

Cover Page



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The Life of Beakers

4.1 Introduction

Beakers are without doubt one of the most prominent objects in Dutch, Late Neolithic graves. Throughout the 3rd millennium BCE the beaker is the most frequently occurring type of grave good. In the Late Neolithic A (LNA) 70% of the graves studied here contained a pottery vessel with an almost identical percentage for the Late Neolithic B (LNB) at 68%.

It must be mentioned that not all pottery vessels placed in graves were beakers. On occasion also small cups, bowls or even potbeakers could be part of the burial assemblage. In both the LNA and LNB, however, this is very rare (as is demonstrated in the sections below). Therefore, when discussing pottery finds from Late Neolithic graves in general, I will refer to these as beakers.

The term ‘beaker’ was introduced in the late 19th – early 20th century to refer to standing vessels with an S-profile that were interpreted to be drinking vessels. German archaeologist Paul Reinecke (1902) used the term *Glocken Becher* around 1900, while the Scottish scholar John Abercromby (1904) is said to have introduced the English term beaker. Although the term has been kept in use, the actual function of these beakers has always been speculative and only rarely the main topic of discussion (but see Case 1995). Of old, pottery was primarily used for dating archaeological sites using typochronology (see Chapter 3).³⁵ The focus of this chapter, however, is not on typological matters, but instead on the life of beakers. Patterns in how these objects were produced, decorated, used and deposited will provide a better insight in the role they played in the funerary ritual and hopefully provide information about their possible meaning and significance.³⁶

Late Neolithic beakers are usually subdivided in many different types. However, with regards to their overall biographies – how they were produced, their possible usage and their deposition – beakers have a lot in common. For this reason the CW and AOO beakers (both LNA) and bell beakers (LNB) are considered together in a single chapter, whereas the other objects from graves (which are distinctly different for either period) are discussed in separate chapters for the LNA and LNB (see Chapters 5 and 6 respectively).

35 As far as reference is made to particular beaker types, the reader is referred to the typo-chronological model of Lanting and Van der Waals (1976) reproduced in Chapter 3, Figure 3.5 (but see general discussion of typo-chronology in Section 3.6).

36 For a similar approach to British beakers, see Boast 1995.

| | vessel type | n | % | % | | | |
|------------------|-------------|----------------|--------|--------|-------|-------|-------|
| Late Neolithic A | CW | 1a | 17 | 12,8% | 75,9% | | |
| | | 1b | 15 | 11,3% | | | |
| | | 1c | 3 | 2,3% | | | |
| | | 1d | 20 | 15,0% | | | |
| | | 1e | 12 | 9,0% | | | |
| | | 1f | 4 | 3,0% | | | |
| | | ZZ | 8 | 6,0% | | | |
| | | amphora | 1 | 0,8% | | | |
| | | bowl | 3 | 2,3% | | | |
| | | golfbandbeaker | 2 | 1,5% | | | |
| | | indet | 16 | 12,0% | | | |
| | | A00 | 2IIa | 3 | | 2,3% | 21,1% |
| | | | 2IIb | 19 | | 14,3% | |
| | | | 2IIc | 4 | | 3,0% | |
| indet | 1 | | 0,8% | | | | |
| polypod bowl | 1 | | 0,8% | | | | |
| ? | LNA indet | 4 | 3,0% | 3,0% | | | |
| | total | 133 | 100,0% | 100,0% | | | |

Tab. 4.1 Different vessel types in LNA graves.

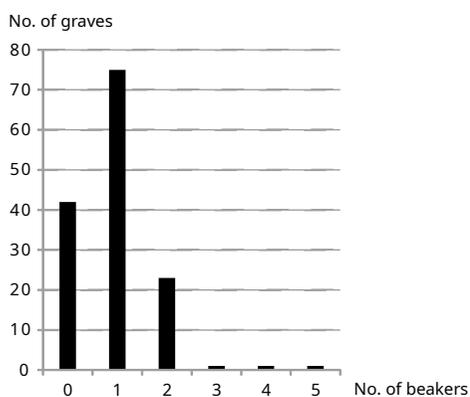


Fig. 4.1 Number of pottery vessels in LNA graves.

4.1.1 Late Neolithic A beakers in graves

The research database comprises 150 LNA graves. Five, however, must be excluded from calculations due to insufficient information about the original grave set.³⁷ Out of the 145 remaining LNA graves, 101 graves contained pottery vessels (69.7%). The majority of these graves (n=76) contained a single pottery vessel. Only 25 graves contained multiple vessels (see Fig. 4.1). The graves with more than one vessel mostly contain AOO- or Late CW-beakers such as types-1d and -1e, while graves with multiple type-1a cord-decorated beakers are absent. It therefore seems that the practice of

³⁷ For five graves it is only recorded that they contained French daggers, there is no further information about any additional grave goods.

| | | vessel type | n | % | % |
|------------------|----------|-----------------|-------|-------|--------|
| Late Neolithic B | Maritime | 2la | 5 | 4,1% | 12,2% |
| | | 2lb | 8 | 6,5% | |
| | | bowl | 2 | 1,6% | |
| | Veluvian | 2lc | 6 | 4,9% | 53,7% |
| | | 2ld | 12 | 9,8% | |
| | | 2le | 21 | 17,1% | |
| | | 2lf | 15 | 12,2% | |
| | NE-group | indet | 12 | 9,8% | 10,6% |
| | | NE-group beaker | 13 | 10,6% | |
| | other | potbeaker | 2 | 1,6% | 4,1% |
| | | polypod bowl | 1 | 0,8% | |
| | | bowl | 1 | 0,8% | |
| | | 1e (CW) | 1 | 0,8% | |
| | ? | LNB indet | 24 | 19,5% | 19,5% |
| | | | total | 123 | 100,0% |

Tab. 4.2
Different
vessel types in
LNB graves.

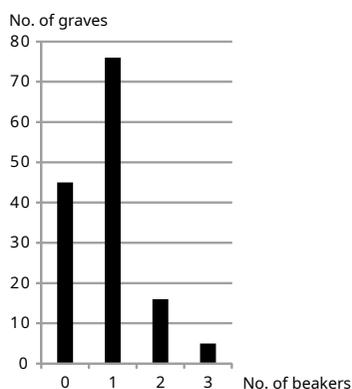


Fig. 4.2 Number of pottery
vessels in LNB graves.

placing multiple beakers in graves should probably be dated towards the end of the LNA (see also Drenth and Lanting 1991).

A variety of pottery vessels were included in graves (see Table 4.1), but with the exception of the occasional bowl or amphora the vast majority of these concern beakers.

4.1.2 Late Neolithic B beakers in graves

The research database contains records of 143 LNB graves, 97 of which contained pottery vessels (67.8%). As was the case in the LNA, the majority of these graves only contain a single beaker (n=76), 21 graves contained more than one vessel (see Fig. 4.2). These numbers and percentages are thus virtually identical to those of the LNA.

The vast majority of pottery finds from LNB graves concern beakers, with other types of vessels such as bowls or potbeakers being extremely rare (see Table 4.2). Also note in Table 4.2 the single occurrence of a type-1e CW beaker in a LNB grave. When considering bell beakers in specific (for example technology/decoration) this find is excluded from the analyses presented below. However, it is included when considering ceramic finds from LNB graves in general (for example placement in graves).

4.2 The production of beakers

While most of the general discussion on Dutch Late Neolithic pottery focussed on the typology of beakers (see Section 3.6), hardly any mention was made of how these objects were made or used. One notable exception is the study by Van der Leeuw (1976) who performed an extensive analysis of the techniques used in the production of Dutch Middle Neolithic Funnel beakers, Late Neolithic CW-, AOO – and bell beakers and Early Bronze Age barbed-wire beakers. Following Van der Leeuw, this section will discuss how the Dutch Late Neolithic beakers were produced.

4.2.1 Late Neolithic A Beakers

The LNA beakers were made by squeezing a ball of clay between thumb and fingers to form a pinch bowl (Van der Leeuw 1976). Subsequently this bowl was heightened by adding coils of clay. The problem that occurs at this stage is that the pressure applied to the new coils of clay not only causes the vessel to become higher but also wider, resulting in a splayed profile. A technique often used in the Funnel Beaker culture to prevent/control this was to add new coils not on top of the existing rim but rather on the inside of the rim and subsequently pressing the new coil upwards (Van der Leeuw 1976, 87). According to Van der Leeuw (1976, 88) wraps were used for producing the first CW beakers. While adding new coils of clay, the outside wall was wrapped in pieces of cord, leather or other string-like materials. In his view the wraps – in the LNA typically consisting of cordage – helped to control the width of the vessel. As the new coil can be pressed out from the inside, the wrap on the outside prevents the vessel from becoming wider (see Fig. 4.3). After the beaker had dried, the wraps could be removed leaving clear impressions on the outside of the vessel (Van der Leeuw 1976, 88). Thus, according to Van der Leeuw, the horizontal cord-impressions found on the early cord-decorated CW beakers did not merely serve as decorative elements, but were in fact remnants of the technique used to shape these beakers. Salanova (2000, 141; 2001, 92) also notes the use of cord-wraps in the construction of several French beakers, albeit infrequently.

The interpretation of cord-impressions as wraps and being part of the shaping of these beakers has not been without critique. Ten Anscher (2012, 183-187), for example, questions whether the cord-impressions on CW beakers really were purely technological features. He argues that since these impressions were prominently visible, they surely must have had a decorative purpose. Although Ten Anscher (2012, 187) agrees that for some of the later bell beakers the use of wraps is more likely (where indentations of the wraps are sometimes clearly visible, see below), this is less so in the case of the CW beakers. Recent experiments (see Section 4.2.2 below), however, have shown that although the use of wraps is helpful in the production process, it is likely that



Fig. 4.3 Type 1a cord-decorated beaker from a barrow near Ede (Veluwe, AMP0411), height 218 mm; (bottom left) on the inside the individual coils can still be seen; (right) detail of the double cord impressions (collection: National Museum of Antiquities, Leiden).

the regular horizontal cord-impressions seen on many of the type-1a cord-decorated beakers were actually carefully applied at a later stage in the production process and should indeed be seen as decoration. This means that impressions of the ‘construction-wraps’ – if used at all – would have had to be erased and later be replaced by the much more regularly applied ‘decorative wraps’ (see below).

Cord-impressions are the most dominant form of ‘decoration’ on the type-1a beakers. Apart from impressions of single strings of cord, use was also made of two or even three strings braided together to form a single cord. Experimental research performed

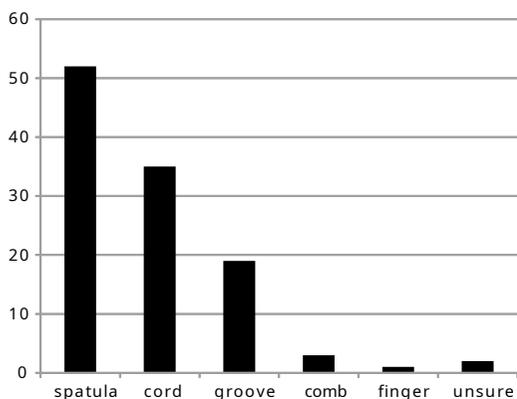


Fig. 4.4 Overview of the different tools/techniques used to apply decoration and the number of LNA beakers from graves to contain those types of impressions. As beakers can contain multiple types of impressions, they can score in each of the categories. Based on a total of 79 LNA beakers from graves for which decoration techniques were recorded in the research database.

by Grömer and Kern (2010) indicates that the cords were probably made of either grass or bast fibres. The non-cord decorated beakers, that are typically dated later in the typological sequence (see Fig. 3.6, but also see concerns raised in Section 3.6), display other forms of decoration such as grooves and in the later AOO beakers also comb-impressions occur (for details see below, in particular Fig. 4.10 and 4.11). However, especially alternating diagonal impressions made with a simple spatula appear popular, often forming the typical herring-bone motif (see Fig. 4.4). All CW beakers have in common that the decoration is restricted to the upper part of the beaker.

Looking at LNA beakers, most people are amazed at how thin-walled these vessels are, on average measuring about 6 millimetres.³⁸ That the thickness of the vessel walls was also a concern for the potters themselves, is evidenced by the fact that several beakers show signs of scraping on the inside and sometimes even on the outside of the vessels (see Fig. 4.5).³⁹ Apart from being a feat of technical skill, making thin-walled beakers also had some practical benefits. The thinner a vessel's body is, the more evenly it will dry after shaping, minimizing the occurrence of cracks during either the drying or firing of the beakers (Van der Leeuw 1976, 97). Most of the LNA beakers were tempered with sand (89%), but also organic material (3%), broken quartz (3%) and grog (5%) tempering occur.⁴⁰

4.2.2 Experiments with wraps and cord-impressions

Experiments with reproducing CW beakers were performed by L. Jacobs (ceramic technologist of the Leiden Laboratory for Ceramic Studies; pers. comm. 2012). These led to very interesting observations regarding the discussion on whether the cord impressions on beakers, were purely decorative or as Van der Leeuw (1976) argued, part of the production process.

38 Thickness could be recorded for 41 beakers from LNA graves resulting in an average of 5.9 mm.

39 Observed on four vessels (AMP0041, AMP0192, AMP0406, AMP0214, see Fig. 4.4), scraping is also observed on British beakers (Boast 1995, 71).

40 Percentages based on total of 37 LNA beakers for which tempering material was recorded. Of these 20 were recorded through personal examination, data for the remaining 17 were collected from their respective publications.



Fig. 4.5 Type 1d beaker from mound 6 at Hilversum-'t Bluk (Utrechtse Heuvelrug, AMP0214), height 303 mm; (right) clearly visible scraping marks on the base (collection: National Museum of Antiquities, Leiden).

In trying to replicate cord-decorated beakers, Jacobs found that especially when working with a soft, relatively low-plastic clay, the use of cords as wraps is quite helpful as it provides much needed wall support. The cord impressions resulting from this, however, appear sloppy, irregularly spaced and not at all 'decorative' (due to pressing out the coils of clay). In addition, if cords were used as wraps for supportive purposes, these would be used as a long wrap, being wound spiral-wise around the vessel's body rather than being applied as individual horizontally spaced rows of impressions. He therefore suggested that if indeed wraps had been used in antiquity, the impressions resulting from initial shaping were removed from the still wet clay, to be subsequently re-applied on the finished vessel. This way, the cord impressions could be applied more carefully and neatly, thus ensuring that they would be evenly spaced and horizontally aligned.

These horizontally spaced cord decorations seem simple. However, in Jacobs' experience doing this *well* takes quite some effort and very importantly, *time*. When looking at the cord impressions from the shoulder upwards, it can be noticed that the impressions higher up, near the neck, become increasingly less neatly applied and appear ever slightly more irregular. Jacobs explained that to make these impressions, the cord should be firmly pressed into the vessel's wall. During production, as time passes, the clay becomes dryer and harder. As a result, when starting at the vessel's belly (or base in case of the All Over Corded beakers) and working upwards, the clay of the upper part of the beaker dried to such an extent that increasingly more force was needed to impress the cord into the clay. In this respect it should also be mentioned that the inclination of the S-shaped wall profile at the neck is reverse to that on the

shoulder. It, therefore, is not only the condition of the clay, but also the shape of the pot that hinders the cord to be impressed and kept in position. In Jacobs' experiments, these factors inevitably resulted in the cord-impressions being less regular and deeper near the rim than the impressions further down, where the clay was still softer when they were applied and where the cord could be kept in place more easily.

The same pattern can be seen on some of the archaeological vessels (see Fig. 4.3). This, therefore, can also be taken as evidence that these cord impressions were applied *after* initial shaping, and thus intended as decoration. It, however, cannot be excluded that cords were used as wraps during the initial shaping of the vessel, which according to Jacobs had clear benefits and could also have formed the inspiration for using cord-impressions as decoration in the first place.

4.2.3 Late Neolithic B Beakers

As the basic technology involved in making bell beakers (making of a pinch bowl, adding coils of clay etc.) mostly overlaps with what has been presented above with respect to the LNA beakers, this section is kept brief in order to reduce overlap. As was the case with the LNA beakers, the Dutch bell beakers are thin walled – thickness generally not exceeding 5 mm⁴¹ – and tempered with sand (62%), stone grit/gravel (28%) or finely crushed grog (10%).⁴² Their characteristic reddish colour is the result of being fired in an oxygen rich atmosphere.

Van der Leeuw (1976) suggested that most Late Neolithic beakers were shaped using wraps. This, however, is generally difficult to prove. Especially the maritime bell beakers typically have a very slender S-shaped profile (Drenth and Hogestijn 1999, 102) with no apparent impressions/indentations resulting from wraps (see Fig. 4.6). With the Veluvian bell beakers, however, indentations are sometimes visible that are highly suggestive of the use of wraps. Such impressions occur on the upper half of the vessels (see Fig. 4.7 right). In all likelihood strips of leather or perhaps textile material were used. Similar impressions were observed by Salanova (2000, 141; 2001, 92) on French bell beakers. Following Van der Leeuw, Salanova too interprets these as impressions of supportive wraps.⁴³ For the Dutch beakers the indented zones resulting from the wrap-impressions were subsequently used as friezes to house intricate decorative geometrical patterns made with comb-impressions (see Fig. 4.7). While the indented zones depicted in Figure 4.7 are very clear, some of the other beakers show no signs of wraps at all. Most of the beakers, however, fall in between these extremes. It, therefore, is difficult to assess to what degree wraps were used in the production process of Veluvian bell beakers in general. This suggests different potters may have had different preferences and/or techniques. Or this may have varied depending on the plasticity of the clay used.

Although the actual decoration applied on these beakers is considered in the section below, I briefly address the primary technique used for applying the decoration because

41 For 40 bell beakers in the research database the thickness was recorded, the average being 5.3 mm.

42 Percentages based on total of 63 LNB beakers for which tempering material was recorded. Of these 32 were recorded through personal examination, the remaining 31 from their respective publications.

43 Interestingly Salanova (2001, 96) notes that the use of wraps occurs predominantly with local-style beakers in north-west France and given the popularity of this technique in the Netherlands, this might have been an innovation inspired by beakers from the Lower Rhine Basin.

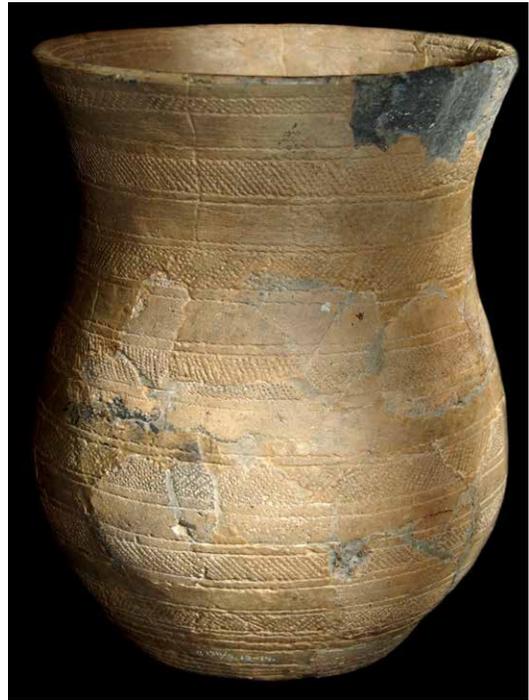


Fig. 4.6 Maritime bell beaker from barrow D near the Uddelermeer (Veluwe, AMP0173), height 200 mm (collection: National Museum of Antiquities, Leiden).



Fig. 4.7 Veluvian bell beaker from mound 4 near Emst (Veluwe, AMP0165), height 190 mm; (left) detail clearly showing the indented friezes resulting from the use of wraps. These indented zones were subsequently filled with decorative motifs (collection: National Museum of Antiquities, Leiden).



Fig. 4.8 Comb-impressions on a Veluvian bell beaker from mound 9 near Speuld (*Veluwe*, AMP0241), height 192 mm (collection: National Museum of Antiquities, Leiden).

a distinct difference with respect to the LNA can be observed. While grooves, cord and plain spatula impressions were the main techniques used for applying decoration in the LNA, the LNB is characterised by the use of a toothed spatula or comb. The use of such a tool resulted in closely spaced dotted rows of small impressions (see Fig. 4.8). Although this implement was also used for some of the AOO beakers (type-2IIb) it is with the bell beakers that the comb became the dominant tool for applying decoration (see Fig. 4.9). Also elsewhere in Europe the use of the comb is one of the characteristics of Bell Beaker pottery, including those in local styles (Salanova 2001, 91).⁴⁴

4.2.4 Conclusions

It was proposed by Van der Leeuw (1976) that the cord impressions found on LNA beakers were remnants of a wrapping technique used in their manufacture. Experiments, however, indicate that although wraps can be of help while pressing out coils of clay, this cannot account for the almost perfectly horizontally spaced impressions found on LNA beakers. Such impressions could only result from careful application after the vessel had been shaped. Although the origin of the cord impressions may be connected with the use of wraps during production, the actual impressions visible on the finished product should be classified as decorative.

Both the use of cords in the LNA and the comb in the LNB were part of traditions that had a very large geographical distribution. The clear indentations visible in

⁴⁴ Also other decoration techniques occur, in the coastal areas of Atlantic Europe, but also in Denmark, for example ribbed sea shells were used (Salanova 2001, 94), which provide similar visual results.

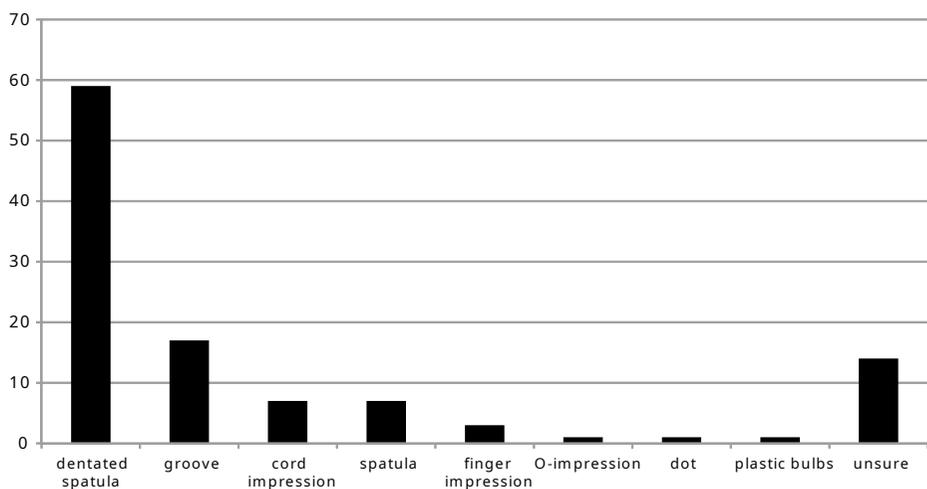


Fig. 4.9 Overview of the different tools/techniques used to apply decoration and the number of LNB beakers from graves to contain those types of impressions. As beakers can contain multiple types of impressions, they can score in each of the categories. Based on a total of 72 LNB beakers from graves for which decoration techniques were recorded in the research database.

some of the bell beakers are highly suggestive of the use of wraps, but these were not present on all beakers. Similarly, different types of tempering agents could be used and while the walls of some beakers showed clear traces of scraping, others were completely smooth. Apparently different potters used/preferred different techniques for shaping these beakers. This indicates that, although some elements such as their basic shape and techniques for applying decoration were shared over large parts of Europe, others could vary locally or even from potter to potter. Apparently, it was the *physical appearance* of the beaker in particular that had to adhere to certain notions that were shared, recognized and recreated over large parts of Europe.

4.3 Decoration of beakers

The beakers discussed in this chapter can be divided into several groups on typological/stylistic grounds. First of all, there are the three main groups CW-, AOO- and bell beakers. The latter can be sub-divided in the pan-European-style maritime bell beakers and the local-style bell beakers, which comprise the Veluvian bell beakers of the central Netherlands and the bell beakers of the Dutch North-East Group (NE-BB; following Lanting 2008). A key characteristic that differentiates these groups of beakers is their decoration, which is often applied in a meticulous fashion and displaying intricate motifs.

In terms of ‘making’ beakers it can be easily envisaged that the amount of time, skill and energy that was invested in the decoration of such beakers would have been comparable to, if not surpassing, the time, skill and energy invested in shaping the actual vessel. Clearly the decoration formed an important part of ‘being a beaker’. At first glance function and style may seem like different and perhaps even opposing concepts, but in reality both are very much entangled (Sackett 1977; 1986). As Sackett

(1977, 370) describes this, objects do not operate “simply in the material realm of technology and economics, but simultaneously as well in the societal and ideational realms”. The shape of the vessel and the solid nature of the pottery, for example, allow the beaker to contain liquids. Its style, including (but not limited to) its shape and decoration, will differentiate it from other objects – with perhaps comparable physical characteristics – and help signify for example for which particular liquid the vessel is intended or in which occasion it is to be used. As such, the decoration, although perhaps seemingly trivial, may play an important role in a vessel’s overall function, meaning and life-history. In this sense, Sackett’s approach to the *style* of objects is very much comparable to Goffman’s (1959) concept of *front* with respect to persons. Both are an integral part of the respective subject that helps to define its role, purpose and position in a social context.

In the sections above cursory mention has been made of the decoration found on the various Late Neolithic beakers. Thus far, however, the focus has been on the tools used for applying the impressions rather than the motifs themselves. This section will extend the discussion by focussing on the actual motifs applied to the different groups of Late Neolithic beakers as well as the different compositions in which those motifs are arranged. It is by combining these three aspects that it becomes clear what binds, but also what separates these different groups of beakers.⁴⁵ This section starts with a general exploration of which decorative motifs occurred on Late Neolithic pottery. Subsequently the interplay between ‘international’ and ‘local’ styles is investigated. After some concluding remarks concerning the decoration of beakers, I briefly present some evidence of decoration found on other forms of material culture.

4.3.1 Late Neolithic motifs

Late Neolithic beakers often give the impression of being richly decorated with all kinds of different motifs. However, when systematically studying the various motifs that occur on the different groups of beakers it appears that there is actually a relatively limited range of motifs that make up the bulk of all decors throughout the Late Neolithic.

In Figure 4.10 an overview is presented of all motifs found on a total of 167 Late Neolithic beakers (see Table 4.3). These concern all beakers from Late Neolithic graves in the research database for which the decoration patterns could be recorded (either by studying the actual beakers or based on sufficiently detailed published drawings/photos). The bar graph in Figure 4.10a shows for each of the different beaker groups the percentage of beakers that carry that particular type of decoration.⁴⁶ In this graph 13 different motifs are recorded with the 14th being reserved for ‘other’ motifs. These latter concern motifs (depicted in Figure 4.10b) observed on Veluvian bell beakers only and vary in frequency of occurrence between 2-8%.

Although a wide range of different motifs is depicted in Figure 4.10, most of these only occur sporadically whereas the bulk of the decoration is actually made up of a subset of about five different motifs. This is particularly clear from Figure 4.11 where the occurrence of motifs is presented for all beaker types grouped together. The four or

45 Also see Salanova (2000; 2001) for a similar study with respect to French beakers or Hodder (1982) for Dutch (Late) Neolithic beakers.

46 Beakers with multiple motifs will thus score multiple times, for each of the motifs that make up their decoration.

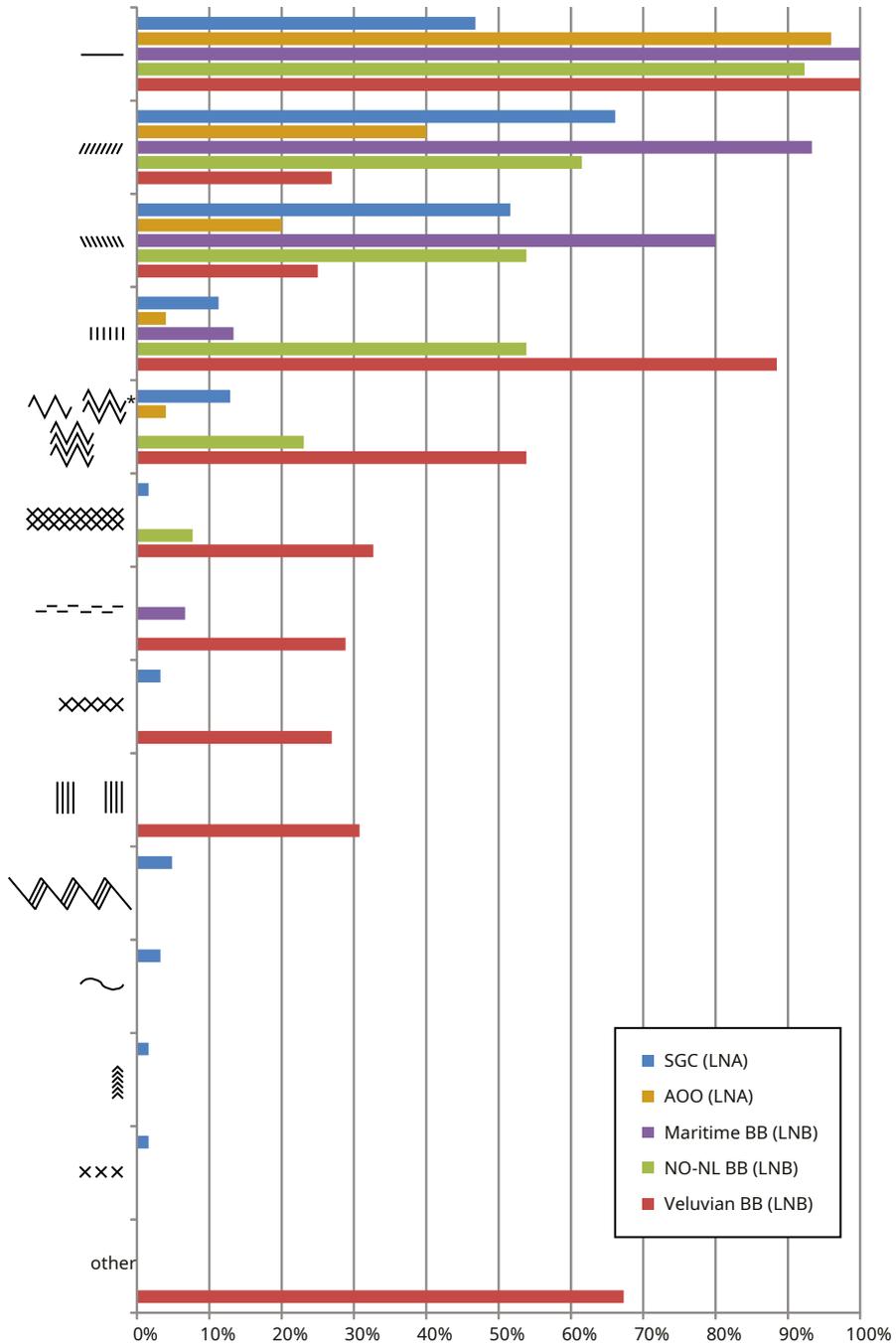


Fig. 4.10a The most frequently observed motifs combined with a bar graph displaying per beaker group the percentage of beakers that contains the respective motif. Percentages are based on a total of 167 beakers for which the decoration motifs could be recorded. The motifs classified as 'other' are observed on Veluvian bell beakers only and are depicted in Fig 4.10b (next page).

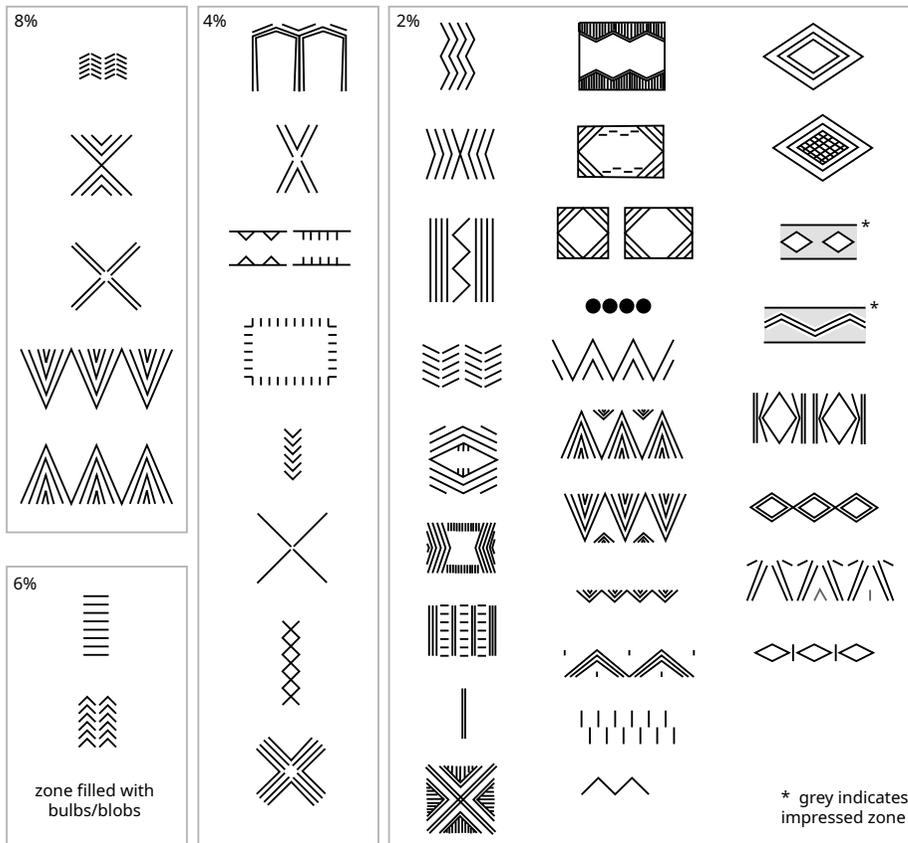


Fig 4.10b A breakdown of the motifs grouped in Fig 4.10a in the category 'other'. These motifs occur on Veluvian bell beakers only. The percentages indicate how many out of the total number of Veluvian beakers contain the respective motifs. Note that combined these do not add up to the 67% indicated in Fig 4.10a due to those beakers that contain multiple motifs classified as 'other'.

| Beaker group | No. of beakers | Total No. of motifs | Av. No. different motifs per beaker |
|--------------|----------------|---------------------|-------------------------------------|
| SGC | 62 | 11 | 2,0 |
| AOO | 25 | 5 | 1,6 |
| Maritime BB | 15 | 5 | 2,9 |
| NE-BB | 13 | 6 | 2,9 |
| Veluvian BB | 52 | 51 | 5,5 |

Tab. 4.3 Number of beakers for which decoration motifs could be recorded, total number of decorative motifs per beaker group, and the average number of motifs observed per beaker in those groups.

five motifs that make up most of Late Neolithic beaker decoration are horizontal lines, diagonal impressions oriented in two ways (often combined to form herringbone motifs) and vertical impressions. In the Late LNA this repertoire is extended with zigzag motifs, either as single zigzag lines or multiple ones close together that remain in use in the subsequent beaker groups (see Fig. 4.11). These motifs occur on 24-79% of the Late Neolithic beakers whereas the remaining motifs occur at the most on ca. 10% of the beakers, but for most that percentage is even much lower.

Most beaker groups are decorated with the same basic range of motifs as can be seen in Figure 4.10. The Veluvian bell beaker being the exception, for it has a much wider range of motifs (most notably those depicted in Fig. 4.10b). This abundance of motifs can also be clearly observed in Table 4.3 where per beaker group an overview is presented of the numbers of beakers, the number of different motifs that occurs

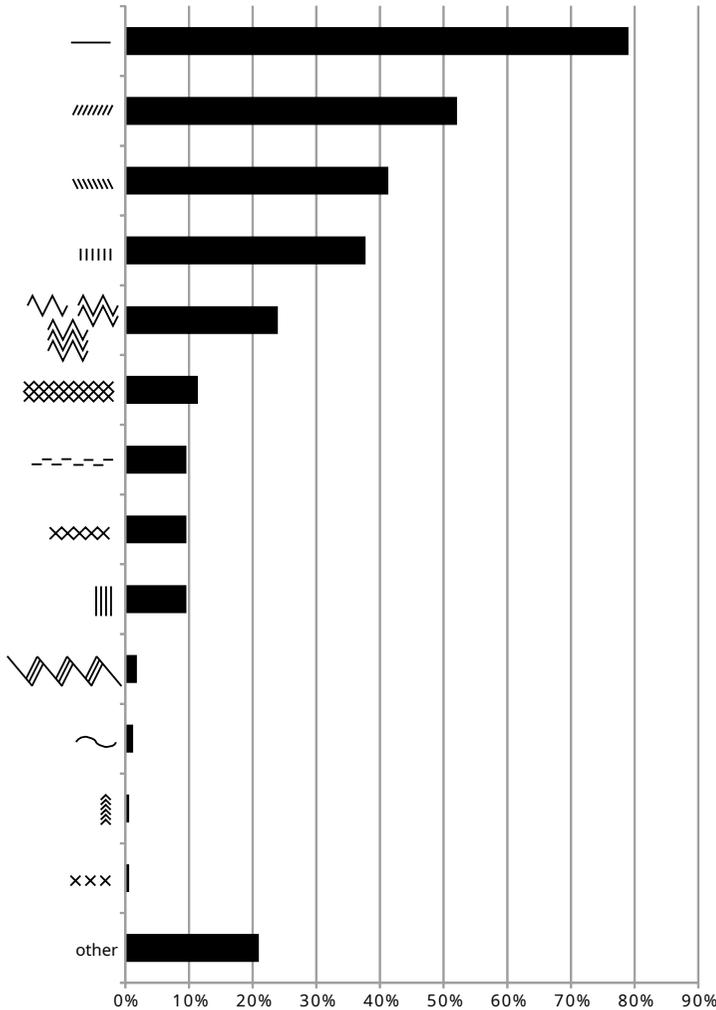


Fig. 4.11 The most frequently observed motifs combined with a bar graph displaying the percentage of beakers that contain the respective motif. Percentages are based on a total of 167 beakers for which the decoration motifs could be recorded.

in that group, and the average number of different motifs observed on individual beakers.⁴⁷ The 62 different CW beakers, for example, revealed only eleven different motifs, whereas the Veluvian bell beakers resulted in 51 different motifs recorded on only 52 beakers. It is clear from this that the Veluvian beakers are decorated in an almost singular fashion. The abundance of decoration on the Veluvian bell beakers also stands out when examining the number of different motifs occurring per beaker. While the other beaker groups display on average 2-3 different motifs per beaker, the average for the Veluvian bell beakers is almost double that, with 5.5 different motifs per beaker.

On the one hand some beakers are decorated with a very restricted range of motifs whereas others appear to have been abundantly decorated with a wide range of different and perhaps even unique motifs. It will come as no surprise that the latter – the Veluvian bell beaker in particular – is an example of what is typically characterized as a ‘local style’ beaker whereas the other Late Neolithic beakers are said to have been made in styles with a much wider geographical distribution. The sections below therefore focus on these ‘international’ versus ‘local’ styles beakers.

4.3.2 International style beakers: CW-, AOO- and maritime bell beakers

CW-, AOO- and maritime bell beakers are all quite similar as far as their motifs are concerned, as can be seen in Fig. 4.10 and Table 4.3. The most frequently occurring designs are identical on all these beakers: horizontal lines, diagonal or vertical impressions and, especially with the later CW beakers the occasional zigzag motif. Also the number of different motifs per beaker is similar (2-3 motifs on average).

It follows that the main difference between these types of beakers lies not in the actual motifs used in their decoration. Instead, the differences are mainly related to the techniques used to apply those motifs (primarily cord/plain spatula for CW- and AOO beakers; primarily cord/comb-impressions for maritime bell beakers; see Fig. 4.4 and 4.9) and the composition in which these motifs are applied (top half only for CW beakers, entire body for AOO beakers, and zones alternated with empty zones for the maritime bell beakers).

The style in which these beakers were made was obviously not limited to the Netherlands. Beakers with cord-decoration occur throughout northern and Central Europe, but also the other CW beakers have clear parallels in for example Denmark (Furholt 2014, 3; Hübner 2005; Struve 1955).⁴⁸ Likewise the AOO beakers can be found in large parts of Atlantic Europe (Vander Linden 2006a; 2006b; Salanova 2000, 12), but especially the maritime bell beakers have a pan-European distribution (see Burgess and Shennan 1976; Needham 2005; Salanova 2000). However, there is no evidence that these beakers were imported from distant locations. Instead, most studies focussing on the clays used in pottery production for the Late Neolithic have indicated that beakers were produced from locally available clays. Using petrographic analysis Convertini (2001), for example, demonstrated that French Bell Beaker pottery was made of the same (local) clays as the local style settlement pottery (see also Salanova

47 These concern the beakers used for the compilation of Figure 4.10 and 4.11 (see above).

48 See in particular the catalogue in Hübner (2005) for depictions of Danish SGC beakers, or figure 2 in Furholt (2014, 3).

2016, 31; Vander Linden 2006b, 318). Petrological research of the non-plastic inclusions in the beakers found with the Amesbury Archer (southern England) showed that these beakers were probably also locally produced (Williams 2011, 154).⁴⁹ Stein and Van der Plas (1987) established that a Moravian type (according to Butler and Van der Waals 1966, 100) bell beaker from a barrow near Ede-Harskamp (Veluwe)⁵⁰ was produced of local clay.

We are thus dealing with a tradition in which (local) potters, using local raw materials, produced pottery in a supra-regional style (*cf.* Carlin 2018, 209). It therefore was apparently important for these objects to signal a *belonging* to a much wider community.

4.3.3 Local style beakers: Dutch North-East-group versus Veluvian bell beakers

The beakers discussed above – decorated in a simple but widely adopted style – can be contrasted with the beakers displaying more regional characteristics. Particularly during the LNB a wide range of different vessel types occur. This section focuses on these ‘local’ style bell beakers and explores how these relate to the seemingly contrasting ‘international’ style beakers.

4.3.3.1 Bell beakers of the Dutch North-East-group

The use of comb-impresions and the application of decoration in zones, alternated with empty zones are among the most characteristic elements that set the maritime bell beakers apart from other beakers. Although this ‘zonation’ can be found on the Veluvian bell beakers as well, it is more clearly present in the bell beakers of the Dutch North-East Group. Their main distribution lies more or less north of the river IJssel running just along the north-eastern edge of the Veluwe (see Fig. 4.12) and they are closely related to the bell beakers found in adjacent northern Germany (Lanting 2008, 41). Although some Veluvian bell beakers do occur in the north-east Netherlands, the majority of beakers in this area are distinctly different (Lanting 2008, 57). Where the Veluvian bell beakers are all richly decorated with intricate motifs, the NE-bell beakers are far plainer and closer related to the maritime-type decoration (see Fig. 4.13).⁵¹

The North-East Group decoration is usually arranged in zones of more or less equal height, comparable with the maritime beakers. The decoration applied in these zones is quite simple⁵² and mostly consists of horizontal lines and vertical or diagonal impresions, and occasionally zigzags or hatchings occur. These motifs were already common in the CW culture and AOO (see above). As was the case with the maritime bell beakers, the main difference between the CW beakers and the Dutch North-East Group bell beakers lies primarily in the use of the comb and the application of the decoration in zones alternated with empty zones. These beakers therefore form a blend of elements that are typical of both CW and maritime-type beakers. A similar ‘blend’ of CW and

49 Sarauw (2008, 84) also mentions the Danish bell beakers were locally produced.

50 AMP0176.

51 These so-called local adaptations of the ‘true’ maritime beakers are often referred to as epi-maritime beakers (see Lanting and Van der Waals 1976, 10; Lanting 2008, 42).

52 In comparison with the Veluvian bell beakers; see Figure 4.10.

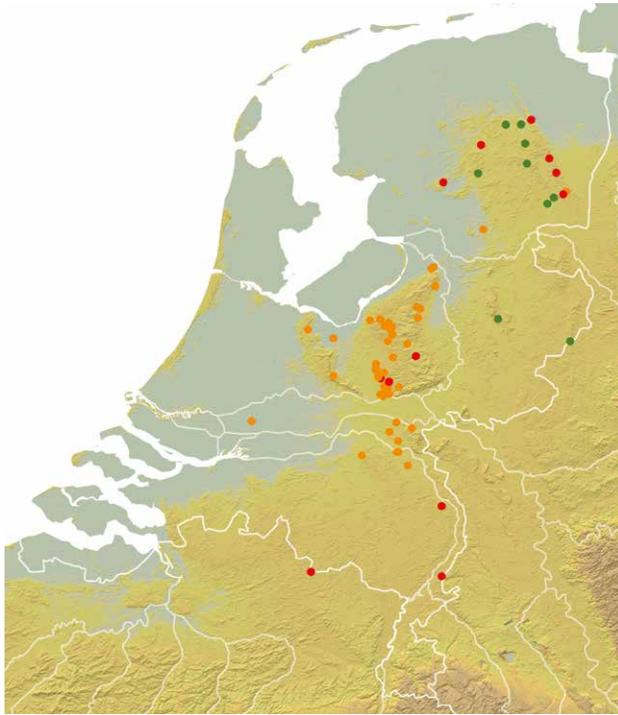


Fig. 4.12 Distribution map of maritime (type 2Ia and 2Ib) (red), Veluvian (orange) and NE-Group (green) beakers from graves in the research database (base map: AHN).

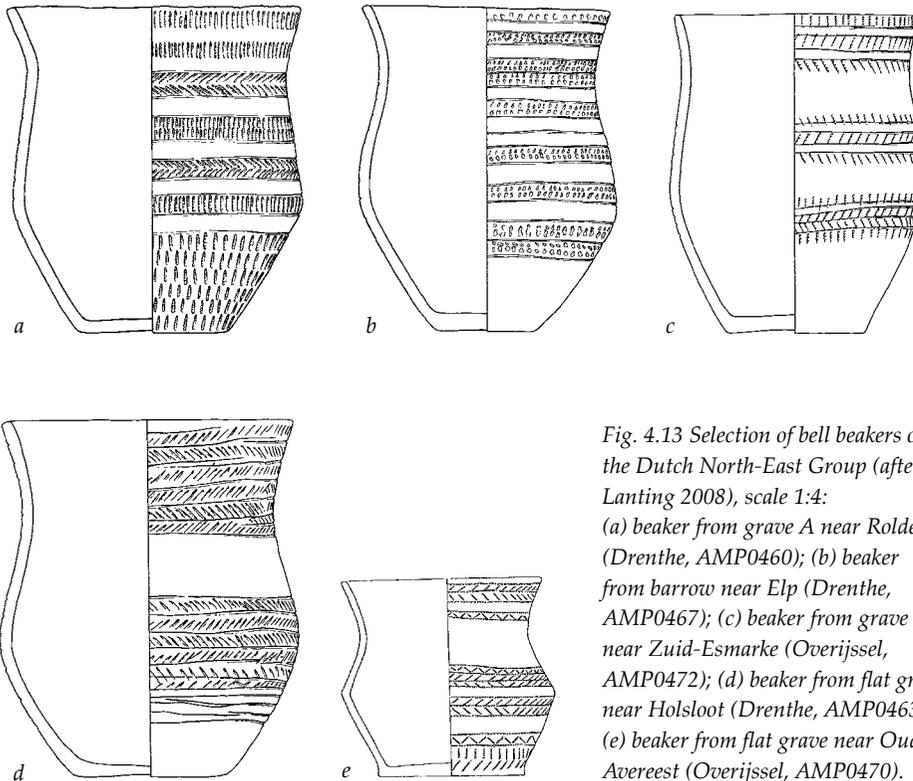


Fig. 4.13 Selection of bell beakers of the Dutch North-East Group (after Lanting 2008), scale 1:4: (a) beaker from grave A near Rolde (Drenthe, AMP0460); (b) beaker from barrow near Elp (Drenthe, AMP0467); (c) beaker from grave near Zuid-Esmarke (Overijssel, AMP0472); (d) beaker from flat grave near Holsloot (Drenthe, AMP0463); (e) beaker from flat grave near Oud-Avereest (Overijssel, AMP0470).

BB elements can be found in northern Germany where beakers occur with zoned decoration in BB style but applied only to the top half of the vessel in accordance with CW customs.⁵³ On the one hand these beakers clearly display BB influences, but on the other hand they also retain elements of times gone by.

4.3.3.2 *Veluvian bell beakers*

The 'plainness' of the Dutch North-East Group bell beakers makes the contrast with the Veluvian bell beakers of the central Netherlands all the more noteworthy, as these beakers were elaborately decorated with many new motifs and display high levels of crafting skills. Although a few maritime bell beakers occur on the Veluwe – both of 'true' maritime type as well as 'local adaptations' (see Section 3.6) – most beakers by far are of Veluvian type (see Fig. 4.12). Both in shape and decorative motifs these Veluvian beakers are quite different from the maritime-type beakers, or even the AOO or CW beakers. They have a rather angular profile as opposed to the slender S-shaped profiles of the maritime and AOO beakers. The Veluvian beakers, in contrast, are typically (much) wider than they are high (Van der Waals and Glasbergen 1955, 24). Although some notion of the decoration applied in zones remains – reminiscent of the maritime beakers – many are in fact almost completely covered with decoration, albeit applied in horizontal friezes. The beakers of type-2Ic have a clearly zoned decoration, but this consists of only three large decorated zones at the foot, belly and neck of the vessel with two large undecorated zones in between at the lower belly and shoulder. These two empty friezes, however, are used to house decorative motifs on the beakers of 'type-2Id-e and -f' (see Fig. 4.14 left). Especially the zone on the vessel's shoulder is used as the canvas for the decoration applied in panels or metopes⁵⁴ that is so typical for the Veluvian bell beaker (see Fig. 4.14 right).

Although the Veluvian beakers are all richly decorated with various combinations of mostly unique motifs, there is also a commonality binding these beakers as a group. For example, most Veluvian beakers share their basic shape and technological properties such as being thin-walled, fired in an oxidizing atmosphere and sand tempered (see above). Despite the wide variation in the actual decorative motifs, there is a clear system or logic when it comes to where this decoration is located on the beaker. The location of the decoration on the Veluvian beakers can be divided into four zones: (1) the foot/lower belly, (2) the belly around the point of the maximum diameter, (3) the shoulder and (4) the neck (see Fig. 4.15). Although all may be decorated in similar ways, usually several methods are employed to make these four main zones stand out from each other, for example by being demarcated by (narrow) empty zones or by a few friezes with less complex decoration (*e.g.* just a few horizontal lines or a row of vertical impressions). The decoration applied on the belly around the maximum diameter is usually very similar to the decoration applied at the neck of the vessel (zone 2 and 4, see Fig. 4.15). Often both even have the same or a highly similar sequence of quite narrow decorative friezes. The shoulder stands out because it is decorated as one main frieze, that is thus higher than the narrow friezes on the belly or neck. The shoulder can be

53 Beakers from various sites and sources depicted in Lanting 2008, 41; fig 10.

54 Metope is a term borrowed from Classical Greek architecture where it is used to describe a rectangular space, that is typically alternated by triglyphs to form a decorative band.



Fig. 4.14 Two richly decorated Veluvian bell beakers: (left) beaker from mound 3 near Heerde (Veluwe, AMP0222), height 185 mm: (right) beaker from barrow near Apeldoorn (Veluwe, AMP0436), height 150 mm (collection: National Museum of Antiquities, Leiden).

uniformly decorated with triangular or lozenge-shaped elements, it can be filled with different panels or metopes or be empty and polished. In either case, it visually clearly stands out from the belly and neck. The foot or lower belly can be empty, partly filled with triangular or lozenge-shaped motifs or even finger impressions. Metopes however, generally do not occur here.

This broad description binds the Veluvian beakers as a group. The decoration applied in these friezes and metopes, however, can be highly variable as discussed above. A few popular motifs can be found on most beakers – simple hatchings, zigzag motifs and rows of vertical or diagonal impressions, (see Fig. 4.10a). In addition to these, most beakers will also contain one or a few motifs that are not found on many other beakers, or that are even unique to that specific beaker (see Fig. 4.10b). On the one hand the Veluvian beakers are thus shaped and decorated according to basic principles that are shared among the Veluvian beakers as a group, while on the other hand these beakers also contain elements that are extremely rare or even unique. In a manner of speaking, this ‘uniqueness’ is therefore typical for Veluvian beakers.

In a sense these vessels appear to materialize different levels of cultural/personal practice or identity. The decoration applied in friezes and consisting of comb-impressions links them to bell beakers across Europe. The specific shape of the vessel and the basic system behind their decoration (as described above) binds the Veluvian beakers as a group but sets them apart from other bell beakers, for example the beakers of the Dutch North-East Group.⁵⁵ At the same time the specific types of decoration applied to the individual vessels, as well as the sequence in which they are placed on the vessels,

55 Interestingly the bell beakers found higher upstream in the Rhine Basin, around Koblenz in Germany, are obviously stylistic related to the Veluvian beakers, but they are also clearly distinct from each other (see for example the beakers depicted in Gebers 1978).

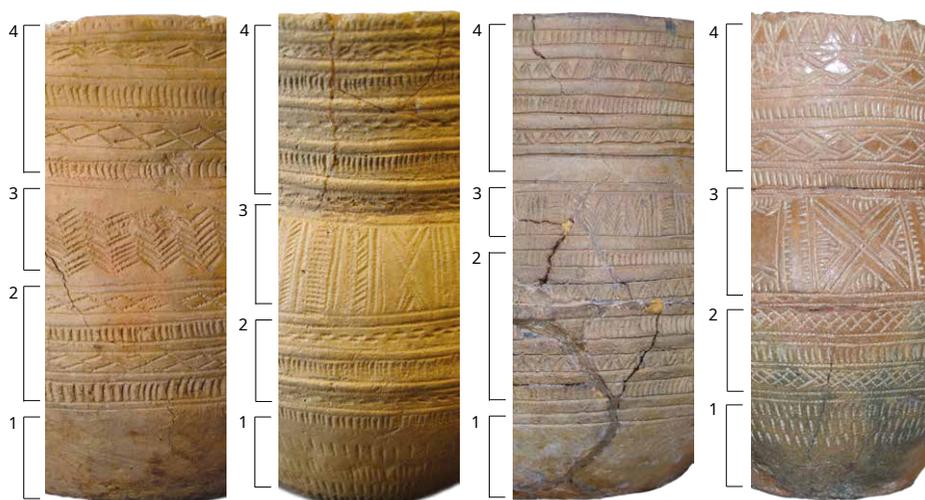


Fig. 4.15 The four main zones of decoration as seen on four different Veluvian bell beakers. From left to right beakers from: Bennekom mound 12 (AMP0245); Lunteren-Lunterse Heide (AMP0412); Ede-Koeweg (AMP0428); Apeldoorn-Gardense Veld (AMP0435); Not to scale (collection: National Museum of Antiquities, Leiden).

would in all likelihood have made each beaker unique.⁵⁶ As such, these beakers could serve as items used to display both some form of individuality as well as integration in a wider social setting.

4.3.4 Conclusions

Despite the apparent abundance of decorative motifs found on Late Neolithic beakers, it was found that in reality most beakers are decorated using only a rather limited and specific set of motifs. For the most part these motifs were shared with communities far and wide, legitimizing the use of the term ‘international styles’. The often meticulous nature in which this rather uniform type of decoration was applied indicates that it must have been important for a ‘beaker’ to look a certain way (see also Boast 1995, 76; Fokkens 1998, 104; Needham 2005, 183). Even the so-called ‘local style bell beakers’ adhere to commonly held ‘rules’. Although individual beakers may display highly regional or even unique types of decoration, they also contain common elements and are decorated using a basic ‘logic’ which binds them as a group.

This latter development of ‘regionalisation’ is not unique to the Netherlands. In fact, throughout Bell Beaker Europe it is found that the international style bell beakers usually only form a minority of the finds, whereas the vast majority consists of local style beakers (Needham 2005, 171; Salanova 2001; Case 2004a). Salanova (2001, 92) suggests that perhaps we should not refer to these local styles as bell beakers and reserve that term only for the ‘European phenomenon’. The fact remains, however, that this ‘regionalisation’ did not take place in a single area. It can be found throughout Europe and, as such, is in fact an international phenomenon. As a result, their idiosyncratic

⁵⁶ Salanova (2001, 92) also notes for the local-style (non-maritime/AOO) bell beakers in France that “there are never two identical pots”.

nature binds them with other 'regional' bell beakers throughout Europe. Hence, both the 'international' and the 'regional' type beakers are part of pan-European developments. Whatever meaning or function these beakers may have had, they apparently played an important role in portraying the (individual) dead as members of a much wider community or network of people.

4.4 Decoration found on other forms of material culture

Decoration often plays an important role in the study of prehistoric pottery. It, however, is important to realize that decoration of pottery may not have been an autonomous or singular phenomenon, but instead part of a much wider practice of decorating material culture in a similar fashion (also see Prieto-Martínez 2012, 40). Unfortunately, decorative patterns painted on walls of houses, hides of tents, carved into wooden carts or woven into brightly coloured textiles would not have survived in the archaeological record. Apart from material culture, such motifs may also have been used to decorate human bodies. Ethno-archaeological research performed by the author, for example, revealed that some of the potters in southern Malawi carried the same types of decorations they applied to pottery in the form of scarifications on their bodies (Wentink 2006b).

For the Dutch Late Neolithic there is unfortunately no evidence that similar forms of decoration were present on other forms of material culture.⁵⁷ Elsewhere in Europe, however, various examples have been found. Stones from a cist in north-west Spain (Carnota) and a grave from Norway (Mjeltehaugen) both showed engraved motifs commonly found on BB-pottery. Similar decoration was also found on an anthropomorphic stele from Sion, Switzerland (all examples listed in Prieto-Martínez 2012, 41-43). The latter example suggests that these motifs may have been used to decorate either human beings directly (tattoos, scarification) or instead the clothing they were wearing.

When thinking about these decorative motifs (and the manner in which such 'styles' spread across Europe), it is thus important to realize that pottery may only have been the tip of the iceberg. Similar motifs may have occurred on various forms of material culture or even on human bodies. This may even explain why, for example, the maritime-type decoration is found across Europe even though the actual number of maritime bell beakers is extremely low in some regions (see Case 2004a, 10; Salanova 2001, 96). In the Netherlands, for example, only about a dozen⁵⁸ finds are known (Drenth and Hogestijn 2007, 76; Lanting 2008, fig. 8); see also above). It is difficult to understand how these motifs could have had such an impact while they were observed on so few beakers. If they were indeed found on a much wider variety of material culture, especially on items of exchange (for example textiles), this would help to explain both their sudden and widespread occurrence throughout Europe.

57 The decoration on the gold ornaments (see Chapter 6) is reminiscent to some of the decoration on Veluvian beakers, but not a clear match.

58 Including both complete vessels from graves as well as surface finds of single sherds.

4.5 The 'ugly ducklings'

The sections above make it clear that throughout the Late Neolithic great care and skill was involved in the production and decoration of beakers. Although this may indeed apply to most beakers, there are, however, exceptions. Although it is difficult or even impossible to objectively assess or quantify the 'beauty' of a beaker, it is clear that while many display great crafting skills, others appear to have been made quite clumsily. Some beakers are for example rather asymmetrical in shape. While most are meticulously decorated, some decoration seems to have been applied quite sloppily. This variation in the quality of the workmanship is not unique to Dutch beakers and has also been noted for their British (Case 1995, 56) and French (Salanova 2001, 99) counterparts.⁵⁹ Although it is obvious that there would have been differences between potters, with one being more skilled/experienced than the other, some vessels really seem to stand out.

As the overall quality of the beakers, in terms of symmetry in shape and regularity in application of the decoration, cannot be objectively converted into numerical data, the purpose of this section is to merely present a few examples of these 'ugly ducklings' as a contrast to the often excellently shaped vessels depicted throughout this chapter. The beakers depicted in Figure 4.16 all show particular characteristics setting them apart from their overall well-made counterparts. For example, the CW beaker depicted in Figure 4.16a is undecorated and very asymmetrical in shape, even to such a degree that the vessel could not be photographed while standing due to the risk of it falling over. Apparently the top half of the beaker was too thick-walled, a problem that was addressed by extensive scraping. The scraping marks, however, were not removed and are clearly visible on the outer surface of the beaker.

Figure 4.16b shows a LNA beaker that despite being quite symmetrical in shape, stood out because of its decoration. The zigzag motifs are applied rather irregularly and the 'sharpness' of the grooves suggest that this beaker was decorated, or should we say 'engraved', when the clay was already very hard (either fully dried or even fired). In addition, LNA beakers are typically decorated on most of the upper part, usually from the point where the belly has the maximum diameter up to the rim. In this beaker it seems that the potter forgot about the beaker, letting it dry too much to be properly decorated, attempted to make grooves in a too dry a state, only to abandon the attempt after just three rows of zigzags near the rim, leaving most of the body undecorated.

The beakers depicted in Figure 4.16c-d display an interesting contrast. Although both beakers came from the same grave, the difference between them is quite apparent. The beaker on the left (Fig. 4.16c) is a well-made, rather symmetrical and meticulously decorated vessel. The beaker, however, was over-fired resulting in a crackled surface (see detail photo). Despite the vessel having been over-fired – making it questionable to what degree it could have fulfilled a practical function – it was clearly shaped by a skilled potter. The same cannot be said for the beaker on the right (Fig. 4.16d). It is crudely shaped, irregular and thick-walled. The decoration is applied with simple grooves instead of comb-impressions, consists of merely two friezes and is not particu-

59 Salanova (2001, 99) for example notes that graves may contain vessels of poor quality, with an irregular profile or clumsy decoration.



a



b



c



d



Fig. 4.16 Selection of the less well-made beakers from Late Neolithic graves: (a) undecorated LNA beaker from mound D4 near Niersen (Veluwe, AMP0406), height 175 mm; (b) zigzag beaker from mound XXVIII near Ermelo (Veluwe, AMP0192), height 155 mm; (c) and (d) two bell beakers from a mound near Wolfheze (Veluwe, AMP0420), (c) well-made but over-fired beaker, height 130 mm (note the small cracks in the detail, the darker colour indicates where the outer layer over the vessel's wall has broken off due to being over-fired), (d) clumsily made beaker, height 65 mm (collection: National Museum of Antiquities, Leiden).

larly regular. It is hard to believe that both are the product of the same potter. Clearly this second vessel was not included in the grave as a token of outstanding crafting skills.

For the British beakers, Brodie (1997, 301) mentions that the higher quality beakers are associated with males, whereas the smaller and more poorly made beakers are associated with females or children. Similar patterns are reported by Shennan (1977) for Central Europe. It, however, is unclear from these reports to what degree these attributions are based on actual physical anthropological research or rather on interpretations of particular grave goods commonly ascribed to either males or females. For the Netherlands there is no empirical basis to connect skilled or poorly made beakers to either a sex or age-group. Moreover, as is illustrated in Figure 4.16c-d, both can occur together in the same grave.

It is difficult to assess what we can conclude from these observations. Although in general much time and effort appear to have been invested in producing beakers, this did not prevent some of the less impressive specimens to be included in graves as well. Research by both Helms (1988) and Godelier (1999) indicated that the possession and display of extraordinary skills – whether to craft or acquire particular goods – is often connected with mythical or magical powers. Although such interpretations might be relevant for the particularly skilfully crafted beakers, it is hard to apply these to the ‘ugly ducklings’. This therefore can be taken to indicate that beakers were not placed in graves as items of ‘special power’ in their own right, but rather because of their function or role in social life. That would explain why in some occasions it was apparently more important to have ‘a’ beaker in the grave rather than one of a particular quality.

4.6 The use life of beakers

4.6.1 Late Neolithic A use life

Unfortunately, there is not much evidence that provides us with information about the actual function of these beakers or their possible contents. Virtually all beakers from barrows were excavated a long time ago and have usually been part of museum collections since the first half of the 20th century. They are often well-cleaned after excavation and restored, which on some occasions even involved painting the entire surface of the vessel. Hence, no residues of left-over foodstuffs or other traces of carbonization indicative of cooking could be observed by the author.

For future research it might, however, be possible to explore the possibilities of lipid-analysis (for possible techniques see Copley *et al.* 2005; Mukherjee *et al.* 2011; Oudemans 2006; Šoberl and Evershed 2011). The only beaker from a Dutch grave that was subjected to such analyses came from a grave near Twello (edge of the Veluwe)⁶⁰ which showed evidence of animal fats on the external surface, perhaps used to waterproof the beaker (Meurkens *et al.* 2015, 41). The inside of this beaker showed evidence of cereal pollen, perhaps the remains of a primitive wheat beer (see Section 4.8). Unfortunately, no other such research has thus far been per-

60 This grave was published after the collecting of data for this thesis was completed and it was hence not included in the research database.



Fig. 4.17 Long and slender AOO beaker from a barrow near Bennekom (Veluwe, AMP0246), height 190 mm (collection: National Museum of Antiquities, Leiden).

formed on the beakers from Dutch grave assemblages. The only other evidence from Dutch beaker material that can be mentioned in this respect is the find of carbonized residue on both decorated as well as undecorated CW-pottery sherds from LNA settlement sites in West-Frisia (Hogestijn 1997, 33; Beckerman 2015), which suggested that decorated CW beakers were also used for cooking, at least in this region. Similar residues were also observed on beaker material excavated at P14, a settlement site in the Noordoostpolder (located at the fringe of the wetlands, more or less in between the Veluwe and Drenthe). Carbonized residues, however, were observed primarily on the coarse ware, 53% of which contained residues while only 6% of the CW beakers contained carbonized residues (Ten Anscher 2012, 187). Ten Anscher, however, noted that the few beakers with residues were relatively thick-walled. He therefore proposes that the thin-walled decorated beakers would

not have functioned as cooking vessels and were probably primarily used as drinking vessels instead (Ten Anscher 2012, 187). Although hard evidence is lacking, I agree that a primary function as drinking vessel is very likely, particularly given the fact that these beakers are so thin-walled and often have a long and slender shape which makes them rather unsuitable as cooking vessels (see Fig. 4.17).

Many of the beakers that were examined for this thesis showed signs of wear. Especially on the bottom of the beakers the outer oxidized layer of the pottery had sometimes largely been worn away, revealing the darker colour of the inner part of the ceramics. It cannot be excluded that this is – at least in part – the result of prehistoric usage. It is, however, perhaps more likely that this type of wear is the result of post-excavation handling by excavators, researchers and museum curators. This type of wear, therefore, was not systematically recorded. Another potential sign of usage that must be mentioned is the fact that two beakers from barrows had multiple repair holes.⁶¹ Although it is possible such perforations served to repair cracks that occurred during the drying or firing of the vessel, it is also possible that such holes served to repair cracks that were the result of actual usage. Although these two vessels might thus be presented as evidence indicative of these beakers having had a use life prior to their deposition in the grave, other evidence points to the contrary. Examination of some of the beakers in the collection of the National Museum of Antiquities in Leiden lead L. Jacobs⁶² to conclude that at least two beakers showed cracks, that according to Jacobs (pers. comm. 2009), were not post-depositional but had in his expert opinion most likely occurred during either the drying or firing of these vessels.⁶³ Although it might have been possible to repair these cracks using some form of sealing agent, it is unlikely that they would have been suitable for containing liquids. Unfortunately, Jacobs' findings were chance observations made while visiting the author in the National Museum of Antiquities, rather than part of a systematic survey. Even so, they reveal the need for a more detailed analysis of such cracks as part of future research (but also see discussion of LNB beakers below).

4.6.2 Late Neolithic B use life

The problems that were discussed above unfortunately also apply to the bell beakers. Restorations, circulation in museum collections as well as handling by excavators, curators and researchers have left their mark. The bottoms of vessels are often partially worn away and display a shiny polish which could be the result of prehistoric usage, but is perhaps more likely the result of the activities described above. Based on wear and tear it is thus not possible to come to any conclusions about their prehistoric use lives. But for future research, as mentioned above, it might prove useful to explore the possibilities of chemical (lipid) analysis.

The only empirical observations related to the function of these vessels concern cracks that are believed to have originated during drying or firing of the beakers in question. A cursory examination of some of the beakers in the collection of the

61 AMP0382, beaker from barrow near Emmen (Drenthe) had repair holes alongside a crack near the rim; AMP0466, beaker from barrow near Vries (Drenthe) had two repair holes at a crack just below the rim.

62 Ceramic technologist at the Leiden Laboratory for Ceramic Studies, see Section 4.2.2.

63 AMP0243, beaker from barrow near Bennekom (Veluwe); AMP0421, beaker from barrow near Renkum (Veluwe).



Fig. 4.18 Two beakers showing cracks: (top) beaker from barrow near Ede (Veluwe, AMP0248), height 150 mm; (bottom) beaker from mound 2 near Vaassen (Veluwe, AMP0132), height 121 mm (collection: National Museum of Antiquities, Leiden).

National Museum of Antiquities in Leiden led L. Jacobs⁶⁴ to conclude that at least nine bell beakers showed substantial cracks⁶⁵ that most likely had originated during either drying or firing (see Fig. 4.18).⁶⁶ In addition, two beakers showed clear signs of having been over-fired, in both cases resulting in a cracked reddish surface and very brittle pottery.⁶⁷ Unfortunately – as mentioned above – these observations were not part of a systematic survey and it is thus currently not possible to assess what percentage these cracked beakers represent in relation to all beakers from graves. Although clearly needing a more thorough investigation, these preliminary observations suggest that some of the beakers from graves may not have fulfilled a practical function. In any case not as the containers of liquids. Perhaps these vessels were thus specially made for the funeral. Interestingly, similar cracks were observed on beakers from a collective grave in southern England known as the grave of the Boscombe Bowmen (Barclay 2011, 40), whereas some of the beakers from the Amesbury Archer found near Stonehenge had actually not been thoroughly fired and still partly consisted of un-fired clay (Cleal 2011, 147). For these beakers too it was argued that they had been specially produced for the grave (Cleal 2011, 147). The inability of such vessels – be that the English or Dutch examples – to be used in everyday life apparently did not disqualify them from being used as beakers for the dead. As some of these beakers had been beautifully decorated – which must have taken quite some time, effort and skill – this was perhaps considered more important than their actual functional potential.

A similar argument is presented by Boast (1995) who studied British beakers and found that compared to beakers from settlements, the grave finds were often of a much poorer fabric (lower quality ceramics) but more extensively finished and decorated. From this he concluded that many beakers were not intended to be actually used, but instead were specially produced for inclusion in the grave, with particular attention being paid to the visual appearance of the beakers.⁶⁸

In the previous section it was suggested that the LNA beakers most likely served as drinking vessels. As was the case with the LNA beakers, the bell beakers too are thin-walled, which would not fit well with a function as cooking vessel. The shape of the Veluvian bell beakers, being much wider than high, does make one wonder whether that would have been a convenient shape for a drinking vessel. If the Veluvian bell beakers were intended to contain some sort of beverage they would perhaps have been used in combination with smaller cups that could be used for the actual drinking. If that was case, such drinking cups are generally not included in the graves, or made of perishable materials such as for example cattle-horns. An exception might be the small cup (height ca. 7 cm, diameter ca. 6 cm) found in a barrow near Apeldoorn (Veluwe; see Fig. 4.19)⁶⁹ alongside sherds of a larger Veluvian Bell Beaker with highly similar

64 Ceramic technologist of the Leiden Laboratory for Ceramic Studies.

65 Some running from rim to bottom and all along the bottom, with many such cracks per beaker.

66 Cracks: AMP0412; AMP0222; AMP0436; AMP0132; AMP0168; AMP0245; AMP0248; AMP0404; AMP0260; Over-fired: AMP0260, AMP0420.

67 One of these also showed cracks that had probably occurred prior to firing.

68 It must be mentioned, however, that the beakers in his study also include those from the first half of the 2nd millennium BCE.

69 AMP0434.



Fig. 4.19 Small cup from a grave near Apeldoorn (Veluwe, AMP0434), height 71 mm (collection: National Museum of Antiquities, Leiden).

decoration. Another similar find is the small beaker (height 8 cm, diameter 9.5 cm) with maritime-style decoration found together with two larger beakers of AOO-type in the central grave of a barrow near Hoenderloo (Veluwe).⁷⁰

4.6.3 Conclusions

Whether or not the actual beakers from graves had been used, the occurrence of beakers in settlements does suggest they had a function in daily life and were not solely intended for use in funerary contexts. Although the residues discussed above indicate that on occasion these would have involved cooking, it is more likely that their primary function was related to drinking. The fact that the LNA beakers are very thin-walled and often very narrow/slender in shape also suggests that they would be more suitable as drinking vessels than as cooking pots (see Fig. 4.17). To some degree this also applies to the Veluvian beakers, although their shape would not be ideally suited for drinking. It therefore was suggested that these vessels may have been used in conjunction with drinking cups.

Especially the consumption of alcohol – in the form of beer – has often been related to beakers (Thurnam 1872; Childe 1957 [1925]; 2009 [1958]; Burgess and Shennan 1976; Sherratt 1987). Since there is no direct evidence for the presence of beer in Dutch beakers, this subject is not explored further here. Instead the possible role of alcohol and the evidence for the consumption of beer/ale in the 3rd millennium BCE in general is addressed below in Section 4.8 below.

4.7 Placement in the grave

4.7.1 Late Neolithic A Placement in the grave

Although the beaker is the most frequently occurring type of grave good in the LNA, due to a general lack of human remains or body silhouettes there is only limited information on where these objects were placed in relation to the body (see Table 4.4).

⁷⁰ AMP0168.

| location | n | % |
|----------|-----|--------|
| head | 6 | 4,5% |
| torso | 1 | 0,8% |
| pelvis | 1 | 0,8% |
| knee | 3 | 2,3% |
| feet | 10 | 7,5% |
| unknown | 112 | 84,2% |
| total | 133 | 100,0% |

Tab. 4.4 Location of LNA pottery vessels in relation to the body.

| location | n | % |
|----------|-----|--------|
| head | 5 | 4,1% |
| back | 1 | 0,8% |
| knee | 1 | 0,8% |
| feet | 4 | 3,3% |
| unknown | 112 | 91,1% |
| total | 123 | 100,0% |

Tab. 4.5 Location of LNB pottery vessels in relation to the body.

Although there seems to be a slight preference to place the beaker near the feet of the deceased (n=10), placement near the head also occurred relative regularly (n=6), but other locations too were observed such as in front of the torso, near the pelvis or near the knees.

4.7.2 Late Neolithic B Placement in the grave

For the LNB too, the location of only few beakers could be recorded in relation to a body silhouette (see Table 4.5). With the exception of one beaker found near the knees of the deceased and one beaker found behind the back of an individual, all beakers associated with body silhouettes were found either near the feet (n=4) or the head (n=5).

In addition to inhumation graves, the LNB also revealed a few cremation burials (of the 143 LNB graves in the research database, 19 concerned cremations) 17 of which were accompanied by beakers. An important difference with later periods in time, is that the beakers found in such graves did not function as funerary urns. Instead the grave goods, including the beaker, were placed – usually close together – next to the pile with cremated remains. For six of these graves it was recorded that the beaker was situated next to the cremated remains, and in one grave the cremated remains had been scattered around the beaker. For the remaining graves no further details about the placement of the grave goods was recorded.

4.7.3 Conclusions

For both the LNA and LNB the numbers of finds that could be related to the position of the body are too few to come to statistically sound conclusions. For both periods, however, the limited data suggest a preference of beakers being placed either near the head or feet of the deceased. Similar patterns were observed by Case (2004b, 197) for Britain, although he noticed a difference between north Britain – where beakers were predominantly placed near the head, and south Britain – where the feet were the preferred location, although other locations occurred too.⁷¹

In contrast with later periods in prehistory the beakers did not serve as containers for cremated remains, but instead were deposited in graves either as objects in their

⁷¹ See Bourgeois and Kroon (2017) for an analysis of the location of grave goods in relation to the body throughout north-west Europe.

own right or as containers for particular perishable materials (drink or foodstuffs). The overall quality of the beakers and their often elaborate designs, however, suggest that apart from the significance of their possible contents, the beakers themselves too must have been considered important and meaningful objects.

4.8 Beer and beakers

As was mentioned in Section 4.6.3, Late Neolithic beakers have often been connected with the consumption of alcohol, most prominently in Sherratt's (1987) famous article "Cups that Cheered". Since beer has the uncanny tendency to resist fossilization, his arguments were mostly theoretical in nature. Although still rare and often circumstantial, over the years, several sites across Europe have provided physical evidence to support Sherratt's hypothesis.

Sherratt (1987; 1991) argued that the role of beakers in the grave ritual can be easily understood because the consumption of food, and in particular different types of beverages, play an important role in structuring the passage of time and social events that take place at various locations and times. As he reminds us that, even today, our timetable is structured by drinking-events, with different drinks being consumed at different moments (milk or water at breakfast, coffee at around 11 o'clock, lunch being traditionally consumed with a pint of beer, tea in the afternoon and wine at dinner) (see also Hazan 1987). Interestingly, different cups, beakers or glasses are used for each specific beverage (Sherratt 1987, 90). Apart from playing a role in structuring daily routine, the exchange of drinks also plays an important part in many social or ceremonial occasions. Sherratt mentions several examples including the importance of tea ceremonies in Japan and China, whereas in the Arab world coffee seems to accompany all forms of formal negotiation. Likewise in many Arab and North African countries all formal social occasions are started with the consumption of sweet mint tea, whereas in northern Europe in particular beer is consumed at social gatherings, especially those of a festive nature.⁷² Not only is alcohol consumed during such social gatherings – and usually actively promoted by the participants – the opposite – 'drinking alone' – is quite interestingly frowned upon. Inversely, participants can expect the same signs of disapproval when refusing to consume alcohol during social gatherings, and usually need to provide a legitimate reason for their unwillingness to do so (for example being pregnant or having to operate a motor vehicle).

Like the wheel, the plough, milk and wool, Sherratt (1987) argues that alcohol too was probably not commonly consumed until at least the mid-4th or 3rd millennium BCE (see also Sherratt 1991). Many of the fruits (such as grapes) used for the production of alcohol today originally did not contain the high levels of sugars needed for fermentation. Other sugary products such as honey are also quite rare in nature,⁷³ hence the most likely source of sugars used for producing alcohol on a domestic scale,

72 But also see Rehfish (1987) for an interesting ethnographic account of competitive beer drinking ceremonies in Nigeria.

73 The earliest unambiguous evidence for mead was found in the famous Hallstatt wagon-grave of Hochdorf near Stuttgart, dated to around 500 BCE (Körber-Grohne 1985).

would have come from fermented cereals.⁷⁴ As Sherratt (1987, 389) argues, the production of beer or ale from cereals is a complex and rather precise affair. It, therefore, is not likely to have originated directly with the first introduction/adoption of cereals in Europe, but would have been introduced later.⁷⁵

Unfortunately, Sherratt's (1987) alcohol hypothesis is not supported by extensive physical evidence. His only direct evidence for beakers having contained alcohol is the find of several types of pollen in direct association with a beaker from a grave at Ashgrove Farm (Methilhill, Fife, UK) that are taken to reflect the presence of honey, indicative of mead or a honey-flavoured ale (Sherratt 1987). Although this is only one case, in recent years several similar observations have been made at various sites across Europe, that directly support mead or beer/ale being the content of beakers as well as indicate the importance of some of the ingredients used in the production of beer. Likewise, evidence for other contents, especially dairy-based, are largely absent. A study on the presence of lipids in various types of Neolithic pottery from the UK showed that animal lipids (likely the remains of milk or other dairy products) were present on most sherds sampled for the study, beakers being the notable exception however (Copley *et al.* 2005). A similar lack of animal lipids was recorded for the beakers found with the Boscombe Bowmen (southern England), these results could point to a function associated with alcoholic beverages such as beer (as opposed to dairy products or other foodstuffs that would contain lipids) (Šoberl and Evershed 2011, 58). Similar results came from the beakers of the Amesbury Archer (southern England), although in some vessels low lipid levels were detected, these could also result from sealing the pots with milk upon firing them. It was considered unlikely that these beakers had been used for actual cooking (Mukherjee *et al.* 2011, 156).

In 2000 a Danish burial mound was excavated in Refshøjgård (Folby, eastern Jutland). From the central grave a CW beaker was retrieved that contained traces of some sort of residue (Klassen 2008, 52). The residue was subjected to various kinds of microscopic examinations which revealed the presence of starch grains – made visible by using polarized light. Key to making beer is the fermentation of cereals, during which the starch is transformed by enzymes into sugars, which subsequently can be transformed into alcohol (see Dineley 2004 for detailed description of – and recipes for – beer-making). During this transformation process, the morphology of the starch grains changes. According to Klassen (2008, 53) the degradation of the starch grains observed in this residue was in line with the morphological changes occurring in the fermentation process (also see Heiss *et al.* 2020). Although the level of conservation did not allow for all morphological characteristics to be observed, the evidence was in line with what was to be expected in ale or beer.

74 Although milk can also be used for producing alcoholic beverages, it requires a type of milk with a high sugar content. Especially mare's milk can be used for fermentation. However, no evidence for large-scale horse farming has been found according to Sherratt (1987).

75 However, see critiques on this hypothesis by Vander Linden (2001, 46) who argues that surely fruits/cereals needed for alcohol production would have been available during the Early/Middle Neolithic as well. The oldest central European evidence of malting was found in 4th millennium BCE lakeshore settlements (see Heiss *et al.* 2020).

In a Dutch grave near Twello (edge of the Veluwe)⁷⁶ residue was found inside a CW beaker that contained high levels of cereal pollen (Meurkens *et al.* 2015, 41). Although other cereal-based products are not excluded (porridge, bread), the authors interpret these as indicative of a primitive wheat beer. Recent residue studies performed on maritime bell beakers from graves in Spain also revealed evidence of a primitive form of wheat beer (Rojo-Guerra *et al.* 2006).⁷⁷ Using a wide range of analytical methods, which included both optical (microscopy) and chemical analyses, the presence of what must have been a primitive beer was attested in four of the ten studied vessels. Several markers were taken to be indicative of beer, most notably, cereal phytoliths and starch granules that showed surface alterations caused by enzymatic attack during fermentation. In addition the presence of yeast could be attested by means of microscopic examination. The chemical and biochemical analyses confirmed the presence of starch and indicated the presence of *Calcium oxalatum*, also known as ‘beerstone’, being a by-product of the aminoacid chemical reactions during the heating of the malt (Rojo-Guerra *et al.* 2006, 251).⁷⁸ In addition, Rojo-Guerra *et al.* (2006, 252-3) list several – both published and unpublished – other Spanish beaker finds that were tested to have probably contained beer/alcoholic beverages.

Dineley (2004) provided a detailed overview of the ale or beer-making process and performed various experiments.⁷⁹ Apart from using cereals – as a source of sugars – for the production of alcohol, other ingredients are needed as well. A beer or ale made solely of cereals does not taste particularly nice, and most importantly, cannot be kept for more than just a few days (Dineley 2004, 9). In modern beer, hop (*Humulus lupulus*) is used for flavour and as a preservative. Hops, however, were only cultivated in Europe from about the 9th century AD onwards. Before that time, other herbs were used. According to Dineley (2004, 13), bog myrtle (*Myrica gale*), ground ivy (*Glechmona hederacea*), mugwort (*Artemisia vulgaris*) and in particular meadowsweet (*Filipendula ulmaria*, see Fig. 4.20) were the most popular additives used by medieval brewers and alewives. The latter, meadowsweet (see Fig. 4.19), was the herb Dineley used in her own experiments. The resulting ale was clear, dark, reddish-brown in colour with a distinct flavour of meadowsweet. Not only was the ale very well received by the tasters, according to Dineley (2004, 9), the addition of dried meadowsweet flowers caused the brew to remain fresh enough to drink for several months. The properties of meadowsweet as a preservative is an effect caused by the high concentration of salicylic acid contained within its flowers. Salicylic acid, apart from working as a preservative, also has several medicinal applications and is known to reduce pain and fever and has

76 This grave was published after the collecting of data for this thesis was completed and it was hence not included in the research database.

77 One of these finds came from a beaker found in a BB inhumation grave positioned in an older Neolithic cairn at La Peña de Abuela (Ambrona), the others were from a collection of beakers found in a BB complex addition in another older Neolithic cairn known as La Sima (Miño de Medinaceli) (Rojo-Guerra *et al.* 2006, 224).

78 Rojo-Guerra *et al.* (2006, 251) do note that apart from beer, it cannot be excluded that these results were caused by some form of post-depositional fermentation of a similar cereal base to that of beer.

79 Interestingly the large (proto-)potbeakers found in the Late Neolithic would, according to Dineley’s description of the equipment needed for beer-production, be very suitable for both the production and storage of beer. One of the benefits of large, coarse pottery vessels is that the yeast can survive inside the vessel’s wall, causing the fermentation process to start automatically when the vessel is re-used to make a new supply of beer (Dineley 2004, 9-10).



Fig. 4.20 Meadowsweet (*Filipendula ulmaria*) (photography: Jolanta Dabrowska, dreamstime.com).

largely the same properties as aspirin (Ramsay and Miller in prep.; Dineley 2004, 13; Drenth *et al.* 2011, 216).

Although beer itself may not easily survive in the archaeological record, pollen in contrast do. Given the properties of meadowsweet and its usefulness in the brewing process, it should come as no surprise that its pollen are observed again and again in Beaker graves. One of the species of plant found mentioned by Sherratt (1987, 396) in the Ashgrove Farm beaker (see above) was meadowsweet. In addition, meadowsweet pollen have been found frequently inside beakers from grave contexts. Dineley (2004, 18) mentions several examples, including pollen retrieved from a vessel that accompanied a female burial in a stone cist found at North Mains, Strathallen Fife (UK). Here a mixture of cereal residues and meadowsweet pollen were interpreted as the remains of ale. Interestingly, evidence for meadowsweet is not confined to pollen from beakers. In a recently excavated plank-lined Bell Beaker grave from the Netherlands, large amounts of meadowsweet pollen were found and taken to be indicative of a bouquet that was placed in the grave alongside a Bell Beaker, sherds of a second beaker,

several amber ornaments and a flint tool (Drenth *et al.* 2011, 215).⁸⁰ More compelling evidence of meadowsweet flowers being placed in a grave comes from Scotland, where actual macro-remains were found in a cist-burial at Forteviot (Brophy and Noble in prep.). As a direct result of this find, an inventory was made of other Scottish cist burials that contained evidence for meadowsweet. For Scotland alone Ramsay and Miller (in prep.) could list eight different graves that contained Meadowsweet pollen. In some of these graves the pollen were retrieved from inside beakers or Food Vessels⁸¹, whereas in others the pollen were sampled from the cist floors.

It could be argued that both the shape of the beakers, the fact that they are extensively decorated and very thin-walled, makes them more suitable for drinking than for cooking. None of these features, however, actually proves that these beakers served as drinking vessels. Sherratt (1987; 1991) provides a compelling, although largely theoretical, hypothesis that beakers were used for the consumption of ale or beer. Although empirical data is still relatively scarce, a growing body of evidence indicates that Late Neolithic beakers were indeed used as such. This includes the above presented residue studies performed on beakers from various sites in Europe, as well as ample evidence for the presence of Meadowsweet, a known additive used for making ale or beer. It is of course possible that regionally beakers had different functions or were occasionally used for different purposes (as for example indicated by carbonized residues on several beakers from West-Frisia, see above). Likewise there may have been a functional dichotomy between beakers found in graves and other contexts such as settlements. However, based on the available evidence, it can be considered likely that the primary function of beakers was indeed related to the consumption of alcoholic beverages, most likely beer or ale.

4.9 Concluding remarks

The inclusion of beakers in graves is a common practice that connects the LNA and LNB. Even though, as will be demonstrated below, the remainder of the grave set in either period is quite distinctly different. Various lines of evidence can be taken to indicate that beakers most likely functioned as drinking vessels used for the consumption of alcoholic beverages (see Section 4.8). The fact that beakers were usually well-made and richly decorated, in particular the later Veluvian bell beakers, suggests that they were made to be seen, indicating that the consumption of these beverages most likely took place in a social context (see also Fokkens 1998, 104). The sharing of (alcoholic) drinks during particular moments in time, or at particular events is a widely documented practice around the world (Sherratt 1987, 90).

It can thus be argued that throughout the 3rd millennium the beaker was used for the consumption of alcohol during social gatherings, but this does not mean that all beakers were the same. Some of the beakers examined during this study show signs of repair, which may indicate repeated usage, whereas others show cracks and damage originating from the production process (either from drying or firing). These latter specimens are not likely to have been used to actually contain liquids. Their inclusion

80 AMP0497, grave 1 from Hattemberbroek (Veluwe).

81 'Food Vessels' are a richly decorated Early Bronze Age beaker-like vessel type from the UK.

in graves indicates that this apparently did not matter in the context of the funerary ritual. In this context the beaker perhaps served more as a symbol of social cohesion and sharing, rather than that they actually represented the preferred drinking cup of the deceased individual.

An important difference between the different types of beakers found in 3rd millennium graves lies in the nature of the style of decoration and shape. Up until ca. 2400 BCE beakers were made and decorated in a highly international style. This may be taken to indicate that the ‘drinking ritual’ these beakers were used in was extremely widespread. Although the actual meaning attributed to such events may have varied considerably from region to region, or even household to household (see Cohen 1985), the *appearance* of the social occasion, however, would have been widely recognized and appreciated (see Goffman 1959; 1966). In the context of social cohesion this would have been a powerful instrument for establishing and maintaining (long distance) relations.

Interestingly, however, in the later Beaker traditions, the beakers become the medium, not only for displaying an international style, but are increasingly used to display regional styles. In particular the Veluvian bell beakers are richly decorated with a wide range of motifs, resulting in – as far as could be found – all uniquely decorated vessels. Despite the fact that all Veluvian beakers are different, they all conform to some basic rules and guidelines with respect to shape, the ordering of the decorating and the types of motifs applied. As such they encapsulate not only the unique and regional, but also refer to the pan-European Bell Beaker complex itself.

