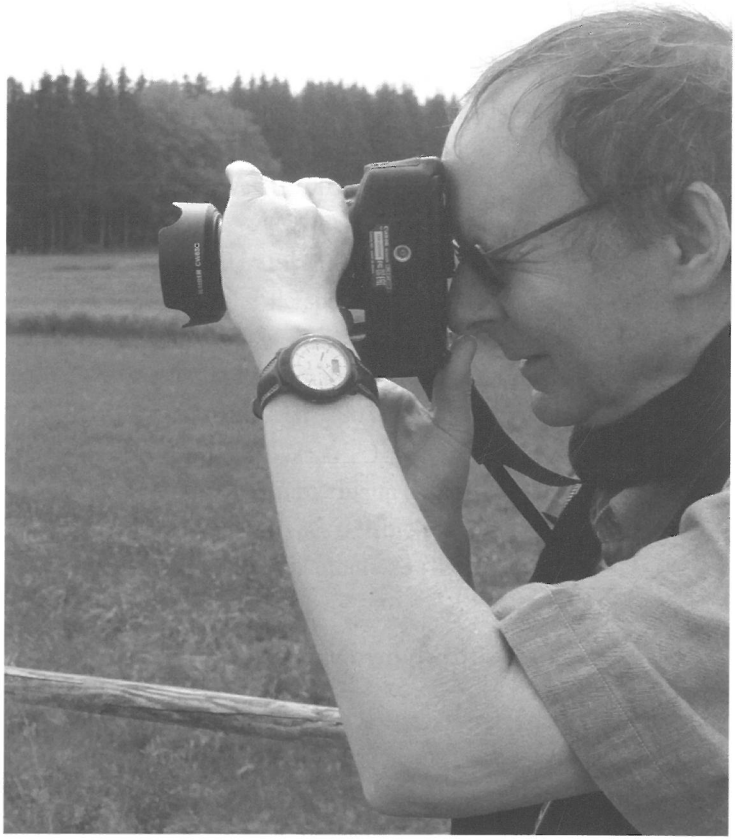
Inhalt



Andreas Zimmermann: Immer beweglich sein - genau hingucken - scharf nachdenken (Fotos Kerig).

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Nadia Balkowski, Erich Classen und Robin Peters

The older LBK site of Niederkassel-Uckendorf revisited

Abstract

The LBK site Niederkassel-Uckendorf, located on the eastern bank of the Rhine, has often been quoted as being an exceptionally old Neolithic site, possibly the oldest in the Rhineland. To answer the question of the exact date of this site, and its relation to known Rhenish LBK sites, selected attributes of the settlement and its inventory will be analysed and reassessed. The Pottery analysis (morphology, technique, ornamentation) supports the dating of the site clearly within the Flomborn phase, and contemporaneity with the first settlements on the western bank of the Rhine. Similar to sites in the western Rhineland, the lithic flint raw material used in Niederkassel-Uckendorf is mainly Rijckholt-flint. Furthermore, it could be confirmed that the blade morphology resembles earliest LBK blade traditions; but on the other hand the knapping style is not consistent with that of the earliest phase of the LBK. The occurrence of some earliest LBK elements in a settlement of the Flomborn phase attest that in the inventories of pioneer settlements of the Rhineland, the co-existence of these two LBK traditions in the 53rd century are also visible.

Keywords: Neolithic period, Rhineland, Pottery, Lithics, Linear Pottery Culture

Zusammenfassung

Die rechtsrheinisch gelegene Fundstelle Niederkassel-Uckendorf ist als bisher älteste bandkeramische Siedlung im Rheinland bekannt geworden. Um die zeitliche Stellung der Siedlung und ihr Verhältnis zu den anderen LBK-Fundplätzen des Rheinlandes bestimmen zu können, wurden ausgewählte Merkmale der Funde und Befunde analysiert und neu bewertet. Morphologie, Technik und Verzierung der Keramik unterstützen eine Datierung des Fundplatzes in die Phase Flomborn und somit eine Zeitgleichheit mit den anderen rheinischen Ansiedlungen. Ähnlich wie in den linksrheinischen LBK-Siedlungen wurde auch in Niederkassel-Uckendorf vornehmlich Rijckholt-Feuerstein verwendet. Während die Klingenmorphologie auf ältestbandkeramische Traditionen verweist, entspricht das Abbaukonzept nicht dem der ältesten LBK. Das Vorkommen verschiedener ältestbandkeramischer Elemente in einer Siedlung der Flombornzeit zeigt, dass die aus der Koexistenz dieser zwei bandkeramischen Traditionen im 53. Jahrhundert v. Chr. resultierenden, komplexen Prozesse auch in den Pioniersiedlungen des Rheinlandes zu fassen sind.

Schlagwörter: Neolithikum, Rheinland, Keramik, Steinartefakte, Linearbandkeramik

Introduction

The Bandkeramik (LBK) in the Rhineland is one of the most thoroughly researched periods of Central European prehistory, around which Andreas Zimmermann, to whom this is dedicated, has rendered outstanding services. Nevertheless new findings put the established knowledge in question and challenge new explanations for individual aspects. That is what happened when in 2003 during rescue excavations north of the village Uckendorf, about 2.5 km east of the present-day course of the Rhine, a LBK settlement was documented.

The excavated features and the finds contained therein show some elements that can be considered as being typical for the earliest LBK (eLBK). The settlement is thus interpreted as playing an intermediary role between the eLBK east of the river Rhine, and the older LBK (Flomborn phase) in the western Rhineland

("...Mittlerrolle zwischen der Ältesten Bandkeramik östlich des Rheins und der älteren Bandkeramik im westlichen Rheinland..."; Heinen 2010, 534). Several papers, for the professional audience and a wider public, have focused on these eLBK elements (Heinen et al. 2004; Heinen 2005; Heinen 2010; Heinen 2015), and it is pointed out that these typical elements were recorded for the first time in the present scope and combination in this region ("typische Elemente der Ältesten Bandkeramik [...] in dem vorliegenden Umfang und der Kombination jetzt erstmals für die hiesige Region belegt sind"; Heinen et al. 2004, 29). As we have been, or still are, dealing with LBK material from the western part of the Lower Rhine Embayment (Classen 1999; Classen 2009; Classen 2010; Classen 2011; Reepmeyer et al. 2011; Balkowski/Hartmann 2015; Balkowski in prep.; Peters forthcoming) this statement and its consequences for the early Neolithic settlement history of the Rhineland seems to be worth examining in detail, in order to check the assumption that Niederkassel-Uckendorf is a so-called transitional settlement between eLBK and Flomborn.

With our contribution we will try to process the information from this LBK settlement in a way that the data – in line with Andreas Zimmermann – is quantifiable and comparable with other Rhenish LBK inventories, so that the importance of the site can be better assessed. As a consequence, this means that the finds were documented using proven recording schemes, and analysed with the appropriate statistic methods (see below). Likewise, the typological features of the houses were also considered as they could be of interest regarding the chronological position of the settlement. Since a detailed data submission is not possible in the limited context of this Festschrift, a more comprehensive publication is planned.

Houses

In the Flomborn phase significant changes in elements of the material culture of the LBK become visible for the first time. Besides changes in pottery style and technique, and in knapping technology (see below), the construction, shape and orientation of the houses are modified. These 'innovations' can be observed in an area from the Czech Republic to the Netherlands, parallel to the spread of the LBK to the west (cf. Cladders/Stäuble 2003).

With regard to the houses it is known that the so called Außengräben (longitudinal outer trenches) from the older LBK onwards are no longer a typical feature of the LBK houses. In general, the trapezoidal outline of eLBK houses changes in the younger periods to a rectangular shape. Furthermore, the orientation changes from North-South to a more or less Northwest-Southeast direction. For LBK houses of the Flomborn phase (and later) a clearly defined North-Western part with wall trenches and the so called 'Y configuration' of the posts in the central part of the houses are regarded as being typical next to other house types (cf. Cladders/Stäuble 2003, 492–495). Nevertheless, it is clear that not every eLBK house is constructed with Außengräben and oriented to the North, and not every Flomborn house has a 'Y configuration'. In addition, houses have been documented that show a mash-up of eLBK and Flomborn house elements (e.g. Lüning 1988, 290–296; Cladders/Stäuble 2003, 501; Hoppe 2010, 37, 258; Husmann/Cziesla 2014, 75).

For the settlement near Uckendorf in the first instance it has to be stated that the preservation of features is rather poor. Postholes had an average depth of about 14 cm and pits were about 31 cm deep. Furthermore, preservation differs due to soil erosion and accumulation processes from east to west, therefore features in the east seem to be slightly deeper. The ground plans of the houses are far from being complete, but despite this the excavator claims the existence of at least 14 houses (Heinen 2010, 518), which cannot all be clearly identified by posts arranged in typical positions. Some of them are just reconstructed over alleged longitudinal outer trenches (Außengräben). In the following section we keep the numbering system of the houses from the prior publication (Heinen 2010) but prefer using Arabic over Roman numerals, as it is common in Rhenish LBK research to use Roman numerals for the phases of the so-called Merzbachtal chronology. In figure 1 the newly interpreted plan is shown, and in addition to the house numbers we display where possible the chronological position of pits and houses, according to the correspondence analysis described below, with reference to the frame of the Merzbachtal chronology, without discussing the settlement structure.

In our interpretation of the documentation we want to omit two of the houses (VI and IX; cf. Heinen 2010, 519 Abb. 2), which are those that Heinen already declared as being questionable houses of the eLBK type 1c with Außengräben. We want to discard these houses because in each case there is just a short remnant of a possible Außengraben preserved, that is in no clear position to any other feature that may be assigned to a house construction. In a third case (house 2) two parallel (not trapezoi-

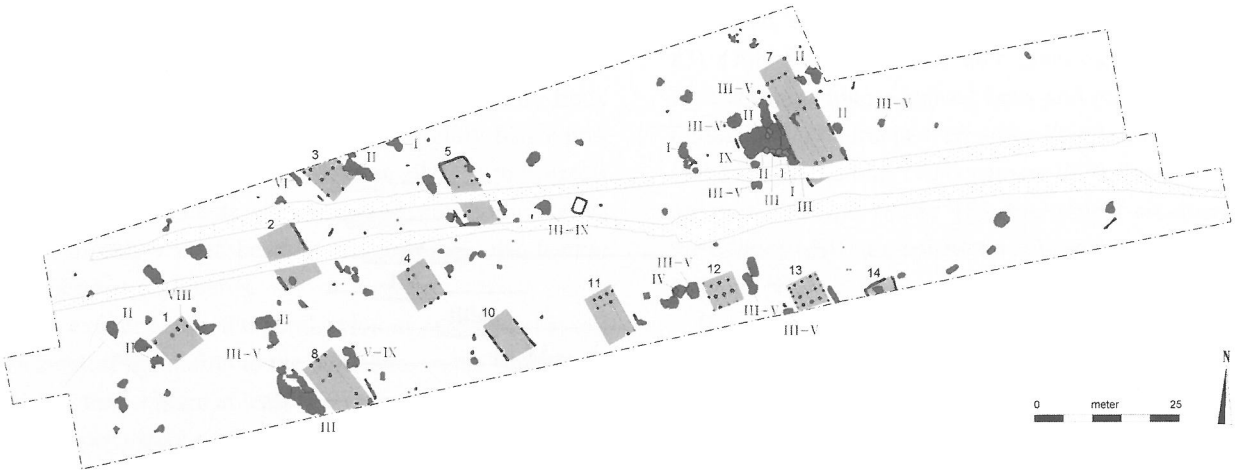

Fig. 1: Groundplan of the settlement Niederkassel-Uckendorf displaying the features and the reconstructed houses (Arabic numbers). The dating of pits is marked by Roman numbers according to the Merzbachtal chronology.

dal) ditches (features 58 and 214) 6.8 m apart from each other have been observed, but it seems to be a bit too optimistic to assign these features to a house of type 1c, as is the case with the two parallel ditches (features 110 and 111) at a distance of 5.2 m forming house 10 (the average distance of Außengräben for 21 houses of type 1c in Frankfurt-Niedereschbach is for example 8.2 m, cf. Bernhardt/Hampel 1992, 5) . For houses 1 and 3 it has also been assumed that there may be remains of Außengräben preserved (Heinen 2010, 519), but this is hard to judge due to poor preservation.

After this clarification only four houses seem to be preserved in a way that they can be assigned to one of the LBK house types defined in the literature (von Brandt 1988; Cladders/Stäuble 2003). Represented are type 1b by house 5, type 1c by house 7 and type 3 by the ground plans of houses 4 and 12. Only house 7 exhibits attributes that can distinctly be addressed as eLBK.

Due to poor preservation it seems advisable not to go into detail concerning the construction of different parts of the houses (e.g. the posthole configuration in the middle section).

With regard to the orientation of the houses no preference of an orientation to the north can be observed. The deviation from the north direction to the west is in-between 24° and 49° which lies in the range of eLBK houses (0°–40°) as well as houses of younger LBK periods (20°–80°, cf. Cladders/Stäuble 2003, 493).

To sum up: A re-evaluation of the typological aspects of house plans at Uckendorf do not positively and unequivocally support placing this site at the transition from earliest to older LBK. Similar house plans or houses with similar orientation have been recorded in settlements of the older LBK in the Rhineland and other parts of Western Germany. The next section will investigate whether the pottery and the stone artefacts from Uckendorf support the present interpretation as a transitional site.

Pottery

In the following, a correspondence analysis is conducted to characterize the temporal relation to other known LBK settlements in the Rhineland. To determine and to quantify the intensity of eLBK elements found at this site a set of pottery attributes was examined. In order to achieve this, the pots were recorded using the scheme developed by the DFG-Project "Siedlungsarchäologie der Aldenhovener Platte" (SAP, Boelicke et al. 1982, 320 ff.) and the catalogue of LBK pottery decoration (Kerig et al. 2010). Some attributes concerning eLBK elements, like the intensity of organic tempering, were added to the recording scheme. The pottery was compared to data of Rhenish LBK pottery and to several eLBK sites, which are for example presented in Cladders (2001).

The pottery assemblage of Niederkassel-Uckendorf comprises of 610 pottery vessel units of which two-thirds (n=416) are not decorated. The total weight amounts to nearly 22 kg, whereas the decorated pots make up only a quarter. Accordingly, the decorated vessels weigh less than the undecorated ones which is due to the different types of pottery (c.f. Classen 2011, 160). Decorated ves-

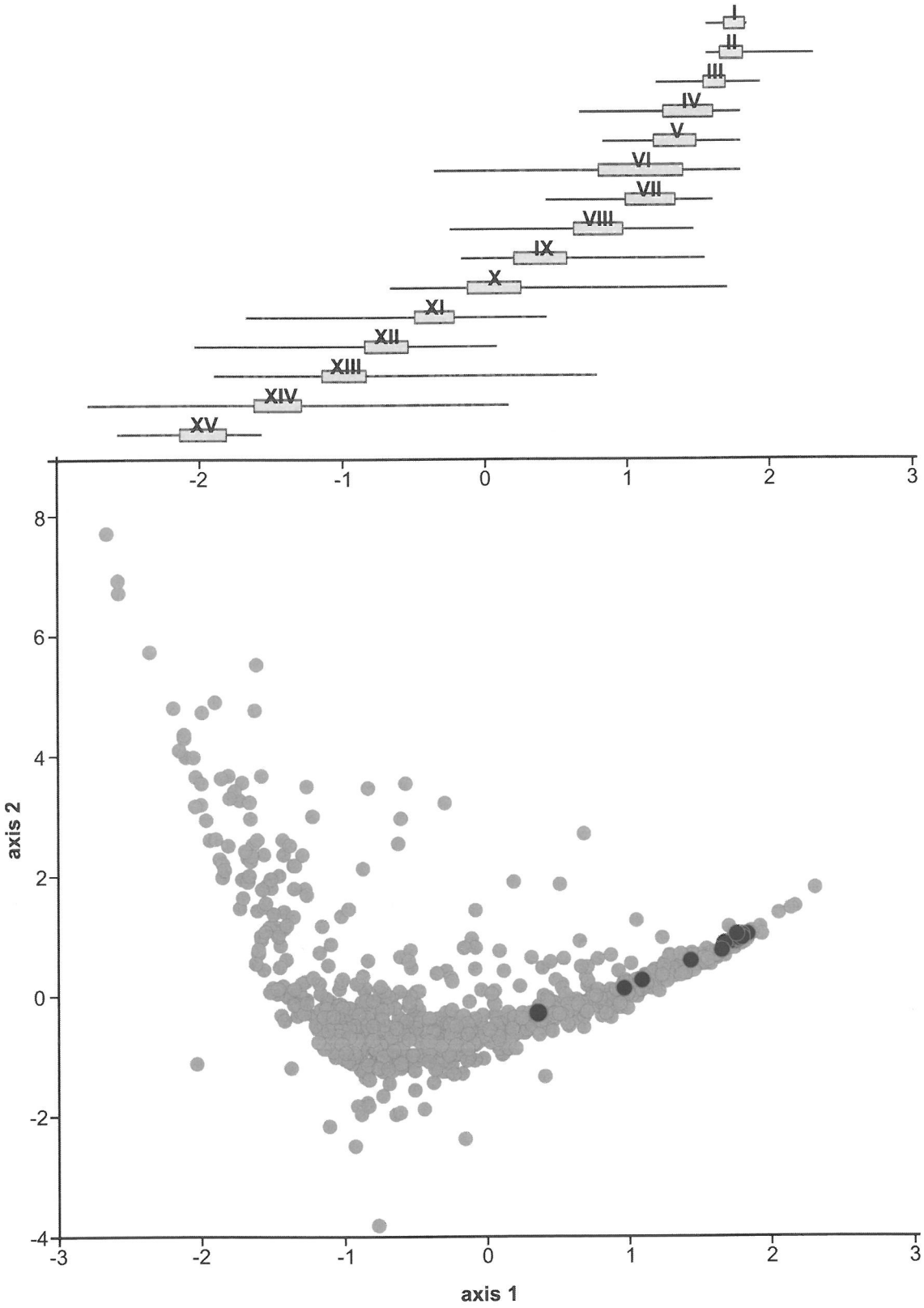

Fig. 2: Scatterplot of features in standard coordinates on the first and second eigenvector of the CA with the dataset of the Rhineland and the pits of Niederkassel-Uckendorf (black dots). Above, the spans of coordinates on the first eigenvector for each house generation of the Merzbachtal chronology are mapped.

sels comprise on average 3.8 sherds while 2.8 sherds can be assigned to the mean undecorated vessel.

The majority of the vessels are represented by body sherds alone. Decorated vessels are slightly better preserved than the undecorated pots, as 30 % of the vessels displaying ornaments consist of rim and body sherds, whereas only 9 % of the undecorated vessels also feature rim beside body sherds.

To examine the temporal relation of Niederkassel-Uckendorf in relation to the other sites in the Rhineland, 21 pits that contain at least two main motifs (in German: Bandtypen) were included in a correspondence analysis. In the data set of the LBK in the Rhineland, 34 settlements contribute to a total of more than 8,000 vessels deriving from c. 900 features. Figure 2 demonstrates that the pits of Niederkassel-Uckendorf fit nicely within the typical parabolic shape made up of all other Rhineland sites. As a consequence, the site seems to be contemporaneous to other settlements west of the Rhine. Thus, the CA ordination provides no argument for dating Niederkassel-Uckendorf to a transitional phase between eLBK and Flomborn i.e. as being older than other early sites in the region.

Subsequently, the pits were assigned to house generations of the Merzbachtal chronology. This was done by recalculating spans of coordinates on the first eigenvector for each house generation (following Classen 2011). It should be noted that the spans for house generations (HG) I to VII are difficult to differentiate, because the main motifs do not vary strongly in the older LBK. Pits that contain only one definable main motif were approximately assigned to dating intervals of the types.

In total, 33 pits from Niederkassel-Uckendorf were dated using correspondence analysis and main motif intervals (in German: Bandtypenintervalle). More than half of this this pits are dated to the very first house generations I and II of the Merzbachtal chronology. This is striking as this first period of settlement is not represented very extensively in the Rhineland. But with regard to the distribution of this early pottery it becomes clear that the majority of it was excavated from pits that can be assigned to just one house (house number 7). After the beginning of occupation in house generation I, people stayed in Niederkassel-Uckendorf for the whole Flomborn phase. Furthermore, there are a few pits that prove an occupation of the settlement until house generation IX in the middle phase of the LBK.

The main motifs occurring in Niederkassel-Uckendorf are quite homogeneous. 91 % of all 110 definable types are broad, and consist of incised lines (type 1, 82 and 83). Only 8 % of the definable main motifs are formed by a combination of incised lines and punctures. These findings are congruent with other Flomborn inventories in the Rhineland (e.g. Dohrn-Ihmig 1979, 268 ff.). Broad grooves like type 182 or 183, the typical ornaments of the earliest LBK, are completely absent at Niederkassel-Uckendorf.

Therefore, the majority of the pottery can be assigned to the stylistic phase 2 of the Rhineland (Stehli 1994, 139), owing to the predominance of incised lines and band fillings of simple punctures. In the following section, a closer examination of other pottery attributes will help to support these findings.

For instance, the implementation of incised lines comprises elements which are reminiscent of the earliest LBK. However, our accounting of these attributes differ from those published by Heinen (2010, 528). Only 24 % of the vessels with a clearly distinguishable line profile show an eLBK U-shaped profile, and the remaining incised lines were made with a V-shaped tool, which is typical of the Flomborn phase. Although a V-shaped profile can occur in inventories of the eLBK, this is far from being common (Cladders 2001, 101). Additionally, the majority of the incised lines are quite narrow (1 mm), with only 13 % showing a width of 2 mm. Wider line profiles of 3 to 4 mm can often be observed in the eLBK but are completely absent at Niederkassel-Uckendorf.

One of the rare findings in Niederkassel-Uckendorf is the ornamentation of the rim, as only seven vessels feature a rim decoration. Apart from one specimen, these are represented by coarse wares. The dominance of undecorated rims is typical for eLBK times but can also be observed in Rhenish Flomborn inventories (Stehli 1994, 146). So rim decoration is no special feature of Niederkassel-Uckendorf pottery among the Rhenish sites either.

Secondary motifs are also quite rare in the present pottery assemblage. Only ten motifs could be identified properly. These are horizontal or vertical lines and U/V-motifs, that is to say only motifs made of incised lines. Likewise, these motifs are present in other settlements in the Rhineland during the Flomborn phase (e. g. Classen 2011, 201).

One additional criterion to distinguish between earliest LBK and Flomborn is the vessel shape. While bowls with an inclination of the rim of less than 90° dominate in the eLBK (Cladders 2001, 5), round-bottomed jars become

more important in the following phase. In Niederkassel-Uckendorf, the majority of both decorated and undecorated vessels have a typical Flomborn shape. Only three decorated vessels show a bowl shape. A biconical vessel shape occurring frequently in the eLBK is present only in one specimen at Niederkassel-Uckendorf.

Another special feature of eLBK vessel shapes is their flat base, which appears only three times in our pottery assemblage. Additionally, flattened bases are extremely rare and occur only infrequently in other early sites from the Rhineland (e. g. Krahn 2006, 329).

The prevalence of organic tempering can be understood as another characteristic of eLBK pottery. For example, more than 90 % of the vessels from Schwanfeld and Bruchenbrücken contain intensive plant-based tempering (Cladders 2001, 42 fig. 41, 43 fig. 47). In contrast, the majority of pottery in Niederkassel-Uckendorf was tempered with mineral substances. Only 5 % of the decorated, and less than one percent of the undecorated vessels show exclusively organic tempering, while approx. 23 % of the vessels, a significantly higher number of pots, show a combination of mineral and vegetable tempering. Yet this attribute again cannot support a very early dating since during the Flomborn phase in the Rhineland up to 20 % of the vessels were tempered with a combination of organic and mineral material (e.g. Classen 2011, 169 fig. 133).

Concerning the intensity of organic tempering, it is noticeable that it is quite low for all specimens except a few. Only five undecorated vessels were heavily tempered with vegetable material, and as such make up a smaller part of the whole pottery assemblage in contrast to data published so far (see Heinen 2010, 528).

Turning to attachments like knobs and handles, the majority of the occurring applications can be found in the eLBK (e.g. Cladders 2001, 13) as well as in the Flomborn phase and do not help to date the settlement more precisely. Only seven specimen from Uckendorf form a rare exception in the Rhineland assemblages but parallels can be found in the eLBK at the same time. For example, handles with two vertical grip holes or the so-called 'Schlitzknubben' have also been found, but they can only be seen as isolated cases in the pottery from Niederkassel-Uckendorf.

To sum up our findings based on pottery attributes, the correspondence analysis clearly resulted in a dating of Niederkassel-Uckendorf corresponding to the very first house generations of the Merzbachtal chronology. Therefore, the majority of pottery can be assigned to the Flomborn phase of the LBK. Thus, Niederkassel-Uckendorf is contemporaneous with the first settling of the Rhineland on the Aldenhovener Platte and cannot be regarded as one or even the eLBK pioneer settlement in the Rhineland.

All observed attributes of the pottery support this hypothesis. Characteristic eLBK ornaments like broad grooves are completely absent in Niederkassel-Uckendorf. In addition, the presence of U-shaped profiles of incised lines can be considered as a remnant of eLBK times, but the much more frequent narrow profiles refer to a date in the Flomborn phase.

Also, pottery shapes and technology point in the same direction. Altogether, the range of vessel and base shapes can be interpreted as characteristic of the Flomborn phase, whereas eLBK elements are rare. The occurence of tempering with vegetable material is comparable to other Flomborn settlements. With a maximum of 8 % of all vessels, only a small proportion comprises eLBK elements. Approximately a quarter of all pits contain these eLBK elements and these are spread over the whole site. In addition, the percentage of these elements in each pit is quite low and they do not belong to the earliest phase of the settlement exclusively, rather they can also be found in later phases.

Summing up our findings so far, neither the arguments using architectural features nor arguments based on pottery attributes support the outstandingly early date for Niederkassel-Uckendorf. As an alternative to an earlier dating of Niederkassel-Uckendorf, the presence of eLBK features can be explained by a more traditional or old-fashioned way of producing pottery. This notion is in line with the idea of a more complex change from eLBK to Flomborn. A partial simultaneity of these periods was stated, whereby different stages of development in LBK settlements can be observed (Cladders/Stäuble 2003, 502). Therefore, the presence of eLBK elements in Uckendorf demonstrates a more complex beginning of the Flomborn phase in the Rhineland than known so far. Besides sites like Langweiler 8 which exhibit a typical Flomborn pottery style, there seem to be settlements like Niederkassel-Uckendorf or Meckenheim (Piepers/Dohrn-Ihmig 1972, 476–482), where elements of the Flomborn phase are occasionally mixed with stylistically older attributes. A comparable situation can be found in Nieder-Mörlen, where Schade-Lindig/Schade (2010, 463–464) also discovered earlier pottery attributes from the Flomborn phase.

Flint artefacts

The assemblage from the excavation of the LBK site Niederkassel-Uckendorf included 288 flint artefacts. All objects were studied macroscopically and recorded using the scheme developed by the SAP-Project (Löhr et al. 1977; Zimmermann 1988). The recording scheme was adapted to meet some practical requirements, e.g. measurements of length, width and thickness were not conducted for all artefacts. Blades received a complete documentation of dimensions, while for flakes only weight was recorded. The number of dorsal scars were not registered either. But in order to detect potential similarities to the eLBK knapping style, the parallelism of blade edges (Bauche 1987) and the presence of dorsal reduction (Gronenborn 1997) were additionally recorded.

When studying the lithic assemblage of Niederkassel-Uckendorf we focussed on two aspects. Firstly, the raw material procurement was compared to other sites in the Rhineland. Secondly, the knapping style practised at the site was examined. Does Niederkassel-Uckendorf resemble eLBK sites from east of the Rhine or can it be grouped along with the other younger LBK sites in the West?

Before any inter-site lithic analysis could take place, a check was needed to see whether comparable taphonomic processes have contributed to the formation of the assemblages. Regarding the LBK flint assemblages from the Rhineland most scholars agree that they represent settlement refuse accumulated over a long time span. A few sites, however, display special features with an unusually high number of flint artefacts (e.g. Erkelenz-Kückhoven; Kegler-Graiewski 2004, or Hambach 8; Hohmeyer 1997). These production-specific features (maybe knapping sites) can bias a sites' assemblage.

In Niederkassel-Uckendorf 49 % of all flint artefacts have been found in a single feature (feature 17). To avoid a bias, this inventory is excluded or treated separately in some steps of the following analysis.

Another problem can arise when a sites' assemblage can't be differentiated chronologically. Luckily in Niederkassel almost all flint artefacts (95 %) have been found in features with datable pottery. Most flint pieces can be assigned to house generation II (66 %), all in all 90 % of the pieces (including feature 17) date to the early Flomborn phase (HG I-III). This narrow time frame suits our objective of comparing the Niederkassel assemblage to eLBK and younger LBK sites.

The majority of flint used in Niederkassel-Uckendorf belongs to different varieties of the Westeuropean Cretaceous Flint (e.g. Floss 1994, 83–98). Raw material determination was conducted in cooperation with M. de Grooth, whom the authors would like to thank for her advice and support. To guarantee comparability to the lithic data sets recorded up to now in the Rhineland, the varieties were identified following the scheme of the SAP-Project (Löhr et al. 1977, 131 ff.). Altogether the raw material of 83 % of all 288 specimens could be determined. Only 43 burned pieces proved indeterminable.

Due to the fact that most artefacts are of the so-called Rijckholt flint type (Lanaye Member, Gulpen Formation), the question of their precise origin is of special interest: do they originate from (sub) primary deposits in the distant Dutch/Belgian limestone area – as do the majority of Younger LBK flints from the Rhine-Meuse region – or were they collected in Meuse river gravel deposits located closer to the site – as was suggested previously by Heinen (2010, 528).

A clear distinction between Rijckholt-Flint from a primary or residual source and Gravel flint is only possible if parts of the cortex or rolled-off natural surfaces do exist. As a heuristic tool Löhr and his co-authors use so-called 'mixed' categories ("Übergangsfelder") to handle artefacts that cannot clearly be classified in a single raw material group. Later on, certain characteristics of these mixed categories are analysed and the mixed categories are dissolved. Zimmermann proposes to distinguish Rijckholt and Gravel flint by looking at the proportion of non-cortical natural surfaces, because natural surfaces are more frequent on Gravel flint than on Rijckholt-flint (Zimmermann 1988, 606; Weiner 1997, 613).

It is important to emphasize that, in this study only artefacts with traces of river transport were regarded as Gravel flints (n = 15). Just 17 artefacts show chalky cortex and are classified as Rijckholt flint in the strict sense. These have been almost exclusively found in features dating to HG I or II. Since the proportion of surfaces produced in geological processes is relatively small in the mixed categories, these are assigned to the Rijckholt-flint type. A recent study has shown that this material probably doesn't originate from Rijckholt itself but might be from the nearby Banholt extraction site (de Grooth 2011). Some pieces show a 'clear reddish-brown zone' under the cortex that is thought to be characteristic for the Banholt material (de Grooth 2011, 123).

To summarize, in contrast to Heinen (2010, 528) we are not convinced that 80 % or even more of the assemblage is made up by Gravel Flint.

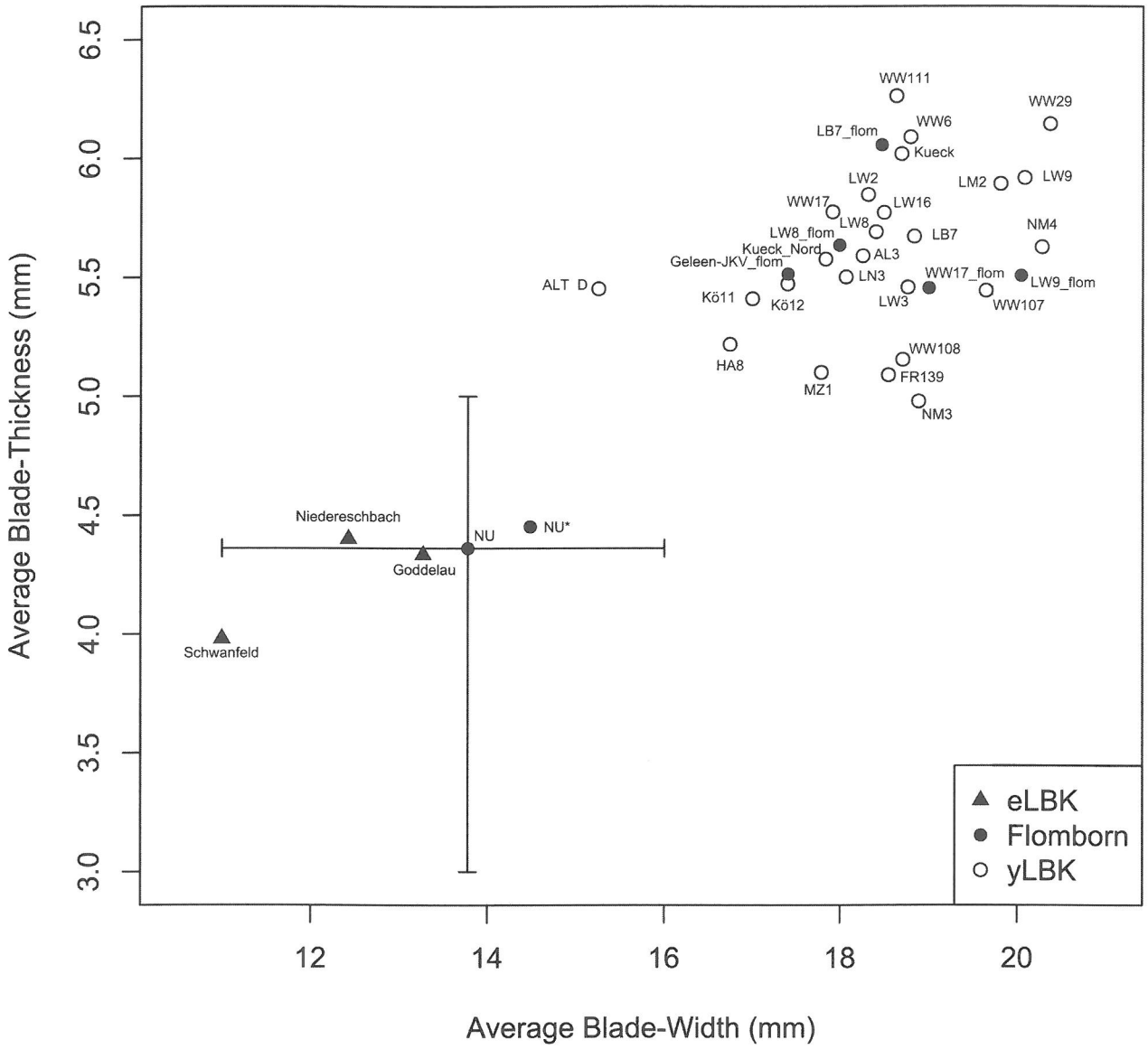

Fig. 3: Average Blade-Width and -Thickness at Niederkassel-Uckendorf (NU with IQR-Range; NU = without feature 17), at three eLBK sites and several Flomborn/younger LBK sites in the Rhineland (for abbreviations cf. Classen 2011, 327).*

After our re-assessment, Rijckholt-Type flint coming from a distance of c. 93 km, accounts for 79 % of the total weight of the site's assemblage. At the sites on the Jülich-Zülpicher Börde 27–87 % Rijckholt percentages by weight are common. The large proportion of Rijckholt flint at Niederkassel appears less unusual, if we take into account that for instance at Werl-Unnaerstraße at a distance of c.170 km to Rijckholt, the assemblage is still made up of 74 % Rijckholt (Zimmermann 1995, 111). In Niederkassel Gravel flint comes second, but the value of 20 % Gravel flint by weight is still moderate compared for instance with Altdorf D on the Aldenhovener Plateau (40 %, Mischka 2014). Vetschau flint and Hornstein are only present with three pieces each. With the Hornstein pieces the assemblage also contains flint from the Southern German Upper Jurassic. Whether these pieces are of primary origin or have been collected from the Gravel beds of the River Rhine, which contain small Hornstein pebbles (Altmeyer 1982, 14), cannot be decided.

The high proportion of unmodified flakes (78 % with and 68 % without feature 17) indicates that flint was worked locally. The low average weight shows that this is especially true for the pieces made of Rijckholt flint. Complete blades were also split and reworked in the settlement, as the ratio of almost 2 to 1 proximal to me-

dial parts of unmodified blades demonstrates. The very low number of cortical pieces, only about one-fifth of all pieces exhibit cortex, points to an import of cores already initiated elsewhere.

There are surprisingly few tools in the Niederkassel assemblage (n = 23). The proportion of 12 % tools (without feature 17) is comparable with the tool/blank ratio of Langweiler 8. In contrast, at the LBK-site Köln-Mengenich, c. 22 km to the Northwest on the left bank of the Rhine, the assemblage is made up of 31 % tools (Zimmermann 1995, Abb. 33). The tool inventory consists of 14 end-scrapers, four sickle inserts, three borers, a side-retouched blade and a left winged 'danubian' arrowhead. As Heinen pointed out, two of the end-scrapers, made of small blades, resemble microliths ("mikrolithartige Stücke", Heinen 2010, 529, fig. 8.13–14).

But was Niederkassel-Uckendorf already part of a flint distribution network? A way of approaching this issue is to compare the composition of the Niederkassel lithic assemblage inventory with the estimates Zimmermann (1995) computed for this region. Zimmermann estimated that a younger LBK-assemblage at the approximate location of Niederkassel-Uckendorf should be made up of c. 30–40 % blades, the same percentage of flakes and 20–30 % tools made of Rijckholt Flint. Roughly one third of the Niederkassel inventory (excluding feature 17) consists of Rijckholt blades (c. 28 %). This fits Zimmermann's estimate, but there are only c. 12.5 % tools and more than half of the inventory (55 %) is made up of flakes. Thus, the working of flint seems to have been more important than one would expect. The proportion of cortical pieces of 14 % is considerably lower than Zimmermann's estimate of 25–30 %. In particular, this aspect points to the effects of receiving flint via a down-the-line exchange system, since exchanging used cores with reduced proportions of natural surface is a characteristic for this type of supply.

All in all the possibility emerges that Niederkassel could have received flint via a distribution network. But the site seems to be better supplied with flint than younger sites at a comparable distance. An explanation could be the smaller number of transactors and a lower density of the network at early Flomborn times.

To examine the knapping style practised at Niederkassel-Uckendorf we will consider blade morphology first and subsequently investigate methods of blade preparation.

Most scholars regard blades as the aim of the LBK flint production (e.g. Löhr et al. 1977, 209). In Niederkassel-Uckendorf the blades have a mean width of 14 mm and are more slender than at most sites in the Rhineland, where blade width spreads around 18.5 mm. The length of complete blades is quite difficult to judge due to the small number (n = 4), but average blade thickness measuring just 4.4 mm falls short of the mean range for assemblages from the Rhineland (fig. 3). This holds true when comparing the Niederkassel blades to Flomborn assemblages only.

This difference in size could be due either to a poor raw material supply (e.g. small cores) or to specific eLBK knapping traditions, because in eLBK-assemblages the blades show comparable width and thickness (Gronenborn 1997, fig. 3.6; Fischer 2011, 38).

To measure the regularity of the blade edges, a method by R. Bauche was applied (Bauche 1987, Gehlen 2012a). As in the eLBK assemblages from Bruchenbrücken, Schwanfeld, Enkingen und Mintraching, the very regular blades (Bauche 6) are the most common. But in Niederkassel the slightly less regular blades (Bauche 7) are almost as frequent. In the younger LBK assemblages from Bruchenbrücken (Gronenborn 1997) or Arnoldsweiler-Ellebach (Peters forthcoming), the majority of blades are of the slightly less regular type.

These observations on blade size and morphology are in line with Heinen (2010).

Primary faceting – the removal of tiny chips from the platform – was practised extensively in the eLBK. Between 30 to 73 % of the blades of eLBK settlements show primary facetted butts. In Niederkassel this is true for only 10 % (without feature 17: 11.5 %). The eLBK tradition of faceting the platform before separating a flake or blade was obviously not practised to a nameable degree in Niederkassel-Uckendorf.

While dorsal reduction – the removal of tiny chips from the core face – is common in the younger LBK, it is of less importance in the eLBK (Tillmann 1993; Gronenborn 1997). In Niederkassel-Uckendorf c. 37 % of the blades show a slight, irregular dorsal reduction. This is comparable with the c. 43 % of dorsal reduced blades at Erkelenz-Kückhoven, 55 km west of Niederkassel (Mateiciucová 2008, 79). The proportion seems to increase further west, as in Geleen-Janskamperveld (Dutch Limburg) 60 % of the blades show this kind of preparation (de Grooth 2007, 151). Some scholars have connected the concept of dorsal reduction with late Mesolithic hunter-gatherer groups (de Grooth 2008, 221, Gronenborn 1997, 85).

Ground Stone Artefacts

At Niederkassel-Uckendorf the inventory of ground stone artefacts is almost completely made up of tools, and very small in number (n = 28). While most specimens do not exhibit natural surfaces, c. 50 % of those who do, display traces of fluviatile transport. Like at other LBK sites certain ground stone raw materials are strongly linked to certain tool types (Gehlen 2012b).

The adzes and adze-fragments (n = 6) are exclusively made of amphibolite, probably actinolite-hornblende schist from Bohemia (Christensen et. al. 2006). The fact that amphibolite is the only adze raw material used at Niederkassel is an indicator for an early date of the site. During the younger LBK basalt and other materials gradually replace amphibolite as the major adze raw material (Nowak 2008).

A fragment of a saddle-shaped runner demonstrates the use of the typical LBK push-pull saddle-querns in Niederkassel-Uckendorf (Zimmermann 1988, 724–725). The querns, fragments of runner and bottom stones (n = 13), consist primarily of hard, coarse-grained (0.3–1.0 mm diameter grain size) quartzite sandstone. Whether so-called 'Eschweiler-Kohlensandstein' (EKS), which is very common in the LBK settlements of the Rhenish Loess Belt, is present is hard to tell relying on macroscopic identification only. Heinen claims that EKS is absent, but there are some suspicious pieces that may be assigned to EKS. From the well examined LBK settlement at Köln-Lindenthal, just c. 16 km to the Northwest, the use of EKS is known (Zimmermann 1988, 619).

In contrast to the querns, the grinding stones (n = 7) show traces of grinding but not of pecking and are made of a more diverse spectrum of raw materials. The raw materials used are fine to coarse-grained (0.1–3.3 mm diameter grain size) sandstone and some do abrade a property which renders them unsuitable for the processing of wheat. Sandstones of the Kinzweiler or Herzogenrather type, commonly used for grinding stones on the Jülich-Zülpicher Börde, are definitely missing.

The ground stone tool assemblage is completed by a hammer stone and a splintered piece.

To summarize, the majority of flint used in Niederkassel-Uckendorf is – in line with the recording scheme and decision processes common for LBK inventories in the Rhineland – of the Rijckholt-Type. Already prepared cores were brought into the settlement. Flint was worked locally and blades were split and re-worked at the site. In contrast to younger LBK settlements, at a comparable distance to Rijckholt (e.g. Köln-Mengenich), the assemblage is made up by a large proportion of flakes, and tools are not abundant. At present, not enough LBK sites in the most southern part of the Lower Rhine Embayment have been analysed to answer the question whether Niederkassel was part of a distribution network, but there are some attributes that point in this direction. As the pottery analysis shows, Niederkassel-Uckendorf existed contemporaneously with LBK sites west of the Rhine, who could have passed flint cores to Niederkassel.

Regarding the morphology of the blades, the pieces found at Niederkassel-Uckendorf resemble the eLBK blade tradition, but the rareness of primary facetted butts and the prevalence of dorsal reduction points to the Younger LBK in the Rhineland. The knapping style used in Niederkassel therefore seems to be a blend of different traditions, no longer eLBK but not yet the younger LBK. An ambitious interpretation could be that in Niederkassel blades were made which looked like eLBK blades but were produced using a different, non eLBK knapping style.

14C Dates

During the excavation five samples of seeds (n=3) and charcoal (n=2) for 14C-AMS dating were taken. The dates produced correspond well to our re-asessed dating into the Flomborn phase (cf. Heinen 2010, 531), beginning about 5300 cal BC (cf. Lüning 2005, 67–71 Abb. 22). Also, the oldest date (UtC13232) sampled from feature 206 and dated to 5283+-40 fits very well into the sequence of the house generations of the Merzbachtal chronology, where this pit, according to the above described correspondence analysis, is assigned to house generation II. So the date does not show a transitional phase in Niederkassel-Uckendorf as stated by Heinen (2010, 531), it rather points to a parallel existence of the eLBK-tradition and the Flomborn-tradition (Lüning 2005, 71).

Conclusion

The analysis of houses, pottery, flint and ground stone artefacts of Niederkassel-Uckendorf, using the data schemes established in the Rhineland, enabled a comparison to other known sites in this region. By this means, the observations of earlier studies could be quantified and refined.

Concerning the raw material supply, we – in contrast to Heinen – see a predominance of Rijckholt flint. Primar-

ily, this is the result of a strict definition of gravel flint as having traces of river transport and secondarily, in the described way of dissolving the so-called Übergangsfelder. We absolutely agree with Heinen that the blade morphology resembles eLBK blade traditions. However, the knapping style differs from that of the eLBK.

The results of the correspondence analysis of pottery decoration show that the settlement activity starts in the Flomborn phase. Thus, contemporaneously with other settlements west of the river Rhine (e.g. Langweiler 8; Boelicke et al. 1988) the farmers of Niederkassel-Uckendorf colonised the Rhineland. This dating is supported by the analysis of other pottery attributes.

The earlier stressed abundance of eLBK elements concerning pottery and houses cannot be confirmed by our analysis. All in all, we reject the existence of a transitional phase between eLBK and Flomborn phase at Niederkassel-Uckendorf. In fact, we regard the settlement as an example of those sites of Flomborn tradition existing parallel to eLBK settlements in other regions (cf. Lüning 2005).

As a methodological conclusion, we suggest that future research has to take into account technological attributes more thoroughly to evaluate the process of colonisation of the lower Rhine embayment.

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Erkelenz-Kückhoven – Eine Siedlung, zwei Gruppen. Nachweis von siedlungsinternen sozialen Einheiten anhand von Steinartefakten

Zusammenfassung

Um ca. 5300 v.Chr. erreichten die ersten Bauern (Linearbandkeramik) das Rheinland. Auf der Aldenhovener Platte entwickelte sich daraufhin ein komplexes System zur Weitergabe von Rohmaterialien, dass von Andreas Zimmermann (1995) untersucht wurde. Hierbei geben die Hauptsiedlungen (Verteiler) Klingen, Kerne und Endprodukte an die Nebensiedlungen und Einzelhöfe (Empfänger) weiter. In der hier zusammengefasst dargestellten Magisterarbeit (Nockemann 2005) wurde herausgearbeitet, dass auch innerhalb der Siedlung Erkelenz-Kückhoven solch ein „Empfänger/Verteiler" -Muster existierte und sich die jeweiligen Bereiche der Siedlung bei der Weitergabe von Rohstoffen und Produkten wie separate Siedlungen verhalten. Es ist anzunehmen, dass es sich hier um verschiedene soziale Einheiten innerhalb der Siedlung handelte, die sich auch als solche wahrnahmen.

Schlagwörter: Instrasite Analyse, Linearbandkeramik, Neolithikum, Silex, Wirtschaftsweise

Abstract

Around 5.000 BC. the first farmers (Bandkeramik culture) reached the Rhineland. A system for distributing raw materials developed on the Aldenhovener Platte, which was researched by Andreas Zimmermann (1995). In this system the bigger settlements (distributer) gave blades, cores, and final products to the smaller, neighbouring settlements and single farmsteads (recipients). In the summarized master thesis (Nockemann 2005), which is presented here, it becomes clear, that the settlement Erkelenz-Kückhoven resembles the described distributer/recipient pattern. The wards in question work almost as separate settlements, in distribution of goods. It is likely that they were different social units within a settlement, and saw themselves as such.

Keywords: Intrasite Analysis, Linear Pottery Culture, Neolithic, silex, economy

Der bandkeramische Siedlungsplatz Erkelenz-Kückhoven liegt ca. 40 km nordwestlich von Köln in den Rheinischen Lössbörde und ist bekannt für seinen herausragenden Brunnenfund. Die Siedlung wurde von ca. 5200 BC bis zum Ende der rheinischen Bandkeramik um 4950 BC besiedelt (Hausgeneration III bis XV). In der Regel werden bandkeramische Siedlungen als eine geschlossene Einheit gesehen und auch so bearbeitet. Angeregt durch die Ergebnisse der Auswertungen der Gräberfelder von Niedermerz 3 (Hoyer 2009) und Altdorf (Heller 2015), bei denen interne Gliederungen erkannt wurden, sollte auch eine bandkeramische Siedlung auf eine mögliche interne Gliederung untersucht werden. Für die beiden Gräberfelder ergab sich eine Aufteilung in ein Nord- und ein Süd-Areal, die keinerlei chronologische Gründe hat. Vor allem beim Gräberfeld von Niedermerz konnten zwischen beiden Arealen Unterschiede in den Silexrohmaterialien, dem Rohmaterial der Dechselklingen, den Grundformmaßen und den Häufigkeiten der modifizierten und unmodifizierten Grundformen entdeckt werden. So waren die Bestattungen der Süd-Gruppe offenbar besser mit Silexrohmaterial ausgestattet und besaßen auch längere unmodifizierte Klingen. Für Niedermerz 3 deutete sich an, dass die jeweiligen Areale verschiedene Menschengruppen, möglicherweise Familienverbände, repräsentieren.

Im Rahmen einer Magisterarbeit (Nockemann 2005), deren Ergebnisse hier zusammengefasst dargestellt wer-