Michelsberg and Oxie in contact next to the Baltic Sea[1]

Doris Mischka, Georg Roth and Katrin Struckmeyer

Abstract

The site of Flintbek LA 48 is situated 8 km southwest of the Kiel fjord in the province of Schleswig-Holstein, Germany.Here, an early Neolithic pit containing ceramics from the local early Neolithic Funnel Beakers of the Oxie group as well as the middle Michelsberg culture (II/III) were found. The Michelsberg vessels allowed a post-hoc projection into the correspondence analysis undertaken by Höhn (2002) relating the Michelsberg and Funnel Beaker material from one context. According to Madsen (1994) the recorded decoration techniques are used for a combined correspondence analysis with the earliest Funnel Beaker groups of southern Scandinavia. In this study we combine both classification techniques on the material from Flintbek in an attempt to determine the two main distribution areas of the Michelsberg and Early Funnel Beakers in Northern Europe. The Michelsberg finds are seen as the end point of the expansion phase of this culture in the north. It is proposed, that the introduction and establishment of the flat-bottomed Funnel Beakers is due to changes in the furniture within the houses and in the utilisation of the vessels themselves, perhaps connected to the changes towards a more agrarian economy.

Zusammenfassung

Keywords: Early Neolithic Funnel Beaker culture, Oxie group, Michelsberg culture, correspondence analysis, Flintbek

Schlagwörter: Frühneolithische Trichterbecherkultur, Oxiegruppe, Michelsberg, Korrespondenzanalyse, Flintbek

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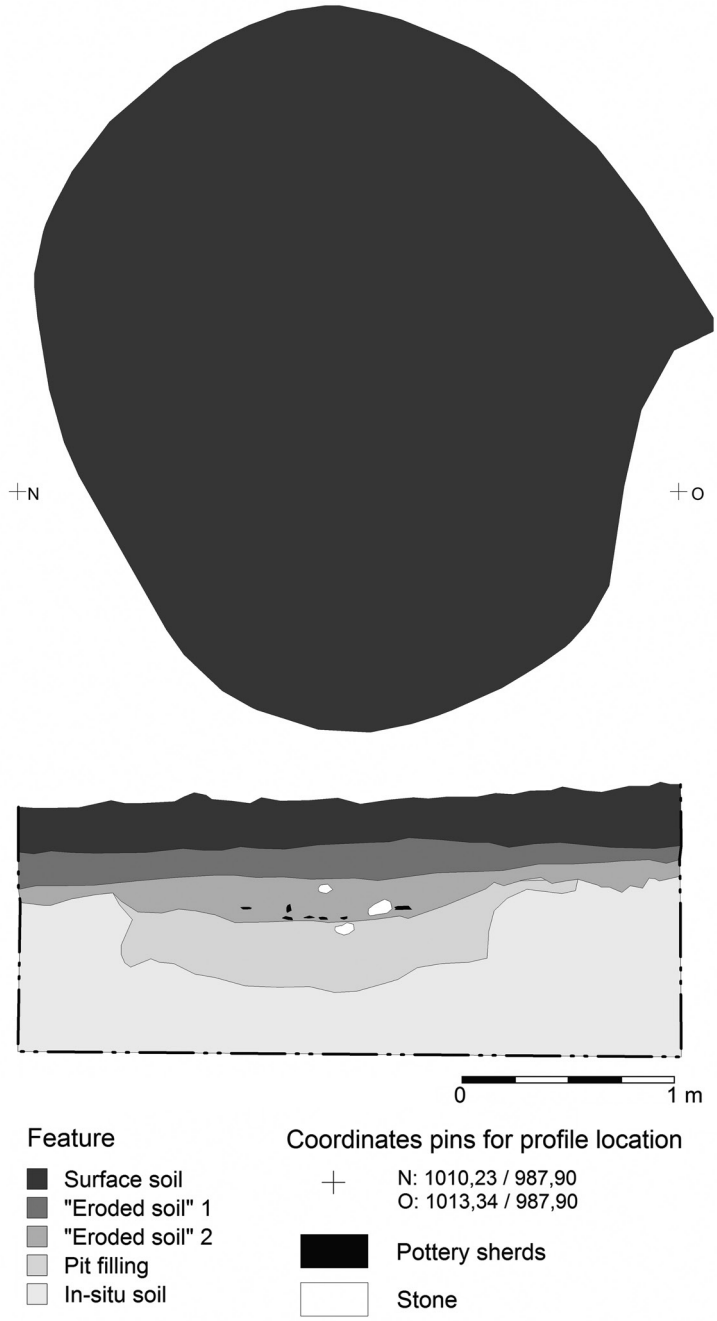

Fig. 1. Flintbek LA 48. Plan and profile of the Early Neolithic pit.

The site Flintbek LA 48

In 1975 G. Busch discovered the remains of a Bronze Age tumulus near Flintbek, Rendsburg-Eckernförde county, Northern Germany. The surviving tumulus measures approximately 28 m in diameter and 0.35 m in height. In 1984 the barrow was excavated by D. Stoltenberg. Protected by the barrow's embankment Stoltenberg found a rounded pit of 3.45 m x 2.94 m with a maximal depth of 0.55 m in the centre (Fig. 1). During finds processing the earliest Neolithic ceramics were recognized. In several articles B. Zich published important parts of the assemblage, including a completely reconstructed flat-bottomed funnel beaker with bosses on the inside and several sherds with so called arcade rims (Zich 1992, 9–10; 1992/1993, 20–23). In his articles, Zich described the similarities of these vessels to the Michelsberg culture. Later, L. Klassen (2004) connected the flat-bottomed Funnel Beaker with the bosses at the rim to the earliest Funnel Beakers, type 0 of Koch (1998). In particular, Klassen emphasised the "type fossil" character of the arcade rims for the Early Neolithic I (Klassen 2004, 154). According to Koch, the appearance of type 0 pots can be dated to around 3950 calBC in Southern Scandinavia (Koch 1998, 83pp.; Klassen 2004, 172).

Zich also published the first conventional ^{14}C date (KI-3072: 5280 ±115 BP) from the site, which was measured on a piece of oak charcoal, producing a calibrated age of 4237–3984 calBC (1σ), intensifying the discussion of the Flintbek finds importance for the origin of the Funnel Beaker North Group (Zich 1992/1993, 20).

The finds were re-analysed by Mischka (2011b) who was able to refit some of the published sherds and obtain several vessel profiles. A second radiocarbon date using AMS was measured on elm *(Ulmus)* by the Leibniz laboratory at the Kiel University (KIA37170: 5387 ±38 BP) producing a calibrated age of 4328–4180 calBC (1σ). Apart from the effects of old wood which have to be taken into account for both dated samples, the short standard deviation of the Kiel AMS-dates has to be interpreted with care. The Kiel laboratory could not reproduce own measurements of some controlled samples probably between September 2010 to spring 2012 (http://www.uni-kiel.de/leibniz/ [Accessed October 2012]; Christmas greeting card 2012). The measurement of the charcoal of Flintbek LA 48 was measured earlier in April 2009, and was probably sent to the Groningen radiocarbon Laboratory (according to sample record), and contained a quite high fraction C content of 73.13 %. We propose it to be taken from an older wood then the conventional date made by

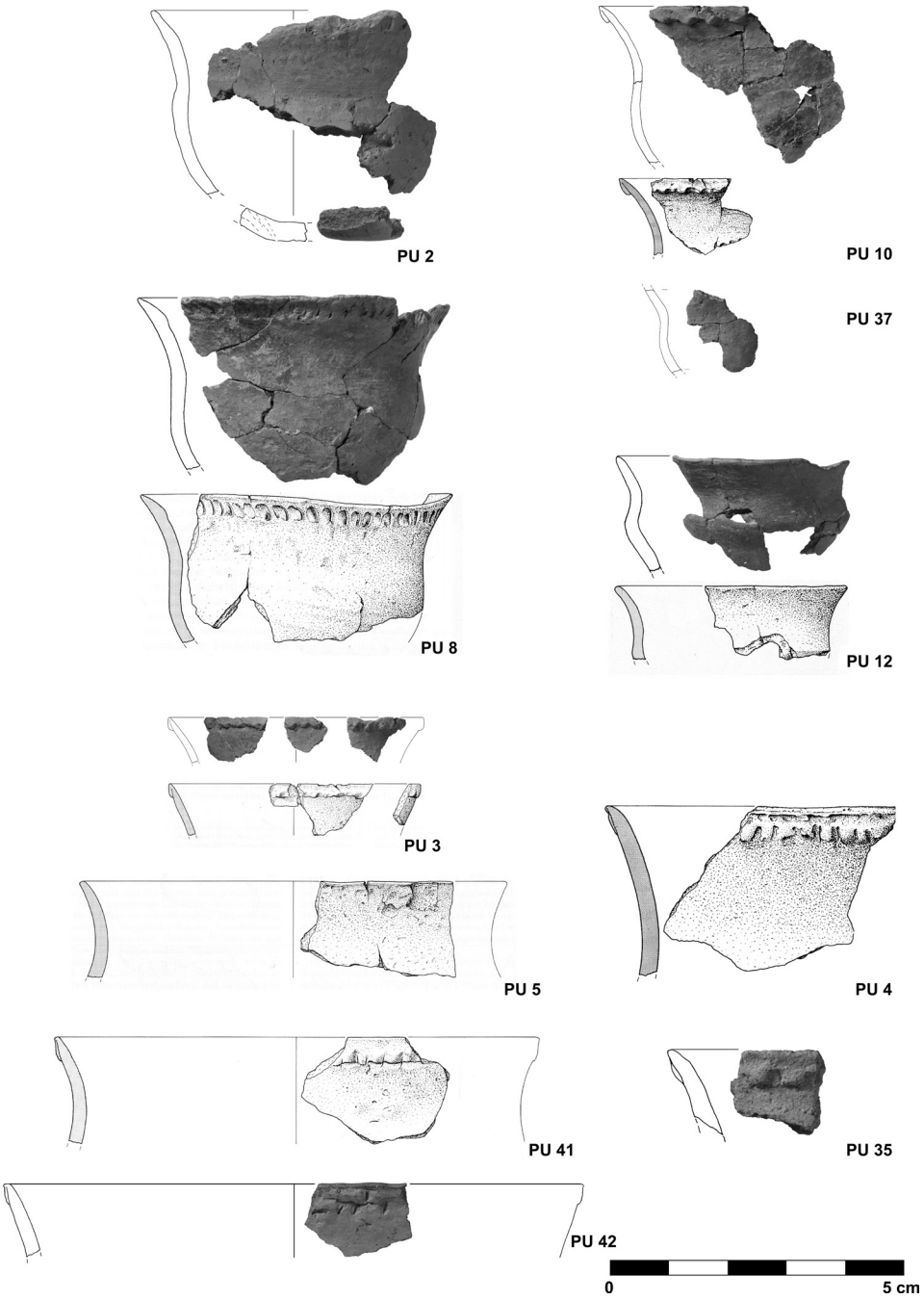

Fig. 2. Flintbek LA 48. Selection of the most important pottery units (PU) from the pit.(PU 8 drawing from Zich *1992/1993 p. 21 fig. 5.1).*

Zich. Nevertheless, for the discussion of the minimum age of the pit, the youngest date measured to 4237–3984 calBC (1σ) is seen as the chronological upper boundary for the pit filling.

S. Hartz and other colleagues extended the list of early Neolithic assemblages comparable to Flintbek (Hartz et al. 2000, 144; Klassen 2004, 169pp.). The sites of Flintbek LA 1 and Flintbek LA 49 in the neighbourhood of Flintbek LA 48 may also be added to this list.

Finds (Fig. 2–3)

Among the finds, the pottery sherds are the most important and frequent. Six hundred and eighteen sherds weighing 7.6 kg have been combined to 67 pottery units (PU). Refitting as well as the analyses of the temper, including the material, texture and manufacture, has confirmed that numerous sherds derive from the one vessel. The average weight per sherd is 20 g and illustrates the high degree of fragmentation.

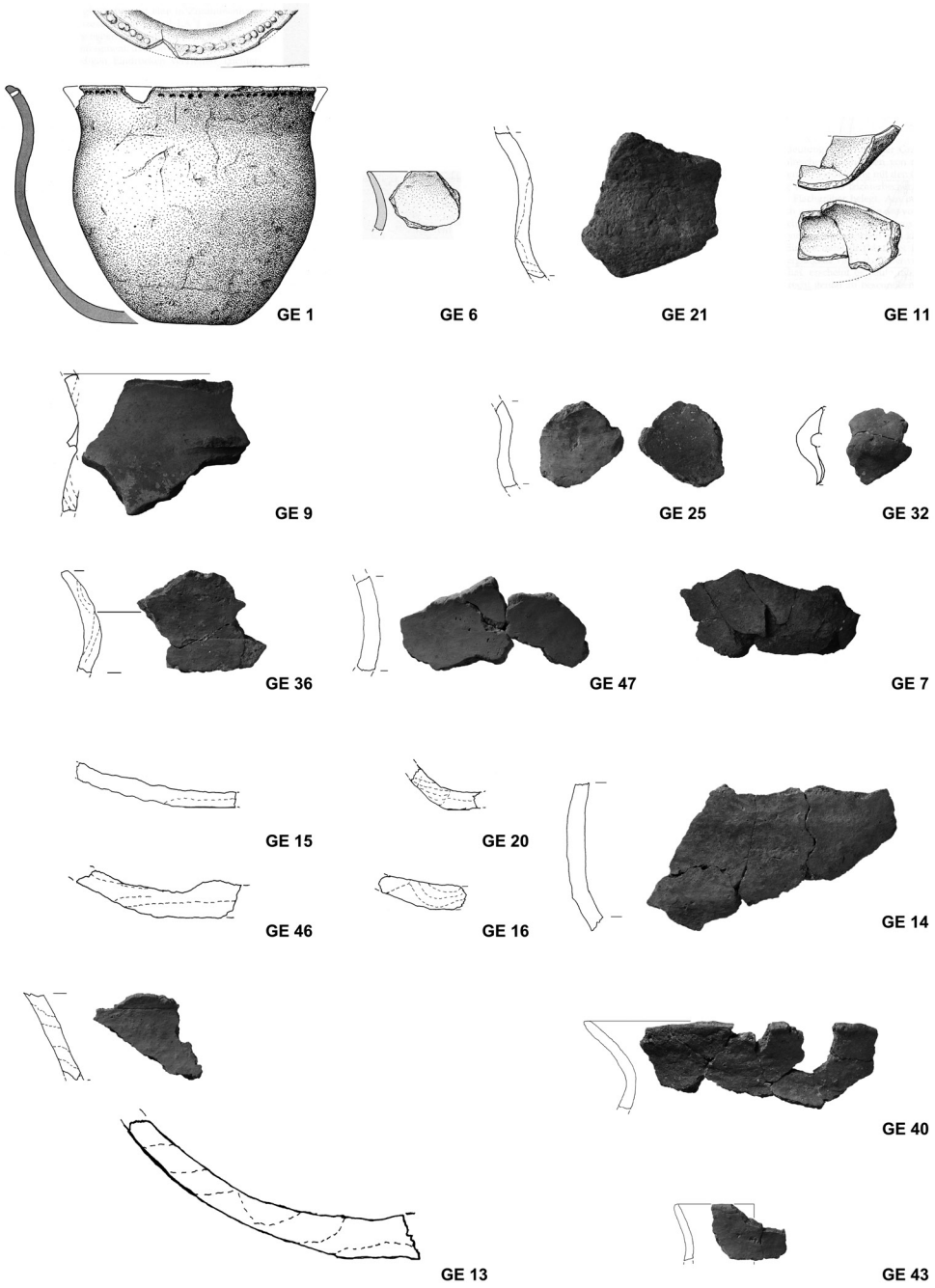

Fig. 3. Flintbek LA 48. Selection of the most important pottery units (PU) from the pit; continued fig. 2.

19 pottery units feature only one sherd. For other units it was possible to reconstruct large portions of or even the complete profile of vessels. For instance, PU 13 is refitted from 53 single sherds and PU 1 has completely been reconstructed by the laboratory of the Museum Schloss Gottorf, Schleswig.

The bases of pots were difficult to identify in the assemblage and in the majority of cases could not be joined with the other parts of the vessels. Surprisingly, they are thinner than the wall-sherds.

Wangels group or Oxie group

In 2000 a working group lead by S. Hartz systematically dated sherds using organic food crusts (Hartz et al. 2000). Based on older ^{14}C dates and the new food crust data, they defined three periods for the Nordic Early Neolithic, referred to as stage A, B and C. Stage B has been dated to 4100–3900 calBC and is defined as the "Wangelsgruppe" after the type site (Hartz et al. 2000, 134–135). The vessel shapes of the Wangelsgroup comprise bowls, bottles with small mouth, lamps, and clay disks,

amphorae with lugs and knobs as well as bowls with wide mouths. In stage B, Funnel Beakers make up less than 50 % of the vessels while in phase C they are the most dominant (over 90 %; Hartz et al. 2000, 144). Their classification of vessel forms is often based on single sherds because of the high degree of fragmentation. Complete profiles could be identified at that time, which is why their description and classification is difficult to compare with other ceramics. Apart from that, the sherds of Wangels provide valuable information regarding the range of Early Neolithic pottery decoration. Recorded elements include impressions below the rim, bosses like in Flintbek or the so-called arcade rims.

Prior to the definition of the Wangels group, the only classification system used was that of Becker (1947). Mainly based on often well-preserved pots from Danish peat bogs, Becker described different pottery groups. Subsequently his A-group was transformed to the Oxie group by Madsen (1994, 231) and Larsson (1984). The most important vessel form is the flat-bottomed Funnel Beaker.

Besides bog pots, material sources in South Scandinavia derive mostly from excavations of dwelling sites or from settlement remains underneath long barrows. Like the Wangels group, complete vessel profiles are rare and stratigraphic sequences are missing, so classification of forms relies often on single sherds of small size. Therefore fine chronological differentiation and regional distributions of early Neolithic assemblages are built upon some sparse decorations and in particular on their technique.

In light of numerous concordances in shape and decoration techniques we think that the terms Wangels group and Oxie group relate to the same phenomenon.

The Michelsberg pots (Fig. 2–3)

Four pottery units (PU 2, 8, 10 and 37) are shaped like Michelsberg Tulip-Beakers (Tulpenbecher).

The first three can be classified more precisely according to the profile shape and the dimensions, despite the fact that bottom sherds could be detected. Höhn differentiates two variants of the Tulpenbecher, labelled A and B according to the relation of the rim diameter to the height of the rim zone and the rim diameter to the maximal diameter of the belly (Höhn 2002, 163 fig. 152). According to the measurements, PU 2 is a T1A T1B beaker, PU 8 a T2A T1B beaker and PU 10 a T2A T1B beaker (cf. Höhn 2002, 163-164). PU 37 is similar to PU 2 but due to the high degree of fragmentation this vessel is not included in the correspondence analysis.

PU 12 is classified here as Kw3 after Höhn (2002, 165–166). However, the profile of the wall is much steeper and straighter underneath the bend than the corresponding Michelsberg bowls. And the bend lies slightly higher on the Flintbek bowl.

According to the rim shapes and the rim zone shapes, six pots are classified as storage vessels according to Höhn (2002, 163–164): PU 3, 4, 5, 35, 41 and 42. PU 5 and 41 become more open at the neck than the maximal rim diameter, as such they are identified as belonging to vessel type Vg3. In addition PU 3, 4 and 42 are classified as Vg4. Their classification relies mainly on rim sherds. For classification of Vg1 pots flat bottoms are required. Unfortunately it was not possible to fit the flat bottom sherds to one of the storage vessels.

The Oxie group pot

Among the vessels there is one beaker of type 0 after Koch (1998) with a completely flat bottom (PU 1; Fig. 3). It is undecorated apart from one line of small bosses (Loch-buckel) beyond the rim, imprinted from the outside. On the type 0 beakers found at Kongemosen and Bjørnsholm, organic crusts were dated to 4070–3800 calBC by Koch (1998, 83pp.).

Pots of ambiguous character (Oxie or Michelsberg) (Fig. 2–3)

Within the Flintbek LA 48 assemblage less distinct vessel forms are also present but it is not yet possible to distinguish between Oxie and Michelsberg types. Clay spoons like PU 11 are typical for both groups, but are rare in the North (Klassen 2004, 167pp.). Funnel necks (PU 6, 2, 25, 36 and 47) and subcutaneous knobs (PU 9) are another common feature in Michelsberg

contexts and the Oxie group (Lüning 1968, 16; Koch 1998, 87) – where subcutaneous knobs on type I beakers are placed preferably on the shoulder of the pot or on upper parts of the belly (e.g. Klassen 2004, 174 93.2 and 115). Broken knobs (PU 31, 32) indicate lugged vessels which are less frequent in the Michelsberg context.

Pots with uncertain classification (Fig. 2–3)
Some fragments are difficult to classify: e.g. PU 13 resembles a big bowl, however, the rim is incomplete; another specimen (PU 14) has a big belly and a conical profile.

Several bottom sherds survived (PU 7, 15, 16, 20 and 46). They do not fit to the other pottery units and are treated here as distinct units. In the Flintbek inventory both shapes of bottoms occur, flat as well as rounded bottoms. Rounded bottoms are a characteristic of early Michelsberg while flat bottoms only turn up in its last phase (cf. Höhn 2002). The flat bottoms are the special Funnel Beaker culture element (cf. Midgley 1992).

PU 40 is very thin walled, irregular shaped pot with a wide funnel rim and PU 43 could be a small flask because of its dimensions and profile shape.

Decorations
The decorations are made of simple lines or rows of stiches with the majority orientated horizontally beyond the rim on the vessels outer surface. Fingernail impressions (12 times), finger tricks for the arcade rims (6 times), and simple patch strips, bosses or single stiches and simple incision with round profiles are present as well.

Other finds
In the excavation report numerous cobblestones are described lying adjacent to the pottery sherds, unfortunately they were not collected. Apart from them, 198 lithics of Baltic flint of about 3.8 kg weight were found. They consist of flakes (77 %), blades (12 %), debris (2 %) and a high number of cores (9 %), with most nuclei being single platform cores with several circumferential flaking surfaces displaying quite standardized dimensions and shapes. The tool kit (10 %) comprises quite uncharacteristic types: eight laterally retouched flakes and blades, five truncations, two borers and two end scrapers. Of note is one piece which was wrongly classified as a microlith, which included invasive retouch.

During the excavation of the pit fill, numerous bone fragments were also found which could not be subjected to further analysis due to their high fragmentation and poor preservation.

Ten pieces of charcoal from oak (4x; *Quercus*), elm (4x; *Ulmus*) and ash (2x; *Fraxinus*) were identified. Apart of one ash tree fragment, the mean diameter classes are quite high, indicating the use of big branches or event trunks and so the above discussed possible 'old wood effect' should be taken into consideration during the interpretation of the radiocarbon dates.

141 g of burnt clay was also recovered from the excavation of the pit. Some are of dark color, most are reddish. Sometimes imprints from plants – small branches – are visible. The burnt clay may indicate a burnt hut or dwelling (sf. Behrends 1998, 116pp.) or a typical Neolithic dome shaped oven.

Archaeometric analysis of the pottery

Archaeometric analyses were carried out within the DFG-Priority programme SPP1400 on "Early monumentality and social differentiation" on a selection of pottery sherds to gain further information on the pottery technology and to distinguish the different vessel forms in their clay composition. In particular the study concentrated on the type of clay used and the tempering material. 35 sherds from 29 pottery units from Flintbek LA 48 were analyzed and compared to analyses of seven later Neolithic finds from the region.

The analysis of the selected fragments was carried out using three methods. Firstly, the open fractures of the fragments were polished to determine, count and measure the temper particles with the help of a digital reflected light microscope. Secondly, thin sections were prepared on eight selected sherds to characterize the raw material and its natural components of sand and silt or mineral particles with a polarizing microscope. This method helps to describe the tempering materials

as well. And thirdly, sherds, whose thin sections showed similar raw material, were analyzed chemically by ICP-AES (Inductively Coupled Plasma – Atomic Emission Spectrometry).The measurement of a total of 32 chemical elements has made it possible to detect the chemical composition of the clay used for pottery production, making comparison possible between the samples. Similar measurement results indicate the use of the same raw material source. The chemical analysis of the ceramics was carried out by OMAC laboratories (Ireland) and analyzed by T. Brorsson (Kontoret promote Keramiska Studier, Sweden).

The main tempering material was crushed granite as it is characteristically for the Funnel Beaker North group. Nearly 80 % of the pottery is tempered additionally with chamotte and some 15 % with flint. The latter is very specific and is absent from later Neolithic sherds of the Flintbek region. Chamotte is known from the Single Grave Culture wares in other regions (at last: Hulthén 1977, 157; Engberg 1986, 240; Madsen 1998, 430; Norden 2009, 54); Koch Nielsen detected chamotte in Ertebølle pots as tempering material but not in Funnel Beakers (Koch Nielsen 1987). The use of chamotte for tempering is rare in Funnel Beaker inventories of northern Germany and among the few examples are a lugged beaker from Siggeneben-Süd (Meurers-Balke 1983, 43–44 fig. 10–11; 107 fig. 6) and four sherds from the middle Neolithic site Bostholm (Meurers-Balkeet al. 1985, 316 tab. 3 and plate 4.3; 7.1,6; 8.15). Furthermore, about 17 % of the Flintbek sherds are tempered with organic remains from plants. Since several kinds of temper can be used for one specimen, their percentages do not sum up to 100 %.

Granite is crushed to 0.4–1.9 mm particles as well as chamotte which displays particles sized 1 to 5 mm. Flint is usually not crushed to that extent fragments measuring 2.5 mm on average.

The clay itself is fine grained to medium grained and belongs to at least four different sources.

Unfortunately it was not possible to analyse the pot PU 1 which was classified as a type 0 beaker of the Oxie group after Koch (1998) since this required breaking the specimen. No significant differences were detected between the analysed ceramics of Michelsberg type and the remaining types of Michelsberg or Oxie group. But there are significant technological differences between the earliest Neolithic pottery from the pit LA 48 and the younger sites of the Funnel Beaker and Single Grave Culture in the Flintbek region. Those display a higher percentage of organic temper (39 %). Chamotte and flint temper is no longer present, in addition crushed granite dominates with 61 % being most often the only temper. Except one Single Grave Beaker sherd from Flintbek LA 167 which is chemically very similar to sample 5 of PU 8 from a Tulpenbecher, no sherds from the other Flintbek sites are made of the same clay as the samples from Flintbek LA 48. More analyses are necessary to judge whether we are dealing with erroneous noise or significant observations – as if the pots of LA 48 and the Beaker from LA 167 came from a further distance to Flintbek?

Correspondence analysis (CA)

CA of the pot shapes (Fig. 4–5)

The Flintbek LA 48 assemblage was projected post hoc as a supplementary technique into the correspondence analysis (CA) of Michelsberg inventories from Höhn (2002, listed in annex 3) with the software package *ca* (Nenadic/Greenacre 2007) using the statistical programming environment R (R Core Team 2013).

Our assemblage comprised the following vessel types; each other type being recorded as zero:

kw3	t1a	t1b	t2a	vg3	vg4
1	1	3	2	2	3

The new line from the Flintbek LA 48 inventory is not used for solution of the correspondence analysis, because new data sets change the result of an existing calculation. Instead, the new data line of Flintbek LA 48 is projected into the solution space by means of weighted averages of the types present. This is known as supplementary row concept (Greenacre 2007, 89pp.). This approach was chosen to study the position of the Flintbek inventory within the similarity

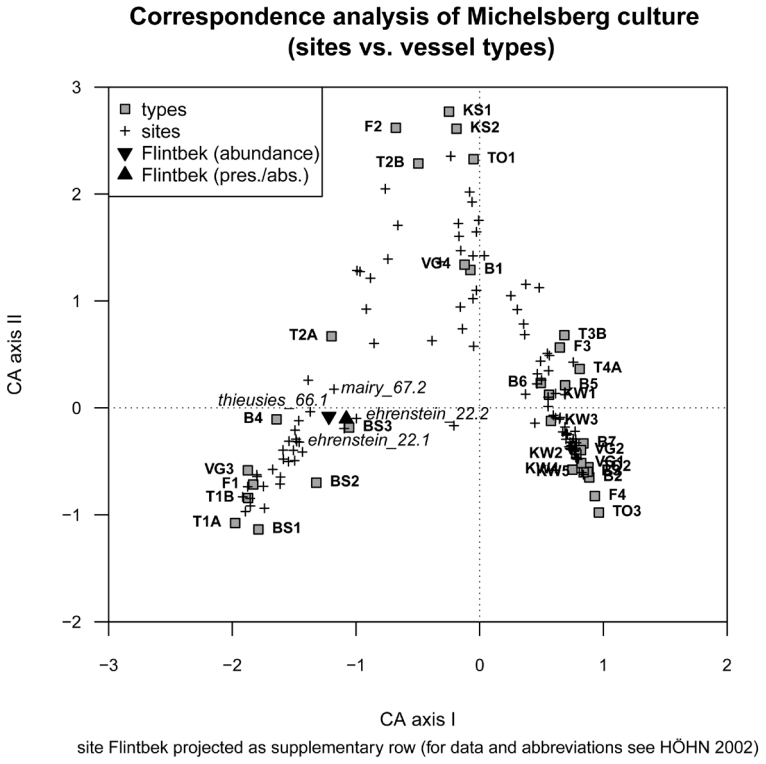

Fig. 4. Scaling 1 biplot of CA Michelsberg inventories after Höhn 2002 with projection of Flintbek LA 48 assemblage.

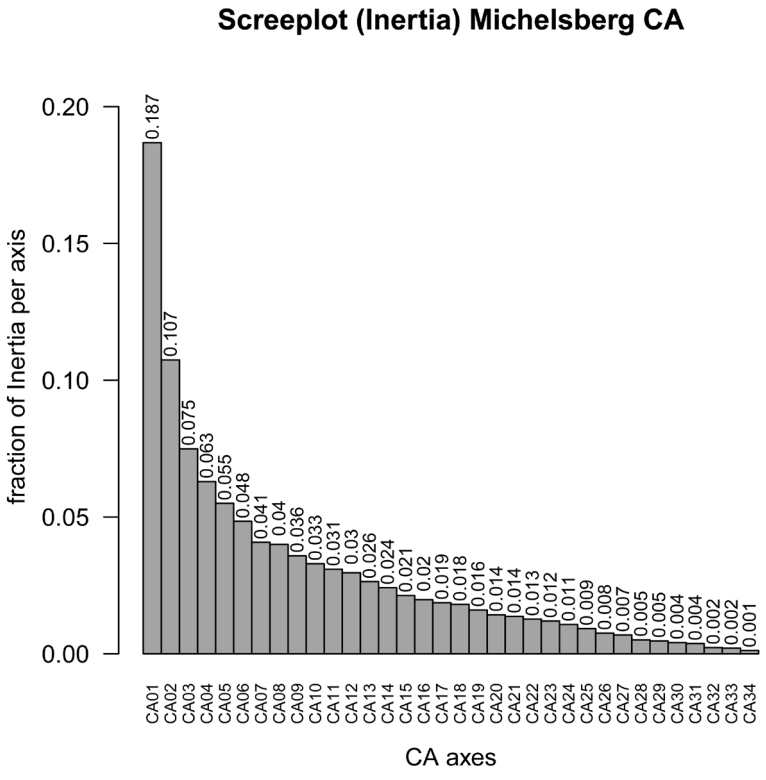

Fig. 5. Inertia screeplot to fig. 4.

space of the Michelsberg assemblages without influencing the existing relative order – here the relative chronology of Michelsberg.

The screen plot shows the percentage of inertia per axis i.e. the fraction of multivariate information in the abundance table. Its partition is characteristic for the presence of a single gradient causing the resemblance among the sites (cf. Borcard et al. 2011, 139). Based on previous research (cf. Höhn 2002) this gradient represents the time related change in assemblage compositions i.e. their chronological order which is displayed in the biplot by the characteristic parable like shaped point scatter.

The biplot of the CA is given in row principal coordinates resp. scaling 1 and reproduces the published result of analysis by Höhn (2002; for biplots cf. Borcard et al. 2011, 132–133). The projection of the Flintbek assemblage fits well in between other early Michelsberg assemblages. The nearest neighbours in the biplot along the parable gradient are the assemblages of Ehrenstein 1 and 2 in Germany dated to Michelsberg phase II as well as II and III and the two Belgium sites Thieusies "Ferme de l´Hoste" dated to Michelsberg phases II and III and Mairy "Les Hautes Chanvieres" dated to the transition Michelsberg phases II to III (Höhn 2002 annex 2 Nr. 22.1; 22.2; 66.1 and 67.2). Therefore Flintbek fits nicely with the transition from Michelsberg phase II to III. Höhn dates this transition in the early 41th century calBC (Höhn 2002, fig. 176). This is – within the limits of the CA and radiocarbon dates – in congruence with the Flintbek dates which probably are earlier than 4000 calBC.

In order to check whether the calculation methods produce similar results when recording the abundance of sherds in the assemblage both methods only show small differences. The abundance solution puts Flintbek only a little higher along the parable due to the high number of vg4 vessels.

A problem represents the pottery unit PU 1, which is classified as a flat bottomed Oxie beaker type 0. This sherd was not integrated into the CA of the Michelsberg pots. Because of the S-shaped profile and the flat bottom it could be roughly classified as a Michelsberg vessel type B7 after Höhn (2002). The flat bottomed pots are late within the Michelsberg chronology and a projection of Flintbek

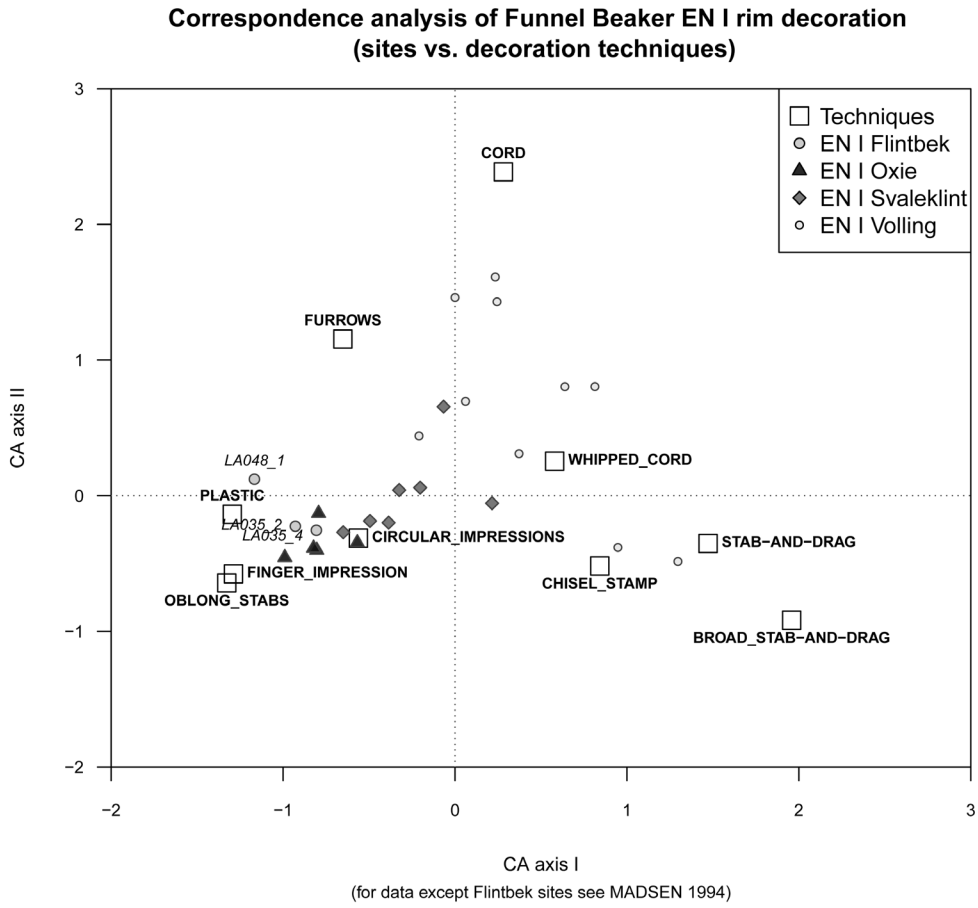

Fig. 6. Scaling 1 biplot of CA rim decoration techniques of the Funnel Beaker North Group together with Flintbek sites.

LA 48 with the PU 1 as vessel type B7 would support another hypotheses. But taking into account the general notion that the flat bottoms derive from Lengyel via Gatersleben and even via the Funnel beaker groups at some time after the earliest phases of Michelsberg it was decided to keep the flat bottomed funnel beaker PU 1 out of the CA projection of the inventory of Flintbek LA 48 into the Michelsberg CA. In fact test runs (presented elsewhere) with PU 1 present showed that only a presence/absence approach changes LA 48 position significantly while a projection of the abundance vector has nearly no effect.

CA of the decoration techniques (Fig. 6–8)

In the mid-1980s Madsen and Petersen divided early Funnel Beaker ceramics into several groups based on their decoration techniques (Madsen/Petersen 1984, Madsen 1994; 2007, 25 pp.). They developed codes for the different techniques and counted the frequencies for each site. Consequently 34 sites from Jutland and the Danish isles were submitted to a correspondence analysis. The Early Neolithic I (EN I) groups observed were designated Oxie, Volling and Svaleklint. Their first CA axis already represented chronological as well as spatial information. We used the EN I sites form their data set taken from the CAPCA program of Madsen (2007) with decorations recoded according to the NoNeK recording system (Mischka 2011a; 2011b; www.nonek.uni-kiel.de [Accessed 30 October 2013]) and complemented by three EN sites from the Flintbek region.

The results of our new correspondence analysis, again using R package *ca* (Nenadic/Greenacre 2007) confirms the results of Madsen and Petersen (1984, Fig. 19–20). This time the screen plot displays a less pronounced asymptotic structure in the partitioning of Inertia over the axes hinting to the absence of a single dominant gradient.

The Flintbek sites LA 35–2, LA 35–4 and LA 48–1 lay within the range of the Oxie sites. To the right Svaleklint and Volling follow. The small offset of our Flintbek LA 48–1 is probably due to the absence

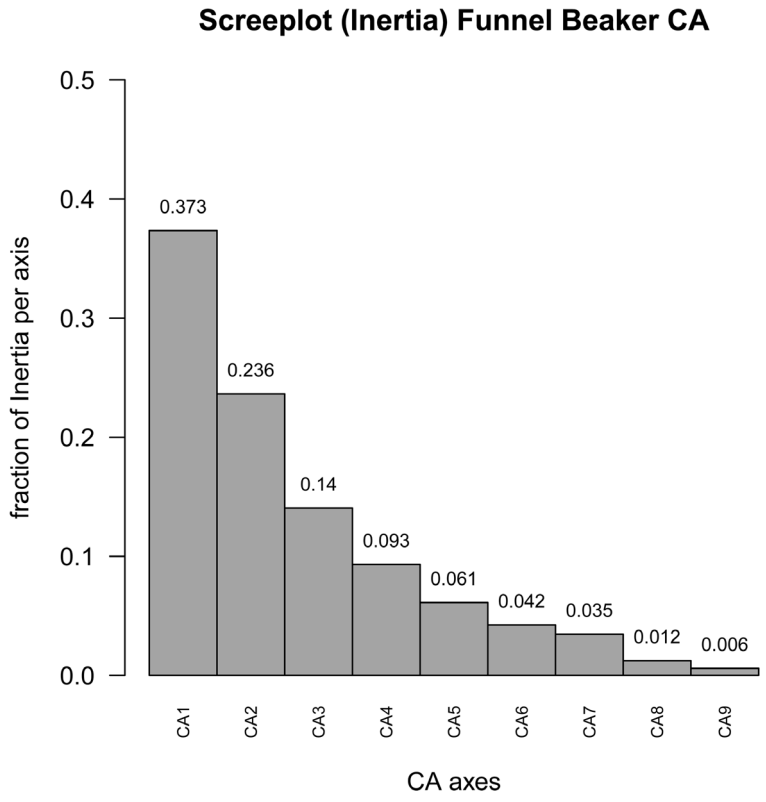

Fig. 7. Inertia screeplot to fig. 6.

of two techniques from the assemblage (oblong stamps 'Dreikantstich' and fingertip impressions) combined with the dominant presence of another technique more frequent in Svaleklint and Volling sites (furrows).

Although the sites are grouped on the basis of decoration techniques, an interpretation has to be carried out with care considering the possible presence of two causal factors (chronology and geographic distribution). At the moment their relationship and their combined effects cannot be evaluated respectively nor singled out. So the impact of the chronology as well as that of the spatial distribution on the CA results (sites scatter) is not clear. Here more accurate absolute dates are needed for the different groups in order to better understand the analyses. Without them even further canonical analyses testing the spatial distribution may not be able to separate the single factors given the possibility of a spatial diffusion of the techniques over time.

Interpretation and discussion

The role of the Michelsberg culture in the Neolithisation process of Southern Scandinavia has been discussed for a long time, as well as the influence of the northern traditions on Michelsberg (for contrasting opinions see e.g.: Lichardus 1998, 263–264; Klassen 2004, 172; 223; Schier 2009, 35; 1993). Especially the chronological order of the Michelsberg Culture and the Funnel Beaker Culture and in particular the Funnel Beaker North Group is of decisive importance for this discussion. Only a sound chronology allows for further considerations regarding spatial processes and interactions. Additionally the function of the pottery has to be evaluated against the background of a changing subsistence with the Funnel Beaker culture representing the first farmers of the North European plain (Midgley 1992). The current state of research places the development of the early Michelsberg culture with its typical vessel shapes as Tulpenbecher (tulip beakers), clay disks and Schöpfer (clay spoons) for example within the Paris Basin (e.g. Schier 1993; cf. Höhn 2002).

The assemblage of Flintbek LA 48 may be seen as one instance of the Michelsberg expansion to the East beginning in Michelsberg culture phase II (cf. Höhn 2002).

Moving from the abstract level of cultural history to that of concrete human interactions, three models can be envisaged:

1. Early Michelsberg settlers physically brought their typical pots with them as well as the knowledge for production which was subsequently passed onto the late Ertebølle communities.
   Whilst their subsistence strategies were based primarily on farming and less so on hunting, fishing and collecting, this way of life may have been quite surprising to their neighbours. But other forms of material culture, in particular the vessel forms, for example the Tulpenbecher that are very reminiscent to the traditional Ertebølle beakers may have lead to communication and interchange with the inhabitants of the region.
2. We wish to rule out the possibility of the pit filling at Flintbek LA 48 as representing the remains of a raid, because its deposition structure resembles typical Michelsberg features (Jeunesse 2010a, 49; 2010b, 67) and no unusual deposition process (destruction layer etc.) can be postulated.

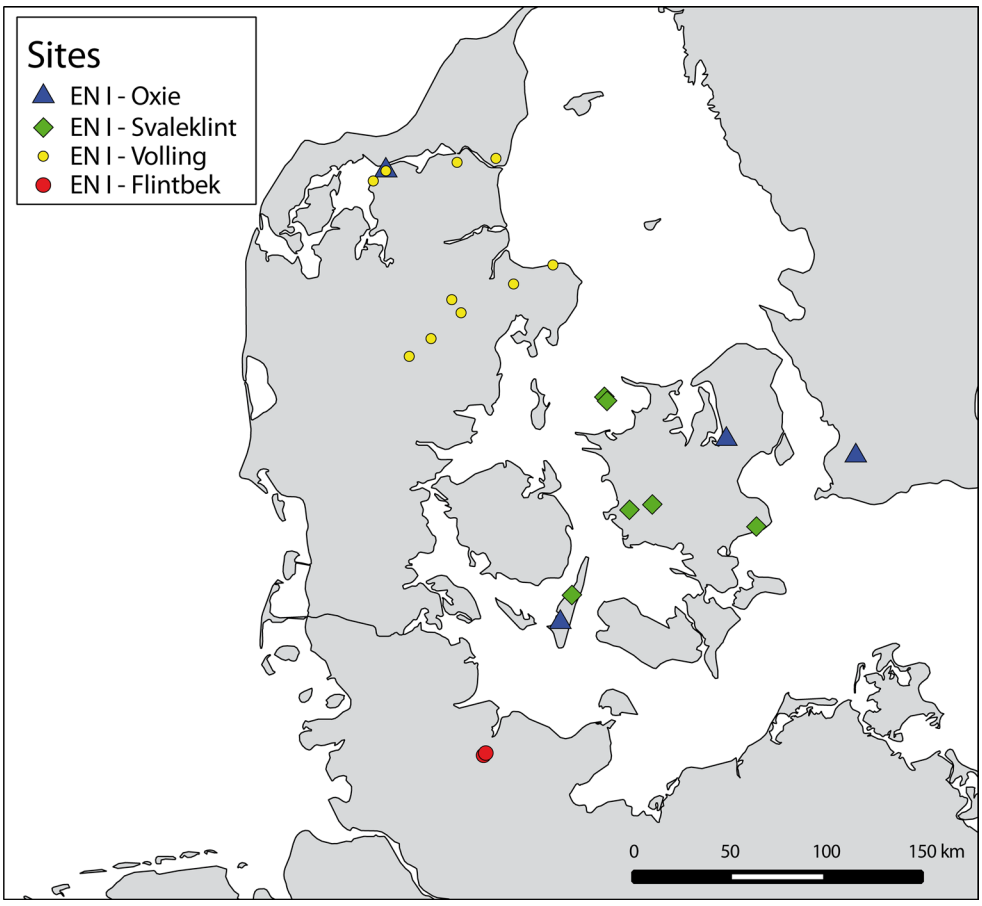

Fig. 8. Map of the sites used for the CA in Fig. 6. EN – Early Neolithic. (Data: Madsen/Petersen 1984; Madsen 1994; Mischka 2011b; map source: www.naturalearthdata.com).

3. It cannot be excluded that at least some of the Michelsberg pots were imported by the people living in the Flintbek region from other groups living further south.

The treatment of the material in the deposition within the pit, which is typical for Michelsberg, indicates also a movement of people or at least more than only commodities. If the functions related to the vessel shapes were of importance, numerous equivalents can be found between both the Oxie group and the Michelsberg material apart from the Tulpenbecher as has been described above.

The most significant aspect of material culture in the Flintbek LA 48 assemblage is indeed the presence of flat vessel bottoms. Strictly speaking, this is the only non-genuine Michelsberg element and a non-genuine Ertebølle element within this inventory, which only becomes typical for Michelsberg in the later phases of this culture (Michelsberg culture phase IV/V, 3750–3500 calBC; Höhn 2002). It is not discussed here, where this element originated from. Instead we would like to draw the attention to its functional aspects. What are the differences or potential advances of flat bottoms versus round-pointed bottoms? Symbolic or ritual significance is hard to asses, but there are also differences in the practical use: flat bottoms do not need suspension attachments or standings made of stone or organic materials; and, you can transport pots easily and without the help of further people carrying (or constructing) the standings. Especially intriguing is the connection of flat bottomed vessels to flat surfaces, i.e. house floors or furniture in solid permanent buildings – in particular shelves and tables to put the pots on.

The rise of the numbers of pots, the increasing diversity of pot shapes and sizes and increasing frequency of flat bottoms indicate perhaps indirectly the increasing significance of an agrarian economy with a need for storage facilities and diverse cooking or food preparation equipment.

In conclusion we propose the presence of Michelsberg settlers which came to Flintbek during the expansion phase of

the Michelsberg culture at the transition of phase II/III (in the 41st century calBC). We are well aware of this simplistic view but still see it as the most parsimonial explanation of the Flintbek assemblage.

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Prof. Dr. Doris Mischka
Institut für Ur- und Frühgeschichte
Friedrich-Alexander-Universität Erlangen-Nürnberg
Kochstr. 4/18
D-91054 Erlangen
Email: doris.mischka@fau.de
Tel.: 09131/85-22408

Dr. Georg Roth
Institut für Ethnologie –
Projekt "MA Environmental Archaeology"
Forschungsstelle Afrika
des Institutes für Ur- und Frühgeschichte
an der Universität zu Köln
Jennerstrasse 8
D-50823 Köln
groth@uni-koeln.de

Dr. Katrin Struckmeyer
Niedersächsisches Institut für historische Küstenforschung
Viktoriastr. 26/28
D-26382 Wilhelmshaven
struckmeyer@nihk.de