6

The Life of Late Neolithic B grave goods

6.1 Introduction

As was the case in the LNA, during the LNB the beaker also is the most frequently occurring type of object in graves. The percentage of LNB graves containing pottery is even almost identical to that of the LNA graves, being 68% versus 70% respectively (see Chapter 4). As far as the practice of placing beakers in graves is concerned, there is thus a strong level of continuity between the LNA and LNB. Apart from the beaker, however, all other types of grave goods seem to change (see Fig. 6.1 and Table 6.1). The

LNB grave goods	**number of objects**		**occuring in graves**		**objects per grave**
object type	n	%	n	%	average
beaker	123	27%	97	68%	1,3
flakes/blades	77	17%	39	27%	2,0
arrowhead	70	16%	20	14%	3,5
wristguard	21	5%	20	14%	1,1
amber ornaments	85	19%	19	13%	4,5
copper dagger	11	2%	11	8%	1,0
cushion stone/anvil	7	2%	3	2%	2,3
gold ornament	7	2%	4	3%	1,8
copper other	6	1%	5	3%	1,2
strike-a-light	8	2%	7	5%	1,1
pyrite/markasite	4	1%	4	3%	1,0
arrow shaft smoothener	3	1%	2	1%	1,5
battle axe	8	2%	7	5%	1,1
flint dagger	3	1%	3	2%	1,0
flint/stone axe	4	1%	3	2%	1,3
other	11	2%	6	4%	1,8
total nr. of objects	448	100%			

Tab. 6.1 Overview of number of LNB grave goods per object category, number of graves containing objects of that category and the average number of objects per grave.

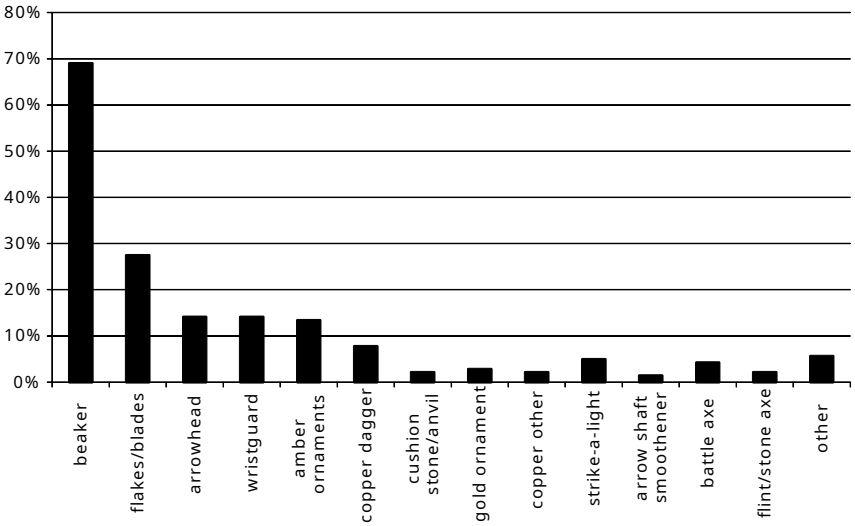

Fig. 6.1 Relative frequency of object types in LNB graves.

most frequently occurring types of objects in the LNA graves (northern flint blades, axes and battle axes), are (largely) absent in the LNB graves. In contrast, objects that were notably missing in the LNA – such as archery equipment or amber ornaments – are in the LNB among the most frequently occurring types of objects. Apart from the practice of placing beakers in graves, there thus appears to be a clear difference between the LNA and LNB when it comes to grave goods.

The 143 LNB graves in the research database reveal many different types of objects. The grave set in the LNB becomes more varied, comprising more different categories of objects. The LNB grave set is therefore less standardised than the LNA one. As a result, this also means that per object category, the grave goods in the LNB are much rarer than the objects types predominantly found in the LNA graves. In the LNA, for example, the most frequently occurring type of object, apart from the beaker, was the flint blade/dagger which occurred in 51% of the graves. For the LNB, however, the most frequently occurring type of object, apart from the beaker, are flint flakes. These, however, occur in only 27% of the LNB graves. These are followed by the stone archer's wristguards and flint arrowheads. Even when these two categories are combined, 'archery equipment' is found in only ca. 14% of the graves. Amber ornaments occur in only 13% of the graves and the other types of grave goods all drop (well) below 10% (see Table 6.1).

6.2 Flakes and blades

With the exception of the bell beaker itself, simple flint tools (either retouched or unretouched flakes and the occasional blade) are by far the most frequently occurring type of object in LNB graves. The research database revealed that 39 LNB graves contain a total of 77 (retouched) flint flakes and blades. This group also includes the occasional flint scraper and so-called 'Bell Beaker knives', a type of retouched flint flake regularly found in BB contexts. Although these are often described as a

separate category, it is in fact quite difficult to draw a clear line separating flakes, retouched flakes and Bell Beaker knives. Since they do not represent a clearly delimited object-category – and essentially are retouched flakes – it was decided that in the context of this thesis it would be better to discuss these various types of retouched and unretouched flint artefacts together.

Before discussing these finds in detail, the reader should be reminded of the discussion presented in the previous chapter regarding flint flakes (Section 5.7.1). Although many of these flint tools would have been intentionally deposited in graves, the flint artefacts as a group are quite problematic. To summarize the problem, there is the issue of representativity. In many of the earlier excavations flint artefacts were not always retrieved, kept or published. In addition, flint tools occur in and around human activity sites throughout prehistory. It is therefore not always possible to determine whether simple flint artefacts concern intentional grave goods or were part of the backfill of the grave pit. Hence, not all of these finds are necessarily intentional grave goods, and there also might have been many more graves for which flint artefacts went missing, were left unrecorded or went unpublished. Although from the current dataset it is clear that simple flint tools must have been one of the most regularly occurring types of grave goods, it is difficult to precisely define this in quantitative terms.

6.2.1 Production

The flint flakes and 'blades' found in LNB graves are typically made in an opportunistic, *ad hoc* style and do not portray any particular form of special skills (Van Gijn 2010, 149). Although some are twice as long as they are wide, allowing the term 'blade' to be used, these 'blades' are not the result of standardized blade production – which involves special core preparation, maintenance and reduction techniques. In this case, 'blades' are merely blade-shaped flakes coming from an otherwise simple flake-oriented production sequence. In some cases these flakes show signs of secondary modifications, but even when this is the case, this often takes the form of a rather haphazardly applied zone of border retouch. In one occasion the retouched flake could be classified as a scraper. The raw materials used are typically of a local origin. For both the Veluwe and the north-east Netherlands this primarily concerns moraine flint. In all respects the flint flakes represent items made locally from easily obtainable raw materials in an *ad hoc* manner. Although some of the 77 flakes show signs of retouch (27%), making them suitable to be used, for example, as scrapers, most are just simple unmodified flint flakes with sharp edges (73%). Some of the other flint objects in circulation during the LNB – most notably the imported Scandinavian flint daggers, but also the LNB arrowheads – show considerable skill and craftsmanship. Flint working skills were thus present and apparently appreciated. However this did not involve these generic flint tools. Their inclusion in graves, however, does suggest that they were valued enough to be placed in graves, but apparently for reasons other than the skill involved in their production.

Apart from generic flakes and blades, Bell Beaker graves, on occasion, also contained objects that are generally classified as so-called 'Bell Beaker knives' (ca. 14 specimens depending on definition used). These objects show some form of standardisation, being thin and wide flint flakes with partially applied border retouch, or sometimes surface retouch, usually only on the dorsal face (Lanting 2008, 64).

As a group, however, the flint tools found in Bell Beaker graves comprise both unretouched and retouched flint flakes, the latter with various levels of regularity. Although some well-made Bell Beaker knives exist, there are also more roughly shaped flakes with dorsal retouch. As it is a sliding scale it is thus not really possible to draw a clear line that separates the Bell Beaker knives, as an object-type, from the other retouched flint flakes.

6.2.2 Use life

Both retouched and unretouched flint tools are highly effective in the performance of all sorts of tasks. Throughout the Stone Age, but probably well until the Bronze/Iron Age, a simple flint flake provided the sharpest cutting edge available on any tool. As was mentioned in the previous chapter, a set of flint flakes can thus best be compared with the modern Swiss Army knife: suited for all sorts of tasks, which can easily be transformed into another tool in usually no more than a few seconds with the use of a small pebble or retoucher.

In total 18 flint tools from certain LNB burial contexts were studied for traces of wear (see Table 6.2). The majority of the flint items subjected to functional analysis did not show signs of wear (n=10) or could not be interpreted due to post depositional surface modifications (n=2). The six tools remaining however, appeared to have been used for a variety of tasks.

contextcode	site	object	retouched	traces of wear	contact material
AMP0172	Uddelermeer mound E	flake*	+	+	wood
AMP0172	Uddelermeer mound E	natural	-	-	-
AMP0172	Uddelermeer mound E	flake	+	+	wood
AMP0172	Uddelermeer mound E	flake*	+	?	-
AMP0404	Ede-Ginkelse Heide	flake	-	-	-
AMP0404	Ede-Ginkelse Heide	flake	+	-	-
AMP0404	Ede-Ginkelse Heide	flake	-	-	-
AMP0404	Ede-Ginkelse Heide	flake	-	-	-
AMP0404	Ede-Ginkelse Heide	flake	+	+	clay/pottery
AMP0404	Ede-Ginkelse Heide	flake	-	-	-
AMP0404	Ede-Ginkelse Heide	flake	-	-	-
AMP0412	Lunteren-Goorsteeg	flake*	+	-	-
AMP0427	Renkum-Quadenoord	blade	+	+	mineral
AMP0436	Apeldoorn-Gardense Veld	flake	-	-	-
AMP0436	Apeldoorn-Gardense Veld	flake	-	-	-
AMP0440	Ermelo-Erve Danelaar	flake	-	?	-
AMP0487	Wijchen-Bijsterhuizen grave 3	flake*	+	+	wood
AMP0497	Hattemerbroek-Hanzelijn grave 1	flake*	+	+	soft material

*Tab. 6.2 Overview of retouch and wear traces on LNB flakes and blades: (+) yes; (-) no; (?) unsure; * indicates flakes that could be classified as Bell Beaker knives.*

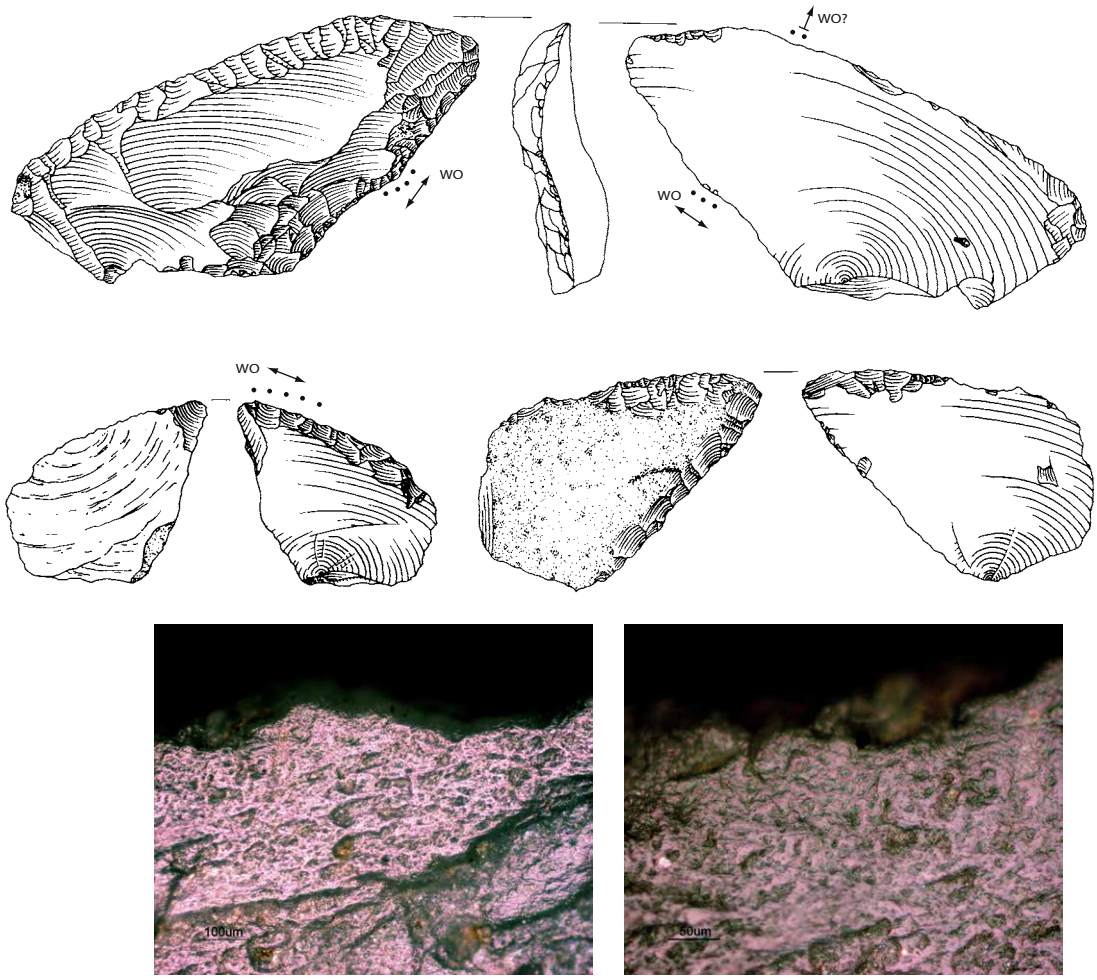

Fig. 6.2 Presence of wear traces indicated on retouched flakes from a grave near the Uddelermeer (AMP0172, Veluwe), scale 1:1; microscope photographs illustrating the wear traces observed on the upper retouched flake, resulting from wood-working, (left) magnification 100x; (right) magnification 200x (drawing: R. Timmermans).

Four flint objects from a barrow near the Uddelermeer (Veluwe, see Fig. 6.2)[130] were studied for traces of use. One concerned a naturally formed frost-cracked piece without traces of use. Perhaps this object was not a formal grave gift but rather part of the natural subsoil. The remaining three flakes showed signs of retouch and two, albeit roughly shaped, could be classified as Bell Beaker knifes. Of the three retouched pieces, two showed signs of wear. However, the polish resulting from usage was located only on isolated spots along the edge. In all likelihood the pieces had been sharpened by applying retouch after they had been used. Although the wear traces found were not very well-developed and, more importantly, partly removed through secondary retouch, it appears that these retouched pieces had been employed in cutting wood.

130 AMP0172, mound E.

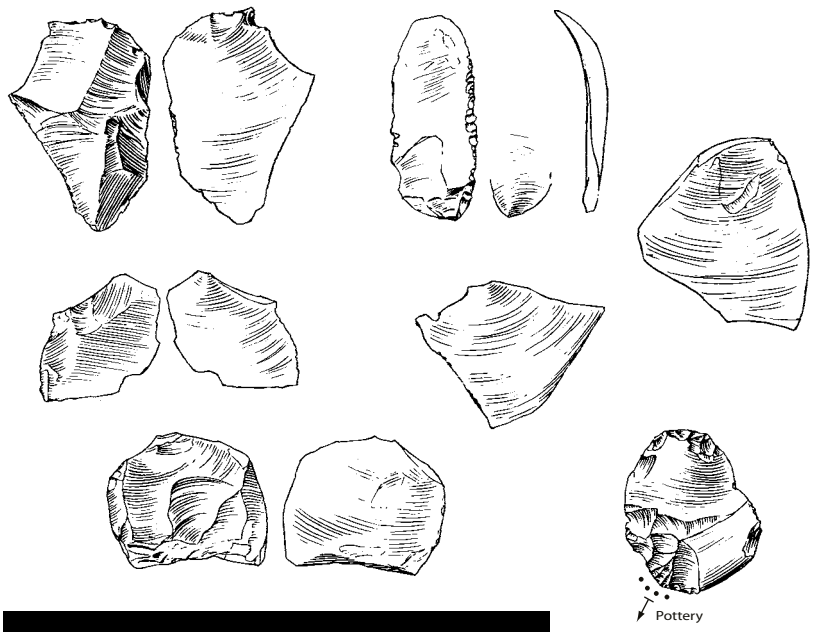

Fig. 6.3 Flint flakes from a grave near Ede-Ginkelse Heide (AMP0404, Veluwe), scale 1:1, with indicated traces of use; (bottom right) microscope photograph (magnification 100x) illustrating traces resulting from scraping pottery (drawing: Butler and Van der Waals 1966, fig 4a).

That flint tools were not always used for activities we expect – based on the presence of other grave goods – is illustrated by the wear traces found on one of the flint tools from the famous archer's grave of Ede-Ginkelse Heide (Veluwe).[131] This well-known barrow contained a cremation grave with various grave goods: seven flint arrowheads, two strike-a-lights, a stone wristguard, a maritime-style Bell Beaker, a tanged copper dagger and seven flint flakes (one of which with retouch). The cremated remains were studied shortly after excavation (first half of the 20th century) by prof. H.F. Nierstrasz (Utrecht University) and were said to be of an adult male, though apparently the remains also included those of a young child. Given the early date of this analysis the reliability of these results should be greeted with caution (see Van der Vaart-Verschoof 2017, 30). Six of the flint flakes showed no signs of retouch and neither did their very sharp edges display signs of wear. Although these objects would have been suitable for a multitude of tasks, they did not show traces of use. The seventh flake, however, had

131 AMP0404.

a small retouched zone with very clear and well-developed traces of use that could be interpreted as the result of scraping dry clay or pottery (see Fig. 6.3). The heavy rounding and clear striations are indicative of such an activity. The scraping of pottery is generally done for thinning the vessel's wall and even its thickness. The presence of the arrowheads, wristguard and tanged a dagger may be taken as indicative of an 'archer' or 'warrior' identity. However, hidden among the flint flakes evidence was found for an entirely different sphere of activities.

The remaining three flint tools that showed traces of use were retrieved from three different graves. A Bell Beaker knife from a cremation grave of an adult individual found near Wijchen (Gelderland)[132] had been used for cutting wood. Similar to the finds from Apeldoorn-Uddelermeer (see above), the wear traces were observed only on isolated spots indicating that the tool had been sharpened after use and prior to deposition. A retouched blade from a barrow near Renkum (Veluwe)[133] showed heavy rounding and striations indicative of a transverse motion. The polish showed similarities to both hide and mineral substances. Unfortunately, the piece suffered quite some post-depositional surface modifications, making it impossible to further narrow down what the object had been used for. A flat grave near Hattemerbroek located just north of the Veluwe[134] contained a Bell Beaker knife that showed minor traces of scraping a soft material.

To conclude, several different types of wear were observed on the various flint tools described above. They all appear to have been related to crafting activities: the working of wood, scraping of pottery and scraping of mineral substances or possibly hide. Notably missing are activities related to subsistence: the production and preparation of food. There are no traces of butchering animals, scaling of fish or most notably the harvesting of cereals. Especially the latter is a type of activity that generates highly characteristic traces that cannot be easily overlooked. Moreover, cereal harvesting tools are regularly found in graves of the Linear Pottery culture and Funnel Beaker culture (Van Gijn 2011; pers. observ. of the author).

6.2.3 Placement and arrangement in graves

In only a few cases it was recorded where in the grave the flint tools were found in relation to the body (see Table 6.3). Four flint tools were found with the feet, four near the knees, another four near the pelvis with an additional five found in the centre of the grave pit suggesting they were originally placed near the pelvis. Two flint tools were found behind the back of the deceased and five near the head. In addition, six flint tools were recorded near the western edge of the grave and two near the eastern edge suggesting that they were placed either near the head or the feet, depending on the orientation of the body.[135] One flake was found near the northern edge and another near the southern edge, these were probably placed behind the back or in front of the pelvis/torso respectively.

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132 AMP0487.
133 AMP0427.
134 AMP0497, Hattemerbroek-Hanzelijn grave 1.
135 Bodies are generally oriented E-W with their heads either in the east or the west, see Chapter 7.

location	n	%
head	5	6,5%
back	2	2,6%
pelvis	4	5,2%
knee	4	5,2%
feet	4	5,2%
unknown	58	75,3%
total	77	100,0%

Tab. 6.3 location of flint flakes and blades in relation to the body.

Although for most finds the location in the grave went unrecorded, it can be concluded that a wide variety of locations in relation to the body was deemed suitable for depositing flint tools. When found near the pelvis, it is possible that the flint tools were perhaps inside a small bag worn around the waist (and part of the overall dress). However, particularly the finds near the head or feet indicate these objects were placed in the grave as a distinctly separate action. It, therefore, is important to realize that *we* may tend to overlook these seemingly 'generic' flint tools or underestimate their importance (they are often only cursorily mentioned or not even depicted in excavation reports), but these items were evidently not simply 'items left accidentally in the deceased's trouser pockets'. Instead they represent distinct and meaningful depositional actions performed by the mourners.

6.3 Archery equipment

Throughout the Early and Middle Neolithic, arrowheads had been part of burial assemblages (for example in the Linear Pottery culture and Funnel Beaker culture, see Section 5.7.2). However, as was discussed in the previous chapter, the arrowhead almost completely disappeared from graves in the LNA. It therefore is noteworthy that the flint arrowhead made a clear comeback in the LNB, when it once again became one of the main elements of the grave set. Apart from the arrowhead, however, other paraphernalia related to archery also found their way into BB graves. These include the stone archer's wristguards and stone arrow shaft smoothers. Combined, these items occur in 31 graves (ca. 22% of the LNB graves in the research database).

The wristguard or bracer is a thin slab of polished stone with one or two perforations at either end.[136] It was commonly accepted that these items were worn on the lower arm in order to protect the wrist from the slap of the bowstring (see Woodward and Hunter 2011,1 for discussion on research history of bracers). Fokkens *et al.* (2008), however, noted that many bracers were actually found in graves on the outside of the wrists, suggesting they may have had an ornamental rather than a practical function. The arrow shaft smoothers are fist-size stones with a flattened surface and a central groove. When used as a pair, these stone implements can be used to grind and straighten wooden arrow shafts. Obviously, these objects are quite different in raw material, production and use, and their biographies should be described and investigated separately. However, as they are all part of, or are believed to relate to, the same activity – archery – their individual life stories will be combined at the end of this section.

136 Elsewhere in Europe specimens are known with more perforations, see Woodward and Hunter 2011.

6.3.1 Flint arrowheads

Across Europe the flint arrowhead (re)emerges in BB graves.[137] Although the Dutch BB graves yielded various types of arrowheads, one type is of particular interest: the barbed-and-tanged arrowhead (see Fig. 6.4 left). This type of arrowhead did not occur previously and is taken to be a type-artefact for the BB complex as it occurs throughout Europe (Burgess and Shennan 1976, 309; Cornelissen 1988; Nicolas 2016; Parker Pearson *et al.* 2019b, 177).[138] When considering the raw material used in their manufacture, these objects were probably locally manufactured, mostly from moraine flint, although it cannot be excluded that some were also exchanged or produced from specially imported flint (see Van Gijn 2010, 151). Similar to the beakers, the barbed-and-tanged arrowheads too were items that were probably locally produced but in a supra-regional style.

A variety of other arrowhead-types also occur in BB graves, such as triangular ones with surface retouch and either a straight or concave base (see Fig. 6.4 centre and right). Both these types of arrowheads have a long history of usage and occur from the Early Neolithic onwards, but are predominantly known from the Middle Neolithic (Cornelissen 1988). It is important to note, however, that although these types of arrowheads had been around for a long time, this did not involve the central and northern Netherlands. These types of arrowheads are found throughout the Neolithic in the southern Netherlands and further south towards Belgium and northern France. They are common finds in Michelsberg and Seine-Oise-Marne (SOM) Culture contexts (Cornelissen 1988) or even in the Middle Neolithic of the Dutch wetlands (see Van Gijn *et al.* 2006 for various examples from the Hazendonk site of Schipluiden, near The Hague), but they did not occur in Funnel Beaker culture or CW contexts. In contrast, the types of arrowheads that were predominantly used in the northern Netherlands, such as the Funnel Beaker culture transverse arrowhead and the CW tanged-arrowhead (pinetree-shaped) are completely lacking from BB graves.

Perhaps this renewed interest in arrowheads was thus not so much invested in arrowheads in general, but rather in arrowheads from a particular region – *the south.*[139] This included both the new BB barbed-and-tanged arrowhead as well as previously common types from those parts of the world (see Fig. 6.5 for their respective frequency of occurrence). We may even question to what degree the people of the Veluwe and northern Netherlands would have distinguished between the new BB types (our definition!) and pre-existing types from Atlantic Europe. Perhaps to them, both were equally 'new' and served the same purpose of portraying new identities and social relations.

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137 For example, in Scandinavia too arrowheads had not been part of the grave set in the CW/SGC but re-emerge in graves around 2350 BCE (Sarauw 2006, 67); see also discussion on the 'Beaker package' in Chapter 3.

138 Cornelissen (1988, 215) mentions that barbed-and-tanged arrowheads occur in SOM culture contexts in northern France but these are seen as BB influences.

139 Fontijn (2009, 147) presented a highly similar phenomenon where particular French and British imported bronzes are combined and subjected to selective deposition in the Netherlands, possibly because they were both perceived as different and as coming 'from the south'.

Fig. 6.4 Different types of arrowheads from LNB graves, scale 1:1, from left to right: barbed-and tanged arrowhead from a grave near Angelsloo (Drenthe, AMP0454, collection: Drents Museum, Assen); triangular arrowhead with a concave base from a barrow near Lunteren-Vlooienpol (Veluwe, AMP0407, collection: Valkhof Museum, Nijmegen); triangular arrowhead with a straight/slightly convex base from a barrow near Ede-Ginkelse Heide (Veluwe, AMP0404, collection: National Museum of Antiquities, Leiden).

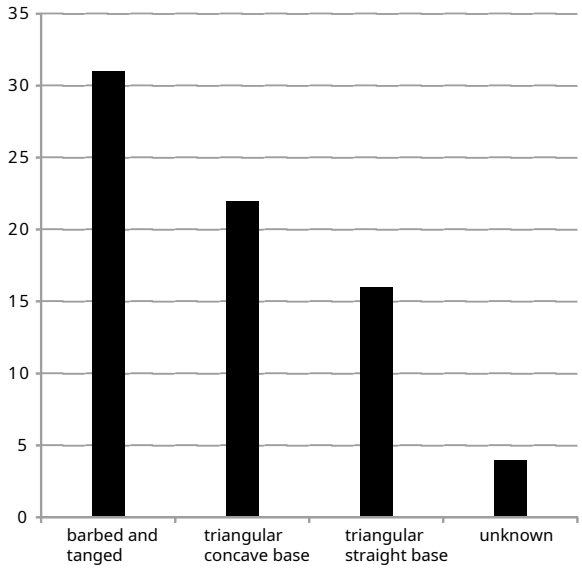

Fig. 6.5 Frequency (n) of occurrence of different arrowhead types in LNB graves.

6.3.1.1 Production and use

Particularly the BB barbed-and-tanged arrowheads are the result of skilled production. Especially the manufacture of the barbs and tang is a delicate procedure with a relatively high risk of breaking or damaging the arrowhead. Although the display of skill might thus have been an important aspect, this should not be exaggerated. Each individual with some basic flint working skills should be able to master the skills needed for the production of these arrowheads in a few weeks at the most. For an experienced craftsperson the production of a BB arrowhead should not take longer than 30-45 minutes.[140] The actual gathering of raw materials, production of the arrow shaft and application of the fletching needed for flight stabilization in all likelihood would

140 D. Pomstra is a highly experienced flintknapper. It usually takes him about 30 minutes to make a barbed-and-tanged arrowhead, or 45 minutes at the most when the flake used is slightly thicker and more thinning-flakes need to be removed (pers. comm. 2012).

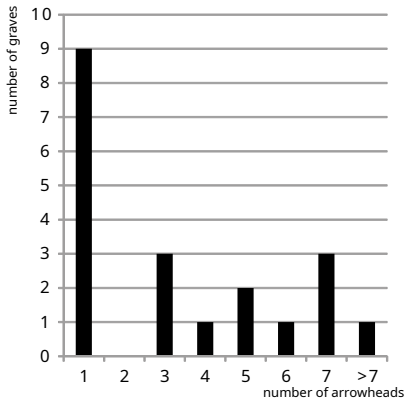

Fig. 6.6 Quantity of arrowheads (x-axis) per grave (y-axis).

have taken considerably more time. The fact remains, however, that the BB arrowheads in general are well-made and display as much skill as can reasonably be invested in an arrowhead, which is essentially only a relatively simple item.

The BB graves from the research database contained a total of 70 flint arrowheads coming from only 20 different graves. Being present in only 14% of the BB graves may not seem very much, but it still means the arrowhead is the most frequently occurring object in BB graves apart from the beaker and flint tools. Of the 20 graves containing flint arrowheads, ten only contained a single specimen. Although these may be formal grave gifts, some could also have been the cause of death. The other ten graves contained a set of arrowheads varying in numbers from three to seven with one grave containing a set of 14 arrowheads[141] (see Fig. 6.6). A total of 35 arrowheads could be examined for traces of wear. None of these appeared to have unambiguous traces of use as a projectile (Van Gijn 2010, 226). Arrowheads used as projectiles can display various traces of use such as characteristic streaks of polish or distinctive fractures resulting from impact (Van Gijn 1990[142]). Although, as mentioned in Section 5.7.2, wear traces do not always develop, none of the arrowheads from BB graves showed any of these traces. Seven of these arrowheads did show traces of having been hafted, in the form of friction gloss, two of which also displaying a black residue, probably the remains of tar.

A find from one grave should be mentioned in this respect as there is some circumstantial evidence that it had been used for shooting. This grave (Ede-Ginkelse Heide, Veluwe, see Fig. 6.7)[143] contained a total of five arrowheads. Located underneath a barrow, this grave contained a small heap of cremated bone with next to it a collection of grave goods, including four arrowheads. The fifth arrowhead, however, was found among the cremated bone and had been burnt, suggesting it either accompanied the deceased on the funeral pyre (in contrast to the other grave goods), or it might actually have been the cause of death.[144] Unfortunately, the degree of burning did not allow for

141 AMP0454, Emmen-Angelso (Drenthe).

142 In addition to Van Gijn's initial experiments published in her dissertation (1990), several new shooting experiments have been performed in recent years by the Laboratory of Artefact Studies staff and students. These involved several different types of arrowheads, including types common in the LNB.

143 AMP0404.

144 Lanting (2013, 33), however, mentions that according to fieldnotes by the excavator (Bellen) the stone and flint artefacts were partly found on top of the cremated bones, in contrast to what Bellen later reported to Van Giffen.

the detection of actual traces of wear. Although the find of this one burnt arrowhead among the cremated remains is highly suggestive, it must be noted that in some BB cremation graves the grave goods appear to have accompanied the deceased on the funerary pyre. The fact that this single arrowhead was burnt therefore cannot be taken as proof that it was the cause of death instead of a grave gift. Other examples of burnt grave goods are the wristguard found in the grave of Lunteren (Veluwe)[145], two burnt wristguards from two different cremation graves in Dalen (Drenthe)[146] and a selection of flint and stone implements in the grave of Meerlo (Noord-Brabant).[147] The best example, however, might be the grave of Angelsloo (Drenthe)[148] which contained a collection of 14 burnt barbed-and-tanged arrowheads as well as seven additional flint tools that were also burnt. These arrowheads were all burnt as evidenced by their white discolouration as well as several potlids (see Fig. 6.8).

Barbed-and-tanged arrowheads are sometimes interpreted as weapons, intended for warfare rather than hunting. Sarauw (2006, 73) and Keeley (1996, 52) mention several ethnographic studies where arrowheads with barbs were specially intended for warfare, whereas arrowheads without barbs were used for hunting. The idea is that the barbed arrowheads are more difficult to extract, the barbs can moreover break off and hence be left in the wound to cause inflammation (see also Christensen 2004, 139). Interestingly, Parker Pearson *et al.* (2019b, 180) note that hardly any of the British Beaker graves show evidence of violence, but they do mention the find of six barbed-and-tanged arrowheads found embedded in the bones of an aurochs.

It is of importance to stress that the Dutch LNB graves contained various types of arrowheads, the majority of which did not have barbs (see fig 6.5). Even *if* the Dutch BB people considered the barbed-and-tanged arrowheads to be specialized for warfare, this apparently did not disqualify other types from inclusion in the grave. For the Dutch LNB this either means that barbed-and-tanged arrowheads were not specially intended for combat, or that combat was not the (sole) activity symbolized by inclusion of arrowheads in graves.

6.3.1.2 Placement in graves

Again, for only a few sites there is information about the location of the finds in relation to the human body (see Table 6.4). One arrowhead was found near the back of a body silhouette[149] and one grave contained seven arrowheads located near the feet of the deceased.[150] For three graves it was reported that arrowheads were found near the north or north-western edge of the grave pit and in two graves near the centre of the grave pit. Although this does not tell us much of a preferred location in respect to the body, it is of interest to note that in those cases where multiple arrowheads were included in the grave (for those graves where the find-location was recorded) they were all found together in a group. This may be indicative of either a bundle of arrows or perhaps even a full quiver having been placed in the grave.

145 AMP0408.
146 AMP0517 and AMP0451.
147 AMP0081, tumulus I
148 AMP0545, probably a flat grave.
149 AMP0269, Haren-Harenermolen (Groningen).
150 AMP0407, Lunteren-De Vlooienpol (Veluwe).

location	n	%
back	1	1,4%
feet	7	10,0%
unknown	62	88,6%
total	70	100,0%

Tab. 6.4 Location of arrowheads in relation to the body.

6.3.1.3 Similar or different?

Typology does not play a prominent role in this thesis, but when looking at which types of arrowheads occur side by side in the same grave, a brief typological excursion is warranted. It was mentioned above that ten of the 20 graves with arrowheads contained sets, rather than single objects. While some graves contained sets of 'identical' arrowheads, others, in contrast, contained sets of different types of arrowheads.

In the case of graves containing virtually identical arrowheads – all of highly similar type, size and quality – it seems likely they were all made by the same craftsperson. Perhaps they were produced by the deceased themselves. Alternatively, the arrowheads could all have been specially produced for deposition in the grave by a single craftsperson. This, however, is quite different from the graves that contain a variety of different types of arrowheads, including barbed-and-tanged arrowheads, as well as triangular arrowheads with both straight or concave bases (see for example Figure 6.7 for different types of arrowheads from one grave versus Figure 6.8 that shows highly identical, albeit burnt, arrowheads from one grave). In addition, these arrowheads can vary greatly in size and overall quality of workmanship. Although it is possible that different types of arrowheads had different functions, it is perhaps more likely that they were actually produced by different persons with different skills and preferences. In the latter scenario it appears that different people, with different levels of skill and/or preferences, contributed arrows or arrowheads that were placed in the grave together as a set.

There thus appear to be two different manners in which a set of arrow(head)s can be brought together for deposition in the grave. On the one hand there is the option of special production of a set of arrowheads by a single individual, resulting in a collection of highly similar arrowheads. On the other hand, different individuals might have contributed arrow(head)s, resulting in a more diffuse collection comprising different types of arrowheads. Brück and Fontijn (2012, 206) presented similar practices for Bronze

Fig. 6.7 Arrowheads from a grave near Ede-Ginkelse Heide (Veluwe, AMP0404) with the burnt arrowhead in the centre, scale 1:1 (collection: National Museum of Antiquities, Leiden).

Fig. 6.8 Arrowheads from a grave near Angelsloo (Drenthe, AMP0454), scale 1:1 (collection: Drents Museum, Assen; photography: Q. Bourgeois).

contextcode	site	region	arrowhead type			
			barbed & tanged	triangular straight base	triangular concave base	total
AMP0454	Emmen-Angelslo	North NL	14	-	-	14
AMP0449	Buinen-Hoornseveld	North NL	5	-	-	5
AMP0473	Holten mound 4	North NL	3	-	-	3
AMP0245	Bennekom-Oostereng mound 12	Central NL	-	-	7	7
AMP0218	Hilversum-'t Bluk mound 10	Central NL	1	-	2	3
AMP0408	Lunteren-De Valk (grave 1)	Central NL	4	1	1	6
AMP0408	Lunteren-De Valk (grave 2)	Central NL	-	2	5	7
AMP0407	Lunteren-De Vlooienpol	Central NL	-	4	3	7
AMP0404	Ede-Ginkelse Heide	Central NL	3	2	-	5
AMP0081	Meerlo mound 1	South NL	-	3	-	3
		total	30	12	18	60

Tab. 6.5 Overview of arrowhead types in graves that included multiple arrowheads, indicated in red the graves with different types of arrowheads.

Age graves and argued that, rather than possessions of the deceased, these should be seen as gifts from the mourners to give material form to inter-personal relationships.

It is noteworthy that these two modes may have a different geographical distribution. All the graves with multiple arrowheads in the northern Netherlands (n=3) were of the same type, whereas in the central Netherlands this was only found to be the case in a single grave. All other graves with sets of arrowheads in the central Netherlands (n=5) contained different types (see Table 6.5).[151] It must be stressed, however, that overall numbers of sites (n=10) are far too few to provide a statistically sound pattern.

6.3.2 Wristguards: bracers or bracelets?

In addition to flint arrowheads, a relatively frequently occurring type of object found in BB graves is the stone archer's wristguard. The research database contains records of 21 wristguards from 20 different graves. In its most basic form, a wristguard is a small, flat slab of stone with perforations on either end. Traditionally they are interpreted as archery equipment and are believed to be attached to the lower arm to protect the wrist from the slap of the bowstring upon release of an arrow (see Fig. 6.9a) (for a full discussion on the interpretation and function of these objects see Fokkens *et al*. 2008; Woodward and Hunter 2011). In addition to the flat wristguards, concave specimens which follow the curvature of the arm and have a perforation on each of the four corners also occur (see Fig. 6.9b).[152] Although originally there had been some discussion on the function of these objects by early researchers, there is now a general consensus that these objects should indeed be seen as archer's paraphernalia (Fokkens *et al*. 2008, 120; Woodward *et al*. 2006; Woodward and Hunter 2011; 2015; Van der Vaart 2009a).

Fokkens *et al*. (2008), however, rightly question the functionality of the wristguards because their study revealed that across Europe many of the archaeological finds associated with skeletal remains were found on the outside of the arm instead of the inside.[153] The latter would be the expected position if it were to protect the arm while shooting arrows. Fokkens *et al.* therefore postulated that perhaps the wristguards – also known as bracers – did not directly serve a practical purpose but were rather attached to the outside of the arm as a more decorative element (without downplaying its potential ideological significance), hence the title of their publication "Bracers or Bracelets?".[154] In their paper they provide various ethnographic examples of wristguards made of leather and other organic materials. One of the most compelling ethnographic examples, however, is a leather wristguard that has a silver ornament on the outside for decorative purposes (Fokkens *et al*. 2008, 119). Although it is clear from their publication that many wristguards were not found in a position (outside of the arm) in which they would have been useful, there are likewise many examples in which the wristguard was indeed located on the inside of the arm (Fokkens *et al*. 2008). Although this observa-

151 For an additional grave in the central Netherlands the types of arrowheads are unknown and also a grave from the southern Netherlands contained three arrowheads of the same type.

152 More complex designs with 6 or more perforations occur elsewhere in Europe (see Sangmeister 1974; Woodward and Hunter 2011), but are absent in the Netherlands.

153 Woodward and Hunter (2011, 104) mention several additional cases.

154 See also Case (2004a, 24) who claims stone wristguards would not have been practical but rather symbolic objects.

Fig. 6.9 Stone wristguards, scale ca. 1:1: (top) concave wristguard with four perforations from a barrow near Stroe (Veluwe, AMP0432, collection: National Museum of Antiquities, Leiden); (bottom) straight wristguard with two perforations from the barrow of Lunteren-Vlooienpol (Veluwe, AMP0407, collection: Valkhof Museum, Nijmegen).

tion justifies the question as proposed in the title of their publication, it is difficult to reach a definite conclusion. Especially when considering that the way in which items were placed in the grave or were worn by the dead does not need to reflect how they were used or worn by the living.

Something that is puzzling is that these wristguards were made of *stone*. Although bracers of organic materials would not have survived in the archaeological record, it is of interest why *stone* bracers were made at all. Archery had been around for thousands of years before the start of the BB complex. Especially up until the Middle Neolithic archery must have played a pivotal role in daily subsistence, as hunting was still an important strategy to obtain animal proteins. None of these communities, however, found it necessary to produce *stone* implements for protection of the wrist. Also in later times – as well as in the ethnographic record – no evidence could be found for the use of stone wrist protectors (Fokkens *et al*. 2008, 119). If wristguards are used, they are in fact often made of organic materials, the most basic being just a leather cuff which is more than suitable for the task and is even still used today by modern archers (Van der Vaart 2009a, 45). It can thus be argued that as an object, the *stone* wristguard – whether practical or not – was, strictly speaking, quite unnecessary.

Although it might be argued that *stone* wristguards are unnecessary, this does of course not mean that they were unpractical. Van der Vaart (2009a; 2009b) performed several experiments where modern archers used replicas of the BB stone wristguards. The conclusion of the archers involved in the experiment was that as far as wrist protection was concerned, the stone replicas served their role perfectly well. Although making stone wristguards might thus be considered a form of 'overdoing it' – especially

the beautifully crafted concave specimens – the fact remains that if used they appear perfectly suited for their task.

6.3.2.1 Production

As is the case with most stone tools, the efforts needed and the skill required for their production are often overestimated by modern researchers. Experiments have shown that they are in fact quite easy to make. Van der Vaart (2009a, 29; 2009b) produced various wristguards (both flat and concave ones) with production times ranging from only 1.5 to 4 hours for a simple flat one, to 21 hours for a concave wristguard with 4 perforations. Although the concave specimen took more time to produce, it did not require a lot of skill. It was mainly a matter of investing more time to peck, saw and grind (Van der Vaart 2009b, 7) (as was the case with the production of stone battle axes discussed in Section 5.6.4). It must be noted that the majority of the archaeological finds concern simple straight wristguards with two perforations. The concave wristguards are in fact very rare in the Netherlands. Only three specimens are known, two of which come from graves.[155] Although the production of wristguards might be considered time consuming from a modern perspective, it would be no more time consuming than the production of most items present in a common Neolithic household, such as pottery vessels, various wooden objects, ropes, items made from leather, not to mention the notoriously time-consuming textiles.

Various raw materials were used for the Dutch wristguards, varying from very fine sandstones to slates and lydite. The stone types, however, have not been studied in great detail, which is therefore something that might prove useful in future research. The main reason for this is the fact that most of the stones used as raw materials occur naturally in the Netherlands. They can be found in the glacial sediments from Scandinavia, deposited by the ice sheets that covered the northern half of the Netherlands in the Saalian Ice Age, or they have been brought here by the rivers Rhine and Meuse whose deposits – apart from the river beds themselves – are found in the ice-pushed ridges of the central Netherlands. Stone types from all over northern and western Europe can thus be found in the Netherlands. It therefore will prove very difficult to trace specific provenance patterns.[156]

Although the Dutch wristguards were produced from different types of stone, they appear to have one thing in common, the fact that most of them were black or dark grey (Roe 2011, 112). Some of the weathered specimens are now a dull grey but most of these would originally have been black in colour – as can be seen at one specimen in the cross section of a post-excavation break. There, however, are three clear excep-

155 AMP0432, barrow near Stroe (Veluwe); AMP0404, barrow near Ede (Ginkelse Heide, Veluwe); stray find from Noorderheide (Elspeet, Veluwe) (see also Roe 2011, 112).

156 That such patterns may exist is clearly illustrated by the British wristguards that were produced from the very special greenish tuff found in Great Langdale (Lake District) (Woodward *et al.* 2006; Woodward and Hunter 2011; 2015). This specific stone type, found at a difficult to reach mountain top, was used throughout the Neolithic for stone axe production, the products of which circulated throughout the British mainland and even reached Ireland (Bradley and Edmonds 1993). It cannot be a coincidence that these wristguards were made of this specific stone type that must have had a great significance in prehistoric Britain. This also suggests that even though the wristguards – as objects – may have been 'new Beaker paraphernalia,' their significance must at least in part also have been connected to the stone type used, which was deeply rooted in British prehistory.

Fig. 6.10 Light-brown/beige stone wristguards, scale ca. 2:3: (top) the concave wristguard from a grave near Ede-Ginkelse Heide (Veluwe, AMP0404, collection: National Museum of Antiquities, Leiden), with detail showing a broken corner with part of an old perforation and the new perforation; (bottom) the wristguard from a grave near Nijmegen (Gelderland, AMP0120, collection: Valkhof Museum, Nijmegen).

tions. Two of these are the concave wristguards from Stroe[157] (Veluwe, see Fig. 6.9) and Ede-Ginkelse Heide[158] (Veluwe, see Fig 6.10). While the latter is made of a very fine-grained light-brown or beige rock, the former is made of a fine-grained sandstone with a clear reddish colour. Both thus deviate in type (these are the only specimens of this type from graves) and in colour. It is therefore interesting to note that although the narrow wristguards with one perforation at either end appear to occur throughout Europe, the broad concave specimens with perforations on all four corners occur predominantly in Central Europe (Sangmeister 1964; 1974)[159] but they are also well represented in Britain (Woodward and Hunter 2011). The third exception is a very large wristguard (over 15 cm long) from Nijmegen[160] (Gelderland) made from a banded

157 AMP0432.

158 AMP0404.

159 Three highly similar wristguards (in type and colour) as the red specimen from Stoe were found in Sachsen-Anhalt (central Germany), in Nebra-Wangen, Halle-Trotha and Wansleben am See (photograph available at https://st.museum-digital.de/index.php?t=objekt&oges=14983).

160 AMP0120.

Fig. 6.11 Wristguard from a barrow near Speuld (Veluwe, AMP0238), scale ca. 2:1; (left) the smooth surface of the outer face; (right) the production scratches clearly visible on the inner face (collection: National Museum of Antiquities, Leiden).

light-brown sandstone (see Fig. 6.10).[161] Louwe Kooijmans (1973, 101) classified this rather peculiar wristguard as being of type 3 (Sangmeister 1964) which has its primary distribution in the south of the Iberian Peninsula, with only a few finds north of the Alps. It therefore would be tempting to see these three wristguards as imported items obtained from afar.[162]

Most stone wristguards found in the Netherlands consist of flat slabs of stone with one perforation on either end. The exact production time required is difficult to estimate as it would be greatly influenced by the shape and form of the raw materials selected. The sawing and thinning of a natural flat pebble would be much easier than carving a wristguard out of a relatively larger stone. Unfortunately, there is little evidence to reconstruct the *chaîne opératoire* as the evidence is limited to the production traces found on the finished wristguards themselves. These traces indicate that the wristguards were shaped by both sawing, scraping and grinding, probably by means of grindstones and flint implements. Also, the hourglass shaped perforations indicate the use of solid (flint?) drills. All examined wristguards showed extensive traces of scraping on one side, while the other side was usually nicely ground and polished. Grinding and scraping must have been the primary techniques used in thinning the wristguards. Interestingly these traces were only removed through grinding/polishing on what may be assumed to be the outside face providing a clear smooth surface, while on the inside, which faced the arm, production traces were still clearly visible (see Fig. 6.11). It was also this rough backside from which the main part of the perforations were drilled. After the perforation had almost reached the other side, the wristguard was turned

161 Determination A. van Gijn (pers. comm. based on discussions with Fiona Roe). However, Louwe Kooijmans (1973, 99) lists this wristguard as having been made of slate.

162 In addition to the concave wristguard of Ede-Ginkelse Heide (Veluwe, AMP0404) that suggests a Central European origin, this grave also contained a copper tanged dagger with a relatively high tin component (XRF research performed in the context of this thesis by Restaura). Tin-rich coppers are common in Bell Beaker metals from central Europe, also known as *fahlore*-copper (Merkl 2010, 23). Similar metal signatures were also found in the Lech-valley project where all metal finds from graves were analysed (Stockhammer pers. comm. 2017).

around and a small perforation was made from the polished face. By doing so only a small perforation could be seen from the polished side, with the much larger side of the hourglass shaped perforation being located on the rough backside. Interestingly, Woodward *et al*. (2005; see also Hunter 2011, 61) report exactly the same production traces/techniques for the British wristguards, indicating that these objects were produced in virtually identical manners over large parts of Europe. This indicates that these objects too were not only produced in a style that had a large distribution across Europe, but also involved specific techniques and technical choices that were adopted over vast areas that even spanned across the North Sea.

The concave wristguards that follow the curvature of the wrist obviously must have taken considerably more production time. First of all, they are usually twice as wide as the straight wristguards and have a total of four instead of two perforations. The most time-consuming aspect, however, is no doubt the fact that they are concave, meaning that a nodule or slab of stone had to be 'hollowed out' so to say. Even though this might have taken considerably more time, the production traces visible on these objects are identical to those on the other wristguards: grinding and scraping marks on the concave side, polishing on the convex side and perforations applied for the most part from the concave side as to minimize the perforation diameter when observed from the convex, polished side (for detailed description of wristguard manufacturing also, see Hunter 2011; Van der Vaart 2009b).

I argue that wristguards were made to 'look good'. The outside face was ground and polished to remove traces of production and the perforation was applied in such a manner as to create the smallest hole possible on the outside face. This suggests that at least part of their function or meaning had to do with display. This seems to be confirmed by various examples from Britain. Here several wristguards have been found containing small gold caps over the perforations (see Fig. 6.12), this indicates that irrespective of any functional significance, at least part of their function was related to

Fig. 6.12 Wristguard of Langdale tuff with gold-capped copper rivets from Culduthel, Inverness, Highland, Scotland (NMS X.EQ 844), dated to 2280-2020 cal BCE, scale ca. 1:1, length ca. 11.7 cm (collection and photography: National Museums Scotland).

contextcode	site	perforations	cross-section	length	traces of use	remarks
AMP0120	Nijmegen-Hunerberg, grave 5	2	straight	155	-	
AMP0134	Maarsbergen, mound 1	2	straight	88	++	
AMP0238	Speuld-Houtdorperveld, mound 1	2	straight	73	-	
AMP0245	Bennekom-Oostereng, mound 12	2	straight	94	+	
AMP0248	Ede-Harskamp	2	straight	88	-	
AMP0404	Ede-Ginkelse Heide	4	concave	145	++	repaired
AMP0407	Lunteren-De Vlooienpol	2	straight	79	+	repaired/reworked
AMP0408	Lunteren-De Valk (grave 1)	4	straight	broken	-	burnt unfinished?
AMP0408	Lunteren-De Valk (grave 2)	2	straight	86	+	
AMP0412	Lunteren-Goorsteeg	2	straight	broken	+	recent break
AMP0412	Lunteren-Goorsteeg	2	straight	64	-	
AMP0432	Stroe-Korte Struiken	4	concave	97	++	

Tab. 6.6 Overview of the number of perforations, cross-section, and presence of wear traces on wristguards subjected to functional analysis: (-) absent; (+) lightly worn; (++) heavily worn.

display (see Woodward and Hunter 2011 for full catalogue and photographs). This, of course, does not imply that these objects were merely ornaments or decorations of some sort, but it does indicate that they must have been worn in such a way that they were seen and, moreover, were intended to *be seen*! Gold-capped wristguards do not occur in the Dutch dataset. However, there is one specimen that was reportedly found in a barrow near Epe (Veluwe)[163] with copper wire still present in its perforations (Van Giffen 1930, 74-76). This too could be interpreted as a manner of fastening using a rare raw material – copper – that was used probably more for its display function rather than its qualities as a binding material.

6.3.2.2 Use life

That wristguards were actually worn can be concluded from the presence of clear wear traces. The research database contains records of 21 wristguards from BB graves. Of these, twelve could be studied for traces of use (see Table 6.6). The wear traces that could be observed were mostly limited to the perforations where the presence or absence of rounding and polish revealed whether they had been worn. Although five appeared to be in mint and unworn condition, the remaining seven had clear traces of wear, albeit in varying degrees (see also Van der Vaart 2009a). The concave wristguard from Ede-Ginkelse heide (mentioned above; see Fig. 6.10), moreover, showed obvious signs of repair as one of the corners had broken off right at the location of the perforation. Both the remains of the original perforation as well as a new perforation showed signs of rounding and polish, indicating that the object had been worn both before and after it was repaired. The wear traces thus show these

163 AMP0259.

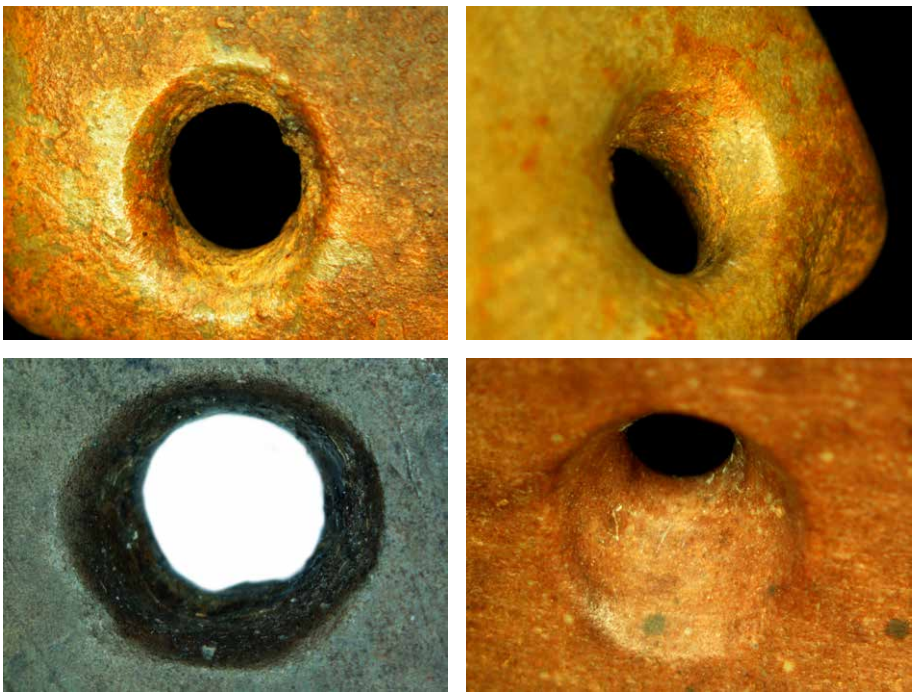

Fig. 6.13 Photos taken with a stereomicroscope of the perforations on various wristguards showing rounding/wear from usage: (top left and right) wristguard of Ede-Ginkelse Heide (AMP0404); (bottom left) wristguard of Lunteren (AMP0412); (bottom right) wristguard of Stroe (AMP0432), all from the Veluwe, all photos cover ca. 1 cm².

objects were worn (see Fig. 6.13). However, it could not be established – based on the functional analysis – whether the bracers had indeed been used to protect the wrist from a bowstring.

It cannot be excluded that some wristguards that lacked (extensive) signs of wear were specially produced for the grave, but the majority show clear traces of wear. Their wear and tear indicate an (extensive) use life before being deposited in the grave. Whether they were worn as protective devices during archery or merely as decorative items associated with this activity cannot be answered based on these results.

6.3.2.3 Placement in graves

The location of wristguards in the grave in relation to the body played an important part in the argument of Fokkens *et al.* (2008) against a purely functional interpretation as an object for protecting the archer's wrist. Based on a European wide inventory they showed that throughout Europe wristguards are found both on the inside (functional?) as well as the outside of the wrist (decorative?). Unfortunately, the Dutch data cannot add much to this debate (see Table 6.7). Only two specimens were found near the arms of the deceased. However, as we are merely dealing with body silhouettes it cannot be established whether they were lying on the inside or the outside of the wrist. One wristguard was found behind the back of an individual and another was located near the pelvic region. Three additional finds came from the centre of the grave pit, suggesting their original

location	n	%
arm	2	9,5%
back	1	4,8%
pelvis	1	4,8%
torso	1	4,8%
unknown	16	76,2%
total	21	100,0%

Tab. 6.7 Location of wristguards in relation to the body.

placement to have been near the pelvic region. This, however, does not exclude the possibility that they were fastened to the arm as the position of the arms could not be determined in these occasions. A final find was reported from the western edge of a grave pit.

The evidence shows that, apart from near the arms, wristguards were found in other locations as well. This, however, does not indicate that an object was unused or did not function as a wristguard. It merely illustrates the fact that "the dead do not bury themselves".[164] Objects are placed in the grave by the mourners and their location in the grave therefore does not necessarily reflect how they were worn in life. The same applies to the observation of Fokkens *et al*. (2008) concerning the fact that, throughout Europe, many wristguards were found on the outside of the wrist. Although it can be argued that wearing it in that position did not serve a practical purpose, it must be stressed that we are dealing with graves and not with *in situ* fossilized archers. Objects, and the placement of these objects, could have been manipulated in various ways in the context of the funerary ritual.[165]

6.3.3 Arrow shaft smoothers

Although typically associated with BB graves, arrow shaft smoothers are actually extremely rare in Dutch graves. The research database contains records of only two graves containing a total of three arrow shaft smoothers. As described in the introduction, arrow shaft smoothers are fist-size (sand)stones with a flat side and a central groove (see Fig. 6.14). When used as a pair, these objects are believed to function as a grinding implement used for the production of arrow shafts. One such stone could be subjected to functional analysis. However, this did not reveal any characteristic wear traces. The stone in question was made of a rather coarse-grained sandstone. When used for grinding, tools of such a course-grained stone-type generally wear easily as the sand particles become loose and act as a grinding medium. Although highly useful, this also means that actual use wear traces will not develop as the sand particles on the tool's surface continually become loose. Based on this research it is thus not possible to connect these objects unambiguously to archery. However, there is also no reason to question their traditional interpretation.

164 The phrase "the dead do not bury themselves" is rather popular in archaeological literature because it is one of the few certainties we have when dealing with archaeological funerary remains. A quick survey, however, indicated that even though the quote is often attributed to Parker Pearson (1993, 203; 2006), its first use must be credited to the anthropologist Leach (1979). Although there are no doubt earlier uses of the phrase that have escaped indexation by Google.

165 Perhaps the wristguard was put on the outside of the wrist by some communities to symbolize that the deceased would no longer be performing archery.

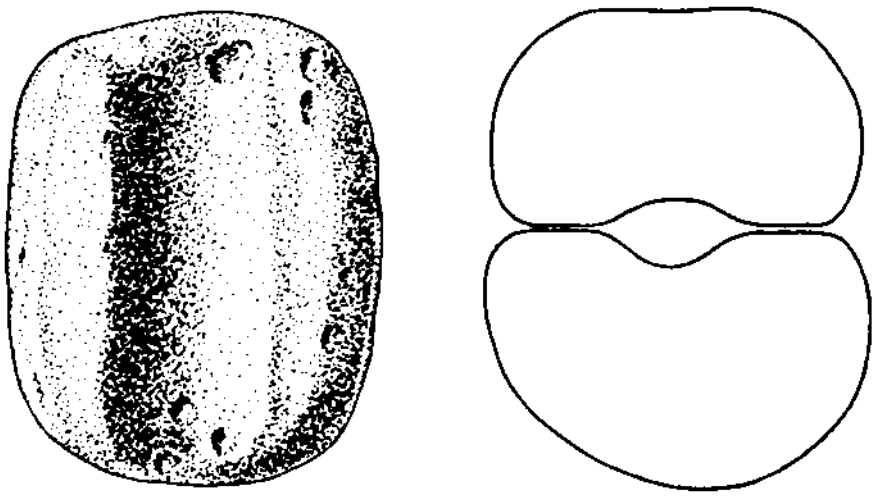

Fig. 6.14 Set of arrow shaft smoothers from a barrow near Meerlo (Noord-Brabant, AMP0081), scale 1:1 (after Verwers 1964, fig. 4).

6.3.4 Archery, do it in style!

Archery items are often connected to either hunting or warfare. Although their connection to both is obvious, it is not a given that these items were placed in graves to represent either of these activities. Fokkens *et al.* (2008, 122), for example, stress that archery – as an activity – has many, often far more complex, connotations in many societies. The bow, and the art of archery is often seen as an activity related to personal, social and spiritual health. The most extreme example might be its role in traditional Japanese society, where archery in particular holds a highly important ritual significance (Onuma *et al*. 1993).

Rather than offensive activities such as hunting or warfare, archery can also be related to one's ability to defend and protect. This can relate to protection in life (or in the afterlife) of both the deceased themselves and the community the deceased was part of (or would become part of). Perhaps the role of archery equipment in the grave was not so much focussed on the idealization of fierce warriors, but was rather intended to emphasize the deceased's role as protector and caretaker.

In any case it must be emphasized that the role of these items in the grave is likely to have been highly variable throughout prehistoric Europe. Different regions, occupied by different peoples with different subsistence systems would also have attributed different meanings to archery as an activity (*cf.* Cohen 1985, 73). Nonetheless, for whichever reason, archery was widely recognized as an important symbolic activity and as such it could be easily shared between communities.

Even though the specific meaning attributed to archery may have been (highly) variable from place to place, the fact remains that throughout Europe these items *looked* the same. As with the beakers, most archery equipment appears to have been locally produced, but in a highly international style. Apart from the fact that these arrowheads and wristguards would have functioned perfectly well from a practical point of view,

Fig. 6.15 Selection of V-perforated buttons from Hattemerbroek-Bedrijventerrein grave 2 (just north of the Veluwe, AMP0500), scale 1:1 (after Van Gijn 2011, fig 5.25).

their purpose must – at least in part – have been related to display. Just as the beakers, these items were made to be seen, to display a very particular, widely shared and recognizable style.

6.4 Amber ornaments: beads, buttons and pendants

Ornaments are a relatively common occurrence in Middle Neolithic Funnel Beaker culture graves, (Verschoof 2011; 2013; Van Gijn 2017; 2015). Typically, these involve well-made amber beads, although on occasion also other materials are found, such as jet or a pendant made from a small ammonite fossil found in tomb D43 in Emmen (Drenthe) (Bakker 1979, 110). By the start of the CW culture, as presented in the previous chapter, ornaments had largely disappeared from the grave set. Settlements from this period, however, revealed various examples of well-made beads of various sorts and types. This indicates that even though these objects were not used to adorn the dead, they were, apparently, worn by the living (Piena and Drenth 2001).

It was not until the final stage of the LNA that ornaments re-emerged in a few graves associated with AOO pottery and/or French daggers. These few occurrences can be seen as a prelude to the full manifestation of the BB complex, where ornaments once again take in a prominent role in the funerary ritual. All beads, buttons and pendants found in LNB graves were made of amber. Other non-perishable raw materials – most notably jet – are lacking.[166] The absence of jet in LNB graves is noteworthy because it is quite common as a raw material used for ornaments in the Middle Neolithic in the Dutch wetlands (Van Gijn 2006, 195; 2008, 277), but also occurs in the Funnel Beaker culture (Bakker 1979, 108; Verschoof 2011; 2013). Materials such as bone are also lacking, which is likely due to bad preservation in the Dutch soils.[167]

The LNB graves in the research database contained a total of 85 amber ornaments, coming from 19 different graves. As such, 13.3% out of the total of 143 graves contained ornaments. In an absolute sense, the occurrence of ornaments in graves is thus relatively rare. Nonetheless, ornaments are the fourth most common type of object

166 Various objects made of gold are discussed below. Although these are arguably ornaments, this section only includes beads, buttons and pendants.

167 In one grave a set of boar tusks were found (AMP0414, see below), it is not clear however if these should be interpreted as 'ornaments'.

category occurring in BB graves, following beakers, flint tools and archery equipment. Although various types of amber ornaments occur, there is one specific type that is of special importance: the V-perforated button (round/conical button with a V-shaped perforation). This type of ornament has a wide distribution throughout Europe and is part of the BB package (see Section 3.4).

6.4.1 The origins of amber

At least since the end of the last Ice Age (see Grimaldi 2009), until the present day, amber has been used for the production of ornaments, most notably beads, buttons and pendants. Even today amber, as a raw material, is a valuable commodity and we may assume that this would also have applied to some degree to its significance in prehistory. Its widespread occurrence in prehistoric contexts certainly indicates that it was a culturally valuable raw material that was much sought after. There are several factors that contribute to the potential cultural appreciation of amber. First of all, amber – as a raw material – is beautiful. It has a bright yellow, orange or reddish colour. It can be opaque or has a translucency that does not naturally occur in many other raw materials. Secondly, with a bit of practice, it is relatively easy to work and can be used to produce various types of ornaments. Thirdly, the occurrence of amber is localized (see Butler 1990, 51), making it a rare raw material for most parts of the world, meaning that in most communities amber items – by definition – represented objects that were obtained from faraway places either through special expeditions or via (gift) exchange contacts with other people/communities.

The fossilized tree resin we know today as amber occurs in various places in Europe and elsewhere in the world. The most likely place of origin of the Dutch amber would be the Baltic region where the material is quite abundant. Due to erosion and glacial processes this material can, however, also be found washed up on the beaches of the northern Netherlands, which makes this the closest source for the amber ornaments found in the Dutch graves (Butler 1990, 51; Van Gijn 2010, 219; Verschoof 2013, 34; Waterbolk and Waterbolk 1991). However, the possibility that the Dutch amber was – at least in part – also a product of long-distance exchange with communities in northern Germany and southern Scandinavia cannot be excluded. With the exception of three graves[168], all burials containing amber ornaments were located on the Veluwe. As amber does not locally occur on the Veluwe, this means it had to be acquired either via exchange with neighbouring (BB) communities in the northern Netherlands (or potentially even further away), or it had to be collected on the beaches some 100-200 kilometres away.[169]

6.4.2 Production

The production, wear and repair of amber ornaments has been one of the research interests of Annelou van Gijn on whose analyses and experiments most of the following

168 Two graves in the northern Netherlands: AMP0269, Haren (Groningen) and AMP0346, Exloo (Drenthe) and one grave in the Nijmegen area just south-east of the Veluwe : AMP0410, Beers-Gassel, Cuijk.

169 Although possible this is unlikely, amber only washes up on the beach in certain situations depending on wind, tide and currents (local knowledge is required). This is why tourists visiting the Wadden Islands rarely find amber (personal experience).

is based.[170] Amber can be worked in a variety of ways using different tools and techniques. Many of these techniques leave distinctive production traces on the ornaments themselves. Amber is a rather soft material that can be easily sawn using flint tools or a string saw, but it is also quite brittle and isotropic, allowing it to be knapped into shape using the same basic principles that apply to knapping flint. Cutting traces, as well as flake scars indicate that both techniques were used during the LNB. Apart from flint tools, it is possible that copper tools were also used for shaping amber ornaments. Van Gijn (2011, 220) found evidence for this on various beads and buttons retrieved from two recently excavated BB graves in the north of the Veluwe near the town of Hattemerbroek.[171] Some of the cutting traces observed on these ornaments showed a clear U-shaped profile, while a V-shaped profile is more characteristic of flint tools. This observation led her to postulate that perhaps copper tools were used for the manufacture of these beads.

After having been sawn or knapped in shape, the ornaments were ground, probably using a grind stone, and polished. The perforations in many of the BB ornaments were probably slightly more complex procedures for which several different methods could be used. Although hourglass-shaped perforations (indicative of the use of solid flint drills) still occurred, the majority of BB ornaments show very narrow and straight (cylindrical) perforations. These were probably made by using a special drill bow. Such a bow could be fitted with a hollow drill, such as a piece of reed or a small birds' bone, but many of the perforations are in fact extremely narrow (ø < 2mm) suggesting a very small solid drill was used instead (Van Gijn 2011, 221). Especially with the larger beads and pendants that have a perforation that can span several centimetres, it is possible to see that the perforation changes angle half way through, indicating it has been drilled through from two sides, very precise, to meet up in the middle with the perforation from the other side. A similar technique was used for the V-perforated buttons where two perforations were made under an angle to meet up in the centre of the button. An altogether different technique that might have been used according to Van Gijn (2011, 221) was by using a heated copper wire to melt through the amber. Whether or not this technique was used in the LNB is difficult to tell as clear traces indicative of this technique (irregular surface at start of perforation and blackened perforation surface) would have been removed by subsequent polishing, cleaning and general wear.

The production of amber ornaments thus involved various techniques. However, most of these – knapping, sawing, grinding and polishing – would have come quite natural to most Neolithic agents. Drilling the perforations would probably be the most complex part of the process. Overall, the production of amber ornaments involved a variety of techniques that would have been readily available to most people, or if not, could be easily acquired. Apart from the more regular and common beads and pendants, the BB ornaments are sometimes crafted in quite complex shapes such as horse-shoe-shaped pendants or the perfectly conical buttons with V-shaped perforations. These

170 Van Gijn studied amber ornaments from various contexts from the Neolithic and Bronze Age. Not all results of this research have been published (but see Van Gijn 2017; 2015; 2011) but raw research data was made available to the author in addition to extensive personal communications.

171 AMP0500, Hattemerbroek-Bedrijventerrein grave 2 containing 22 amber ornaments; AMP0497, Hattemerbroek-Hanzelijn grave 1 containing 16 amber ornaments.

Fig. 6.16 Several types of amber ornaments from LNB graves: (top right) two barrel shaped beads from a barrow near Ede-Ginkelse Heide (AMP0419); (bottom right) two bow/horse-shoe-shaped pendants and a V-perforated button from a barrow near Vaassen (AMP0132); (top left) two horse-shoe-shaped pendants (note elevated segment parallel to perforation) from a barrow near Apeldoorn-Houtdorper Veld (AMP0439); (bottom left) square button with V-shaped perforation and irregular (perhaps broken bow/horse-shoe-shaped ornament) pendant from barrow near Vaassen (AMP0133); all from the Veluwe (collection: National Museum of Antiquities, Leiden).

objects are well-made, have a quite elaborate design and represent rather complex types of ornaments when compared to many of the other ornaments in prehistory, which mostly consist of rounded, disc-shaped or tubular beads. They are usually well-polished and sometimes even fitted with small details such as slightly raised segments in some of the horse-shoe-shaped pendants (see Fig. 6.16 for different types of ornaments). Such details would only be apparent upon close visual inspection and therefore indicate that people took pride in their work and produced ornaments as well as they could. The level of detail observed in these ornaments indicates that they were intended to look good. Ornaments such as the conical V-perforated buttons are very characteristic for the BB complex across Europe. They were clearly produced in an international style or fashion, indicating a belonging to, and the sharing of elements or identities with, a wider community. At the same time there are also beads/pendants of types not found elsewhere and are probably of a local (unique?) design, such as an H-shaped button from Beers-Gassel[172] or the horseshoe-shaped pendants from Vaassen[173] and Apeldoorn-Houtdorper Veld[174] (see Fig. 6.16) (see also Butler 1990, 52).

172 AMP0410, (Noord-Brabant).
173 AMP0132, mound 2 (Veluwe).
174 AMP0439, (Veluwe).

6.4.3 Wear and tear

Through usage, distinctive wear patterns develop that frequently can even be seen with the naked eye. The highly polished and worn surfaces indicate where strings ran through perforations or where one bead made contact with another bead. Unfortunately, many amber artefacts have developed an oxidized outer surface. The severity of this oxidation determines to what extent an amber artefact is suitable for wear analysis. In the worst cases an ornament can be completely un-interpretable. In most cases, however, enough traces can still be observed, despite the presence of oxidation, to answer at least basic questions concerning the overall intensity of wear.

Out of the dataset of 85 amber ornaments, a total of 67 were subjected to wear trace analysis (see Table 6.8). This thesis includes results of wear trace analyses performed by Van Gijn as part of various published and ongoing research projects focussing on amber and jet ornaments (see Van Gijn 2017; 2015; 2011). Her findings concerning the BB amber ornaments were gratefully incorporated. Of the 67 ornaments studied, the vast majority showed traces of wear (n=56) with only a minority showing no apparent signs of wear (n=6), the remainder (n=5) being not interpretable due to bad preservation. The traces observed generally consist of signs of wear around the perforation in the form of in a highly polished surface as a result of contact with the string or cord used for fastening or suspension of the ornament.

The ornaments found in graves display a variety of wear-intensities indicating that some are heavily worn and may represent items that were in use for many years whereas others show significantly less wear. The latter may represent ornaments that were only worn for a relatively short duration of time. This could be because they were rather new, or they may have been part of a particular outfit or dress that was only worn on special occasions, which would not result in much wear even though they were 'in use' for many years. What is of particular interest, however, is that ornaments with various levels of wear are quite regularly found together in a single grave. Although all part of the same costume/grave set, they do not appear to have had the same use lives. Van Gijn (2011, 252) suggested that some of the ornaments could represent heirlooms that were included in the dress-ornaments of a person perhaps to symbolically make a connection with past generations.[175] Alternatively, it could be that the ornaments in the grave were brought together by different mourners as gifts to the dead (similar perhaps to the different types of arrowheads in the same grave, see Section 6.3.1.3). In such a scenario the different ornaments naturally would have had different life-histories. A third equally plausible option would be that the individual ornaments were part of a bigger whole, such as a necklace or an integral part of a specific type of clothing. As the individual beads or buttons would wear and get damaged, they could have been repaired or replaced by new ornaments. In the end, this would also result in a collection of amber ornaments displaying different levels of wear. It is not possible to exclude any of the possibilities presented above, nor are they mutually exclusive.[176]

175 For more examples see the various contributions of Alison Sheridan in Woodward and Hunter (2015).
176 Also see Sheridan's (2015) research on different life histories of buttons found together in closed contexts.

contextcode	object No.	site	type	perforation	wear traces	degree of wear
AMP0132	02	Vaassen-mound 2	round-conical button	V-shaped	+	+
AMP0132	03	Vaassen-mound 2	bow/horse-shoe-shaped pendant	cylindrical from 2 sides	?	?
AMP0132	04	Vaassen-mound 2	bow/horse-shoe-shaped pendant	cylindrical from 2 sides	-	-
AMP0133	06	Vaassen-mound 3	square button	V-shaped	+	+
AMP0133	07	Vaassen-mound 3	pendant indet	cylindrical	+	+
AMP0210	01	Hilversum-'t Bluk-mound 2	round-conical button	V-shaped	+	+++
AMP0210	02	Hilversum-'t Bluk-mound 2	round-conical button	V-shaped	+	++
AMP0210	03	Hilversum-'t Bluk-mound 2	round-conical button	V-shaped	+	+++
AMP0210	04	Hilversum-'t Bluk-mound 2	round-conical button	V-shaped	+	+
AMP0226	03	Wageningen-Oranje Nassau's oord-mound 1	round-conical button	V-shaped	-	-
AMP0260	02	Wageningen-Oranje Nassau's oord-mound 1	round-conical button	V-shaped	+	+++
AMP0260	03	Ermelo-Driesche Berg	lozenge-shaped bead	indet	+	+++
AMP0260	04	Ermelo-Driesche Berg	pendant indet	unknown	+	+
AMP0418	02	Ede-Letterse Berg	conical bead	cylindrical	-	-
AMP0418	03	Ede-Letterse Berg	conical bead	indet	?	
AMP0419	03	Ede-Ginkelse Heide 5	cylindrical bead	cylindrical	+	+
AMP0419	04	Ede-Ginkelse Heide 5	cylindrical bead	cylindrical	+	+
AMP0419	08	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	+++
AMP0419	09	Ede-Ginkelse Heide 5	round-conical button	indet	?	?
AMP0419	10	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	++
AMP0419	11	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	+
AMP0419	12	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	+
AMP0419	13	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	+
AMP0419	14	Ede-Ginkelse Heide 5	round-conical button	V-shaped	+	+
AMP0439	02	Apeldoorn-Houtdorper Veld	bow/horse-shoe-shaped pendant	cylindrical	+	+
AMP0439	03	Apeldoorn-Houtdorper Veld	bow/horse-shoe-shaped pendant	cylindrical	+	+
AMP0440	02	Ermelo-Erve Danelaar	biconical bead	cylindrical	-	-
AMP0440	03	Ermelo-Erve Danelaar	biconical bead	cylindrical	-	-
AMP0440	04	Ermelo-Erve Danelaar	biconical bead	cylindrical	-	-
AMP0440	05	Ermelo-Erve Danelaar	triangular pendant	V-shaped	+	+++
AMP0497	02	Hattemerbroek-Hanzelijn 1	round-conical button	cylindrical	+	++
AMP0497	03	Hattemerbroek-Hanzelijn 1	round-conical button	cylindrical	+	++
AMP0497	04	Hattemerbroek-Hanzelijn 1	round-conical button	cylindrical	+	+++
AMP0497	05	Hattemerbroek-Hanzelijn 1	cylindrical bead	cylindrical	+	++
AMP0497	06	Hattemerbroek-Hanzelijn 1	square button	V-shaped	+	++
AMP0497	07	Hattemerbroek-Hanzelijn 1	lozenge-shaped bead	cylindrical	?	?

contextcode	object No.	site	type	perforation	wear traces	degree of wear
AMP0497	08	Hattemerbroek-Hanzelijn 1	button indet	cylindrical from 2 sides	+	+
AMP0497	09	Hattemerbroek-Hanzelijn 1	triangular pendant	cylindrical from 1 side	+	+
AMP0497	10	Hattemerbroek-Hanzelijn 1	discular bead	cylindrical from 2 sides	+	+
AMP0497	11	Hattemerbroek-Hanzelijn 1	discular bead	cylindrical from 2 sides	+	+
AMP0497	12	Hattemerbroek-Hanzelijn 1	biconical bead	cylindrical	+	+
AMP0497	14	Hattemerbroek-Hanzelijn 1	biconical bead	cylindrical from 2 sides	+	+
AMP0497	15	Hattemerbroek-Hanzelijn 1	button indet	cylindrical	+	++
AMP0497	16	Hattemerbroek-Hanzelijn 1	discular bead	cylindrical from 2 sides	+	+++
AMP0497	17	Hattemerbroek-Hanzelijn 1	biconical bead	cylindrical from 2 sides	+	
AMP0500	01	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++
AMP0500	02	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	03	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	04	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+++
AMP0500	05	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+++
AMP0500	06	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	07	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	08	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	09	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++
AMP0500	10	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+++
AMP0500	11	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	12	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	13	Hattemerbroek-Bedrijv.ter. 2	pendant indet	cylindrical	+	+
AMP0500	14	Hattemerbroek-Bedrijv.ter. 2	triangular pendant	cylindrical	+	+
AMP0500	15	Hattemerbroek-Bedrijv.ter. 2	triangular pendant	cylindrical	?	?
AMP0500	16	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++
AMP0500	17	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+++
AMP0500	18	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	+
AMP0500	19	Hattemerbroek-Bedrijv.ter. 2	pendant indet	cylindrical	+	++
AMP0500	20	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++
AMP0500	21	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++
AMP0500	22	Hattemerbroek-Bedrijv.ter. 2	round-conical button	V-shaped	+	++

Tab. 6.8 Overview of type, perforation and degree of wear on amber ornaments subjected to functional analysis: (-) absent; (+) lightly worn; (++) medium worn; (+++); heavily worn.

Fig. 6.17 Photos taken with a stereomicroscope displaying wear and production traces observed on amber ornaments:

(a) heavily worn V-perforated button from a barrow near Hilversum (mound 2, Utrecht, AMP0210, diameter 15 mm), note that the 'bridge' between the two perforations is almost worn through;

(b) heavily worn V-perforated button from a barrow near Ede (Ginkelse Heide 5, Veluwe, AMP0419, diameter 24 mm), note the wear on the outside of the perforation (left and right of the perforations) and the fact that the 'bridge' in between is almost worn through;

(c) V-perforated button (also from Ginkelse Heide 5, Veluwe, AMP0419, diameter 15 mm) with clear signs of wear on the outside (left and right) of the perforations;

(d) clearly visible production traces (grooves from cutting/sawing) on a triangular pendant from a barrow near Ermelo (Veluwe, AMP0440, diameter 26 mm).

location	n	%
head	37	43,5%
back	4	4,7%
pelvis	3	3,5%
unknown	41	48,2%
total	85	100,0%

Tab. 6.9 Location of amber ornaments in relation to the body.

6.4.4 Type of wear and location in the grave

To answer questions on how certain ornaments were worn, two types of evidence can be taken into account. First of all, the wear patterns on the individual ornaments themselves can indicate how they were fastened or suspended. Secondly in some rare instances there is detailed information on the find location of the ornaments in relation to the human body (see Table 6.9).

Wear traces indicate that most beads and pendants had indeed been suspended as might be assumed, on a cord or string. Whether these were worn as a necklace around the neck or elsewhere on the body cannot be determined on wear traces alone. The V-perforated buttons invariably showed clear traces of wear indicating they had been attached, presumably to some sort of dress-element, thus justifying the term button. In only one grave the location of these buttons could be directly related to the position of the body.[177] A total of 18 V-perforated buttons were found situated directly on the forehead of the deceased. The wear traces on the buttons are primarily located on the outside of the perforations and on the inside of the bridge formed by the V-shaped perforation. According to Van Gijn (2011, 264), this indicates that these buttons were attached in sequence, with one string running through multiple buttons. This makes it likely that they were attached to a headband or cap of some sort, rather than for example having been individually braided into the hair. Four additional amber pendants from the same grave were also found near the head. A total of 16 amber ornaments were discovered in a second grave excavated at the same site.[178] Three were located near the pelvis, one behind the back of the individual and eleven ornaments of various types were found situated on/near the head. One button was found in the sieve, therefore no location in relation to the body could be recorded. For the ornaments found near the head it is likely that these were originally attached to some sort of headdress.

Apart from the well-documented graves from Hattemerbroek, the evidence concerning the location of ornaments in graves is scarce. An early 20th century excavation of a barrow near Hilversum (Veluwe) revealed four V-perforated amber buttons.[179] These were found near the head, supposedly in the neck area. These buttons too showed clear differences in wear intensity.

In one of the two graves in the northern Netherlands containing amber ornaments, these had been placed behind the back of the deceased.[180] In fact, in addition to the two amber beads and a V-perforated button, all other grave goods (which included a wrist-guard, flint flakes, a strike-a-light and an arrowhead) were also found together, having

177 AMP0500, Hattemerbroek-Bedrijventerrein grave 2 (just north of the Veluwe) containing 22 amber ornaments.
178 AMP0497, Hattemerbroek-Hanzelijn grave 1.
179 AMP0210, Hilversum 't Bluk mound 2.
180 AMP0269, Harenermolen (Groningen).

been placed together behind the back of the deceased. Clearly, these objects were not worn by the deceased when buried, but had been placed in the grave pit separately. For only two other graves it was recorded that one bead was found along the southern edge of a grave pit, whereas another barrow contained two ornaments located in the south-western part of the grave pit.

The wear on the ornaments indicates that the amber ornaments were not merely gifts to the dead. They were worn by the living. Their locations in the graves suggest that they were worn in a highly visible manner such as on or around the head.

6.4.5 Ornaments to be seen

The V-perforated buttons are produced in a pan-European style. However, the other amber ornaments consist of various (local) types and shapes. Although it can be argued that such 'types' are not 'typical' for the BB complex, it is perhaps not so much their 'type' that made them 'typical' but rather the fact that they were made of *amber*. In other periods and regions various raw materials were used for adorning both the living and the dead. Sheridan *et al.* (2017) argue that the appeal of the Bronze Age 'composite' necklaces often found in Wessex (UK) actually comes from the fact that they are made of different raw materials. The different colours, textures and raw materials from different sources in both space and time was what made these necklaces special (Sheridan *et al.* 2017). This is clearly not the case in the Dutch LNB. Here, it was all about amber. It was this particular raw material that was used to adorn the dead, whether some of the bead types themselves were 'typical' or not, the selection of raw materials was. This in itself forms a sharp contrast with the UK where the use of amber, prior to 2000 BCE, is actually quite rare (Woodward *et al.* 2015, 381).

It was presented above that both the bell beakers themselves and the archery equipment found in graves had at least in part a function related to display. They were produced in a supra-regional style and it was argued that although they could very well have fulfilled practical functions, they also were used as devices to signal a belonging to a particular wider community or identity.

Such an interpretation also applies to the amber ornaments. In part, these items were produced in a supra-regional style (part of the pan-European Bell Beaker package). They were also worn in such a manner that they would have been clearly visible. From the finds with known location in relation to the body, it is apparent that most of the ornaments were found near the heads of the deceased. As was clear from the evidence of the Hattemerbroek graves, the V-perforated buttons were even worn on the forehead. Depending on the context in which these buttons were worn, they would thus have been well visible to all those attending. Like the Veluvian bell beakers, the Dutch LNB amber ornaments thus embodied elements that were shared across Bell Beaker Europe, but also had characteristics that were distinctly regional.

6.5 Metalwork and metalworking

Metals already appear in the 4th millennium BCE in Scandinavia and northern Germany (Klassen 2000), while in the Netherlands the LNB is the period during which the first metalwork is introduced (see Fig. 6.18 for various examples). The only

Fig. 6.18 Several metal artefacts from LNB graves, scale ca. 1:1: (left) gold ornament from Barneveld (AMP0130, collection: Valkhof Museum, Nijmegen), now broken into two parts but originally this was a neck ring or diadem; (centre) copper tanged dagger from a barrow near Lunteren-De Vlooienpol (AMP0407, collection: Valkhof Museum, Nijmegen); (right) copper awl from barrow near Lunteren-De Valk (AMP0408, collection: National Museum of Antiquities, Leiden), all finds from the Veluwe.

metal finds that possibly pre-date the LNB are two copper spirals and some scraps[181] found in two of the megalithic tombs known as *hunebedden* (Bakker 1979, 127-131; 1992, 57) and another small piece of copper in a LNA grave.[182] In the LNB, metalwork became more common with standardized object types which, moreover, were treated and deposited in a standardized manner. This indicates that by this time metal objects were not merely freak occurrences, but instead had rapidly become part of the 'material world'. They were embedded in a widely shared cultural practice, which included selective deposition (see Fontijn 2002, 60).[183]

Childe (1925) introduced the theory of itinerant smiths that roamed the earth trying to sell their craft and products. This practice was linked to the rapid spread of the BB complex itself, whose members were believed to be traveling metalworking craftsmen and metal prospectors. However, already in the mid-20th century these

181 The scraps (from D19) have not been analyzed, the spirals (from D28) show different metal signatures, one could be Funnel Beaker culture in date, the other is more likely Early Bronze Age (Butler and Van der Waals 1966, 76).

182 AMP0535, Tumulus 4 near Borger (Drenthe), see Section 5.7.4.

183 This embeddedness of metal objects in these very specific cultural (depositional) practices indicates that metal in general must have been much more common and abundant than its scarcity in the archaeological records leads us to believe. Singular objects/materials cannot be subject to standardized cultural practices.

context-code	site	objectcode	type	raw material	metal/ stone type*
AMP0346	Exloo-doppelkreisgrabenhugel	04	awl	copper	Singen metal
AMP0408	Lunteren-De Valk grave 1	08	awl	copper	BB metal
AMP0410	Cuijk-Beers-Gassel	06	hairclip	gold	-
AMP0410	Cuijk-Beers-Gassel	07	hairclip	gold	-
AMP0548	Eelde	02	hairclips? With round ends	gold	-
AMP0548	Eelde	01	hairclips? With round ends	gold	-
AMP0130	Bennekom-Oostereng	01	diadem, oar-shaped ends	gold	-
AMP0346	Exloo-doppelkreisgrabenhugel	05	ornament	gold	-
AMP0346	Exloo-doppelkreisgrabenhugel	06	ornament	gold	-
AMP0161	Hilversum-mound 9	01	ring	copper?	-
AMP0478	Emmen-Angelslo-mound XII	01	ring	copper?	-
AMP0346	Exloo-doppelkreisgrabenhugel	03	spiral	copper	-
AMP0133	Vaassen-mound 3	09	tanged dagger	copper	BB metal
AMP0153	Hilversum-mound 1	01	tanged dagger	copper	As copper
AMP0218	Hilversum-'t Bluk-mound 10	01	tanged dagger	copper	-
AMP0346	Exloo-doppelkreisgrabenhugel	01	tanged dagger	copper	BB metal
AMP0404	Ede-Ginkelse Heide	10	tanged dagger	copper	XRF: high Sn**
AMP0407	Lunteren-De Vlooienpol	03	tanged dagger	copper	-
AMP0411	Ede-De Kweekerij	01	tanged dagger	copper	BB metal
AMP0412	Lunteren-Goorsteeg	05	tanged dagger	copper	BB metal
AMP0413	Nieuw-Milligen-De Mottenkuil	02	tanged dagger	copper	-
AMP0418	Ede-Letterse Berg	01	tanged dagger	copper	A deviant
AMP0432	Stroe-Korte Struiken	01	tanged dagger	copper	BB metal
AMP0259	Epe-Emst-doppelhugel	02	wire	copper?	-
AMP0410	Cuijk-Beers-Gassel	05	cushionstone anvil	stone	-
AMP0408	Lunteren-De Valk grave 1	11	cushionstone anvil	stone	zement-quartzite
AMP0408	Lunteren-De Valk grave 1	10	cushionstone anvil	stone	zement-quartzite
AMP0408	Lunteren-De Valk grave 1	12	cushionstone hammer	stone	helleflint
AMP0414	Zeist-Vliegveld Soesterberg	01	cushionstone anvil	stone	quartzite
AMP0414	Zeist-Vliegveld Soesterberg	03	cushionstone hammer	stone	quartzite/sandstone
AMP0414	Zeist-Vliegveld Soesterberg	02	cushionstone hammer	stone	quartzite

*Tab. 6.10 Overview of metal objects and artefacts related to metalworking in Dutch LNB graves. * Metal analyses: Butler and Van der Waals 1966; ** Not analysed by Butler and Van der Waals, observation based on XRF research performed by the author. Since the sampled surface was corroded the actual percentages are not reliable, however Sn proved to be the main 'impurity'.*

Definition of metal types (Butler and Van der Waals 1966):
Singen metal: Cu + moderate to high As, Sb, Ag, Ni
BB metal: Cu + high As, moderate to high Ni
As copper: Cu + high As
A deviant metal: Cu + high As, Ni, moderate Pb, Sb, Fe

high: 1-10%; moderate 0.1-1%; low < 0.1%

length (mm)	functional analysis	remarks
39		awl with diamond-shaped centre part; Fig 6.21 (right)
78		Fig 6.18 (right); Fig 6.24b
		Fig 6.22 (top right)
		Fig 6.22 (top right)
		small tear, two repair holes; Fig 6.22 (bottom right); Fig 6.24
		Fig 6.22 (bottom right)
		diadem or neckring; wire made of sheetgold; Fig 6.18 (left); Fig 6.22 (top left)
		flat "ring" made of sheetgold, two perforations; Fig 6.22 (bottom left)
		flat "ring" made of sheetgold, two perforations; Fig 6.22 (bottom left)
		supposedly 'several bronze rings' were found
		supposedly found, unsure.
		Fig 6.21 (left)
55	+	impression of hilt; with 3 rivet-notches; Fig 6.19e
81		on the tang two rivet-notches, also a rivet was found
50	+	found with wood remains of hilt, only tang and fragment of blade present; Fig 6.19g
206		found with wood remains of hilt, found vertical in ground, tip pointing down; Fig 6.19h
90	+	clear impression of hilt; Fig 6.19a
50	+	clear impression of hilt; Fig 6.18 (centre)
171	+	clear impression of hilt; Fig 6.19b
82	+	impression of hilt; Fig 6.19f
58		tip is missing
92	+	impression of hilt; rivet hole in centre tang, rivet is also present; Fig 6.19d
132	+	clear impression of hilt; possible imprint of textile in corrosion; Fig 6.19c
		bronze/copper wire in perforation holes of wristguard
	+	stone type acc. To Butler & Van der Waals 1966; Fig 6.25
	+	stone type acc. To Butler & Van der Waals 1966; Fig 6.25
	+	stone type acc. To Butler & Van der Waals 1966; Fig 6.25
		Fig 6.25
		made from stone axe; Fig 6.25
		Fig 6.25

theories were questioned when it was argued that metalwork showed distinct regional patterns, both in metal composition and typology of objects (Butler and Van der Waals 1966). Butler and Van der Waals (1966, 42) already stated in 1966 that "one might, in short, seriously wonder if the whole story of pioneer Bell Beaker prospecting and metallurgizing was not a pure and unadulterated myth". Recent studies also indicate that although for north-west Europe the introduction of metallurgy appears to coincide with the spread of the BB complex, the evidence strongly indicates that metalworking took place locally and was not the result of itinerant smiths (Fontijn 2002; Kuijpers 2008; Rowlands 1971). In addition to this, it was demonstrated that for other parts of Europe, metallurgy has its own developmental history. One that in Central Europe,

for example, even starts well over 1000 years before the start of the BB complex (Merkl 2010). For eastern Europe the first metals date to the mid-5th millennium BCE, while in the south-east of Europe the first copper objects appear already in the late 6th millennium BCE (Pare 2000, 5).[184] Moreover, metal analyses revealed that the metal compositions used in Central Europe during the Bell Beaker period did not differ significantly from the metalwork from previous and even contemporaneous cultural groups (Merkl 2010). For Central Europe there is thus no reason to suppose that the BB complex had a particular influence on the metalworking tradition itself.

Although smiths may not necessarily have travelled after all, the metals themselves obviously must have, because neither copper nor the later added tin (to form bronze) naturally occurs in the Netherlands. For the Netherlands all non-ferrous metal must have been imported from distant sources whether through far-reaching (gift) exchange networks or travels/expeditions.

Apart from metal itself, some graves also revealed so-called cushion stones, ground and polished stone anvils and hammers believed to have been used for hammering both copper and gold. The inclusion of these objects in graves both illustrates the apparent importance of metalworking as an activity in the LNB, as well as the fact that metalworking took place in the Netherlands (Butler and Van der Waals 1966). Although the occurrence of these objects is rare, in graves but also in general, they also occur in BB graves in Germany and Central Europe (Freudenberg 2006; 2009) and Britain. The most famous example is no doubt the Amesbury Archer, a 'rich' BB grave found near Stonehenge that – among many other finds – contained a cushion stone, three copper daggers and a set of gold ornaments (Fitzpatrick 2003; 2011). These metalworking tools therefore appear to have been part of the Bell Beaker package. Although the spread of metallurgy itself may not have been inextricably bound to the BB complex as such, it did apparently play an important role in BB communities.

Metal and objects used for metalworking are very rare in LNB graves when considering absolute numbers. Nonetheless, this group of items should be considered an integral part of the Bell Beaker package. In particular the copper tanged dagger is a type of object that is found in BB graves throughout Europe.

This section focuses on a total of 31 items from 19 different graves, comprising 24 metal objects and seven stone tools related to metalworking (see Table 6.10). This means that 13.3% of the LNB graves in the research database contained either metal objects or items related to metalworking. Apart from these finds, there is also other metalwork that can be dated to the LNB, most notably the copper flat axes. Although these items must have been equally 'rare' and 'valuable', they were systematically kept out of graves (this is discussed further in Chapter 8).

6.5.1 The origins of copper

Extensive research programs were set up already in the mid-20th century to analyse the metal composition and crystalline structure of early metalwork to learn more about the techniques used in their manufacture, but predominantly in an attempt to pinpoint their places of origin.[185] Apart from copper itself, these items also contained trace

184 Also see Schnurbein (2009, 89) for a map showing the first introduction of metallurgy throughout Europe.
185 For the Netherlands the excellent research of Butler and Van der Waals (1966) has to be mentioned.

amounts of other metals such as arsenic, nickel, lead, iron, antimony, silver, tin, and many more. It was long believed that these compositional 'metal signatures' could work as a sort of metallic fingerprint to pinpoint specific metal sources in Europe, and hence be used to create distribution maps of items throughout Europe in relation to their source of origin. Various objects were indeed found to be made of highly similar metal compositions. Most of the Dutch Bell Beaker coppers showed a distinct composition labelled 'Dutch Bell Beaker Metal' by Butler and Van der Waals (1966).[186] However, relating this metal type to a specific source proved very difficult.

The lack of success in pinpointing specific metal sources can be attributed to several factors that were not fully realised by the pioneer archaeo-metallurgists. First of all, it appears that the composition of trace elements in the copper ores at the various copper sources in Europe can be highly variable. This results in various different metal signatures, instead of one uniform signature for that specific source (Merkl 2010). A second problem is the melting, mixing and re-casting of copper objects. Blending and mixing items of various sources obscures the original signature of the metal. Originally it was assumed that the melting and re-casting of metal objects would not have been common until at least the Bronze Age. Recent studies, however, showed that already in the late 3rd millennium BCE copper items must have been melted, mixed and recast repeatedly, thus obscuring the original metal compositions (Needham 2002; Northover 1982). In addition, secondary treatments such as cold hammering and annealing, both of which occurred in Bell Beaker times (Butler and Van der Waals 1966), can also change metal compositions. It is therefore doubtful that chemical analysis alone can ever be used to link archaeological objects to specific copper sources (Friedman *et al.* 1966; McKerell and Tylecote 1972; Merkl 2010, 21).

The fact remains, however, that several objects were found to display highly similar metal compositions, which moreover could be contrasted to other groups of metal objects with markedly different compositions. Although some of the Dutch copper objects showed metal compositions highly similar to a group of objects from southern Germany (Singen metal, see Table 6.10), the majority of Dutch finds were shown to have a rather different metal signature that initially was thought to be unique for the Dutch copper finds, hence called 'Dutch Bell Beaker Metal' (Butler and Van der Waals 1966). Since then, many new discoveries have been made and additional analyses have been performed showing that this 'uniquely Dutch metal' in fact has a much wider distribution. It can be found throughout Atlantic Europe, with finds coming from the coastal parts of western France and southern Britain (Needham 2002). Needham (2002, 99) therefore suggested to change the name of this metal type to 'Bell Beaker Metal'. He argues that this similarity in metal signature is not the result of these objects all coming from the same source, but rather that these items circulated in a metal-pool. Within which the objects were repeatedly reworked, mixed, melted and recast (Needham 2002, 99). This process of mixing, recycling and, most importantly, *exchanging* thus resulted in a group of objects sharing a highly similar metal signature

186 Most notable characteristics of the (Dutch) Bell Beaker metal are (apart from copper) high levels of arsenic and moderate levels of nickel with other elements being either absent or occurring in low levels. For details and percentages, see Butler and Van der Waals 1966, 59 (also summarized in the caption of Table 6.10 above).

because they circulated in the same spatio-temporal metal-pool – or metal circulation zone – which spanned across Atlantic Europe and included western France, southern Britain and the Netherlands.

Although it may not prove possible to pinpoint the exact source of the 'Bell Beaker Metal', the idea of a metal-pool in which objects circulate and are mixed/recycled is actually extremely interesting from a social point of view. Instead of being able to pinpoint the exact geographic origins of an object, as can be done for example with blades made of Grand-Pressigny flint, the network itself *is* the origin. The metal composition known as 'Bell Beaker Metal' was not the result of a specific geological formation, but rather the result of a specific socio-cultural interaction network in a specific spatio-temporal setting in which people exchanged and recycled copper objects.[187] As Needham (2002) proposes it is even well possible that several copper sources throughout Atlantic Europe and perhaps even northern Spain contributed to this metal-pool. Ultimately, after repeated mixing, recycling and exchanging resulting in the 'blend' that is now labelled 'Bell Beaker Metal'.

Although it is thus not possible to precisely determine the exact source(s) of the ores used to produce the copper that made up the Bell Beaker Metal, it is clear this metal was derived from an exchange network spanning a large area of Atlantic Europe and even included overseas contacts in Britain. Based on the results of the research performed by Butler and Van der Waals (1966), the majority of the Dutch Bell Beaker copper finds belong to this group.[188] Interestingly, however, some of the analysed items were found to have a different metal signature that more closely matched metals found in Central Europe or southern Germany (Merkl 2010; 2011) (see Table 6.10).[189] As finds of these types of Central European metals are rare or even absent in Atlantic Europe (Needham 2002), it follows that the Netherlands must have been connected both to the Atlantic coastal network as well as a Central European network. Although the former may have involved transport along the coast and even overseas, the river Rhine would undoubtedly have been the main connecting element to the Central European network.

In both regions – Atlantic Europe and Central Europe – similar metal items such as tanged daggers and flat axes were in use. The metal signatures, however, indicate that these objects, although stylistically similar, must have been locally produced somewhere within the region of the respective metal-circulation zone. Although Bell Beaker Europe may thus seem like a uniform whole from a typological point of view, the metal types indicate that underneath this stylistically uniform front, different exchange and interaction networks operated.

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187 For bronze Needham (2007, 286) coins the term '*social currency*' since the dependence on this metal necessitated inter-dependence on others for the supply of metal. This holds true for copper as well.

188 The (Dutch) Bell Beaker metal items included five out of seven tanged daggers, a copper awl and a copper flat axe. Apart from the latter, these all concern grave finds.

189 Finds include a metal awl of Singen metal (high antimony and nickel, and moderate arsenic and silver), most of the copper flat axes and several of the objects in the Wageningen hoard which includes scraps of metal, halberd, axe, dagger, ingot rod, awl, bracelet. See Butler and Van der Waals 1966 for detailed description and analysis results.

6.5.2 Copper daggers

The tanged daggers all vary in shape to some degree, but in general they all adhere to a basic outline, central of which is the tang. The main characteristic that is used to classify these objects – the tang – is not so much a stylistic element, but rather a technological element related to how the blade was hafted. Hence, in prehistory, the tang was actually obscured from sight as this part was inserted into the hilt.

Although the blades may differ in size, generally they are of a triangular or elongated triangular shape, which, combined with the tang, makes them easily recognizable as LNB tanged daggers (also see Fig. 6.19).[190] Although only eleven finds are known from the Netherlands, their role as part of the BB funerary package becomes especially clear when we consider the find contexts of these first metal items. The copper tanged daggers are exclusively known from graves, whereas other copper objects such as axes or halberds are never found in Dutch graves. This pattern can moreover be found in other regions in Europe as well (see Fontijn 2002, 73), indicating that these items were subjected to selective deposition either as part of the grave set or as part of depositions elsewhere in the landscape.

6.5.2.1 Production and use life

It was presented above that the early copper items in circulation during the LNB show distinct metal signatures that according to Needham (2002) indicate they had been part of a specific metal-pool, or metal circulation zone. Although it is therefore not possible to pinpoint the origins of the ore used, this does have implications for the life-history of the objects in circulation. Not only does this imply that metalworking and circulation must have taken place on a regular level, it also implies that inclusion of objects in either hoards or graves must have been rather rare occurrences. For this metal-pool to exist objects could not merely be extracted from it, but rather had to *return* to it, to be recycled, mixed, recast and exchanged (Needham 2002, 113; pers. comm. 2018). This implies that the life-history of any Late Neolithic copper axe or dagger was more likely to end in the melting pot and/or as an object of exchange than in any other context. It follows that copper daggers therefore were in all likelihood much more common and numerous than the burial record lets us believe.

Apart from compositional analysis, Butler and Van der Waals (1966, 59) also performed metal-technological analysis of several of the Dutch finds, including five of the copper tanged daggers.[191] Their research showed that all five were made of cast blanks that were subsequently hammered into their final shape. Three of the daggers showed indications of cold working[192], and all five displayed traces of annealing. The presence of metalworking tools in the Netherlands suggests that at least the cold hammering and annealing may have taken place locally. However, the cushion stones do not provide unambiguous evidence of dagger production themselves. The cushion stones may also have been preferentially used for the working of gold ornaments, or were perhaps merely used for the maintenance of copper tools. Although the relatively high arsenic

190 Later metalwork was usually produced using moulds. However, the tanged-daggers are largely shaped through hammering, hence none are exactly the same.

191 AMP0133 (Vaassen mound 3), AMP0346 (Exloo doppelkreisgrabenhugel), AMP0418 (Ede- Letterse Berg), AMP0412 (Lunteren-Gooisteeg), AMP0411 (Ede-De Kweekerij), AMP0432 (Stroe- Korte Struiken).

192 AMP0133 (Vaassen mound 3), AMP0346 (Exloo doppelkreisgrabenhugel) and AMP0412 (Lunteren-Gooisteeg).

Fig. 6.19 Selection of tanged daggers from various graves in the Netherlands, note that the hilt impressions are often visible in the corrosion on the tang and lower parts of the blades, scale 2:3:
(a) Ede-Ginkelse Heide (AMP0404);
(b) Ede-De Kweekerij (AMP0411);
(c) Stroe (AMP0432);
(d) Ede-Roekelsche Zand (with rivet, AMP0418);
(e) dagger fragment from Vaassen mound 3 (AMP0133);
(f) Lunteren-Gooisteeg (AMP0412);
(g) dagger fragment from Hilversem-'t Bluk mound 10 (Utrechtse Heuvelrug, AMP0218);
(h) Exloo doppelkreisgrabenhugel (Drenthe, AMP0346, collection and photography: Drents Museum, Assen).

All finds are from the Veluwe, except (g) and (h). With exception of (h), all are collection: National Museum of Antiquities, Leiden.

content of the Bell Beaker metal would have had a positive effect on the hardness of the metal when compared to pure copper (Merkl 2010), these copper tools would still have been relatively soft (compared to bronze). When used in various practical activities, both copper daggers and axes would have worn relatively easy. Cushion stones therefore would have been a set of items required for simple tool maintenance. According to both Dick van Heusden and Jeroen Zuiderwijk (experimental archaeological metalworkers, pers. comm. 2010), the hammering and grinding of copper tools is a process that should be regularly performed to repair and maintain the cutting edge of either axe or knife. As such, cushion stones are not necessarily indications of smiths or metalworkers, but perhaps rather of metal users. Just as a flint tool would be retouched when damaged or ground on a grindstone when dull, the maintenance of metal tools involved hammering of the edge using a stone hammer and anvil.

Made from a cast blank, the copper daggers are shaped primarily by hammering. They typically have a tang where the blade was hafted in a hilt (see Fig. 6.19). The tangs themselves have very small hammered-up flanges, which probably allows for better hafting (see Fig. 6.20b). The use of rivets, as is common with Bronze Age swords and daggers, is rather rare in the Late Neolithic. One specimen found in the Netherlands had a single rivet in the centre of the tang, two other specimens had rivet-notches in each shoulder, but with only one of these also an actual rivet was found.[193] Most of the daggers have a concave hammered zone along the cutting-edge (in cross-section). Even though the edges themselves usually have broken off (see below), this zone indicates more or less the maximum dimensions of the dagger.[194] Although there are three specimens of considerable size (132, 171 and the largest 206 mm), the others are in fact all quite small, ranging in size from a mere 50 mm to 90 mm (all measurements include the tang). This means that when hafted, many only had a blade of perhaps 30-70 mm in length. Although all Dutch tanged daggers are unique, they adhere to the basic style of BB tanged daggers that can be found throughout Europe, both Atlantic Europe and Central Europe (Butler and Van der Waals 1966, 58-63; Needham 2002, 119; Woodward and Hunter 2015, 23).

In the context of the present research eight of the eleven tanged daggers from the Dutch graves were subjected to functional analysis (see Table 6.10). However, without exception this proved to be rather futile as the cutting edges of the daggers had not survived. All daggers were covered with a layer of rather brittle corrosion which had caused the edges of the daggers to break away over a width of a few millimetres. Although it was thus not possible to see any direct traces of use, the corrosion did reveal some other interesting features. On all daggers inspected, a clear imprint could be seen in the corrosion caused by the hilt (see Fig. 6.19, and 6.20 for details). Although some showed a straight impression, several showed a concave/arc-shaped impression indicating the presence of a well-made hilt at the time of deposition. Moreover, a clear imprint of wood-texture could be seen in the corrosion indicating the presence of a wooden hilt on two of the daggers (see Fig. 6.20 and Table 6.9 for details). Although

193 AMP0133 Vaassen mound 3 has rivet-notches (Veluwe); AMP0153 Hilversum mound 1 (Utrechtse Heuvelrug) has one possibly two rivet-notches and one rivet was found; AMP0418, Ede-Roekelsche Zand (Veluwe) has central perforation in the tang and one rivet (determinations by Butler and Van der Waals 1966, 58).

194 At least in its final life-stage when deposited.

Fig. 6.20 Details visible on copper tanged daggers with stereomicroscope: (left) clearly visible the hammered up edge on the tang of this copper dagger from a barrow near Ede-Ginkelse Heide (AMP0404, Veluwe); (right) the hilt has left a clear impression on this copper dagger from mound 10 in Hilversum-'t Bluk (Utrechtse Heuvelrug, AMP0218).

the hilts and pommels have not been preserved, it is known from finds elsewhere that these objects may have been highly significant. This is evidenced, for example, by the inclusion of part of a pommel in an Early Bronze Age grave in Britain. Neither the other parts of the hilt nor the metal blade itself was among the grave goods (Brück 2006, 79; Lynch 1971), indicating that pommels were valued items in their own right. In addition to this Hardaker (1974, 49) also lists eight graves that contained pommels but where no indications were found of metal blades. The special character of at least some of these pommels becomes even more apparent when considering some of the raw materials they consist of. Apart from more mundane types of materials such as (decorated) wood, bone and horn, these also include highly exotic materials such as marine ivory (teeth of sperm whales), amber, bronze and gold (see catalogue Hardaker 1974; Woodward and Hunter 2015, 45).[195] In these cases the dagger/knife should be seen as a composite artefact made up of different (exotic) materials that each may have had a different life-history and significance, and which apparently also could be included in graves as either separate autonomous objects or *pars pro toto*.

6.5.2.1 Placement in graves

Only little is known about the location of these copper knives in relation to the body. Of only one specimen was it noted that it lay behind the back of the deceased.[196] For one other find it is recorded it came from the centre of the grave pit, suggesting that it was placed near the pelvic region. One copper knife was retrieved from the north-east edge of the grave pit, whereas another was found in the south-eastern edge of a grave. Depending on the position of the body, these would thus have been located either near the head or the feet. Again, the evidence does not allow any particular patterns to be recognized.

195 These publications deal with both Chalcolithic (Beaker) material and slightly later Early Bronze Age finds.
196 AMP0407, Lunteren de Vlooienpol (Veluwe).

6.5.2.2 Weapons or knives, objects from afar?

These objects are usually referred to as tanged daggers (*tongdolken* in Dutch), a term which more-or-less implies that they are weapons (*i.e.* an object *designed* to inflict bodily harm).[197] Apart from its name, these items are indeed often interpreted in the archaeological literature as weapons and, being the first metal 'daggers', in turn are seen as the precursor of the Bronze Age sword (for an overview see Skak-Nielsen 2009, 351).[198] For the largest specimen found in the Netherlands an interpretation as 'dagger/weapon' is not implausible (measuring over 20 cm in length),[199] but the other copper 'daggers' found in the Netherlands are actually very small, ranging in length between 4 and 9 centimetres (including the tang). This means that most of these 'weapons' had blades of only 2 to 7 centimetres. I would argue that a dagger with a 2 centimetre blade can hardly be seen as a weapon. Also Hardaker (1974, 49) notes that many of the Early Bronze Age daggers must have been very small: "*Similar in size perhaps to a modern table knife. It is difficult to image the function of these knives, unless they belonged to women or were children's toys, which judging from the burials does not seem to be the case*".

This presents therefore a bit of a problem. If we agree that a 2 centimetre blade can hardly be interpreted as a weapon, we must accept that either *none* of these objects were weapons, or alternatively that only *some* of them were. This would mean that these eleven objects grouped together under the label 'tanged dagger', could in fact represent different types of objects, with different functions and different social significances.

A copper knife with a blade of just 2-3 centimetres would not have been suitable as an offensive, or even defensive, weapon. Such an object would perhaps be more suited to a variety of tasks involving small craft activities or food preparation. Such an object is perhaps better seen as something comparable to a modern pocket knife. A small copper knife may have had a function not unlike that of a flint flake, with the difference being that the copper knife would have been a more durable and permanent object, whereas the flint flake would probably have been knapped in an *ad hoc* fashion as the need for it arose only to be disposed of after the task at hand was completed.

It cannot be dismissed, however, that at least some would have been used as weapons or in the context of violence. Even if not used directly for combat, knives or daggers could have had a role in combat, for example for the collection of certain body parts as war trophies or performing a *coup de grâce* (Case 2004b, 200; Vandkilde 2006, 394). The latter function could however equally well apply in the context of such an item as part of a hunting kit. Although the bow and arrow may be successful in wounding an animal from quite a distance, the knife may have been used to finish the job if the shot did not kill but merely wounded and disabled the prey (as suggested by Vandkilde

197 The term 'weapon' specifically applies to objects "*designed or used for inflicting bodily harm or physical damage*" (Oxford English Dictionary). Although anything can be *used* as a weapon (even a ballpoint pen), in order to a-priori *be* a weapon it has to be *designed* as one.

198 Both a Grand-Pressigny dagger and several copper tanged daggers were included in the 2016 exhibit on "swords" in the Dutch National Museum of Antiquities to illustrate the historical context of the Bronze Age sword, as if the LNA flint blade slowly evolved into a bronze sword. Both Drenth (1990, 108) and Lohof (1993, 6) suggested that LNA battle axes were replaced by French daggers, which evolved into copper daggers, which led to bronze swords.

199 But also see discussion of Skak-Nielsen (2009, 352) who argues against an interpretation of daggers as weapons altogether.

2006, 394 but also by Case 2004b, 200). As such, the knife or dagger should perhaps be seen as part of the hunting/archery kit rather than as a separate class of object.

From the finds of similar knives or daggers in Britain, albeit slightly later in date, we know at least some were fitted with highly elaborate hilts and pommels made of exotic materials such as marine ivory and even gold. It is therefore perhaps unlikely that such raw materials would have been used to embellish a mundane tool merely intended to slice the occasional apple. It is reasonable to assume that these items must have had a rather important social significance. However, even if these British items were fitted with gold and ivory and represented prestigious items used by a local elite, this need not reflect the social reality of the Netherlands in the second half of the 3rd millennium BCE.

With regards to the possible function of these tanged knifes or daggers there are thus multiple and equally plausible options. Although traditionally interpreted as weapons, this need not be the case. Despite the unclear function of these objects, there are a number of observations that can help with evaluating their potential significance in the grave ritual. Most importantly, they are items obtained from afar. As such they embody social relations with exchange partners and thus indicate a person's or group's involvement with distant others (see Mauss 2002 [1950]). The fact that many of these items display a distinct metal composition, as argued above, indicates that these items circulated in a vast network and were continually recycled, melted and recast (Butler and Van der Waals 1966; Needham 2002).

Throughout this network, copper objects needed to be recycled to give rise to this this metal-pool. This implies that copper daggers were not produced at a single place (as was the case with for example the LNA Grand-Pressigny daggers), but instead must have been locally produced throughout the network, perhaps even in the Netherlands. Although the presence of cushion stones – as argued above – is not conclusive evidence for local dagger production, it does at least suggest that locally some form of metal-working/maintenance was performed. What is interesting in this respect is that the daggers or knives are produced in a rather uniform style throughout Europe. Like the flint arrowheads, ceramic beakers and amber ornaments, they were produced locally but in a supra-local style. Although it is thus unclear whether these objects represented tools, weapons or hunting paraphernalia, it is at least clear that they were made to adhere to a specific style and hence embody/signal a belonging to a particular wider community or identity. Whether this happened consciously or unconsciously, by carrying objects in a specific style the wearer or user would have signalled a belonging to (distant) others with whom – given the existence of the metal-pool and the absence of copper sources in the Netherlands – these items themselves and the knowledge of how to produce and maintain them must have been shared.

6.5.3 Copper ornaments and awls

Apart from copper tanged daggers, only few other copper items are known from LNB graves. These include two small copper awls (one awl depicted in Fig. 6.18, the other in Fig. 6.21), a copper spiral bracelet (Fig. 6.21), a fragment of copper wire in the perforation of a wristguard and two reports of small 'rings' that were supposedly found in LNB graves (see Table 6.10). Both awls were analysed by Butler and Van der Waals (1966). One showed a metal signature highly similar to the southern German 'Singen-

Fig. 6.21 Copper awl and bracelet from a burial mound near Exloo (Drenthe, AMP0346), scale ca. 1:1 (collection and photography: Drents Museum, Assen).

metal',[200] while the other appeared to be made of 'Bell Beaker metal', suggesting an origin from the Atlantic metal circulation zone.[201] For the two finds of 'rings', no further information is available and it should in fact be questioned whether these finds actually exist.[202] As for the copper spiral bracelet found in the famous grave of Exloo (Drenthe), no real parallels are known from the Netherlands or adjacent areas. Butler and Van der Waals (1966) found some similar finds in Central Europe, but the origin of this ornament remains uncertain.

A final copper/bronze item that might be mentioned is the occurrence of a so-called *Schleifennadel* in a grave near Overasselt (Gelderland).[203] This ornament was found below the chin of an individual buried in a secondary grave in a barrow that itself dated to the LNB. The ^{14}C-date[204] as well as the object type itself indicate that this burial must date to either the middle/late BB phase, or the beginning of the Early Bronze Age, just after 2000 BCE (Butler 1990, 71; Lanting and Van der Plicht 2000, 40). Because the date of this grave is uncertain, it was not included in the overview above that only contains objects that with certainty date to the LNB. Similar finds are known from central Germany (Butler 1990, 71; Butler and Van der Waals 1966, 87).

Several cremation burials were discovered by chance during excavations near Zutphen (Gelderland). ^{14}C-dating revealed that they were LNB in date (Bouwmeester *et al.* 2000). In one of these burials green discolouration was observed on the cremated remains. Samples were chemically tested and showed that they consisted of copper,

200 AMP0346, Exloo (Drenthe).
201 AMP0408, Lunteren de Valk (Veluwe).
202 AMP0161, mound 9 Hilversum (Utrechtse Heuvelrug) supposedly revealed several 'bronze rings'. AMP0478, mound XII Emmen-Angelslo (Drenthe) for which Lanting (2008) reports to have witnessed the retrieval of a copper/bronze ring during the excavation. The find, however, was not published and could not later be traced.
203 AMP0125.
204 GrA-12387: 3740 ± 65BP (Lanting and Van der plicht 2000, 40), 2397-1950 cal BCE (Intcal 13).

which according to the researchers was most likely the result of a copper item having accompanied the deceased on the funeral pyre.

With regards to the function of these objects there is not much to say. The copper awls or pins are quite corroded and wear traces could not be observed. These items could have functioned in a variety of manners, for example as tools related to textile production or leather working. However, they could also have been used perhaps as retouchers for applying the surface retouch present on the flint barbed-and-tanged arrowheads. As for the copper bracelet and possible rings, these should be seen in the context of personal ornaments, not unlike the amber ornaments presented above. Although these items are rare or perhaps even unique in these parts, the raw material – copper – would have certainly signalled the wearer as being part of the BB metal circulation network.

6.5.4 Bell Beaker gold

A small number of the Dutch LNB graves contained ornaments made of gold, representing the earliest gold finds from the Netherlands. A total of seven gold objects were retrieved from four different graves (see Fig. 6.22; Table 6.9). Two small bead-like ornaments made of rolled-up fragments of sheet-gold were found in the already mentioned grave of Exloo (Drenthe).[205] Two gold ornaments with oar-shaped ends were found by an amateur archaeologist near Beers-Gassel (Noord-Brabant).[206] Based on the other objects that were retrieved at this location, this in all likelihood must represent a BB grave.[207] Two similar golden ornaments (with round ends) were recently found with the cremated remains of a female in Eelde (Drenthe).[208] Both the Beers-Gassel and Eelde finds have coiled 'tails' that are probably some sort of hairclips that have close parallels in Central Europe (see Fig. 6.23), but are also related to the gold basket-shaped ornaments[209] known from Britain (*cf.* Needham and Sheridan 2014, 906).[210] The seventh gold object, found near Bennekom (Veluwe) [211] in what was probably a grave, is a diadem or neck ring consisting of a very thin gold wire – made of rolled up sheet-gold – with two decorated oar-shaped ends (Butler and Van der Waals 1966, 62). Similar ornaments, probably representing arm or neck rings, with oar-shaped ends occur in Denmark (Vandkilde 1996, 184). The location in relation to the body is known for none of the Dutch gold finds.

It is clear from the lack of gold sources in the Netherlands that all these objects, or at least the gold they were made of, must have been imported from distant places. Where

205 AMP0346.
206 AMP0410.
207 AMP0410, other finds include a Bell Beaker, an amber H-shaped button, two flint flakes and a cushion stone.
208 AMP0548, (pers. comm. Elma Schrijer, De Steekproef BV).
209 The notion that the basket-shaped ornaments were earrings was first postulated by Gordon Childe who compared them with the ornaments from Troy II as worn by Sophie Schliemann in the famous photograph (Sherratt 1986, 61). Sherratt (1986), however, argued that they were likely to have been worn as hair-ornaments. Needham (2011b, 138) suggests they were worn as part of clothing, such as headdresses or collars.
210 Finds are also known from Ireland, Brittany and Portugal, see overview in Needham 2011b, 132.
211 AMP0130, Bennekom (Veluwe), found in 1891 at a depth of six 'feet' together with a Veluvian Bell Beaker and a piece of 'resin' that is now lost. The 'resin' probably was an amber bead of some sort. Given the depth of the finds it is likely that they represent the grave goods from a barrow (Butler 1956; Glasbergen 1956).

Fig. 6.22 All seven of the Dutch LNB gold ornaments, scale ca. 1:1:

(top left) diadem/neck ring (broken in the middle) with oar-shaped ends from Bennekom (Veluwe, AMP0130, collection: Valkhof Museum, Nijmegen); (top right) pair of hairclips with oar-shaped ends from Beers-Gassel (Noord-Brabant, AMP0410, private ownership); (bottom left) small rings of sheet-gold from Exloo (Drenthe, AMP0346, collection: Drents Museum, Assen); (bottom right) pair of hairclips with round ends from Eelde (Drenthe, AMP0548, collection: Drents Museum, Assen).

This is a compilation of photographs provided by the Valkhof Museum (Bennekom and Beers-Gassel), the Drents Museum (Exloo) and De Steekproef BV (Eelde).

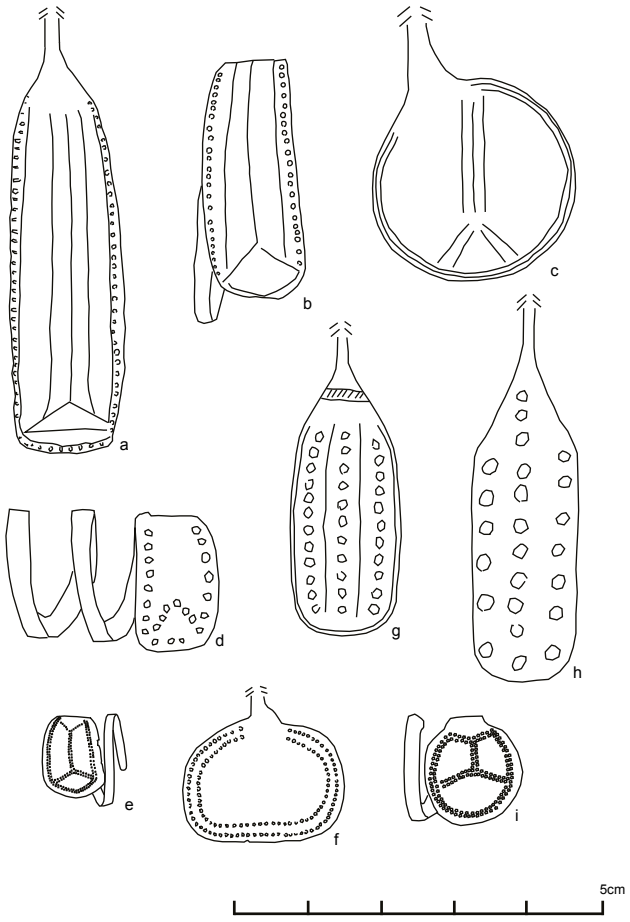

Fig. 6.23 Schematic drawings of a selection of Bell Beaker gold ornaments from the Netherlands and various locations in Europe to illustrate the wide-spread similarity in style, scale 1:1. Note the highly similar shapes (thin 'tails' ending in round or oar-shaped decorated ends) and types of decoration:*

(a) Bennekom (The Netherlands, AMP0130);
(b) Beers-Gassel (The Netherlands, AMP0410);
(c) Eelde (The Netherlands, AMP0548);
(d) Předmostí (eastern Czech Republic, after Hásek 1989, abb. 2.5);
(e) Apfelstadt, made of electrum (gold-silver alloy) (central Germany, after Küßner 2006);
(f) Amesbury (Britain, after Needham 2011b, fig 43);
(g and h) Sărata-Monteoru (eastern Romania, after Zaharia 1959 abb. 9-10);
(i) Borkovany, made of silver-copper alloy (eastern Czech Republic, after Hásek 1989, abb. 2.3).

** For (e) and (i) no scale was indicated in the publication, depicted here in same scale as in Hásek 1989 assuming the scale was 1:1.*

Note that in these drawings the 'tails' of (a),(c), (g), (h) and (f) have been shortened. Ornament (a) is one of the ends of a neck ring, ornament (h) has a short straight 'tail' all the others represent hairclips with wrapped-up tails. The round ends of (c) and (f) were found rolled-up to form a semi-cylindrical body, but are depicted here as flat in order to illustrate their shape and decoration.

those sources were situated is uncertain, although a source in Western Europe is often assumed (Butler and Van der Waals 1966, 63; Fontijn 2002, 67; but see Lehrberger 1995 for an overview of gold sources in Europe). Gold ornaments occur throughout Bell Beaker Europe and especially for the oar-shaped ornaments Butler and Van der Waals (1966, 62) list various parallels in Poland, Portugal, Brittany and the British Isles (also see Fig. 6.23). Although the round-ended ornaments found in Eelde have parallels in Central Europe (see Hásek 1989, abb. 2; Needham 2011b, fig. 44), they also closely resemble the Bell Beaker gold ornaments found in Britain. See for example those found with the *Amesbury Archer* and the *Companion* (Fitzpatrick 2011; also see Fig. 6.23f). A highly similar set of basket ornaments was recently found in Tremelo-Baal, Belgium (Van Impe 2018).

Not only do these ornament types occur elsewhere in Europe, the decoration applied to the round or oar-shaped ends is also very typical and variations of the same basic design occur throughout Europe (see Fig. 6.23). Even though the number of finds from the Netherlands is low, these objects do clearly adhere to a very particular international style. Needham (2011b, 134) rightly points out that there is regional variation in BB gold ornament types indicating that the different BB regions in Europe to some degree followed their own tradition. However, given the fact that, using gold, people could essentially produce an unlimited range of ornament types and decorative motifs, it is all the more striking that throughout Europe these ornaments are so similar to one-another. For some ornaments found in Central Europe it is even believed that they were imports from Britain or Ireland (various examples discussed in O'Conner 2004, 208).

These ornaments were manufactured from hammered-out sheet gold in which decorative motifs were impressed (pointillé and grooves/ridges). The cushion stones found in the Netherlands could very well have been used to shape or repair these ornaments, making local production a feasible option (Fontijn 2002, 67). A clue against local production can be found in the Eelde hair ornaments, one of which was broken in antiquity. Instead of having been expertly repaired by an experienced gold-worker, the tear was instead repaired by means of two small perforations on either side of the tear, probably originally bound together with an organic bit of string (see Fig. 6.24). This 'stitching' technique is also used to repair cracked pottery and suggests an absence of expert gold-working knowledge.

What remains most curious is that despite their rare occurrence, the gold ornaments adhere to such a distinct and almost standardized style, albeit with regional variations. It is difficult to imagine how this is possible. If locally produced, did the gold nuggets used for their production reach the Netherlands together with a clear instruction manual prescribing what to make out of them? This seems unlikely. Instead, I would suggest that both gold and copper objects were far more plentiful than the archaeological record leads us to believe. This is first of all indicated by both the existence of a copper metal-pool, indicating that the 'normal' biography of a metal item involved recycling rather than discard or deposition. Secondly, the gold ornaments were made and decorated in a standardized style. Thirdly, both copper and gold items were subjected to highly structured and selective deposition. Objects that are extremely rare or even singular cannot be treated or produced in standardized manners. Both these practices indicate the existence of a well-established and widely shared framework of knowledge that prescribed how to make, use, recycle and deposit metalwork. The

Fig. 6.24 The Eelde hairclips, scale ca. 1:1 (Drenthe, AMP0548, collection: Drents Museum, Assen; photography: the author); (right) detail of a tear and repair holes on one of the hairclips, photo covering about 1 cm² (photography: De Steekproef BV).

rare occurrence of these objects is therefore not a reflection of the number of objects in circulation. Instead it reflects that only in rare circumstances were objects removed from circulation through means of selective deposition.[212]

Shiny gold ornaments, probably worn in the hair or at least on the head, would have been clearly visible. Like the many Bell Beaker items described above, these gold ornaments were obviously meant to be seen and signalled a belonging to the Bell Beaker social identity. Their wearers must have been connected to distant others from which either the ornaments themselves or the raw material and knowledge used for their production was obtained.

6.5.5 Cushion stones

Despite the fact that they occur in BB graves throughout northern Europe (see Needham 2011a, 114-117), cushion stones are in fact extremely rare. In the Dutch graves their occurrence is limited to only three graves (see Fig. 6.25 for two examples). They were first described as metalworking implements by Butler and Van der Waals (1966), who named these objects after their resemblance to sofa cushions. Butler and Van der Waals convincingly argued for their interpretation as metalworking tools, an interpretation that stands to this day and can be substantiated by the identification of both copper and gold residues on various specimens found across Europe (Freudenberg 2006; 2009).[213] Apart from objects from graves, several cush-

212 Parker Pearson (2019, 100) also notes that the scarcity of gold and copper items may be reflective of them being deposited in graves only on rare occasions, the majority of such items being inherited or recycled.

213 In the context of the current research project the cushion stones of the grave of Lunteren (AMP0408, Veluwe) were analysed using XRF, this however did not reveal any traces of metal unfortunately (XRF analysis performed by Hans Huisman of the Netherlands Cultural Heritage Agency). A previous attempt by Butler and Van der Waals (1966) also did not reveal any metal traces. Analysis of a cushion stone found in the grave of the Amesbury Archer too revealed no traces of gold or copper (Cowel and Middleton 2011, 117).

Fig. 6.25 Grave goods from two of the graves that contained cushion stones: (top) the grave from Soesterberg which includes one anvil and two hammers, one of which is made of an old stone axe, also note the only two boar tusks found in a Dutch BB grave, as well as a worn/broken and repaired wristguard and what appears to be an unmodified natural stone (Utrechtse Heuvelrug, AMP0414, collection and photography: Centraal Museum, Utrecht); (bottom) the grave from Lunteren which includes two anvils, a hammer and a grindstone, also included are a Veluvian bell beaker, a copper awl, four flint arrowheads, a small flint axe and a broken/burnt wirstguard (Veluwe, AMP0408 collection and photography: National Museum of Antiquities, Leiden).

Fig. 6.26 The hammer and one of the anvils from Lunteren (Veluwe, AMP0408) as they would have been handled during use.

ion stones were found as single finds and recently even as part of what probably was a hoard near Hengelo (Gelderland).[214]

The cushion stones are made of various types of stone, varying from fine grained quartzite (termed zement-quartzit by Butler and Van der Waals 1966) to rather course granites.[215] On occasion old stone axes also appear to have been reworked, as was the case with one of the metalworking stones (hammer) from Soesterberg (Utrechtse heuvelrug).[216] The metalworking-stones can be divided between cubically shaped anvil stones (cushion stones) and the smaller hammers that were probably hand-held (see Fig. 6.26). Especially the fine-grained quartzite specimens show distinctive traces of manufacturing which involved them being pecked into shape, after which they were ground and polished. The edges of the anvils are usually rounded or facetted. According to both Dick van Heusden and Jeroen Zuiderwijk (experimental archaeological met-

214 Several cushion stones found in a pit together with various other stone tools including a set of arrow shaft smoothers, several grinding stones and a large quern (Drenth, Freudenberg and Hartz 2009).

215 The latter in the case of one of the cushion stones of the Hengelo hoard mentioned above.

216 AMP0414, collection of finds that probably are part of a Bell Beaker grave found during work on the Soesterberg military airport (found during WWII). Finds included three cushion stones, wristguard, a very rare find of two boar tusks (although a typical part of the Bell Beaker package, they are rarely found in the Netherlands due to bad preservation conditions) and a Bell Beaker.

alworkers, pers. comm. 2010) this feature is to be expected if they are indeed tools for working metal. Straight edges are quite 'dangerous' because when a mistake is made during hammering, such an edge will cause a deep indentation in the metal that is difficult to repair. Using tools with rounded or facetted edges may thus be a way of minimizing the risk of such mistakes.

Although several cushion stones were examined for traces of use under both low- and high-power microscopes, this provided no clear evidence for metalworking (see Table 6.10). The only traces observable could be attributed to the manufacture and/or maintenance of the stone tools themselves (traces of pecking and grinding). However, Zuiderwijk was so kind as to display several stone tools he used himself for hammering-out copper and bronze. Interestingly, his tools showed the presence of a thick layer of copper/bronze residue that had formed on the tool's working surface. This layer of copper residue is likely to 'protect' the stone underneath from the formation of use wear. He furthermore argued that if wear damage did occur, he would instantly repair his stone tools by re-grinding the damaged surface, before continuing his activities of hammering-out metal. Otherwise the damage in the hammerstone would leave an indentation in the metal with each blow of the hammer. If prehistoric metalworkers equally valued their tools and products, which can be expected, this could account for the lack of clear wear traces on the archaeological finds.

To understand the role and function of the cushion stones, it is important to understand how copper tools are made and, more importantly, used. Hammering was not only used for the shaping/production of copper objects, it also played an important role in maintaining copper tools. As was argued above, copper tools will wear out relatively quickly and frequent rejuvenation and repair are part of basic tool maintenance. For example, every person using a copper axe to chop wood would also have employed stone tools to repair and maintain the axe's cutting edge. Likewise, copper daggers too would have required a touch-up every now and then. Although cushion stones are generally related to metalworking and the production of metal objects, it should not be forgotten that they are probably even more important as objects used in tool maintenance. As such, they do not necessarily indicate metal *producers* (smiths), but perhaps rather metal *users* (woodworkers).

Despite the functional link between cushion stones and metal tools, there actually is not a very strong correlation between these two in graves. None of the graves with a tanged dagger for example contained cushion stones. Of the three graves with cushion stones one contained a small copper awl[217] and another two gold, oar-shaped hairclips.[218] The third grave contained no metal finds at all.[219] Apparently, the inclusion of actual metal items was not a condition for the inclusion of metalworking tools. A similar pattern could be seen with regards to the co-occurrence of arrowheads, wristguards and arrow shaft smoothers. As was argued above, no grave contained all of these items, instead of a full set, graves only contained 'some' of the objects that were part of the archery kit. If likewise metal and metalworking are seen as two elements of the same sphere of activity (metal object production and maintenance), it seems that the

217 AMP0408, Lunteren (Veluwe).
218 AMP0410, Beers-Gassel (Noord-Brabant).
219 AMP0414, Soesterberg (Utrechtse heuvelrug).

focus lies on the inclusion of 'some' rather than 'all' items associated with this activity (also see Section 8.2). The objects included in the grave may refer to a specific activity, perhaps on a symbolic level, rather than that the entire smithy and associated products were incorporated in the grave.

For none of the Dutch graves it is known where the cushion stones were placed in the grave in relation to the body.

6.6 Axes, daggers, strike-a-lights and other grave finds

6.6.1 Battle axes

In total eight so-called battle axes have been found in six LNB graves (see Table 6.11). With one exception (Mound D, Apeldoorn-Uddelermeer, Veluwe[220]), all of these were found in the province of Drenthe. Like their CW predecessors, they are mostly made of diabase or gabbro/diorite (see Beuker *et al*. 1992, 132) and are in all likelihood locally produced, most clearly illustrated by the fact that one of these grave finds concerns an unfinished specimen.[221] For one battle axe of the so-called 'Zuidvelde-type' it is said (Lanting 2008) that it was made of a non-local type of stone (see Fig. 6.27). If this is indeed the case, it is interesting that it concerns an object that was apparently made in a local style, as 'Zuidvelde-type' refers to the type-site of Zuidvelde (a BB grave in Drenthe).[222]

Two battle axes were subjected to functional analysis. One was found in 1899 in a grave near Emmen (Drenthe)[223] and showed clear traces of heavy use. It was worn both on the cutting edge – showing distinct traces and damage resulting from usage – as well as in the shaft hole showing clear traces of rounding resulting from a wooden shaft. Like the LNA battle axes described in the previous chapter this object must have been intensively used. Especially the shaft hole showed very clear traces of wear. The cutting edge, however, although clearly used, was probably resharpened prior to deposition. The other concerned the above-mentioned battle axe of Zuidvelde. This object showed hardly any traces of wear. It seemed to be in mint condition and was also perfectly preserved. Only in the shaft hole minor traces of rounding could be observed suggesting that at least at one point in its use life it had been hafted.

In Chapter 3 it was argued that the beakers of the Dutch North-East Group seemed to refer to pre-existing CW decorative patterns. Perhaps the occurrence of these battle-axes must be seen in the same light as the presence of such items that are not typically part of the Bell Beaker package. These items too seem to echo the customs of a previous era.

6.6.2 Flint and stone axes

Only three flint axes and one stone axe were found in a total of only three LNB graves (see Table 6.11). This rarity is remarkable as both in the Funnel Beaker culture and

220 AMP0173.
221 AMP0327, Eext (Drenthe).
222 AMP0459.
223 AMP0456.

context-code	site	object type	raw material	length	funct. analysis	wear traces	traces of use	remarks
AMP0173	Uddelermeer, mound D	battle axe	stone		-	n/a	n/a	
AMP0288	Hijken-Laaghalerveld mound 1	battle axe	stone	139	-	n/a	n/a	
AMP0327	Eext-Kerkweg 3	battle axe	stone	121	-	n/a	n/a	unfinished
AMP0327	Eext-Kerkweg 3	battle axe	stone	130	-	n/a	n/a	
AMP0456	Emmen 1899	battle axe	stone	122	+	+	+	
AMP0459	Emmen 1899	battle axe	stone	174	+	-	-	
AMP0455	Emmen	battle axe	stone	136	-	n/a	n/a	
AMP0469	Kerkenbos mound 1954-I	battle axe	stone	154	-	n/a	n/a	
AMP0447	Fochteloo flatgrave	axe	stone	68	-	n/a	n/a	
AMP0447	Fochteloo flatgrave	axe	flint	72	-	n/a	n/a	
AMP0408	Lunteren-De Valk grave 1	axe	flint	75	+	+	+	
AMP0408	Lunteren-De Valk grave 2	chisel	flint	70	+	+	+	
AMP0151	Epe-Klokbekerweg	dagger	flint		-	n/a	n/a	
AMP0455	Emmen	dagger	flint	196	-	n/a	n/a	
AVG0009	Nolde	dagger	flint	201	+	?	?	context uncertain
AMP0151	Epe-Klokbekerweg	strike-a-light	flint		-	n/a	n/a	
AMP0204	Ermelo-Elspeter heide mound 5	strike-a-light	flint	53	+	+	+	
AMP0269	Haren-Harenermolen	strike-a-light	flint	60	-	n/a	n/a	
AMP0404	Ede-Ginkelse Heide	strike-a-light	flint	65	+	+	+	
AMP0404	Ede-Ginkelse Heide	strike-a-light	flint	70	-	n/a	n/a	
AMP0407	Lunteren-De Vlooienpol	strike-a-light	flint	42	+	+	+	
AMP0439	Apeldoorn-Houtdorper Veld	strike-a-light	flint	69	+	+	+	
AMP0536	Baarn-De drie Eiken	strike-a-light	flint		-	n/a	n/a	
AMP0151	Epe-Klokbekerweg	nodule	limonite		-	n/a	n/a	
AMP0407	Lunteren-De Vlooienpol	nodule	pyrite	40	-	n/a	n/a	
AMP0151	Epe-Klokbekerweg	nodule	limonite		-	n/a	n/a	
AMP0414	Zeist-Vliegveld Soesterberg	boar's tusk	bone	79	-	n/a	n/a	
AMP0414	Zeist-Vliegveld Soesterberg	boar's tusk	bone	77	-	n/a	n/a	
AMP0079	Mol-Grenspaal	fossil. object	unknown		-	n/a	n/a	
AMP0270	Zuidlaren-Annertol mound 3	nodule	amber		-	n/a	n/a	number unknown
AMP0500	Hattemerbroek-Bedrijv.ter. 2	nodule	red ochre		-	n/a	n/a	
AMP0500	Hattemerbroek-Bedrijv.ter. 2	nodule	stone		-	n/a	n/a	
AMP0428	Ede-Koeweg	block	flint		-	n/a	n/a	
AMP0428	Ede-Koeweg	block	flint		-	n/a	n/a	
AMP0428	Ede-Koeweg	block	flint		-	n/a	n/a	
AMP0428	Ede-Koeweg	block	flint		-	n/a	n/a	
AMP0504	Molenaarsgraaf grave 2	fish-hook	bone	43	-	n/a	n/a	date: LNB / EBA
AMP0504	Molenaarsgraaf grave 2	fish-hook	bone	30	-	n/a	n/a	date: LNB / EBA
AMP0504	Molenaarsgraaf grave 2	fish-hook	bone	26	-	n/a	n/a	date: LNB / EBA
AMP0504	Molenaarsgraaf grave 2	antler tine	antler	450	-	n/a	n/a	date: LNB / EBA
AMP0504	Molenaarsgraaf grave 2	awl	bone		-	n/a	n/a	date: LNB / EBA

Tab. 6.11 Overview of battle axes, axes, strike-a-lights and other grave goods in LNB graves.

Fig. 6.27 LNB 'Zuidvelde-type' battle axe (with groove/ridge decoration on top and bottom plane) from a barrow near Zuidvelde (Drenthe, AMP0459), length 174 mm, scale ca. 2:3 (collection: Drents Museum, Assen).

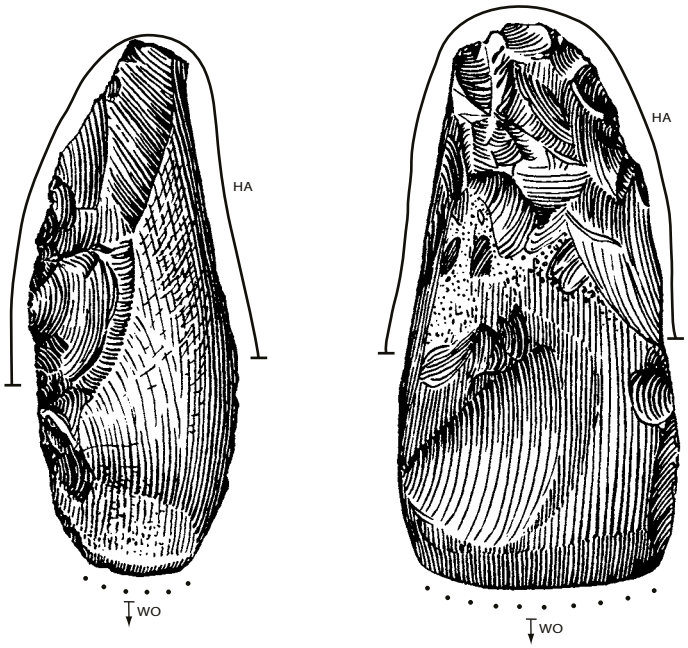

Fig. 6.28 Two flint axes from two graves in the barrow of Lunteren-De Valk (AMP0408) with indicated traces of use (scale 1:1); (left) the axe from the 'smiths grave' (see Fig. 6.25); (right) the axe from the grave with the wristguard and seven arrowheads, microscope image (magnification 100x) displaying edge damage, polish from usage as well as two distinct grinding facets resulting from repeated resharpening of this axe (drawings after Butler and Van der Waals 1966, figs. 13b and 46).

LNA the stone/flint axe was a frequently occurring type of grave good that was argued to owe its symbolic value to the importance of woodworking in prehistory. Although the first copper axes appear in this period, the bulk of woodworking must still have been performed with flint and stone tools. The role of flint and stone axes in everyday life thus must have been comparable to that of the preceding LNA. The fact that no copper and hardly any flint/stone axes were included in LNB graves is thus a striking break with tradition.[224]

A flat grave in Fochteloo (Drenthe)[225] revealed both a small flint and stone axe (Lanting 2008, 126-7). In addition, this grave also contained a flint blade and a 'true' maritime Bell Beaker. This grave thus contains a set of items that is more in line with the LNA grave set. Next to this flat grave a second flat grave was discovered which – due to its proximity and highly similar grave set – could be argued to be more or less contemporary.[226] This grave contained a flint and a stone axe, a hammerstone and a CW beaker. As such, it is perhaps likely that this grave should be dated right at the transition between the LNA and LNB.

The only two unambiguous Bell Beaker graves to contain flint axes/chisels were found in the barrow of Lunteren-De Valk (Veluwe, see Fig. 6.28).[227] This barrow contained two graves, one of which is the famous 'smithy's' grave containing several cushion stones (two anvils and in addition also a hammer- and a grindstone, see Fig. 6.25b and 6.27 left). Apart from the cushion stones and a flint axe this grave also contained six arrowheads, two beakers, a copper awl and part of a burnt stone archer's wristguard. This axe is relative slender/narrow, somewhat resembling a chisel, but this is probably the result of extensive repair after use damage had occurred. The other grave contained a flint axe, a stone archer's wristguard and seven arrowheads. Both the axe and the chisel appear to have been locally produced tools and showed traces resulting from chopping wood and hafting, indicating they were intensively used before deposition in the grave.

6.6.3 Flint daggers

Around 2300 BCE an intensive production of flint daggers started in various production centres in Jutland, Denmark (Apel 2007; Vandkilde 2005, 11). These skilfully crafted objects also found their way to the Netherlands, where well over a hundred of them have been found (see Fig 6.29). Interestingly, however, almost none of these were found in graves. Instead they appear to have been selected for deposition in waterlogged places (Van Gijn 2011). This is particularly interesting because in Denmark flint daggers are often found in graves (see Sarauw 2006), indicating that these objects were treated quite differently in the Netherlands.

Only three flint daggers in the research database were said to be found in LNB graves (see Table 6.11). A beautifully worked type-I dagger was found together with

224 This pattern is also noted elsewhere in Europe. Turek (2003, 195; 2004, 151) for example notes that stone axes (as well as battle-axes) that were once so important in CW burials in Central Europe have disappeared from BB burials.

225 AMP0447.

226 AMP0448.

227 AMP0408.

a BB-type battle axe in a stone cist near Emmen in 1847 (Lanting 2008, 181).[228] Although the description of the find as coming from a grave is clear, we must be cautious with accepting the interpretation of the excavator, Janssen who was the curator of the National Museum of Antiquities in Leiden.[229] A Scandinavian dagger of type-I was supposedly found in a barrow near Nolde (Drenthe).[230] However, this find is very uncertain and Lanting (2008) rightly questions whether this object was really found inside the actual grave. A possible third flint dagger was found behind the back of a body silhouette in a barrow near Epe (Veluwe).[231] This, however, did not concern a typical Scandinavian dagger. Instead, based on the publication drawings, it looks more like a flint version, or skeuomorf, of a copper tanged dagger. Unfortunately, the find itself could not be located.

The 'presence' of only three of these flint daggers in LNB graves actually highlights their general absence in graves. While the copper daggers are exclusively known from graves, the Scandinavian flint daggers are notably absent. This illustrates that the LNB grave set did not simply include all *special* objects in circulation (that required special skill to make, were produced of rare raw materials and/or were obtained from far-away-places). While some things were meant to enter graves, others were not.

6.6.4 Strike-a-lights

In contrast to the flint daggers and axes, strike-a-lights are a type of object that are 'relatively well-represented' in BB graves, being present in seven graves (5%; see Table 6.11). These types of flint tools are used for striking sparks by hitting a nodule of pyrite.[232] They are found in graves throughout prehistory, from Early Neolithic Linear Pottery culture graves and Middle Neolithic megaliths of the Funnel Beaker culture or flat graves of the Hazendonk Group, to their inclusion in both Bell Beaker and Bronze Age barrows (see Van Gijn 2010). However, these objects were entirely absent from LNA graves. It, therefore, is all the more interesting that strike-a-lights re-emerge as grave goods in the LNB. Although clearly present, it must be said that numbers are still relatively low. From the graves in the research database only seven graves contained in total eight strike-a-lights. Two of these were subjected to functional analysis, which revealed that they indeed showed characteristic traces of contact with pyrite (or similar minerals). This results in a heavily rounded tip that shows clear streaks of a bright polish when looked at with an incident-light microscope (high-power). Apart from the strike-a-lights themselves, three graves moreover contained nodules of limonite or pyrite/marcasite (minerals that can be used to strike sparks; see Table 6.11 and Fig. 6.30). In addition, a wristguard of one of the graves with two strike-a-lights contained a strange residue that was analysed using

228 AMP0455.

229 Janssen was not trained as a field archaeologist and famously published the extraordinary find of 'megalithic structures' dating to the Roman period which were in fact fakes created by one of his workers, see Arentzen 2009.

230 Collection Drents Museum, Assen (1926-XI-1), since the find context is unclear, this site was not included as a grave in the research database.

231 AMP0151. Apart from the flint dagger, a flint knife, a strike-a-light, and a nodule of limonite were found all behind the back of a body silhouette (Modderman and Montforts 1991).

232 Or a similar iron-rich minerals such as marcasite or limonite.

Fig. 6.29 Example of a Scandinavian flint dagger (Bloemers type I) found during work in the field near Erica (Drenthe) located just south of the Hondsrug in what used to be the edge of the Bourtanger veen, length 156 mm, scale 1:1 (collection: Drents Museum, Assen (1936-I-7); photography: Q. Bourgeois).

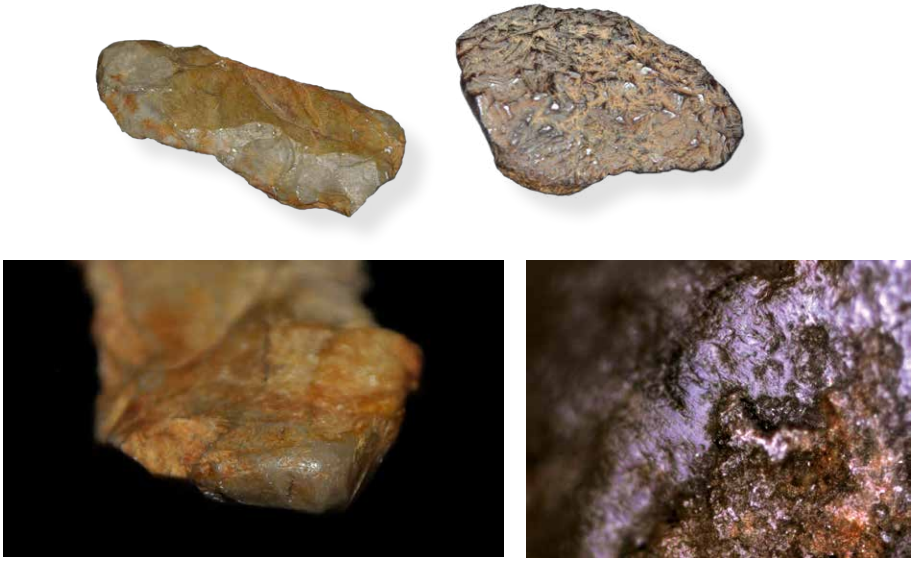

Fig. 6.30 Strike-a-light (top left) and a fragment of a nodule of marcasite (top right) from the barrow of Lunteren-De Vlooienpol (Veluwe, AMP0407); (bottom left) macro photo of the heavily worn and rounded tip of the strike-a-light; (bottom right) microscope picture (magnification 200×) of the wear traces showing clear bright polish and striations (collection: Valkhof Museum, Nijmegen).

XRF which revealed high levels of sulphur.[233] This could very well be the remains of a completely weathered nodule of pyrite or marcasite (mineral forms of iron sufide, FeS_2) that had originally been part of the grave set.[234]

The strike-a-lights usually concern relatively long (60-70 mm long) and narrow pick-shaped flint artefacts (see Fig. 6.30). In all likelihood these tools were produced from locally available raw materials. Unfortunately for only two strike-a-lights the location in the grave in relation to the human body was recorded. One was found near the pelvis, another was found behind the back of the deceased.

6.6.5 Other grave goods

By far most of the finds from graves have been described in the sections above, however a few types of artefacts have been retrieved from graves that could not be included in any of the above sections (see Table 6.11). These include various objects for which we only have somewhat vague descriptions from old publications, such as "some nodules of amber"[235] that could possibly have been amber beads, but also the enigmatic description of a "fossilized object made of bone".[236] However, as the finds in question could not be traced, the nature of these artefacts must, for the time being, remain obscured.

A very interesting, albeit unique find in the Netherlands are two boar tusks from a grave near Soesterberg (Utrechtse Heuvelrug, see Fig. 6.25a and 6.31).[237] Although boar tusks are a regular find in BB graves in Central Europe (Ruzickova 2009) and some are known from Britain (Parker Pearson *et al*. 2019b, 193), they are absent (apart from this pair) in the Netherlands. This absence is probably due to unfavourable preservation conditions.

A grave in Hattemerbroek[238] (just north of the Veluwe) contained – in addition to 22 amber ornaments – a small nodule of ochre that was placed near the head of the deceased. An apparently unmodified stone was placed on the upper left arm. Similarly, a grave in a barrow near Ede[239] was reported to contain a Veluvian Bell Beaker and four unmodified nodules or blocks of flint.

Finally, a flat grave excavated near Molenaarsgraaf (wetland site in western Rhine/Meuze river aria, Zuid-Holland) can be mentioned (Louwe Kooijmans 1974, 250). Since it is not entirely clear whether this grave should be dated to the end of the LNB or to the Early Bronze Age[240], it was not included in the dataset used for this thesis. However, given the remarkable grave finds it does deserve at least to be mentioned.

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233 Wristguard from Ede-Ginkelse Heide (Veluwe, AMP0404, see Fig 6.10). X-ray fluorescence (XRF) analysis performed by Hans Huisman of the Netherlands Cultural Heritage Agency.

234 Lanting (2013, 35) reports that the excavator mentioned the find of an unknown object in a letter which he describes as "a piece of iron". This could very well have been a pyrite or marcasite nodule.

235 AMP0270, Zuidlaren mound 3 (Drenthe).

236 AMP0079, Mol-Grenspaal (border between Noord-Brabant and Belgium).

237 AMP0414, in the museum records is was questioned whether facets on the distal tips were the result of human usage, these facets however are the result of normal dental wear and not anthropogenic in origin (comparison with reference collection archaeo-zoological Laboratory Leiden University and pers. comm. dr. J. Zeiler 2012, archaeo-zoologist).

238 AMP0500, Hattemerbroek-Bedrijventerrein, grave 2.

239 AMP0428.

240 The calibrated range of the ^{14}C-date of 3630 ± 30 spans a period of 2140-1900 cal BCE (GrN 5566: sample from right *femur*).

Fig. 6.31 (left) Boar tusks from a LNB grave near Soesterberg (Veluwe, AMP0414), scale 1:1 (collection: Centraal Museum, Utrecht).

Fig. 6.32 (right) Three bone fish-hooks from a flat grave near Molenaarsgraaf (Zuid-Holland), scale 1:1 (collection: National Museum of Antiquities, Leiden; photography: Q. Bourgeois).

At the site a grave pit with wickerwork lining was found to contain the remains of an adult male. The grave goods consisted of three bone fishhooks (see Fig. 6.32), an antler artefact possibly used as a hoe or fish trap lifter, a bone awl, a flint scraper and three flint flakes (Louwe Kooijmans 1974).

6.7 Concluding remarks

As was the case in the LNA, the Dutch LNB graves contain objects that are part of a specific set. Apart from the beaker, which continued to be a favoured item, there are clear changes in this set. The items that were predominant in the LNA (axes, flint blades/daggers, battle axes) are largely absent in LNB graves. Instead the LNB graves contain several items that, in contrast, were notably absent in LNA graves (archery equipment and ornaments). Hence the practice of adorning the dead with a highly specific set of items continues, but the items in that set (apart from the beaker) are radically different.

While part of the focus in the LNA seems to have been on particular craft activities, most notably related to wood-working or land-clearance, the LNB grave goods signal very different activity spheres, most common are archery and personal adornments. One of the key characteristics of many of the items found in BB graves was that they were either derived from distant sources and reached the Netherlands as items of exchange, or were locally produced but in an international style clearly indicating knowledge of, and a relatedness to a wider BB community (*cf.* Carlin 2018, 209). These objects were made to be seen and many were worn on the human body such

as the archer's wristguard, the gold ornaments or the amber buttons. These items in particular must have been part of a type of dress that clearly signalled a particular identity. Woodward and Hunter (2015, 559) come to a similar conclusion stating that "a large proportion of the items buried with individuals during the Chalcolithic and Early Bronze Age periods were objects associated with special costumes". Carlin (2018, 211) even speaks of a 'cosmologically-charged' outfit. Although the meaning and significance of such an identity would have been different in time and space, the objects used to signal this identity were widely shared and recognized throughout Bell Beaker Europe (see also Carlin 2018, 211).

It is important to note, however, that not all exotic objects ended up in graves. Scandinavian daggers were beautifully crafted items, obtained from afar and must certainly have had the potential to be used for displaying relations with distant places (*cf.* Carlin 2018, 193). The first copper axes likewise must have been exotic and precious. These items, however, were not included in graves. Instead, they were deposited elsewhere in the landscape. The Bell Beaker set therefore was not simply the result of adorning the dead with exotic items: *specific* objects were deposited in *specific* places. Being part of the BB complex was thus not simply a matter of obtaining BB-style items, it apparently was also important to know what to do with them.