5

The life of Late Neolithic A grave goods

5.1 Introduction

This chapter focuses on the non-ceramic grave goods from LNA graves. The role of the beaker is discussed extensively in the previous chapter. During the LNA, the additional grave goods consist of a very specific and limited set of objects. Apart from beakers, the 150 LNA graves in the research database contained flint blades/daggers, flint and/or stone axes, stone battle axes and flint flakes (see Fig. 5.1 and Table 5.1). Sporadically, other types of objects are also found, such as flint arrowheads, amber ornaments or grindstones, but their occurrence is extremely rare.

Five of the LNA graves must be excluded from most of the comparative calculations due to insufficient information about the original grave set. For these graves it was only recorded that they contained French flint daggers (see Section 5.4).

LNA grave goods	**number of objects**		**occuring in graves**		**objects per grave**
object type	n	%	n	%	average
beaker	133	28%	101	70%	1,3
blade/dagger	84	18%	77	51%	1,1
axe	65	14%	51	35%	1,3
battle axe	34	7%	34	23%	1,0
flake	58	12%	22	15%	2,6
beads	82	17%	5	3%	16,4
grindstone	4	1%	4	3%	1,0
arrowhead	10	2%	3	2%	3,3
metal	1	0%	1	1%	1,0
hammerstone	4	1%	3	2%	1,3
spindlewhirl	1	0%	1	1%	1,0
indet/other	4	1%	2	1%	2,0
total	480	100%			

Tab. 5.1 Overview of the number of LNA grave goods per object category, number of graves containing objects of that category and the average number of objects per grave.

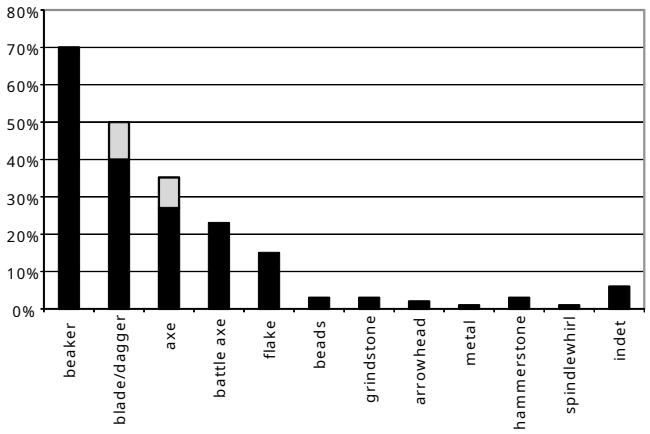


Fig. 5.1 Relative frequency of object types in LNA graves. For the category 'blade/dagger' grey represents the relative proportion of French daggers, black being the northern blades. For the category 'axe', grey represents the relative proportion of stone axes, black being the flint axes.

Information on other possible grave goods is lacking, hence for most calculations I use 145[82] as the total number of LNA graves.[83]

This chapter discusses the life-histories of each of the main categories of grave goods found in the LNA graves. Starting with their place of origin, raw materials used and techniques involved in their production, I proceed with an examination of traces of use and ultimately their placement in the grave. The focus is primarily on the role or function of these objects and their possible meaning or significance. The analysis of grave sets, the graves they were found in and their role in the construction of identities is addressed in Chapters 7 through 11.

5.2 Flint blades and daggers: Introduction

Apart from pottery, the most frequently occurring type of grave good in the LNA is the flint blade/dagger (see Fig. 5.1). In most cases this concerns an unretouched flint blade, but some of the later LNA graves contain retouched and on occasion ground specimens that are generally referred to as daggers. This section considers these objects which traditionally are placed in three distinct categories: the northern flint blade, the Grand-Pressigny dagger and the so-called pseudo-Grand-Pressigny dagger (see Fig. 5.2). Combined, these objects occur in 77 (51.3%) of the LNA graves in the research database. Although these objects are discussed in more detail below it is important to start by giving a short definition of all three types of objects.

The northern flint blades are relatively regular and long flint blades (on average ca. 10 cm long, largest being about 15 cm long, see Fig. 5.4) that were imported from northern Germany or southern Scandinavia and were included in graves and depositions throughout the LNA (Van Gijn 2010, 142). The Grand-Pressigny examples are skilfully crafted flint 'daggers' on average measuring ca. 20 centimetres in length (largest is ca. 25 cm in length, see Fig. 5.7) and originate from central France (ca. 50 km

82 Only for statistics dealing specifically with flint blades/daggers is the total of 150 graves used.

83 It must also be noted that one of these graves is recorded as a double burial. Although it is one grave pit, it contained two burials, and two separate grave sets, therefore these burials are listed here as two graves (AMP0039, mound 6 near Swalmen, Limburg).

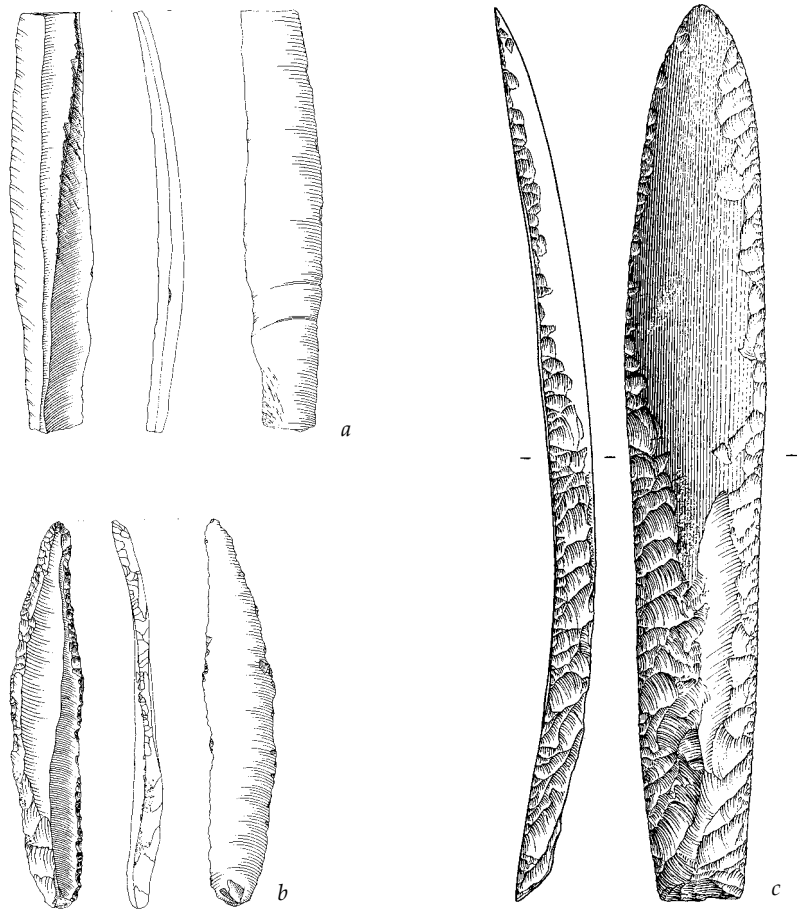


Fig. 5.2 Illustration of flint blades/daggers from LNA graves, scale 1:2: (a) northern blade from mound 1 near Vaassen (Veluwe, AMP0131, drawing: R. Timmermans); (b) so-called 'pseudo-GP-dagger' from mound D4 near Niersen (Veluwe, AMP0406, drawing: R. Timmermans); (c) French dagger from mound 3 Eext-Galgwandenveen (Drenthe, AMP0321, drawing: GIA).

south of Tours) (Plisson *et al.* 2002; Airvaux and Primault 2002). Apart from extensive and often highly regular surface retouch on the dorsal side, they were sometimes also ground on this side. In addition to the daggers made of Grand-Pressigny flint, highly similar objects also occur that were made of Romigny-Lhéry flint originating from northern France (ca. 100 km north-east of Paris, near Reims). As both types of objects occur in LNA graves, and it is often difficult to distinguish between the two (especially when objects were not available for study), I suggest – following Van Gijn (2010, 145) – that these items should be referred to simply as 'French daggers'.

Lastly there is the somewhat problematic category of the 'pseudo-Grand-Pressigny daggers' defined by Drenth (1990, 100) – following Struve (1955) – as blades made of non-French flint that to some degree show similarities with the French daggers, mainly due to bilateral dorsal retouch and/or dorsal grinding. The problem

with this 'category' is that it is in fact not a category[84] but rather an interpretation. The name itself implies that it reflects a conscious act on behalf of prehistoric agents to imitate the French daggers.[85] The question, however, is whether this is indeed the case, and if so, to what degree. The most important thing to note about these 'pseudo-Grand-Pressigny daggers' is that they are in fact northern flint blades imported from northern Germany or southern Scandinavia. As such, they should be seen in a long tradition of exchanging objects in general and blades in particular with this part of the world. Although it cannot be excluded that, influenced by the skilfully retouched French daggers, some of the northern flint blades were subjected to secondary retouching (and some also to dorsal grinding), this does not automatically imply that they were mere imitations. For this reason, 'pseudo-Grand-Pressigny dagger' is not used as an object category in this thesis. Here only a distinction is made between flint blades imported from northern Germany/southern Scandinavia, and flint daggers imported from central and northern France.

5.3 Northern flint blades

Compared to the meticulously decorated beakers and impressive battle axes, the often unretouched flint blades are usually not considered the most impressive of LNA grave goods (see Fig. 5.3). Nonetheless they are the most frequently occurring type of object in Dutch LNA graves apart from the beaker. In total 65 northern flint blades were retrieved from 58 graves, meaning that 40% of the LNA graves contained northern flint blades.

5.3.1 Production and origins from afar

Although they may be a regular element in Dutch LNA graves, these blades were not locally produced. In fact, they are one of the few object types of the LNA burial package of which it is relatively certain that they were imported from faraway places. The long and regular flint blades made of northern flint were most probably produced in northern Germany or southern Scandinavia.[86] They were produced with soft-hammer percussion and are 6 to 16 centimetres in length, with an average of about 10 centimetres (see Fig. 5.4). Although northern flint can be found in the glacial sediments in the northern part of the Netherlands, it does not contain flint nodules of the quality needed for the production of these blades. Also no debitage related to the production of these blades has been found in the Netherlands, indicating that they were imported as finished objects (Van Gijn 2010, 142). Furthermore, the fact that these blades were imported as finished tools is substantiated by the find of a LNA hoard found near the peat trackway of Nieuw-Dordrecht (Drenthe, see

84 See also the wider discussion in Chapter 8 about categorization.

85 Interestingly, Lanting and Van der Waals (1976, 67) provide a more nuanced description of the retouched flint blades by merely saying that 'their makers may have been inspired' by the real French daggers, this in contrast to Drenth (1990) who sees them as direct imitations and attributes the 'pseudo-Grand-Pressigny' daggers to people of lesser social status.

86 One exception may be a blade found in a grave from Twello (Meurkens *et al.* 2015) that is said to have been of Belgian flint. The authors suggest we may see this southern import in the same light as the first French daggers appearing in LNA contexts, which corresponds with its date of 2631-2554 cal BCE. This grave was published after the collection of data for this thesis was completed and it was hence not included in the research database.

Fig. 5.3 Northern flint blade from barrow near Renkum (Veluwe, AMP0424), scale 1:1 (collection National Museum of Antiquities, Leiden; photography: Q. Bourgeois).

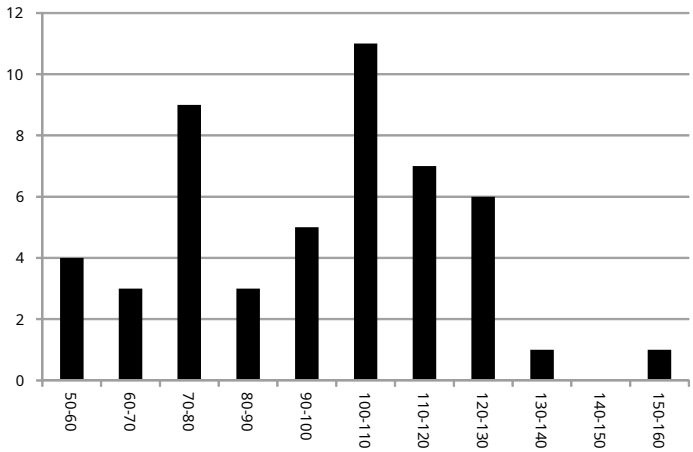


Fig. 5.4 Length distribution of northern flint blades from LNA graves. Based on 50 complete blades from graves from the research database for which the length could be recorded. Average length is 98 mm.

Fig. 5.5). Here at least eleven flint blades and a large unpolished thick-butted axe of Lindø type were found deposited at the edge of the peat (Harsema 1981; Ter Wal 1996). Both the axe and at least one of the flint blades were made of the same type of northern flint[87], moreover, at least some of the flint blades could be refitted indicating that they came from the same blade-core. Neither axe nor blades showed

87 Determination in collaboration with Jaap Beuker 2019 (Drents Museum ret.).

Fig. 5.5 Hoard of Nieuw-Dordrecht, length axe 242 mm, scale ca. 1:2 (collection National Museum of Antiquities, Leiden; photography: Q. Bourgeois).

any traces of actual usage, only some generic spots of polish probably related to packaging and transport (Van Gijn 2010, 142; pers. observ. of the author).

Although the production of these types of blades is not a feat of great technical skill, their production does require a fair degree of craftsmanship. Good quality flint nodules have to be selected and carefully prepared before blade production can begin. Platforms have to be prepared and maintained throughout the production process during which a variety of percussion implements is used, including both stone and antler hammers. As such, these blades do contrast with the level of flintworking generally observed in LNA domestic contexts. Here a preference can be seen for local raw materials, often of low quality, used for the production of flakes in a rather opportunistic manner (Van Gijn 2010, 139). The level of skill involved in domestic flintworking in this part in time can thus be considered low – a development that already started in the Funnel Beaker culture. In this context the imported flint blades do stand out, both in the quality of the flint used as well as the technical skill required for their production.

5.3.2 A life of circulation

Out of the 65 blades from graves 23 were subjected to functional analysis (see Table 5.2; Van Gijn 2010, 142; pers. observ. of the author). Most of these appeared to be in mint condition showing no signs of wear (n=12). Only four blades displayed minor traces of wear, which could not be connected to clearly defined tasks. The traces observed were usually not well-developed and most of these objects also displayed extensive traces of post-depositional surface modifications (PDSM). The latter caused three additional blades to be not interpretable.

Two blades showed traces of wear that could be related to possible crafting activities. One blade displayed traces with a longitudinal directionality that showed similarities with both hide and plant working.[88] As these traces were not heavily developed it remains uncertain whether they are the result of actually working these materials or if this polish is the result of a bark sheath of some sort, as is generally observed on the French and later Scandinavian daggers (Van Gijn 2010; see Section 6.6.3). A second blade displayed possible traces of working plant/wood in a longitudinal direction, perhaps cutting or sawing.[89] However, since this object also showed extensive traces of PDSM this interpretation should not be considered to be very reliable.

The two remaining blades showed possible traces of hafting. One of these also displayed a hide-like polish over most of its surface. This was possibly the result of having been kept in a leather sheath. Clear traces of use were however lacking.

In general, the northern blades do not show traces of usage and most are in virtually mint condition. Although some show minor generic traces of wear, these could not be attributed to clear activities. Since these objects were imported from sources hundreds of kilometres away, it is to be expected that they show at least some traces of wear resulting from handling, transport and perhaps the packing or wrapping in protective materials. Although not all activities result in clear traces of wear, the general absence of wear traces on these northern flint blades suggests that these objects did not have a practical purpose related to specific crafting or subsistence activities.

Two blades did show traces of red ochre. However, these came from the same grave where they were found in a patch of ochre.[90] There is thus no evidence that ochre was applied directly to the blades themselves.

In addition to the LNA blades from graves, several northern blades from LNA hoards were subjected to functional analysis. This included one blade from the hoard of Holsloot (Drenthe), seven from the hoard of Nieuw-Dordrecht (Drenthe) and three from a hoard near Gammelke (Overijssel) (see Van Gijn 2010, 235; pers. observ. of the author). Like the blades from graves, these blades too did not show signs of use. Although occasionally spots of polish were observed, these could very well have resulted from packaging and transport. Especially the Nieuw-Dordrecht blades (see Fig. 5.5) are very interesting as they could be partially refitted, showing that they came from the same blade-core and travelled as a set, together with a large unpolished flint axe.

Although these LNA blades were imported as finished products, as was argued above, it is of course difficult to determine how, and in what context, these objects

88 AMP0353, from Tumulus I near Borger (Drenthe).
89 AMP0429, from a barrow near Ede (Ginkelse Heide, Veluwe).
90 AMP0535, Borger mound VI (Drenthe).

contextcode	site	object	retouched	traces of wear	traces of use	remarks
AMP0133	Vaassen mound 3	blade	+	-	-	
AMP0219	Ede-Hotel Bosbeek mound 1	blade	-	-	-	
AMP0315	Eext-Huttenheuvel	blade	-	-	-	
AMP0325	Eext-Eexterhalte mound 1	blade	+	-	-	
AMP0361	Hijken-Hijkerveld	blade	-	-	-	
AMP0401	Angelsloo	blade	-	-	-	
AMP0422	Renkum-Quadenoord	blade	-	-	-	
AMP0443	Garderen-Gardense Veld	blade	-	-	-	
AMP0518	Ermelo-Groevenbeekse Heide	blade	-	-	-	
AMP0546	Arnhem-Schaarsbergen	blade	-	-	-	
AMP0558	Roden-Lieveren	blade	-	-	-	
AMP0535	Borger-Molenplaatsweg mound VI	blade	-	-	-	ochre (found in stain of ochre)
AMP0535	Borger-Molenplaatsweg mound VI	blade	-	?	?	PDSM possibly some Hi (unclear), ochre
AMP0325	Eext-Eexterhalte mound 1	blade	-	+	?	PDSM possibly light traces of SiPl
AMP0406	Niersen mound D4	blade	+	+	?	PDSM possibly light wear traces, unclear
AMP0424	Renkum-Quadenoord	blade	-	+	-	some spots of polish (packaging/ transport?)
AMP0179	Ermelo-Ermelose Heide mound III	blade	-	?	?	PDSM
AMP0501	Hattemerbroek grave 3	blade	+	?	?	PDSM
AMP0558	Roden-Lieveren	blade	-	?	?	PDSM
AMP0353	Borger-Drouwenerstraat Tum I	blade	-	+	+	Hi/SiPl + Hi
AMP0429	Ede-Ginkelse Heide	blade	+	+	?	PDSM possibly Wo/Pl but very unclear
AMP0403	Ede-Slijpkruik	blade	+	+	?	Hi all over (sheath?) possibly from hafting
AMP0402	Angelsloo	blade	-	+	?	broken part, frinction gloss from hafting

Tab. 5.2 Overview of the LNA flint blades from graves subjected to functional analysis: (+) present; (-) absent; (?) unsure/not interpretable; PDSM (Post-depositional surface modifications).

reached the Netherlands. There, however, are a few avenues that can be explored. The evidence indicates that these objects reached the Netherlands in finished form and as traces of use are generally lacking, this implies they were brought here in unused form. The fact that apart from pottery, these blades are the most frequently occurring type of grave good in the LNA (not to mention their presence in several LNA wet context hoards) indicates that these objects had a well-established role within the LNA grave ritual. The presence of the same types of blades in CW burials in Denmark (see Hübner 2005, 409) indicates that this role was not limited to the Netherlands, but part of a burial practice that was shared with neighbouring communities and, most importantly, with those from which these blades originated.[91]

The occurrence of these exotic objects in the Netherlands were thus not unique events but part of a well-established exchange network in which objects circulated that played a prominent role in the burial practices of communities over a vast part of north-west Europe.

5.3.3 Placement in the grave

Although there is evidence of blades being deposited in natural places as part of multiple object hoards (most notably the above-mentioned hoard of Nieuw-Dordrecht), the majority of LNA blades have been found in graves. Most blades for which the location in relation to the body was recorded were deposited with the upper part of the body (see Table 5.3). Only one blade was found between the knee and the pelvis. While beakers were regularly found near the feet (see Chapter 4), no flint blades were found at this location.

From the placement of these blades, especially those near the head or behind the back of the body, it can be inferred that these objects were put in the grave after the body had been placed in the grave. This means that these objects were thus not physically attached to the body as a type of dress (as for example a dagger in a shaft attached to the belt of an individual). This is particularly evident at a barrow at Eexterhalte (Drenthe) where a blade was found pressed upright in the ground against the top of the skull (Harsema 1977, 252).[92] Although further details are lacking from

location	n	%
head	4	6,3%
back	3	4,7%
pelvis	3	4,7%
knee-pelvis	1	1,6%
torso	1	1,6%
unknown	53	82,8%
total	65	100,0%

Tab. 5.3 Location of northern flint blades in relation to the body.

91 It is interesting to note that the same types of objects occur in Danish CW graves, but the relative frequencies in which they occur is quite different. From Hübner (2005) it follows for example that in Denmark the battle axe is the most frequently occurring object in CW graves (44%) while axes, beakers and blades occur much less frequently (all around 20%).

92 AMP0336.

the publication, it is clear that this object was placed in the grave when the body was already present there.

For the large majority of the graves either no traces of a body were present, or the location of the finds in relation to the body went unrecorded. Although there thus seems a preference for the deposition of blades with the upper part of the body the sample size is insufficient to come to definite conclusions.

5.4 French daggers

An inventory of all French daggers found in the Netherlands revealed 42 specimens (complete or broken).[93] Of these, 14 came from barrows in the research database (see Fig. 5.6 for a selection of French daggers). For five additional specimens the museum documentation did suggest that they were found in barrows or graves, however detailed context information was lacking. As mentioned above, these sites cannot be used for comparative statistics with other grave goods. However, they were included in the sections dealing with French daggers, setting the total number of LNA graves to 150. This means that 19 out of 150 LNA graves contained a French dagger (12.7%).

The remaining 23 specimens all concern stray finds which may originally have been part of burial assemblages. It is important to note that apart from graves or stray finds (which may have been graves), no other find contexts for complete French daggers are known to the author, although Van Gijn (2010, 145) does report the occurrence of (reworked) dagger fragments in various LNA settlement contexts.

5.4.1 Origins from afar

As was mentioned in Chapter 3, towards the end of the LNA some changes can be observed with respect to the exchange networks that existed in the mid-3rd millennium BCE. Up until now the only exotic objects found in CW contexts – that survived in the archaeological record – indicated the existence of exchange lines with north-west Germany and southern Scandinavia. This is evidenced by both the occurrence of the imported flint blades and axes as well as the distribution of pottery types and burial practices in general. However, starting around 2600 BCE a regular occurrence of objects and object styles can be observed in CW contexts that indicate contact lines to the south, reaching at least to central France. The objects indicative of these contacts are the AOO beaker, a type of beaker that has a much more southerly distribution than the CW beakers (including Atlantic Europe; see Chapters 3 and 4), and the skilfully crafted French daggers of either Romigny-Lhéry or Grand-Pressigny flint.

The co-occurrence of French daggers with AOO beakers, as well as late CW beakers indicates that their first occurrence should be dated to the end of the LNA, around 2600 BCE. The fact that no French daggers are found associated with later bell beakers suggest that their distribution had stopped before ca. 2450 BCE. The occurrence of these objects therefore most likely should be dated ca. 2600-2450 BCE, making them contemporaneous with the AOO beakers. It must be noted, however, that flint daggers

93 Compiled by the author for Van Gijn's 2010 book *Flint in Focus*. Inventory was made on the basis of Archis (Dutch National Archaeological Database), museum collection/records and a literature survey of several Dutch archaeological publication series.

Fig. 5.6 French daggers, scale ± 1:3: (left) mound 4 near Garderen (Veluwe, AMP0257); (centre) mound 2 near Emst (Veluwe, AMP0163); (right) mound 3 near Emmen (Drenthe, AMP0379) (collection: National Museum of Antiquities, Leiden; photography: Q. Bourgeois).

in general are notably absent in Bell Beaker graves. It therefore is possible that French daggers continued to circulate in the BB period as well, perhaps resulting in some of the 'stray' finds. The later Scandinavian flint daggers (see Section 6.6.3), for example, definitely date to the BB period, but are also absent from BB graves.

The introduction of the French daggers in the Netherlands does not seem to be related with the 'invention' or first production of these objects as the production of the long blades of Grand-Pressigny flint started already around 3000 BCE and lasted until ca. 2100 BCE (Linton 2012, 47; Pétrequin and Pétrequin 1988). The time span during which these objects reached the Netherlands was thus much more limited than their actual production/availability in the region of origin. This illustrates that the occurrence of French daggers in the Netherlands is not linked to their sudden availability, but was rather the result of changes in the exchange networks in the mid-3rd millennium BCE.[94]

5.4.2 Production

The production of Grand-Pressigny daggers required – apart obviously from high quality raw materials – exceptional skills. The blanks of these daggers are long flint blades that were removed from specially prepared cores known as *livres de beurre* (Airvaux and Primault 2002). The average length of the specimens found in the Netherlands is

94 In southern France too, pre-existing cultural boundaries appear to fade with the advent of AOO/BB (Vander Linden 2006b, 326).

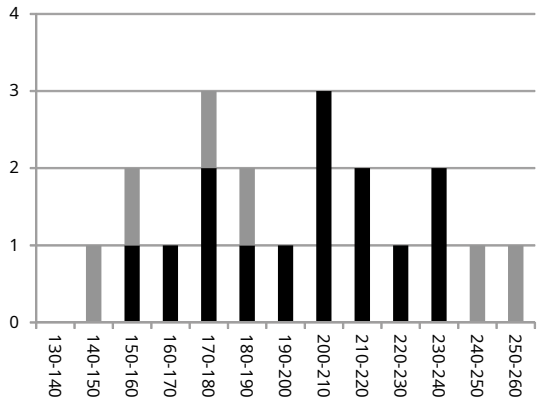


Fig. 5.7 Length distribution of French daggers. Apart from 16 complete daggers from graves from the research database (in black) also the length of four additional French daggers are included (in grey), these concern either surface finds or finds from suspected graves for which no detailed records were available. Average length is 199 mm.

about 20 centimetres, with the longest measuring about 25 centimetres (see Fig. 5.7), but even longer specimens occur in France. Such blades cannot be simply removed by either direct hard or soft hammer percussion. Instead, experiments have shown that the most likely technique used was indirect percussion (Pelegrin 2006; Pelegrin and Millet-Richard 2000). After removal from the cores, these blades were often partially ground and retouched on the dorsal sides (see Table 5.4). The ventral side was usually left untouched with the exception of the bulb of percussion which was often removed by surface retouch.

The removal of the bulbs of percussion, which hardly seems to have had a practical purpose, is quite interesting. The ventral side of a flint flake or blade usually provides most technological clues indication how a flint object was made. Specifically, the character of the bulb of percussion in combination with the percussion waves. It is for this reason that archaeologists studying lithics generally investigate these attributes. It can, however, be expected that these aspects would also be informative to our Neolithic agents who were used to work (with) flint. For the Funnel Beaker culture ceremonial axes I have even suggested that specific technological markers were explicitly kept intact and were used to communicate the skills required in the production of these objects (Wentink 2006a; 2008). In the case of the French daggers however, exactly these elements were removed or obscured. The techniques used caused hardly any waves of percussion to develop and the bulb of percussion was carefully removed, while leaving the remainder of the ventral surface untouched (Van Gijn 2010, 145; pers. observ. of the author).

Based on these observations it seems that the people producing these daggers tried to obscure the elements that conveyed technological information rather than make them especially apparent. As both Helms (1988) and Godelier (1999) have argued, in many societies objects are produced and circulate that are believed to have special powers, that are sacred. Such objects are often produced using technological and cosmological knowledge that was passed on from generation to generation and is attributed to specific ancestors or spirits whose powers subsequently reside in the object (see Wentink 2006a, 75-85). Perhaps the removal of technological markers, such as the bulb of percussion, could be seen in this context, as Van Gijn (2010, 145) suggests, in an attempt to further obscure the origins of the object in question. On the other hand, it could be imagined that these objects were produced in the context of a restricted

group of craftspersons, perhaps not unlike a secret society in which technological information was passed through the generations and was kept from those not part of it.[95] Thus, using secrecy as a means of guarding the legitimacy of both the significance of the daggers produced and the social status the makers generated in the process.

5.4.3 Use life, and the origin of wear traces

Like the northern blades, the use life of the French daggers must have involved transport and exchange. Especially the dagger-blades of Grand-Pressigny flint must have travelled a distance of at least 800 kilometres – as the crow flies – in order to reach the central Netherlands, and even further for the northern Netherlands. Given the specialized techniques required for their production as well as the absence of production waste in the Netherlands – especially the typical cores known as *livres de beurre* – there is no question that these daggers travelled this distance as finished objects. Unlike the northern blades – that generally show no traces of use or even wear in general – the French daggers display characteristic traces indicative of a very specific use.

Out of the 19 daggers or dagger fragments from graves, nine could be subjected to functional analysis (see Table 5.4; Van Gijn 2010, 145; pers. observ. of the author). In addition, the use wear results of four French daggers with uncertain find contexts were also available and hence included in this thesis (Van Gijn 2010). Museum records indicate that one of these almost certainly came from a grave, however, due to a lack of context information this site was not included as a grave in the main dataset. The three remaining objects concern stray finds. Based on their find locations, however, it can be considered likely that they came from disturbed graves as well (see Table 5.4).

All 13 objects subjected to functional analysis displayed highly similar wear traces (see Fig. 5.8). First of all, the presence of a combination of generic polish, friction gloss and in some occasions residue of presumably birch bark tar indicated that the proximal part over a length of 5-10 centimetres had been hafted, probably in a haft made out of a combination of wood and vegetal materials. Similar hafting arrangements can be seen on daggers from well-preserved lake-side settlements in both France and Switzerland (Bocquet 1984; Plisson and Beugnier 2007). The remainder of the daggers' blades show extensive and well-developed traces that look like a combination of the traces resulting from working siliceous plants and hides. A contact material likely for causing such traces might be bark (Van Gijn pers. comm. 2012). Van Gijn (2010, 147) interprets these traces as the result of the dagger having been repeatedly pulled in and out of a sheath. If the daggers would have been employed as tools for working these materials, for example cutting hide or grasses, the traces of wear would mostly develop on and near the cutting edge. In the case of the daggers, however, it is striking that the distribution of the wear does not conform to what can be expected from usage as a tool. Instead of being confined to the cutting edge, the wear traces are located on all protruding edges, including the dorsal ridges (when present) and is often also present on the flat surfaces such as the ventral side of the blades (indicating the contact material fully surrounded the blade). Another argument that is presented by Van Gijn is that the direction that can be observed in the polish – in the form of striations – does not

95 This can be supported by the fact that in the region of origin dagger production appears to have taken place at special activity sites not connected with domestic activities (Linton 2012, 201).

contextcode	site	object	dorsal grinding	traces of wear	hafting	sheath
AMP0101	Doorwerth-Kievitsdel	RL-dagger	+	+	+	+
AMP0163	Emst-Hanendorp mound 2	GP-dagger	+	+	+	+
AMP0257	Garderen-Solsche Berg mound 4	GP-dagger	-	+	+	+
AMP0319	Eext-Visplaats Tum I	GP-dagger	-	+	+	+
AMP0321	Eext-Galgwandenveen 3	GP-dagger	+	+	+	+
AMP0322	Eext-Schaapsdijkweb B	GP-dagger	+	+	+	+
AVG0011	Buinen	RL-dagger	+	+	+	+
AMP0379	Emmen-Emmerdennen mound 3	GP-dagger	+	+	+	+
AMP0393	Vaassen-Hertekamp mound 1	GP-dagger	-	+	+	n/a*
possibly from a grave:						
AMP0537	Garderen	GP-dagger	-	+	+	+
stray finds:						
AVG0023	Zuidlaren-Annertol	RL-dagger	+	+	+	+
AVG0001	Westerbork	RL-dagger	+	+	+	+
AVG0102	Anloo	RL-dagger	+	+	+	+

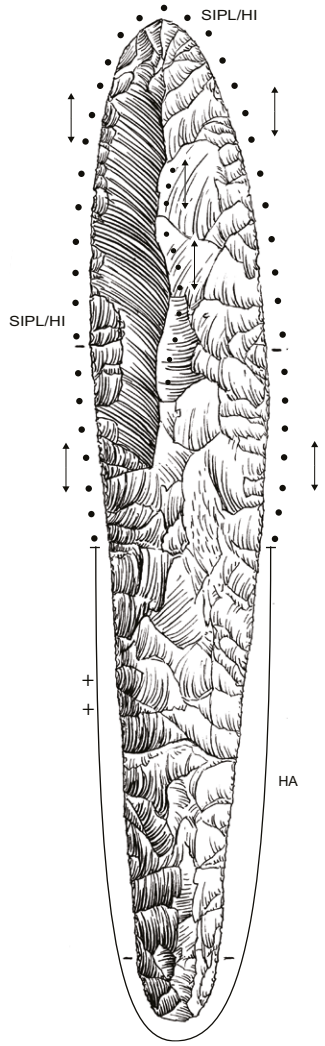
*Tab. 5.4 Overview of the French daggers from graves subjected to functional analysis: (+) present; (-) absent; (?) unsure/not interpretable. *Only proximal part.*

follow the dagger's edge, as would be the case when employed as a tool, but is instead strictly parallel to the longitudinal axis of the blade, making the pulling in and out of a sheath the most likely explanation.

Especially the traces of sheaths are generally very well developed, indicating that this activity must have been repeated countless times throughout a dagger's use life. However, other clear traces of wear, not related to the sheath, are lacking. Although it might be possible that the daggers were occasionally used for activities that did not cause extensive traces to develop, the absence of traces – other than from the sheath – suggests that these objects did not serve a utilitarian purpose. Van Gijn (2010, 147) therefore proposes that these daggers were not actually used as tools but rather served as items of display and exchange.

It is of interest to note that the French daggers revealed quite different traces of use in their region of origin. Grand-Pressigny daggers found in central France were subjected to functional analysis and revealed to have been used for harvesting cereals (Beugnier and Plisson 2000; Linton 2012; Plisson *et al.* 2002; Vaughan and Bocquet 1987). Although this may have been their primary function as envisaged by their mak-

Fig. 5.8 (opposite page) Schematic representation of use wear traces found on French daggers with below each a microscope photograph of the wear traces: (left) mound 4 Garderen (Veluwe, AMP0257); (right) mound 3 Eext-Galgwandenveen (Drenthe, AMP0321) (drawings: GIA, scale 1:3).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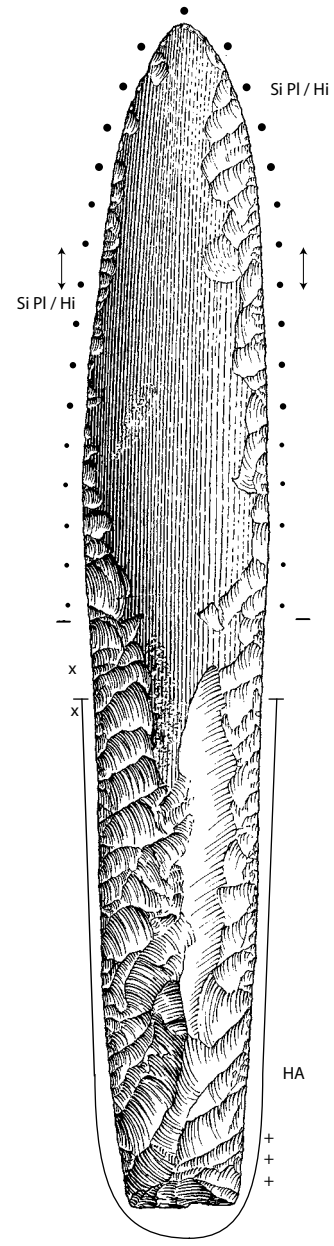
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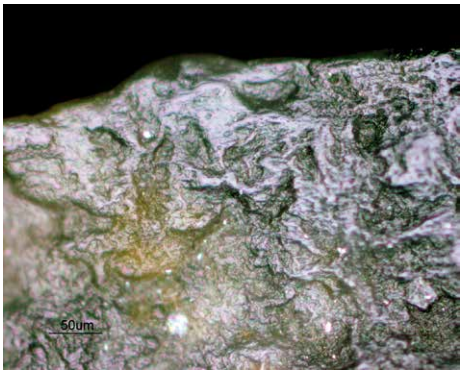
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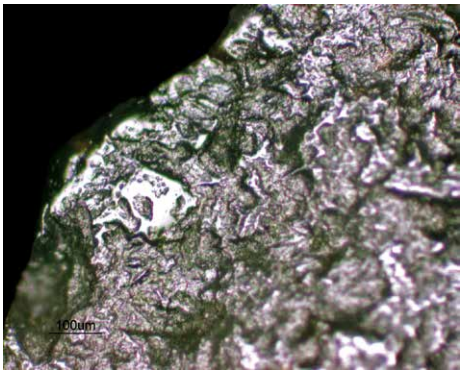
100um

location	n	%
head	1	7,1%
pelvis	1	7,1%
torso	1	7,1%
unknown	16	114,3%
total	19	100,0%

Tab. 5.5 Location of French daggers in relation to the body.

ers, apparently in the Netherlands these objects were re-interpreted and functioned in a different manner. Both Van der Beek (2004) and Van Gijn (2010) mention that although the term 'dagger' suggests that these objects were weapons there is no actual evidence to support such an interpretation.

5.4.4 Placement in the grave

There are unfortunately only three sites for which information about the placement of a French dagger in relation to the body is available (see Table 5.5). One of the daggers was placed near the pelvis, one was found higher up associated with the torso and the third had been placed near the head of the deceased. This latter example indicates this object was placed in the grave after the body had been placed there. Although the information is scarce, it does conform to the observations presented above with respect to the placement of the northern flint blades. These too were found on various locations around the upper-body.

For the majority of the graves no traces of the body were present, or the location of the finds in relation to the body went unrecorded. Although the placement of the French daggers thus seems to be in line with the placement of northern flint blades, the sample size is too small to come to definite conclusions.

5.4.5 Blades from afar

Lanting and Van der Waals (1976, 67) already suggested that the northern flint blades and French daggers were somehow linked because the French dagger seems to take in the place of the northern blade. Van der Beek (2004, 165) made a similar argument suggesting that French daggers and the northern blades may have had a similar function and/or meaning as they "exclude one another as grave gifts". Although the composition of the grave set is discussed in more detail in Chapter 8, this study too showed that in the later LNA the French dagger seems to take in the place of the northern blade. Of all the LNA objects that can be found in graves the French dagger and the northern blade are the only types of objects that are mutually exclusive.

The French daggers are therefore not merely an addition to the LNA grave set. When present, they seem to replace the northern blades. Both the northern blades and the French daggers have been found deposited with the upper half of the body and both occur as single items in graves. They both occur in combination with any other type of grave good, but not with each other. There is thus no reason to suspect that the French daggers were treated any different than the northern blades that had already been part of the burial package for centuries.

Although the French daggers are clear evidence of changes in the mid-3rd millennium exchange networks, their inclusion in graves does not signal radical changes in

the funerary ritual. Although these objects may be 'new', they were treated conform pre-existing notions of how to deal with 'exotic blades'. An interesting parallel might be the encounter between Michael Leahy's 1930s expedition and the Hagen people of the New Guinea Highlands. Objects of 'exchange' involved empty sardine cans, empty cornflake boxes and porcelain saucers which the Hagen people incorporated in 'traditional' headdresses (Verhart and Wansleeben 1997; Connolly and Anderson 1988, 128). Normally these headdresses featured large shells obtained via long-distance exchange, but now these new items were incorporated. Although these objects were new and never seen before, they were treated as other objects obtained in traditional *moka*-exchange. In this way, despite being 'new', objects can nonetheless be treated in a standardized traditional manner.

Of course people knew very well that these French daggers must have come from a different place, they looked different and were produced differently. However, this did not result in them being *treated* as a new category of object. This perhaps indicates that despite the fact that these objects may have been valued for reasons unique to these French daggers, in the end they were foremost valued for the characteristics they shared with the northern blades: they are both long flint blades acquired through long-distance exchange networks.

5.5 Axes

Among archaeologists the polished stone or flint axe has always been seen as one of the primary symbols of transforming a natural environment into a cultural landscape, of clearing forests, laying out agricultural fields and constructing houses (see Bradley 1990, 48). That these objects (see Fig. 5.9) played an important role in the life of our prehistoric agents as well is evidenced by the role axes play in selective depositions in waterlogged places and graves, as well as the fact that people went to great lengths to make or acquire axes. Raw materials used for axe production, for example, were extracted from special sites at tops of mountains such as at Great Langdale in Britain (Bradley and Edmonds 1993) or by means of mine-shafts to reach deep underground flint deposits at various sites in Europe, including the southern Netherlands (see Felder *et al*. 1998, or Russell 2001 for the UK). The products of these remarkable efforts often circulated over vast distances and were among other things subjected to selective deposition, as evidenced by probably thousands of axe hoards found throughout Europe. The special role of axes was not limited to the Neolithic alone, as for example can be seen in the fact that all over Bronze Age Europe thousands of copper, bronze and even solid gold axes were still subjected to selective deposition in waterlogged places and graves (see Fontijn 2002; 2019).

In this section I chose to combine the axes made from both stone and flint. Although both raw materials have different – albeit comparable – qualities and the production process is different in parts, the overall traces of wear as well as the manner of deposition in the grave do not suggest that these items were treated as distinctly different types of objects. This, of course, does not mean that people in the past did not differentiate flint from stone axes, which could well have been the case. The shaft-hole axes, also known as battle axes or hammer axes, in contrast show traces of quite a different usage. In addition, their rather different physical characteristics

Fig. 5.9 LNA axe from a barrow near Renkum, length 109 mm, scale ca. 1:1 (Veluwe, AMP0424), (collection National Museum of Antiquities, Leiden; photography: Q. Bourgeois).

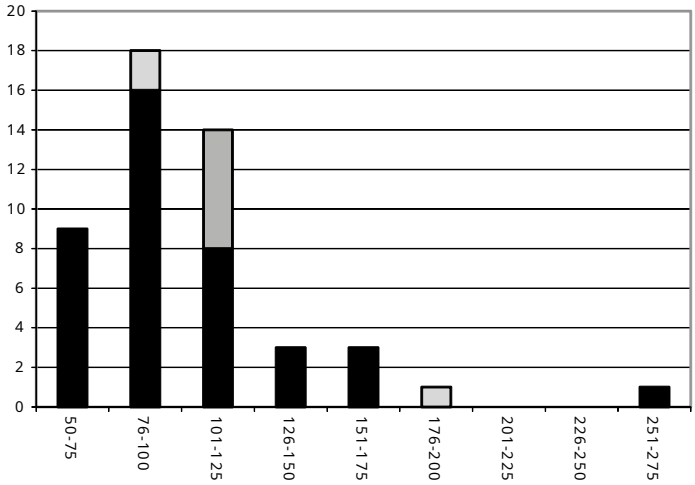

Fig. 5.10 Length distribution of axes from LNA graves. Based on 49 complete stone (grey) and flint (black) axes from graves from the research database for which the length could be recorded. Average length is 103 mm.

make that their overall biographies are very different altogether and as a result necessitates them being discussed separately.

The graves in the research database yielded a total of 65 axes (15 stone and 50 flint axes) from a total of 51 LNA graves. Being present in 35.2% of the 145 LNA graves in the research database, the flint/stone axe thus constitutes one of the main object-categories of the LNA grave set.

5.5.1 Local production and objects from afar

Some of the axes found in graves must have been imported as finished objects from northern Germany or southern Scandinavia, the vast majority of finds, however, were most likely locally produced. Both flint and various types of stone occur as raw materials in the natural subsoil of most parts of the northern half of the Netherlands as well as in adjacent regions in Germany. Although especially the flint occurring in these predominantly glacial deposits is of low quality, it would have been suitable for the

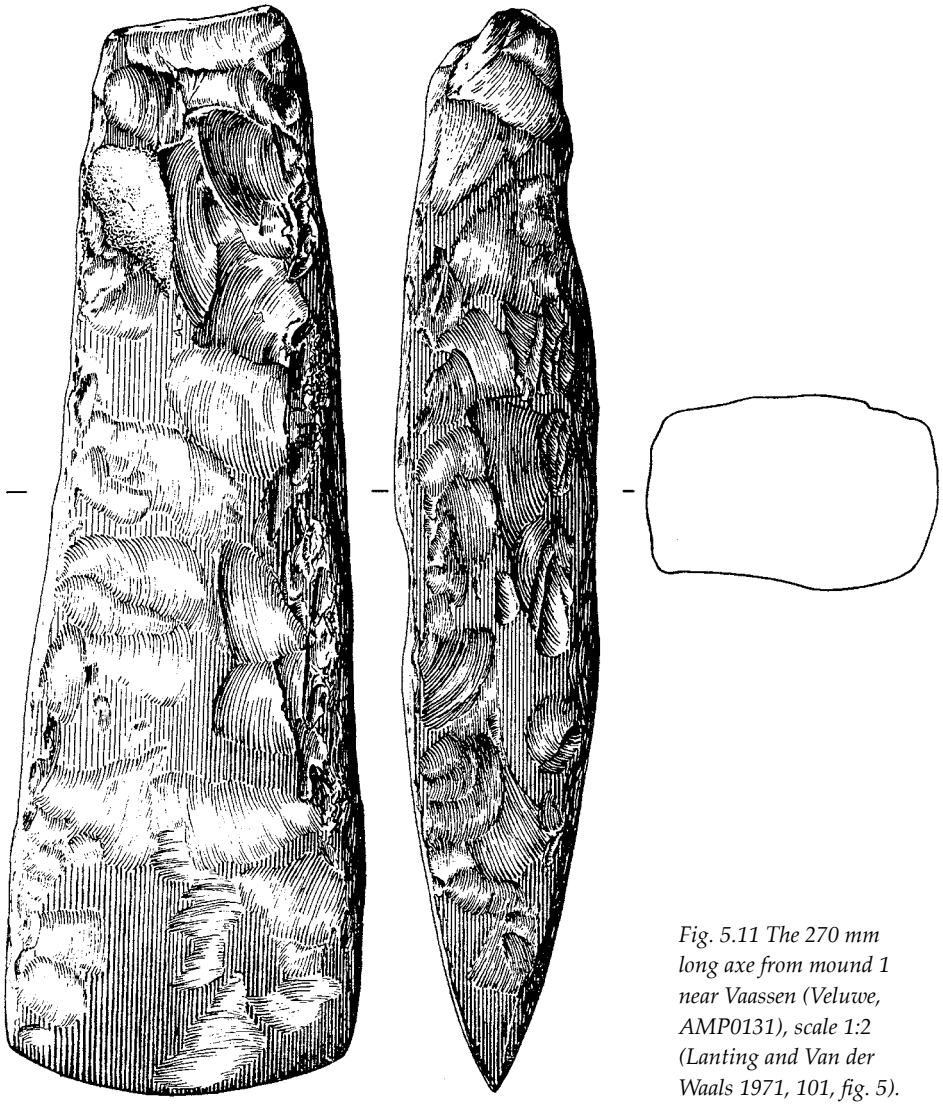

Fig. 5.11 The 270 mm long axe from mound 1 near Vaassen (Veluwe, AMP0131), scale 1:2 (Lanting and Van der Waals 1971, 101, fig. 5).

production of small axes. Bakker (1979, 80) suggests that as a rule of thumb all flint axes exceeding 150 mm in length should be regarded as imported items.

Following Bakker, only four of the 50 flint axes from graves should be regarded as imported items (see Fig. 5.10). Three of these vary in size between 160-166 mm, thus hardly exceeding the 150 mm rule suggested by Bakker. Only one flint axe found in a barrow near Vaassen (Veluwe; see Fig. 5.11)[96] can be regarded as an imported object with any certainty. With a size of 270 mm it not only well exceeds the 150 mm rule of thumb, it also represents the largest LNA flint axe from the Netherlands. Interestingly, an axe of this size can be regarded as too large for actual use and should be seen in the context of the Funnel Beaker culture tradition of producing oversized ceremonial axes (Wentink 2006a; Wentink 2008; Wentink and Van Gijn 2008). The inclusion of this object in a grave is surprising because in the Funnel Beaker culture such items were

96 AMP0131, mound 1 near Vaassen (Veluwe).

never placed in graves, but instead deposited in waterlogged locations. This object can be seen as remarkable, as most axes in LNA graves are rather small with an average of 103 mm. This is very similar to the average length of axes placed in Funnel Beaker culture graves for which the average length is 94 mm (Wentink 2006a). Although the Vaassen axe is an exception, in general there seems to be much continuation between the Funnel Beaker culture and LNA practice of placing axes in graves.

Leaving the Vaassen axe aside for the moment, most of the remainder of the flint axes were probably locally produced and can from a typological point of view be characterized as *Flachbeile* (Brandt 1967, 102-108). Although in general they are quite irregular in shape – mostly due to the poor quality of the raw materials used – they are made with a rectangular cross-section, a tradition of axe-making that originated in the Scandinavian Funnel Beaker culture and still prevailed in the northern half of the Netherlands throughout the Late Neolithic (Bakker 2006). This technique of axe making can be contrasted to the Atlantic tradition, originating in the early Michelsberg culture, in which axes were produced in a bifacial manner, resulting in an oval cross-section.[97] This tradition of axe making can be found in the southern half of the country, roughly south of the main rivers Rhine and Meuse. Only three of the LNA graves contained flint axes that were of this latter type, having an oval cross-section. These three graves were all located in the central Netherlands. Interestingly, two of these graves contained other finds that indicated that they dated to the final stages of the LNA; both graves included French daggers combined with an AOO and ZZ beaker[98] respectively. As was argued above the introduction of AOO beakers and French daggers indicated a change in the CW exchange networks around 2600 BCE to also include exchange lines to the south. Perhaps these oval cross-section axes too can be seen as evidence of those southern contacts.[99]

The flint axes in LNA graves generally are roughly worked and do not display signs of outstanding crafting skills. The flake negatives that are often still visible show signs of a rather haphazard and irregular flaking technique. As such they blend in well with the overall *ad hoc* knapping techniques observed in LNA settlement debitage (Peeters 2001; Van Gijn 2010, 140). Although in size and shape they do not really differ from the locally produced axes found in Funnel Beaker culture graves, there is a distinct technological difference between the two. The Funnel Beaker culture axes are typically ground and polished on a sandstone slab. This resulted in the higher parts of the axe being ground away, whereas the deeper flake scars were left untouched. The LNA flint axes in contrast display an additional grinding technique that can be observed inside the deeper flake scars as these too display clear traces of grinding. Experiments (including those performed by the author) have shown that these likely result from polishing an axe on a piece of leather or

97 Also known as Buren-type axes (see Bakker 2006).

98 CW beaker decorated with zigzag (\/\/\) motifs that are placed late in the typo-chronological model (Lanting and Van der Waals 1976; see figure 3.5). The fact that these beakers date to the late CW is corroborated by the fact that several graves contained French daggers as well as ZZ beakers.

99 In the northern half of the Netherlands stray finds of southern axes are known as well. Although it is thus possible that these represent exchanged items at the time of the LNA, it is more likely that these objects pre-date the LNA as their production already started in the middle of the 5th millennium BCE and lasted well into the 3rd millennium BCE (Bakker 2006). In addition, none of these objects – apart from the three small oval axes mentioned above – came from clear LNA associated contexts, graves or otherwise.

contextcode	site	object	length (mm)	traces of use	traces of hafting	resharpened/ repaired	used/worn tool
AMP0101	Doorwerth-Kievitsdel	axe	102	+	+	-	+
AMP0164	Emst-Hanendorp mound 3	axe	75	+	+	-	+
AMP0257	Garderen-Solsche Berg mound 4	axe	105	+	+	-	+
AMP0315	Eext-Huttenheuvel	axe	103	+	+	+	+
AMP0388	Marum-De Haar mound 3	axe	75	+	+	-	+
AMP0403	Ede-Slijpkruik	axe	75	+	+	-	+
AMP0424	Renkum-Quadenoord	axe	109	+	+	-	+
AMP0546	Arnhem-Schaarsbergen	axe	103	+	+	-	+
AMP0243	Bennekom-Oostereng mound 4	axe	109	?	+	+	+
AMP0319	Eext-Visplaats Tum I	axe	85	?	?	+	?
AMP0321	Eext-Galgwandenveen 3	axe	68	?	?	+	?
AMP0353	Borger-Drouwenerstraat Tum I	axe	166	?	+	+	+
AMP0353	Borger-Drouwenerstraat Tum I	axe	96	?	+	+	+
AMP0361	Hijken-Hijkerveld	axe	87	?	+	+	+
AMP0361	Hijken-Hijkerveld	axe	160	?	+	+	+
AMP0131	Vaassen mound 1	axe	270	-	?	-	-

Tab. 5.6 Overview of wear traces on LNA axes from graves: (+) present; (-) absent; (?) unsure/ not interpretable.

hide in combination with sand and water (Van Gijn 2010, 144). This latter technique proved to be quite successful and also resulted in the deeper flake scars being polished.

Above, the focus has been on the flint axes, rather than stone axes as the former represent the majority of the axes found in graves. As far as technology is concerned, stone axes are produced in a different manner. They are mostly made out of various types of igneous rock that were first roughly knapped and subsequently shaped by pecking and grinding (Beuker 1990; Beuker *et al.* 1992). Just as the flint axes, the stone axes were produced in a northern tradition as evidenced by their rectangular cross section. A more detailed description of working stone is presented in the section below dealing with the battle axes. As various types of stone naturally occur in the subsoil, especially in the tills of the northern Netherlands it is in most cases not possible to distinguish between locally made and imported axes (Beuker *et al.* 1992, 120). However, since flint axes had a long tradition of being exchanged over hundreds of kilometres (see Wentink 2006a), it may be assumed that apart from local production, at least part of the stone axes were involved in various types of exchanges as well.

5.5.2 A useful life

In total 16 axes out of 65 were subjected to functional analysis (see Table 5.6). Like the Funnel Beaker culture axes from the megalithic tombs known as *hunebedden*, the LNA axes from graves virtually all display traces of a long and extensive use life. Apart from the oversized axe from Vaassen, most axes appeared to have been used, probably for all

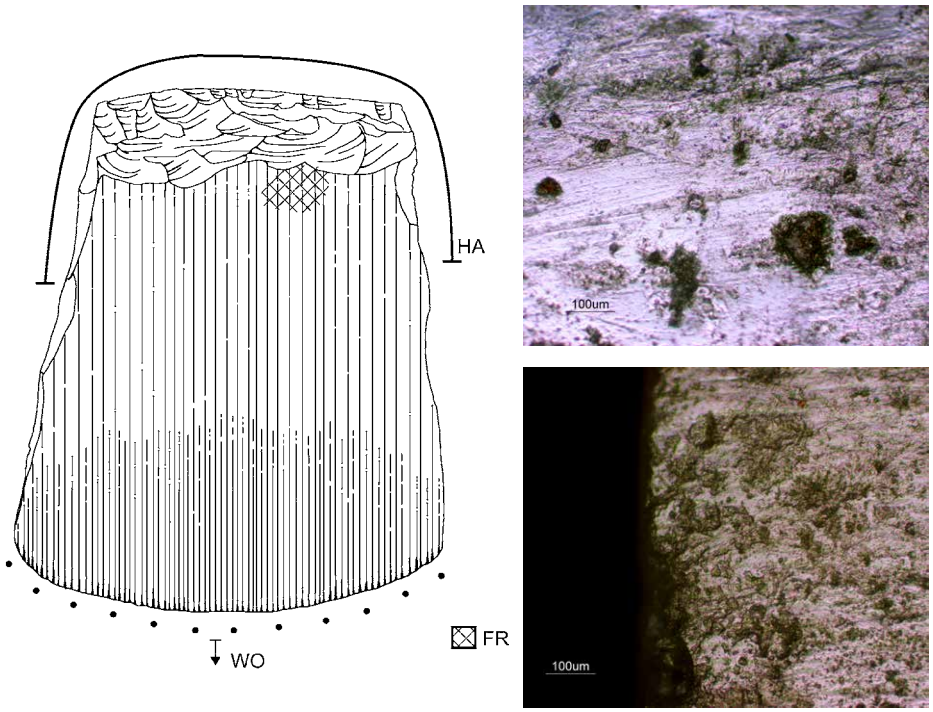

Fig. 5.12 Drawing indicating the wear traces on an axe from mound 3 near Marum, scale 1:1 (Groningen, AMP0388); (top left) microscope photo depiction friction gloss from hafting; (bottom left) showing wear traces, rounding and edge damage on cutting edge (drawing: author).

sorts of activities related to woodworking (Van Gijn 2010, 95; pers. observ. of the author). Although traces of hafting were apparent and often could be distinguished with the naked eye (see Fig. 5.12), wear traces on the cutting-edge of the axes proved more elusive because many of the axes studied appeared to have been resharpened prior to deposition. This is a practice that was also observed on axes retrieved from the Funnel Beaker culture megalithic tombs (Wentink 2006a; Wentink and Van Gijn 2008).

The oversized axe from Vaassen did not display clear traces of wear or hafting. At the cutting edge a hide-like polish could be seen, that was probably related to polishing with sand and hide (see above). Of the remaining 15 axes, 13 showed clear traces of use, in the form of wear traces on the cutting edge and/or traces of hafting (see Fig. 5.12). For only two axes it was unsure whether they had been used due to them having been resharpened to such an extent that any traces of previous use had been removed. Although six additional axes also showed signs of resharpening, here traces of wear could still be attested. The resharpening of axes prior to deposition is evidenced by several different facets of grinding near the cutting edge, resulting from different acts of grinding. Although most of the wear traces that would originally have been present were removed by these acts, there are often still minor traces of wear visible in the form of edge damage, polish and rounding (especially inside the deeper scars of edge damage). This, combined with the fact that most of these axes also showed clear traces of hafting, can be taken to indicate that these axes had an extensive use life and must have been treasured tools.

Small spots of red ochre were present on only two specimens, which can hardly be seen as a pattern. Incidental occurrences of ochre on objects is perhaps even to be expected as ochre would have played a role in many aspects of prehistoric life, from dying fabrics and objects, perhaps applied as body paint and in various ritual or ceremonial occasions.[100]

5.5.3 Two axes, one toolkit?

Of the 51 LNA graves with axes, 14 actually contained two axes. Lanting and Van der Waals (1976, 65) already noted that in those cases where two flint axes were included in graves, there is often a substantial difference in size between the two, one being large, the other being small. This observation could be confirmed in the present study that included four graves with two flint axes. Of these, one grave contained two small flint axes of roughly the same size. The other three graves indeed contained two flint axes that were quite different in size (see Table 5.7), the larger specimens being among the largest flint axes from graves, while the smaller ones were all below average in size (also see Fig. 5.10).

What is even more apparent, however, is the fact that of the ten remaining graves with multiple axes, these all concerned graves with one flint and one stone axe. Unfortunately, the sizes of the axes are known for only five of these graves. One grave displayed the same size difference as with the graves with two flint axes. The stone axe was 190 mm whereas the flint axe was only 80 mm in length. For the other graves the size difference between the stone and flint axe was much smaller (see Table 5.10).

With the exception of one grave[101] from the central Netherlands (Veluwe), all graves containing multiple axes are located in the northern Netherlands. There thus may have been regional differences in this practice.

In a previous publication it was already suggested that the flint axes of different sizes may have had different, albeit complementary, functions (Wentink, Van Gijn and Fontijn 2011, 405). The large flint axes being related to heavy woodworking, whereas the small flint axes may have been related more to fine carpentry. A similar explanation may apply to the graves containing both a stone and a flint axe. Experiments by Olausson (1983) showed differences between the innate qualities of the raw materials used for axe production. Stone axes are on average slightly blunter but less susceptible to damage, making them more qualified for heavy duty work, such as felling trees. The flint axes in contrast can produce sharper cutting edges, making them better suited for finer woodworking.[102] Rather than seeing graves that contain two axes as a sign of 'accumulation of wealth', it is thus more likely that these two axes were valued for slightly different qualities and were both part of a set of woodworking tools.

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100 See for example ochre in Mesolithic burials (Verlinde 2005,179), ochre on Early Neolithic querns and as nodules in graves (De Grooth and Van der Velde 2005, 223), ochre on Funnel Beaker culture ceremonial axes (Wentink 2006a) or possible ochre on intentionally destroyed sickle blades in Ypenburg (Middle Neolithic) (Van Gijn 2010, 173).

101 AMP0443, Gardense Veld.

102 It must be noted that a recent experiment with reconstructing a Neolithic house led by Annelou Van Gijn and Diederik Pomstra, using only stone age tools, revealed that stone axes were overall much more suitable for all sorts of tasks than flint axes.The latter became blunt very fast. Both experienced and inexperienced builders preferred the stone axes above the flint ones (Van Gijn, pers. comm.).

contextcode	site	object	raw material	length (mm)
AMP0559	Pesse-Sportveld	axe	flint	75
		axe	flint	70
AMP0353	Borger-Drouwenerstraat Tum I	axe	flint	166
		axe	flint	96
AMP0361	Hijken-Hijkerveld	axe	flint	160
		axe	flint	87
AMP0265	Eese (secondary grave)	axe	flint	162
		axe	flint	74
AMP0265	Eese (primary grave)	axe	stone	117
		axe	flint	80
AMP0539	Ballo-Tumulusbos grave 1	axe	stone	190
		axe	flint	80
AMP0264	Steenwijkerwold-Eese mound 5	axe	stone	80
		axe	flint	90
AMP0443	Gardense Veld-Erve Stegeman	axe	stone	102
		axe	flint	109
AMP0541	Rolde-Nijlande Tum 1	axe	stone	ca. 125
		axe	flint	ca. 80
AMP0354	Borger-Drouwenerstraat Tum 2	axe	stone	?
		axe	flint	?
AMP0448	Fochteloo	axe	stone	?
		axe	flint	?
AMP0521	Havelte-Koningskamp grave 1	axe	stone	?
		axe	flint	?
AMP0522	Havelte-Koningskamp grave 2	axe	stone	?
		axe	flint	?
AMP0524	Havelte-Koningskamp grave 4	axe	stone	?
		axe	flint	?

Tab. 5.7 Overview of LNA graves that contained multiple axes. Note (in red) that with exception of Pesse-Sportveld, all graves with two axes either have a big difference in size, or they concern sets of a stone and flint axe. Also note that with the exception of the grave from Gardense Veld (AMP0443) located on the Veluwe, all these graves come from the northern Netherlands.

location	n	%
head	2	3,1%
pelvis	1	1,5%
torso	1	1,5%
unknown	61	93,8%
total	65	100,0%

Tab. 5.8 Location of LNA axes in relation to the body.

5.5.4 Placement in graves

For only four graves information about the placement of the axes in relation to the body is available (see Table 5.8). These axes were found in the pelvic region, in front of the torso and two near the head of the deceased. Of the latter, one was found placed in front of the face, whereas the other was found at the back of the head.

Although there is far too little data to come to clear conclusions, it can be noted that the limited data that is available is in line with the observations presented above with respect to the northern flint blades and French daggers. These objects too were found solely near the upper half of the body.

5.5.5 The role of axes in the Late Neolithic

The fact that seven of the axes were resharpened before deposition could be interpreted as providing the dead with tools that are ready for use (*e.g.* Wentink 2006a, 60). However, it should be questioned whether this act of resharpening was specifically related to the funerary ritual or that the act of resharpening was merely part of the way axes were used and maintained. My grandfather was a carpenter and always very strict and careful with his tools. After every use he would always clean them, sharpen them and put them in their proper place. Similarly, it is easy to imagine that our Neolithic ancestors would have valued their tools and would have resharpened their axes after use. Perhaps the resharpening of axes should therefore be seen as the result of a habitual form of tool maintenance, rather than as an act specifically related to the burial ritual. In either case, however, it illustrates an involvement with, and respect towards these important tools.

That the axe would have been an extremely important tool in the LNA, or indeed throughout the Neolithic and Bronze Age, is without question. Vegetation reconstructions show that the Late Neolithic barrows were constructed in extensive heathlands (Doorenbosch 2013). Such heathlands are not a natural phenomenon and, although subject to debate (*e.g.* Vera 1997), they were most probably the result of deforestation caused by humans. While fire might be part of that process, the axe definitely was. By clearing the forest, the landscape was transformed into one that could be used for agriculture, where livestock could graze and that was suitable for cart-based transport. In addition to these practical benefits of creating a more open landscape, the heathlands must also have been of ideological significance as they provided the building blocks for the sod-built barrows whose symbolic function was – at least in part – related to them being visible in these open landscapes (Bourgeois 2013).

Apart from landscape management, the axe also would have played a pivotal role in all sorts of crafting activities. These can be related to such things as building houses, fences and other forms of domestic architecture. The LNA, however, is the first period in prehistory where unambiguous evidence is found for both the widespread use of the plough or ard in agriculture, and the first introduction of disc-wheeled carts (Fokkens 1998, 102; see Chapter 3). Both technologies, especially the latter, would have required extensive and highly developed woodworking skills.

These first wheels were made of solid pieces of oak, cut longitudinally out of tree trunks in order to avoid the heart of the tree and minimalizing the risk of breakage (Van der Waals 1964a). The significance of the cart can be demonstrated by the 13 separate finds of LNA disc-wheels at various waterlogged places in the northern Netherlands. What is of interest is that at least some of these wheels were unfinished

Fig. 5.13 Unfinished LNA disc wheel found deposited in the peat near Midlaren (Drenthe), diameter 56 cm (collection: Drents Museum, Assen; photography: J. Beuker).

and made of alder wood instead of oak and are therefore not considered to be of practical purpose. It seems that these wheels had been specially made for deposition (Van der Waals 1964a, 41). Although Van der Waals presents several profane interpretations explaining the presence of these wheels in bogs, I argue that this practice should be seen in the context of other depositional practices going on in waterlogged places, including those of depositing hoards of axes both in the Funnel Beaker culture and the LNA (*e.g.* Butler and Fokkens 2005, 390). Also noteworthy is the fact that apart from two Iron Age specimens (Van der Waals 1964a, 47), all prehistoric wheels found in the bogs of Drenthe only date to the LNA and first half of the LNB (2900-2200 BCE) (Lanting and Van der Plicht 2000). This further indicates that these must be interpreted as part of selective and intentional depositional practices, and illustrates the ideological/symbolical significance of the wheel/cart.

In this context also the existence of extensive peat trackways should be mentioned, as these occur in the same parts of the Netherlands. At least some of these would have functioned as bridges, for example to cross the Bourtanger Veen, that were wide enough to be used by carts (Casparie 1987; 2005). It is not clear to what extent such trackways were in use in the Late Neolithic in the Netherlands as only one trackway at Nieuw-Dordrecht could be positively dated to the LNA.[103] Several other trackways,

103 Dates provided by Casparie (1987, 53) span between 2900-2500 BCE when calibrated.

however, have been dated to the Funnel Beaker culture whereas others date to the Bronze Age, Iron Age and the Roman Age. Wooden trackways dating to the LNA have also been documented outside of the Netherlands, including examples in north-west Germany (Hecht 2007, 171). It is therefore reasonable to infer that bog trackways were in use throughout prehistory from at least the mid-4th millennium BCE onwards.

The above mentioned LNA trackway, found in the immediate vicinity of the previously mentioned hoard of Nieuw-Dordrecht (consisting of an unfinished Funnel Beaker culture-style axe and eleven flint blades), appears to have had a purely ceremonial function (Casparie 1987). The trackway must have been between 1-2.5 kilometres long and ends in the middle of the bog. It does not seem to extend to the other side across the bog. Moreover, the surface of the trackway was unworn indicating it had been hardly used. In fact, although the surface of the trackway was made with planks of slab wood (used to make an even surface suitable for wheeled traffic), a suitable substructure to support the weight of carts was largely absent (Casparie 1987, 53). Although the trackway looked like it was made for carts, it could not actually have been used for this. This is therefore very similar to some of the (unfinished) disc-wheels that were made of unsuitable wood-types, they too would never have been able to actually function.

In the immediate surroundings of the trackway several depositions were found. Apart from the axe and blade hoard (unfinished and unused) already mentioned, these included a disc wheel (found next to the trackway) and two well-preserved handles for stone axes (underneath the trackway; Casparie 1987, 53). As such, several different elements of deposition (carts, trackways, and objects acquired though long distance exchange) come together here, with the axe playing an important role in all of them. Casparie (2005, 402) calculated that for the Nieuw-Dordrecht trackway alone about 40 hectares of forest would have needed to be cleared.

Although the importance of complex technologies such as carts, the plough and trackways would have been significant, the importance of woodworking in normal day-to-day activities should not be underestimated (see Louwe Kooijmans and Kooistra 2006, 225). Although flint and metal are used by archaeologists to distinguish between periods in time, it should not be forgotten that throughout prehistory wood would have been the primary raw material used in all spheres of both ritual and domestic life. In fact, I assert that the majority of all material culture present in a typical prehistoric household was made out of wood. Even in today's society with all of its metals and plastics one only needs to look to see that wood is still all around us. It is only by realizing this that we can begin to understand why the axe was such an important object throughout prehistory and why it is again and again encountered in special contexts such as graves and/or votive depositions (Wentink *et al.* 2011).

5.6 Battle axes

The 'battle axe' or 'hammer axe' is the last of the main object categories in LNA graves. Occurring in a total of 34 graves (23.4%), the battle axe is the 'rarest' of the main four object categories in LNA graves (beaker, blades/daggers, axes, battle axes). There were no graves containing multiple battle axes. For one grave it must be mentioned that, strictly speaking, the battle axe was found just outside the actual grave pit, but was covered by the primary burial mound indicating that its placement there must have been

Fig. 5.14 Type 1a battle axe from a flatgrave near Hijken (Drenthe, AMP0361), length 175 mm, scale ca. 2:3 (collection: Drents Museum, Assen).

part of the funerary ritual. It was therefore included in this selection.[104] One additional grave contained a reworked fragment of a battle axe.[105] Although this find is discussed in more detail below, it was not included in this selection (see Fig. 5.16).

As an object, the battle axe is probably one of the most striking artefact types of the LNA. In part this may be related to the fact that these items are often skilfully crafted and include a shaft-hole drilled through solid stone (see Fig. 5.14). The supposed function of these objects, however, is without doubt what is most intriguing. It will come as no surprise from the designation 'battle axe' that these objects were traditionally seen as the weapons of choice of fierce horse-riding tribes that supposedly roamed northern Europe in the 3rd millennium BCE (Childe 1957 [1925]).

The prevalent interpretation of these objects as weapons continues to this day. Butler and Fokkens (2005, 395) substantiated this interpretation by remarking that although shaft-hole axes are quite common throughout the Neolithic and even the Early Bronze Age, they become increasingly more stylized in the Late Neolithic making it unlikely that they functioned as mere tools. I, however, am of the opinion that it are the Middle Neolithic Funnel Beaker culture battle axes, in particular the double-bladed specimens of the Hannover type, that appear unpractical due to their rather extravagant shape and decoration. Although still skilfully crafted objects, the Dutch LNA battle axes are in comparison much more basic in design, despite the fact that some have a slightly concave longitudinal cross-section.

Although other studies were mostly concerned with the typo-chronology of battle axes (see Hübner 2005, 68 for a lengthy discussion on typology). This section, in con-

104 AMP0257, mound 4 near Garderen (Veluwe).
105 AMP0238, mound 1 near Speuld (Veluwe).

trast, focuses on their life-histories instead. As typological matters have been discussed at length elsewhere (Hübner 2005; Glob 1944, for Denmark, and Addink-Samplonius 1968 for the Netherlands) and do not appear to contribute greatly to understanding their possible function or meaning, the discussion below focuses primarily on those aspects that have largely been ignored: the technology involved in the production of battle axes, wear traces and the possible functions of these objects, their placement in graves and hence their possible meaning or significance in respect to the grave ritual.

5.6.1 Production

The Dutch LNA battle axes are mostly made of igneous rock types such as diabase and diorite or gabbro (see Addink-Samplonius 1968, 236; Beuker *et al.* 1992, 132). These rock types all share some common characteristics: they are hard and tough, making them well suited for the production of heavy-duty tools. These rock types are all black to dark green in colour. Some of the latter types are also known as greenstone (Beuker 1990, 12). Primary sources of these types of rock occur in Scandinavia, but they can also be found locally throughout the northern Netherlands and adjacent parts of Germany as part of the tills found in the Saalien ice-pushed ridges (Beuker 1990, 12; Van der Lijn 1949). Although it is thus possible that these battle axes, or the raw materials they were made of, were exchanged throughout northern Europe, they could also have been produced from local raw materials. That local production did indeed occur is evidenced by the finds of several unfinished specimens (Beuker 1990, 36; Beuker *et al.* 1992, 136; Harsema 1976; see Fig. 5.15). As some types of battle axes are found throughout Europe – most notably the A-type battle axes (see Fig. 5.14) that are part of the CW A-Horizon (see Chapter 3) – it is clear that these were produced in an international style, just as the CW beakers.

Contrary to popular belief, making a battle axe out of a nodule of stone is not very complex, it is merely time consuming (see Olausson 1997). First, raw materials have to be acquired. These could be found locally in most parts of the northern Netherlands, but may also have been obtained through exchange. As Olausson (1997) describes it, during the first stages of production these nodules of igneous rock can be roughly knapped – depending on rock type – using the same basic principles as flint knapping. This technique, however, is only suitable to produce a very coarse rough-out. Quite early in the production process the transition is made from knapping to pecking and grinding. By hitting the rough-out with a hammerstone under a steep angle, small bits of stone are removed. Although this is a relatively slow process, it is not very complicated as only small bits of stone are removed at a time (Olausson 1997, 132). It is thus possible to make even more complex-shaped objects without much additional effort or skill. When the rough-out approximates its final shape, the hammerstone is switched for a grindstone. By careful grinding, with the addition of water and sand, the final shape, and most importantly the cutting edge, is produced. The shaft-hole is drilled in the final stage of production. This can be done by using either a solid or hollow wooden drill that, with the addition of sand and water, is used to grind its way through the battle axe (see Fig. 5.15). Although a hollow drill works faster, solid drills were also used as can be seen on discarded half-fabricates (Harsema 1976). Beuker (1990) furthermore reports that German experiments have indicated a drilling speed of 6 mm per hour. This would mean that the shaft-hole alone would be at least one- or

Fig. 5.15 Battle axe half fabricate with unfinished perforation made with a hollow drill, find context unknown, scale ca. 1:1 (collection: National Museum of Antiquities, Leiden, z.n. 54).

two-day's work. Olausson (1997, 130) mentions several – both published and unpublished – experiments that confirm this one-to-two-days estimate. It, however, may be assumed that our prehistoric agents, who were deeply familiar with these raw materials and highly experienced with the techniques used for working them, were probably much more efficient than modern experimental archaeologists trying to replicate these techniques.

It is difficult to accurately assess how much time was needed in total to finish a battle axe. Raw material selection, knapping a rough-out and pecking it until it was ready to polish would have certainly taken an entire day, perhaps two. The subsequent grinding of the surface and cutting edge would also take at least two days. Drilling a shaft-hole was probably also at least one- or two-day's work (*e.g.* Osipowicv 2006). Combined, the manufacturing of a battle axe would have taken something in the order of 80-100 hours work.[106] This conforms well with the 90 hours a German experimental archaeologist needed for the manufacture of a medium sized battle axe (Vosgerau 1984, cited in Beuker 1990, 38). Olausson (1997, 130), however, lists two experiments with reproducing a battle axe that took between 25 and 50 hours of work. Fenton (1984, 230) argues that the production time can be minimised by careful selection of the raw materials used, preferably a nodule that already approximates the shape of a battle axe.

However, manufacture of the axe head itself was not all that needed to be done. A handle also has to be manufactured. For the battle axes this was relatively easy in comparison to the large handle that were needed to mount an ordinary flint or stone axe head. The shaft-hole axes, including the battle axe, only needed a simple, firm but thin handle of approximately 20-30 mm in diameter depending on the shaft-hole.

106 Some authors consider battle axes as 'high status markers' which is in part related to the fact that they are so time consuming to produce (see for Dutch examples Drenth 1990, 108; Lohof 1993, 6). I would argue however that we should see the production of these battle axes as so many other time consuming crafts and activities that must have taken place in any prehistoric household. They were perhaps performed during the evenings while sitting near the fire and telling stories. As such, this would not at all be that different compared to how nowadays people spend their free time to knit. Being a keen knitter, my grandmother informed me that knitting socks is relatively little work (10-15 hours). A jumper however will take easily 60-90 hours of work (comparable to a battle axe), whereas a bedspread takes at least 300-400 hours (A. Wentink-Molenkamp pers. comm. 2010). Also see Coope (1979, 99) for using knitting in comparison to stone axe making.

A rare find in the bog near Emmer-Compascuum of a hammer axe, or *Arbeitsäxte*, with a preserved 70 centimetre long handle indicates that these handles would have been relatively long (Glasbergen 1957). Although this find was ^{14}C-dated to the LNB (Brinkkemper and Drenth 2002), it is in all technical and practical aspects very comparable to the LNA battle axes. This handle was made of *Sorbus* – also known as whitebeam, rowan or service tree (Glasbergen 1957)[107], a type of wood that is both tough and resilient (Beuker 1990, 55). As this is only a single lucky find it is impossible to tell to what degree people specially selected particular types of wood to be used for this type of axe handle. Given that people spend a lot of time on making the axe-head and selected a type of wood (*Sorbus*) for its handle that due to its properties is still used to this day to make tool handles and walking sticks (Vedel and Lange 1960), suggests that they knew very well the properties of different species of wood and carefully selected those most suitable for the task at hand.[108]

5.6.2 History of speculation, lives of use

As was presented in the introduction of this section, for long the common belief has been that battle axes were unsuitable as mundane tools and a function as specialized weapon was considered plausible (see for example Childe 1957 [1925]; Butler and Fokkens 2005, 395). This allocation might seem acceptable when considering these objects solely based on published drawings. I must admit that I also shared this presupposition at the start of this research. However, an examination of the real-life objects quickly makes one question this interpretation. Already when going through the museum collection of the Dutch National Museum of Antiquities – where all battle axes are kept together in a drawer – it was obvious that most of them showed extensive traces of wear and tear, as evidenced by heavily worn shaft-holes and cutting edges. Although the former generally showed extensive rounding resulting from the battle axe having been hafted, the cutting edges generally showed well-developed traces in the form of edge damage and deep striations. Also the edge-angles were often clearly indicative of repeated acts of resharpening, as a result of which the original length had often greatly been reduced (see Figs. 5.17 and 5.18). Hübner (2005, 638) described similar traces of wear for the Danish battle axes. According to Hübner the majority of the Danish specimens from graves showed traces of use, with at least 10% displaying rather extensive signs of wear.

Similar traces of wear and tear were reported by Bakker (1979) in his catalogue of Funnel Beaker culture battle axes. One of the things that he noticed again and again, was that many of these finds appeared to be heavily used: they show signs of resharpen-

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107 Original determination of wood species was done by dr. U. Grohne of the *Niedersächsische Landesstelle für Marschen- und Wurtenforschung* (Wilhelmshaven). Brinkkemper and Drenth (2002, 126), however, question whether such a determination is possible. According to them it is not really possible for the wood to be classified any further than that it is part of the *Pomoideae* or *Maloideae*, a group that also contains species such as apple, pear and hawthorn.

108 Although much older (5th millennium BCE), a similar find comes from a lake-side settlement in Switzerland where a shaft-hole axe was found with an intact wooden handle that was enfolded with decorated straps of birch-bark indicating that the handles too were subject to much care and attention (N.N. 2000, 199).

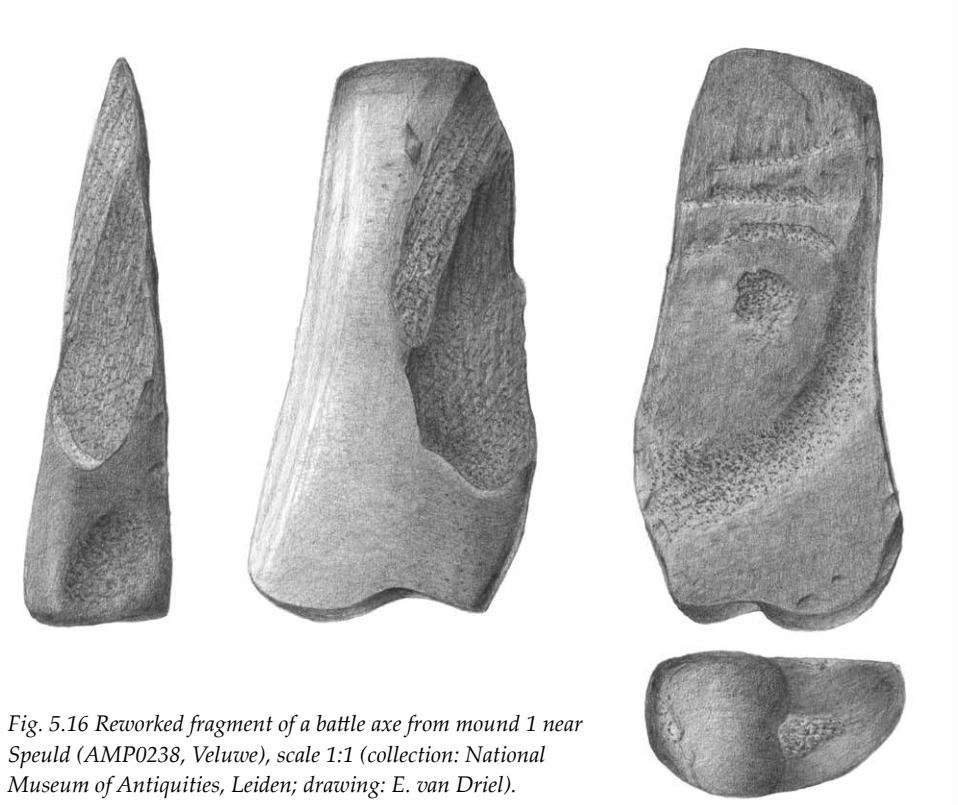

Fig. 5.16 Reworked fragment of a battle axe from mound 1 near Speuld (AMP0238, Veluwe), scale 1:1 (collection: National Museum of Antiquities, Leiden; drawing: E. van Driel).

ing, repair and wear.[109] At first glance, both the Funnel Beaker culture and LNA battle axes show extensive traces of wear. Although it is certainly not implausible that combat or war took place every now and then, it may be questioned whether this really would result in such extensive traces of wear.

Of the 145 LNA graves in the research database, 34 contained a battle axe, with none containing multiple battle axes. One of these graves, however, contained only the butt-end of a battle axe broken at the shaft-hole. This object was not available for study and it was thus not possible to determine whether this object was broken during excavation or placed in the grave as a fragment.[110]

One additional grave contained a strange looking stone object that was revealed to be a reworked piece of a battle axe (see Fig. 5.16).[111] Part of the side and part of the shaft-hole of the battle axe remained. This, however, was not just a broken piece, as the fractured surface showed traces of grinding. It is not uncommon that broken parts of axes were reworked into new tools. However, that did not appear to be the case here. Although the broken surfaces clearly showed traces of modification by grinding, it was not possible to recognize a particular tool type in the object formed. Functional analysis also did not reveal traces indicative of a particular use.

109 Similar findings of wear were reported for the Danish Funnel Beaker culture battle axes (Zápotocký 1992, 157 in: Hübner 2005, 638).

110 AMP0001, barrow near Ermelo (Veluwe).

111 AMP0238, mound 1 near Speuld (Veluwe).

contextcode	site	object	length (mm)	traces of use	traces of hafting	resharpening/ repair	used/worn tool
AMP0538	Groenlo-Gelre de Woerd	battle axe	120	+	+	+	+
AMP0424	Renkum-Quadenoord	battle axe	172	+	+	-	+
AMP0361	Hijken-Hijkerveld	battle axe	175	?	+	-	-
AMP0319	Eext-Visplaats Tum I	battle axe	152	+	+	-	+
AMP0172	Uddelermeer mound E	battle axe	161	+	?	-	+
AMP0133	Vaassen mound 3	battle axe	128	+	?	-	+
additional objects studied:							
AMP0550	RMO nr: L1931/2.1	battle axe	160	+	+	+	?
AMP0551	RMO nr: L1931/2.2	battle axe	180	+	+	-	?
AMP0552	RMO nr: BPL I310	battle axe	128	+	+	+	+
AMP0553	RMO nr: AM10	battle axe	160	+	?	?	+
AMP0554	RMO nr: E1929/8.2*	battle axe	85	+	+	?	+
AMP0555	RMO nr: G1934/8.1*	battle axe	144	+	+	-	+
AMP0556	RMO nr: L1938/6.41*	battle axe	87	+	+	-	+

*Tab. 5.9 Overview of wear traces on LNA battle axes from graves as well as the additional objects that were studied: (+) yes; (-) no; (?) unsure/not interpretable; *distal fragments.*

It, therefore, is possible that we are dealing here with a fragment that was kept and treasured as some sort of heirloom. Because this object was completely reworked into something else, this object was not included in the current selection.

Not all objects were available for study and in addition many of the battle axes appeared to be quite badly preserved, making them unsuitable for functional analysis. Of the 33 complete specimens from LNA graves, only six could be subjected to functional analysis (see Table 5.9).

One of the battle axes appeared to be in more or less mint condition. Although this skilfully crafted battle axe showed some minor traces of wear in the shaft-hole and near the cutting edge, it did not appear to have been intensively used, although it may have been hafted.[112]

The remaining five specimens, however, all showed quite clear traces of use in the form of rounding and damage on the cutting edge as well as deep transverse striations indicating the object had been used in a chopping motion (see Fig. 5.17). The shaft-holes also displayed clear traces of hafting in the form of a rounded and smoothened surface inside the shaft-hole, sometimes completely obscuring the grooves caused by the drill during production. Both indicate that these battle axes must have been hafted and extensively used in a chopping motion on a contact material hard enough to cause serious edge damage and deep striations. One of the battle axes showed clear signs of repair and resharpening (based on edge angles and shortened body, see Fig. 5.18).

112 AMP0361, flatgrave near Hijken (Drenthe).

Fig. 5.17 LNA battle axe from mound E near the Uddelermeer (Veluwe, AMP0172), length 161 mm; (bottom right) macro photograph showing edge damage and deep striations on the cutting edge; (bottom centre and left) pictures taken with stereo microscope of the cutting edge, note the ca. 1 mm wide striations (collection: National Museum of Antiquities, Leiden).

Battle axes are also known as hammer axes because of their hammer-like butt ends. These hammer-shaped butts, however, did not reveal clear traces indicating they had been used as such. Although traces of battering were present on some specimens, it was difficult to say whether these were remnants of production or traces of actual use. In any case, these traces are not at all comparable to the completely battered surfaces of regular hammerstones. However, the possibility that the back ends of these tools were hit with wooden hammers that did not result in actual damage cannot be excluded.

Although five of these battle axes showed rather uniform and distinctive traces, it was decided some additional specimens had to be studied in order to better assess the function of these objects as a group. For this reason, seven additional LNA battle axes were selected from the collection of the National Museum of Antiquities (four complete battle axes and three broken specimens of which the cutting-edge was intact). The only criteria for selection consisted of a positive attribution to the LNA based on typological grounds and the general level of preservation should allow investigation of wear traces. No additional attention was paid to the find circumstances of these objects, but as all objects knowingly coming from graves were part of the first selection, these items may be assumed to be mostly stray finds, some of which may have come from disturbed grave contexts.

Interestingly, most of the seven additional axes showed virtually identical traces of use compared to the specimens from grave contexts discussed above. From these seven additional battle axes, five showed clear traces of use in the form of deep striations,

Fig. 5.18 Battle axe from a grave near Groenlo (AMP0538, Gelderland), length 120 mm, scale 1:1, note the repaired scar (a) from edge-damage and (b) the relatively steep edge angle, both the result of extensive repair and resharpening (photography: ADC).

edge damage and rounding of the cutting edge as well as clear rounding and wear in the shaft-holes as a result of hafting. One of these items, however, had a somewhat sharper cutting edge which should be attributed to resharpening. The extensive use life of this item was apparent from the general edge angle indicating that the axe blade had originally been considerably longer, but was repeatedly reworked and resharpened. Of the two remaining battle axes one also showed limited traces of wear, which, although still visible, had been largely removed through resharpening. One battle axe was very well-made and did not show clear signs of use near the cutting edge in the form of damage or striations. The edge, however, was extremely rounded and the shaft-hole too had become completely smooth, probably due to hafting.

As a group, the battle axes thus show signs of a very distinctive usage. Not only did this result in high levels of wear, the patterns of wear were also quite different from those generally observed on stone and flint axes. Especially the deep striations that started at the cutting edge and could easily extend for 10-20 mm onto the axe's body are a feature unique to the battle axes. As these striations are deep and long, to such an extent that they are easily visible with the naked eye, these must be the result of heavy use. Also, when touching the cutting edge with a finger, the striations and edge damage can be felt and almost give the impression of a serrated edge.

5.6.3 Experiments

Key to interpreting wear traces is comparing them to those observed on experimentally used tools (*e.g.* Van Gijn 1990). Since there were no existing experimental parallels for the traces observed on the battle axes, new experiments were devised in an attempt to find a contact material and activity that would result in similar traces. For the various experiments that were performed replica battle axes were used[113], which were produced by D. Pomstra (expert in experimental archaeology and prehistoric technology) who also collaborated in the experiments themselves. Each experiment was performed with different battle axe replicas.

5.6.3.1 Using battle axes as weapons

Based on the preliminary observations it seemed unlikely, as described above, that the high levels of wear observed could be the result of combat. However, because their function as weapons was a long-held assumption, it was a valid hypothesis to test. A total of 17 red deer heads and one wild boar's head was acquired through an abattoir specialized in large game. The heads – left-overs from Christmas – had been kept in a refrigerator and were fully intact, including all flesh, brains and skin. The experiments were performed in a field where the heads were placed on a bed of straw, both for stabilization of the heads and to prevent the battle axe from accidentally hitting the ground (see Fig. 5.19). The battle axe was subsequently used in a downward chopping motion to hit the heads repeatedly. After 10-20 blows the skulls lost all structural integrity at which point they were discarded and the experiment was continued on the next head. During the experiment the state of the cutting edge was regularly inspected and documented with both video and photo cameras. In total the battle axe was used to deliver 315 blows to a total of 18 animal heads.

During the experiment it was immediately evident that the battle axe was highly suited to the task, since a well-aimed blow easily penetrated the skull, which surely would result in a lethal injury. Although the battle axe itself was thus well-suited for the task at hand, it was found that even after 315 – lethal – blows, hardly any signs of wear could be observed macroscopically. After the battle axe had been cleaned, it was subjected to microscopic analysis. This revealed traces of use in the form of some micro-damage to the cutting edge, and one larger chip of damage removed from the edge (see Fig. 5.19). Clear signs of rounding could be observed. The experiment had clearly resulted in traces of wear. However, these were very different from the traces observed on the archaeological specimens.

The experiment showed that in times of need, the battle axe could be used as a rather effective lethal weapon. It is likely, however, that this did not only apply to battle axes, since other stone or flint axes or adzes would have been equally effective. More importantly, however, the traces indicated that even though battle axes would have been useful as weapons, in daily life, they must have had an altogether different function.

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113 Replica battle axes were produced using modern techniques, but were manufactured in accordance to both the stone-types (diorite) and typology (especially shape of the cutting edge and diameter of the shaft-hole) of the LNA P2-type battle axes.

Fig. 5.19 Experimentally using a battle axe as a weapon; (bottom) pictures taken with stereo microscope of cutting edge after delivering 315 blows to 18 animal heads, some rounding and minor edge damage can be seen, shallow scratches are part of production traces (grinding).

5.6.3.2 Chopping and splitting wood

Because axes are usually connected with wood-working, it was decided that the next experiments should focus on chopping and splitting wood (see Fig. 5.20). For the wood chopping experiment a hackberry, also known as Bird Cherry (*Prunus padus*) was selected with a diameter of about 25 centimetres. At the offset of the experiment the battle axe seemed to be quite useful, similar to regular flint or stone axes. However, it soon became apparent that the battle axe was not very suited for this activity after all. One of the problems that presented itself within a few minutes was the lack of balance. The axe head itself is relatively heavy whereas the handle it is hafted on is quite thin and round. This makes handling it in this manner very uncomfortable, as the weight

Fig. 5.20 Experimentally using a battle axe to chop a tree; (top right) broken battle axe (after 5 minutes of use); (centre and bottom right) pictures taken with stereo microscope of cutting edge of second battle axe, some rounding and minor edge damage can be seen, shallow scratches are part of production traces (grinding).

of the axe head makes it quite hard to use in a sideways chopping motion. From an ergonomic point of view this type of axe, with its thin round handle, would best be used in a downward chopping motion. A second problem, related to the first, is that when chopping under an angle (as you do when you chop sideways), the axe head soon gets loosened and starts to rotate on the round handle. This is very uncomfortable as with almost each blow the axe has to be re-aligned.

The main problem, however, was that the axe and the way it was hafted did not appear to be able to absorb the impacts. As the tree itself is a rather solid body, the main impact has to be absorbed by the axe itself. The first battle axe that was used broke

after only five minutes of use (broken right through at the point of the shaft-hole, see Fig. 5.20). Although another battle axe lasted longer, the wooden handle kept breaking at the point where it was inserted in the shaft-hole. Apparently, a haft this thin cannot withstand the forces generated while chopping down a tree.

When the tree was chopped about halfway through it was decided to cease our attempts as clearly this was not working. Leaving the broken specimen aside, the battle axe used for the main part of the experiment was inspected for traces of use. Although not intensively used, the cutting edge showed clear traces of wear, comparable to those on other experimental tools used for woodworking. However, as of yet there was no trace of the deep striations and levels of edge damage as seen on the archaeological battle axes. The conclusion was therefore that the battle axe itself was rather unsuited to chopping trees. The traces observed on the experimentally used axe did not seem to indicate that we were on the right track.

After the tree had been felled using a steel axe, an attempt was made to use a replica battle axe for splitting a log. This attempt, however, was soon abandoned as the implement did not appear to be suited to this task. According to Pomstra, who performed the experiment and is highly experienced in working wood with stone tools, the angle of the cutting edge was not suited to split the log.

5.6.3.3 Uprooting trees

Although at this point we had not succeeded in replicating the traces observed on the archaeological specimens, we did learn some lessons about the functionality and handling of the battle axe that allowed us to formulate a new hypothesis. During the experiments it had become clear that due to its balance, the battle axe is best used in a downward chopping motion. Although the cutting edge itself is suitable for chopping wood, the manner in which it is hafted is not, as the force of the impact on the tree could not be absorbed by the axe head/handle combination.

Taking these characteristics into account, a new experiment was devised that focussed on the uprooting of a tree (see Fig. 5.21). The chopping of tree roots would necessitate the battle axe to be used in a downward chopping motion. In addition, the contact material would – apart from the wood of the tree roots themselves – also consist of sand, dirt and bits of gravel present in the soil. It was hypothesised that the 'addition' of such particles could possibly result in the deep striations observed on the archaeological specimens. Moreover, the uprooting of trees is an activity that can be expected to have been important in the Late Neolithic. As mentioned in Chapter 3, the 3rd millennium saw the widespread introduction and incorporation of the plough in agriculture. In order for a field to be ploughed, it is necessary to be cleared of obstacles such as tree trunks and roots.

Using a modern shovel, the ground around the tree trunk of the above described experiments was cleared and the roots were exposed. Apart from several larger roots (10-15 cm in diameter), many small roots (1-2 cm in diameter) were encountered. The latter could be easily chopped through with the battle axe with a single blow using little force. The larger roots were easily chopped through as well. As expected, chopping in a downward motion went well and did not present any problems. Interestingly the roots were much 'springier' than the tree trunk. In part this is because the roots are much more saturated with water, but also because they are

Fig. 5.21 Experimentally using a battle axe to uproot a tree; (bottom) pictures taken with stereo microscope of the cutting edge showing extensive edge damage and ca. 1 mm wide striations are clearly visible.

thinner and the shocks generated at impact are partly absorbed by the surrounding soil. Chopping through a root of 10-15 centimetres took about 10 minutes, whereas smaller roots could be easily chopped through, often even with a single blow. After about an hour of chopping roots, the battle axe was still highly functional although clear traces of wear could be observed, even while the cutting edge was mostly covered with dirt and sand. Neither the axe nor the handle broke, even when the thicker roots were chopped at with full force.

The design of the battle axe and its hafting arrangement was also very suited to chopping through the roots. Underground, especially near the trunk of the tree, there is a complex network of tree roots running in various directions, crossing each other at various angles and depths. The battle axe is quite slender, and also the way of hafting – by means of a shaft-hole – results in no parts of the hafting arrangement sticking out to the side of the axe's body (in contrast to how regular flint or stone axes are hafted). Chopping through the roots, one finds oneself often working in unusual angles chopping at roots in difficult to reach places, especially where several roots crosscut each other. While chopping through these roots, it became evident that this would have posed several problems if a normal flint or stone axe would have been used. Not only would the hafting arrangement take in much more space – and therefore not allow for the more difficult roots to be reached – such an arrangement would also easily be damaged as the sides of the axe blade regularly grazed higher lying roots when trying to reach lower lying roots. In that respect, the battle axe with its slender hafting arrangement, was ideally suited to the task.

After an hour of chopping tree roots, it could be concluded that the battle axe performed very well. More interestingly, however, the traces that occurred were very much in line with the traces observed on the archaeological specimens. Already with the naked eye it could be seen that lots of edge damage had occurred resulting in an almost serrated edge, but also deep striations were present. This preliminary assessment could be confirmed after further inspection using both low and high-power microscopy. The type of wear, polish, edge damage, and the deep and distinctive striations could all be observed and closely resembled the traces on the archaeological specimens.

As always, it cannot be excluded that other (unknown) activities could also result in similar traces. It is therefore always important to continue performing further experiments with different activities or by varying certain variables of previously performed experiments. At the moment, however, the uprooting of trees is the most plausible explanation for causing the characteristic wear traces observed on the archaeological battle axes as a group. As these traces were often well-developed and had caused the battle axes to wear out considerably, it is reasonable to assume that this was their primary function in daily life.

5.6.4 Battle axes for clearing the land

From the premise that battle axes were weapons it is perhaps not difficult to understand why they were included in graves. Warfare and martiality usually are assumed to have been highly significant and ideologically-laden activities. Although it cannot be excluded that such activities were indeed associated with battle axes, the wear traces indicate that in daily life these objects played a rather different role. The uprooting of trees may not seem as a particularly glamorous activity, however, when taking into consideration the general developments taking place in the late 4th and early 3rd millennium BCE in north-west Europe, it becomes clear that these objects must have played a rather important role.

As presented in Chapter 3, in the late 4th and especially the 3rd millennium BCE several technological and economic changes occur that include the widespread introduction and usage of the plough, wheeled carts, and the introduction of the horse. These developments, however, were above all linked to a changing landscape. With the opening of the landscape, the increasingly expanding grass and heathlands provided

the stage where carts could be used to transport goods, where ploughs were used to work the fields, where herds of animals could graze. Especially for the use of the plough it is imperative that fields are free of obstacles, most notably tree stumps (*e.g.* Fokkens 1984; 1986). Although beasts of burden can be used to pull tree stumps out, at least the larger of the roots first need to be cut through.[114]

As such the 'battle axes' would have played an important role in the opening of the landscape and preparing fields for the use of the plough. Not only had such an activity great economic significance, it can also be assumed that this would have played an important role on an ideological level.[115] In the previous section it was already mentioned that several graves contained a set of axes (either a small and large flint axe, or a flint and stone axe) that may have been part of a single toolkit. The large/stone axe used for the heavier work, such as the felling of the trees, and the small/flint axe for more delicate crafting activities and woodworking. Instead of seeing the battle axe as a separate class of object, it rather appears to have been an integral part of the toolkit that focussed on the felling of trees, the removing of the stumps and hence preparing the land for ploughing, and the processing of the wood itself in order to craft a multitude of objects that made up the main part of the Neolithic material world. In this sense this toolkit played a pivotal role in various spheres of Neolithic life: the creation of open landscapes, the laying out of agricultural fields, the manufacturing of a wide range of products, both mobile artefacts (tools, carts, furniture, etc.) and immobile structures (houses, fences, trackways etc.).

From this perspective it is clear why the 'battle axe' was such an important tool. However, as an object the battle axe was not new. From the Funnel Beaker culture too, a wide variety of battle axes is known. Although these were not part of this study, the general description of the wear traces on these objects (see Bakker 1979) is quite similar (heavily worn, clear signs of damage and resharpening). Interestingly, however, they do not appear to have been present in Funnel Beaker culture graves as a cursory inventory did not reveal any finds of Funnel Beaker culture battle axes in either flat graves or megaliths. A notable exception is a recent find of a single battle axe in the exceptional Funnel Beaker culture grave field of Dalfsen (Henk van der Velde, pers. comm. 2015). The fact, however, that some are nicely decorated or have rather ostentatious shapes (such as the double-bladed specimens of Hanover type) that clearly surpass what is purely 'functional' indicates that these objects are likely to have had some symbolic or ideological significance. A more detailed investigation into the nature of the wear traces and find contexts of the Funnel Beaker culture battle axes would therefore be much welcomed.

5.6.5 Placement in graves

Again, the data available to study the position of battle axes in graves in relation to the body is extremely scarce. In fact, for only three finds the location in the grave was

114 Fokkens *et al.* (2016, 284) note that in the CW settlements of West Frisia, battle axes are notably absent, but given the fact that these were located on dunes in marshy environments where most of the transport must have been river-based (Fokkens *et al.* 2016, 27), there was perhaps no need to cut tree-roots or remove tree trunks.

115 For the potential ideological significance of tree stumps, see also the tree stump positioned upside-down in the centre of a henge monument in Britain known as 'Seahenge' dating at the end of the 3rd millennium BCE (Pryor 2001).

location	n	%
head	2	5,9%
torso	1	2,9%
unknown	31	91,2%
total	34	100,0%

Tab. 5.10 Location of LNA battle axes in relation to the body.

recorded in relation to the body (see Table 5.10). Two battle axes were found near the head and one in front of the torso.

Based on the battle axes alone, there is not enough data to come to any statistically sound conclusions. However, it can be observed that as was the case with the flint/stone axes as well as with the northern blades and French daggers, the battle axes too are only found near the upper half of the body.

5.7 Flakes, beads, arrowheads and other grave finds

The beaker, blade/dagger, axe and battle axe form the four main object categories present in LNA graves. In addition, a variety of other items occur such as flint flakes, amber ornaments, grindstones and arrowheads (see Table 5.1). Of these, flint flakes are the most common, with 58 objects coming from 22 graves (15.2% of the LNA graves). Amber beads are quite numerous when focussing on individual beads. However, the 82 recorded objects came from only five graves (3% of the LNA graves) and should probably be seen as five necklaces. As can be seen from Table 5.1 at the beginning of this chapter, the remaining types of objects are even rarer, such as grindstones (in four graves), hammerstones (in three graves), and flint arrowheads occurring in only three graves. The remaining categories only occurred as single objects in single graves.

These remaining categories – perhaps with the exception of the flint flakes (see below) – can thus hardly be seen as typical for LNA graves. In addition, these objects, without exception, only occur in graves when accompanied by one or more of the items out of the main four object categories (beaker, blade/dagger, axe or battle axe). This section primarily focuses on the role of flint flakes, arrowheads and amber beads, but the other remaining object categories are also discussed briefly.

5.7.1 Flint flakes

Generic flint flakes with an average length of ca. 30 mm should perhaps be seen as the fifth object category often present in LNA graves.[116] From the various excavation reports it becomes clear that flint flakes must have been present in at least 15.2% of the LNA graves (58 flakes coming from 22 graves). This, however, is a rather problematic object category for a variety of reasons. First of all, most barrow excavations date to the first half of the 20th century AD at which time simple flint flakes did not generate much interest. When in luck, it is mentioned in the excavation report that an often-undisclosed number of 'flint splinters' – as they were often called – were

116 These include also small blade-like flakes, although these can be twice as long as they are wide, they do not show parallel edges or a dorsal pattern indicative of standardised blade production, and therefore were included in this category.

contextcode	site	object	retouched	traces of use	remarks
AMP0229	Putten	flake	-	-	
AMP0229	Putten	flake	-	-	
AMP0229	Putten	flake	-	-	
AMP0229	Putten	flake	-	-	
AMP0229	Putten	flake	-	-	
AMP0229	Putten	flake	-	-	
AMP0387	Marum-De Haar mound 2	flake	-	-	
AMP0387	Marum-De Haar mound 3	flake	-	-	
AMP0387	Marum-De Haar mound 4	flake	-	-	
AMP0538	Groenlo flatgrave	flake/blade	-	-	
AMP0538	Groenlo flatgrave	flake/blade	-	+	cutting mineral mat.

Tab. 5.11 Overview of wear traces on LNA flakes from graves: (+) yes; (-) no.

location	n	%
torso	1	1,7%
pelvis	3	5,2%
knee	1	1,7%
feeth	3	5,2%
unknown	50	86,2%
total	58	100,0%

Tab. 5.12 Location of LNA flakes in relation to the body.

also found. Many of these, however, did not reach the museum collections that now house the beakers, blades and (battle) axes. If they did, this also did not guarantee their availability as many of these finds appeared to have been lost or misplaced, making them unavailable for analysis.

It should also be expected that in many occasions flint flakes were found – or were at least present – but that this information did not make it into the excavation report. The 15.4% mentioned therefore likely represents a minimum. Furthermore, many of the older reports do not describe the find locations in much detail. The problem with generic flint flakes of course is that they also occur in the normal Neolithic settlement debris. It is thus not always clear whether the 'flint splinters' described in these reports really were formal grave goods or that these objects were simply part of the backfill of the grave pit. That this is indeed a potential problem became clear during the recent excavation of several Late Neolithic graves near the town of Hattemerbroek (Drenth *et al.* 2011). Here the fill of the grave pits was carefully sieved and were found to contain dozens of flint and stone artefacts as well as pottery sherds that predated the graves, indicating that these finds should be regarded as intrusive material and not as proper grave goods.

There are thus several reasons why the occurrence of flint flakes in graves is problematic, both with respect to the quantity of finds as well as their possible associations with other grave goods. The information that is available, however, does suggest that flint flakes occur in combination with any other type of grave good. In about half of the graves containing flakes, they were part of sets of up to seven flakes.

Of old, most flint artefacts only generated interest when they could easily be recognized as specific tool types, or if at least they showed signs of modification in the form of retouch. Functional analysis, however, revealed that common, unretouched flint flakes and blades often show traces of all sorts of uses (Van Gijn 1990; 2010). This is well understandable as no form of modification will create a sharper edge than is already present on a freshly knapped flake or blade. This, in combination with the ease at which simple flakes can be produced, makes them ideally suited for many tasks. In many ways a set of flint flakes can be seen as the prehistoric equivalent of the modern Swiss Army knife.

Although it is very difficult to analyse the data with the above problems in mind, there are some general patterns that can be observed. Of the 22 graves known to have contained flint flakes, ten contained only a single flake. The other 12 graves contained multiple flint flakes varying in numbers from two to seven, with an average of three to four. The dead apparently were provided with either a single flake or a set of flakes.

Out of the total of 58 flakes, unfortunately only 11 flakes, coming from three graves, were available for functional analysis (see Table 5.11). One blade-like flake from a grave near Groenlo[117] showed traces of cutting a mineral material. Of the remaining graves, however, none revealed any distinguishable traces of use.

As with the other object categories, there is only very limited information about the placement of flint flakes in the grave in relation to the body (see Table 5.12). Although the numbers are again far too small for sound statistical patterns, it is interesting that most flint flakes for which the find location was recorded were actually found near the lower half of the body, the feet, knees and pelvis. This in contrast with the find locations of the blades/daggers, axes and battle axes that were solely associated with the upper half of the body. Although these observations should be greeted with great caution, it does seem that there were some structuring principles when it came to the placement of specific objects in relation to the body.

5.7.2 Arrowheads

Arrowheads are notably absent in Dutch LNA graves (see also Modderman 1982, 22). In the Funnel Beaker culture megaliths the arrowhead is the most frequently occurring formal flint tool type (excluding flint flakes and waste) with finds numbering in the dozens or even well over a hundred per tomb (Van Woerdekom 2011). In the later LNB, the arrowhead is also a frequently occurring item in graves (see Chapter 6). In the LNA, however, only three graves contained arrowheads (2.1% of the LNA graves). In two occasions only a single arrowhead was found in which case it should even be questioned whether these represented formal grave goods or rather the cause of death. For one of these arrowheads, moreover, it is not even clear

117 AMP0538 (Gelderland).

contextcode	site	object	traces of use	remarks
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	-	
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	-	
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	-	
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	?	
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	+	shooting
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	+	shooting
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	+	shooting
AMP0353	Borger-Drouwenerstraat Tum I	arrowhead	+	shooting

Tab. 5.13 Overview of wear traces on LNA arrowheads from graves: (+) yes; (-) no; (?) unsure/not interpretable.

whether it was actually found in the grave. It might also have come from somewhere in the mound body.[118]

Only one LNA grave near Borger (mound 1, Drenthe)[119] unambiguously contained arrowheads as grave goods. In this grave a total of eight arrowheads were found that were all subjected to functional analysis by Van Gijn (2010) (see Table 5.13). One of the arrowheads was not interpretable and three did not display signs of wear. The remaining four, however, all showed signs of use as a projectile resulting in fractures on the tip and characteristics streaks of polish that occur as result of impact. It must be noted that in experiments it was shown that only two out of three arrowheads will show signs of wear after use as a projectile (Van Gijn 1990). It is thus well possible that some of the arrowheads without wear traces were in fact used. It is unclear whether these arrowheads were retrieved from shot enemies, wounded comrades or the prey of a hunting expedition.

For the LNA this, however, is a unique grave. It is in fact far more reminiscent of earlier Funnel Beaker culture graves. Some of the arrowheads, although they appear clumsily made, resemble the typical pine-tree shaped CW-arrowheads (triangular with a tang but without barbs; Drenth 2005). Most, however, are transverse arrowheads, which are typical for the Funnel Beaker culture. It is thus well possible that this grave should be placed early in the 3rd millennium BCE as it appears to combine both Funnel Beaker culture and CW elements in the grave set.

For only one arrowhead it was recorded that it was located near the head of the deceased. For none of the other arrowheads the location of the finds was/could be recorded in relation to the body.

5.7.3 Amber beads

Like the arrowheads, ornaments – in particular beads – are largely absent from LNA graves. This absence is remarkable as in both the preceding Funnel Beaker culture and subsequent LNB (see Chapter 6) they are a well-represented category in graves. The Funnel Beaker culture tombs have revealed many well-made amber beads (Verschoof 2011; 2013; Van Gijn 2017; 2015) and although various types of beads and half fabricates are known from CW domestic sites (Bulten 2001, 471; Garcia-Diaz 2012; Piena

118 AMP0094, barrow near Helden (Limburg).
119 AMP0353.

context-code	site	no traces of wear	lightly worn	medium worn	heavily worn	indet/not interpre-table	total nr. of beads studied
AMP0257	Garderen-Solsche Berg mound 4	-	8	5	18	5	36
AMP0387	Marum-De Haar mound 2	-	-	1	1	1	3

Tab. 5.14 Overview of wear traces on LNA amber ornaments from graves.

and Drenth 2001, 433; Van Gijn pers. comm. 2012), there are only five LNA graves in the research database that contained amber beads (3.4%). Ornaments from other materials such as jet are lacking entirely. Based on the associations with pottery types (AOO, 1b, 1d and 1e type beakers) and French daggers, it is furthermore likely that all graves with amber beads should be dated to the end of the LNA. The wear traces described below were analysed by Van Gijn as part of various published and ongoing research projects focussing on amber and jet ornaments (see Van Gijn 2017; 2015; 2011).

For one of the five graves containing ornaments it is uncertain whether the single bead retrieved was really part of the grave as the bead was only found after excavation in the spill of the grave pit and no further information is published.[120] One grave near Marum[121] contained three beads, two of which showed clear signs of wear, the third being not interpretable due to bad preservation (see Table 5.14). These lozenge- and biconically-shaped beads were well-made and had apparently been part of a necklace of some sort before they were placed in the grave.

The three remaining graves all contained highly similar, albeit unique, types of amber beads. Two of these graves came from two neighbouring barrows (mound 3 and 4) near the town of Garderen (Veluwe). In one of these graves (mound 4), what must have been a complete necklace was found consisting of 39 beads[122], 36 of which could be studied for traces of wear (see Fig. 5.22 and Table 5.14). The other grave (mound 3) contained only three beads.[123] In both cases the beads appeared to be more or less natural nodules of amber that, although showing evidence of flaking, did not really give the impression that they had been carefully shaped. These irregular nodules, moreover, were perforated with a solid drill resulting in hourglass-shaped perforations. This seemed rather 'primitive' as the Marum beads – but also many of the Funnel Beaker culture beads and later LNB beads – in comparison show very carefully created cylindrical perforations. In addition, the perforations coming from both sides of the beads often did not align, creating highly irregular holes. All in all the beads from these two graves give the impression of having been made rather clumsily.

The beads from mound 4 showed extensive signs of wear (see Table 5.14). Some were even broken and repaired by the drilling of a new perforation (see Fig. 5.23). Not all beads showed wear to the same degree, suggesting that every now and then new

120 AMP0356, mound 2 near Borger (Drenthe).
121 AMP0387, mound 2 near Marum (Groningen).
122 AMP0257.
123 AMP0002.

Fig. 5.22 Amber bead necklace from mound 4 near Garderen (Veluwe, AMP0257), scale 1:3 (drawing: author).

beads were added – and perhaps worn out beads that could not be repaired were discarded. It is difficult to reconstruct the biography of such a necklace, but what is clear is that these beads all had individual life-histories. This means that beads must have been added and – as may be assumed – extracted from the necklace at various points in time.[124] This might be related to the exchange of these objects between individual people or alternatively with the maintenance of the individual necklace. Both scenarios, however, imply that the necklace was a valued item that was maintained, repaired and showed signs of wear and tear. This necklace, moreover, should not be seen as a static singular object but rather as a dynamic composite object.

The beads from mound 3 near Garderen could not be studied for traces of wear. However, their general appearance indicates a close relation to the beads of the above described necklace. These beads too appeared clumsily made – looking basically like perforated raw nodules of amber. Given both the close spatial proximity of the two graves and the similarity of the beads, it is reasonable to assume a strong link between the two. Perhaps both sets of beads were produced by the same person, or at one stage were even part of the same necklace. It would even be reasonable to imagine that the people buried in these separate barrows knew each other and had a social relation in life. The fact that in addition to these peculiar beads both graves also contained a flint axe and – much rarer – a French dagger made of Grand-Pressigny

124 Also see Sheridan's (2015) research on different life histories of buttons found together in closed contexts (see also Barrett 1994, 121-123).

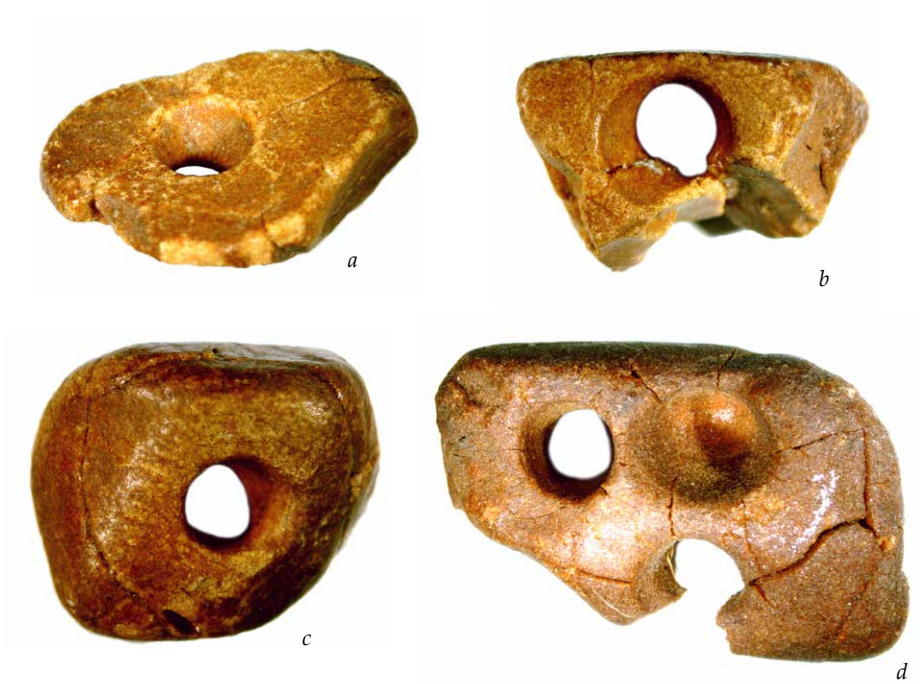

Fig. 5.23 Several photos taken with a stereomicroscope of the beads from mound 4 near Garderen (Veluwe, AMP0257). Note the overall irregular character of the beads. The perforations show rounding and wear, note especially the asymmetrically worn perforations on (b) and (c). The beads (d) and (e) show old and unfinished perforations resulting of multiple phases of repair. Maximum dimensions of the beads depicted are: (a) 18 mm; (b) 17 mm; (c) 17 mm; (d) 24 mm; (e) 16 mm (collection: National Museum of Antiquities, Leiden).

flint further substantiates this. The grave with the 39-bead necklace (mound 4) furthermore contained an AOO beaker and a battle axe, although the latter was found outside the actual grave pit making its relation to the grave somewhat uncertain. Nonetheless the similarity between the two graves is striking.

The third grave containing these types of beads is located near Aalden (Drenthe).[125] Here 36 beads were found together with an AOO beaker (almost identical to the AOO beaker from mound 4 at Garderen) and according to the publication also the 'remains of a heavily degraded cup' were found (see Lanting and Van der Waals 1976, fig. 14). Although these beads were not studied for traces of wear, they strongly resemble the Garderen beads. Interestingly, however, the beads reportedly were found scattered throughout the grave pit[126], suggesting that if they had been part of a necklace, the necklace was broken and the beads were subsequently intentionally scattered through the grave. Alternatively, the beads could have been sewn to a blanket or shroud that covered the body.

Unfortunately, for none of the LNA graves with beads it is known where they were found in relation to the body.

125 AMP0547. It is interesting to note that similar, rather clumsily made beads are known from Denmark. See for example grave 8 from a barrow near Rørkær (Esbjerg) where apart from 40 beads also a bucket-shaped beaker was found with BB-related decoration (see Hübner 2005, catalogue no. 1256).

126 Based on documentation of the grave in the collection of the Drents Museum, Assen.

contextcode	site	object type	raw material	length	funct. analysis	wear traces	traces of use	remarks
AMP0529	Baarn-De Drie Eiken	awl	bone	-	-			burned frag., amonst cremated remains
AMP0529	Baarn-De Drie Eiken	awl	bone	-	-			burned frag., amonst cremated remains
AMP0514	Emmerhout-Angelslo-Kruidhaarsveld Tum X	grindstone	stone	-	-			no details known
AMP0361	Hijken-Hijkerveld	grindstone	stone	95	-			no details known
AMP0495	Anlo grave D	grindstone	stone	-	-			no details known
AMP0528	Putten-Voorthuizenseweg	grind stone	stone	415	+	+	+	large flat grindstone, traces of grinding stone (axes?)
AMP0518	Ermelo-Groevenbeekse Heide	hammerstone	stone	-	-			published as "stone ball" probably a hammerstone
AMP0518	Ermelo-Groevenbeekse Heide	hammerstone	stone	-	-			published as "stone ball" probably a hammerstone
AMP0560	Pesse-Sportveld grave 2	hammerstone	stone	60	-			no details known
AMP0448	Fochteloo	hammerstone	stone	-	-			no details known
AMP0365	Weerdinge-Steenkransheuvel mound 1	unknown	flint	-	-			exc. report mentions 3 "flint objects" (flakes?)
AMP0041	Swalmen-Bosheide mound 8	unknown	stone	-	-			4 fitting frag. of sandstone, unknown if it is an artefact
AMP0146	Soesterberg-Rijksstraatweg mound 3	unknown	flint	-	-			exc. report mentions 3 unworked blocks of flint
AMP0231	Soestdijk-Roosterbos mound 2	unknown	flint	-	-			possibly flint scraper, lost at excavation
AMP0539	Ballo-Tumumusbos grave 1	unknown	stone	-	-			no details known
AMP0039	Swalmen-Bosheide mound 6	indet	flint	-	-			"flint splinter" (flake?) lost at excavation
AMP0535	Borger-Molenplaatsweg Tum VI	indet	metal	-	-			small block of copper, no parallels known
AMP0529	Baarn-De Drie Eiken	barley	seeds	-	-			carbonized barley grains
AMP0529	Baarn-De Drie Eiken	spindle whirl	ceramic	-	-			no details known

Tab. 5.15 Overview of 'other' finds from graves.

5.7.4 Other grave finds

The only objects found in LNA graves that have not already been mentioned can be found in Table 5.15. Apart from four grindstones and four hammerstones, the list contains a variety of items that were either non-diagnostic – items mentioned in old excavation reports and either not collected or lost – or occurred in a grave only once. These latter finds include two fragments of a bone awl, a spindle whorl, carbonized barley grains and a small copper object (see Table 5.15). Although none of these items can be said to be a 'typical' part of the LNA grave set, they are discussed in more detail below.

Fig. 5.24 Metal object found in a LNA grave near Borger (Drenthe, AMP0535), scale 2:1 (collection: Drents Museum, Assen; photography: J. Beuker).

Fig. 5.25 Large grindstone from a LNA grave near Putten (Veluwe, AMP0528), length 415 mm, scale ca. 1:3 (collection: GAS).

One of the most remarkable objects is a small piece of copper (see Fig. 5.24) found alongside two northern flint blades in a central grave of Tumulus 4 near Borger (Drenthe).[127] Unfortunately, this excavation is not published and no more detailed information is available than that during excavation a fragment of copper was found. As such this find would be the only confirmed metal find in a Dutch LNA grave as far as is known to the author. The object itself does not seem to be a specific artefact type. It is a small block/nodule with a maximum length of merely 9 mm.

Seven LNA graves are said to have contained a total of four grindstones and four hammerstones (see Table 5.15). Only one of these could be examined for traces of use. This concerned the rather remarkable find of a large, 6.5 kg weighing grindstone (see Fig. 5.25) that was found in a grave near Putten (Veluwe).[128] Use wear analysis indicated it had most probably be used to grind/polish stone implements such as stone or flint axes.

In Baarn (Utrecht)[129] an extremely rare CW cremation burial was excavated that contained some unique grave goods as well, including a spindle whorl, fragments of two bone awls, the burnt remains of a beaker and a considerable quantity of carbonized grains of naked barley. All finds appear to have been burned on the pyre alongside a young woman based on analysis of the cremated remains (Van Tent 1996, 31).

127 AMP0535.
128 AMP0528.
129 AMP0529.

For only one of the hammerstones mentioned in this section it was recorded that it had been found behind the back of the deceased, for none of the other finds information is available about their placement in relation to the body.

5.8 Concluding remarks

In summary, the LNA graves considered in this research contained a very limited and almost rigid set of items. Apart from the beaker, this set consisted of imported flint blades from southern Scandinavia or the later flint daggers from central France, flint and/or stone axes and battle axes. Although generic flint flakes also regularly occur, other objects are either extremely rare or absent altogether.

The northern flint blades did not appear to have been used, and apparently were valued as items of exchange from other CW groups in northern Germany and southern Scandinavia. It is not until the end of the LNA that items appear in graves indicating exchange relations with the south, of which the French daggers are the clearest example. As such, both blades/daggers and beakers appear to emphasize the importance of these exchange relations, either by including objects obtained from afar, or, in the case of the beakers, items made in an international style (see Chapter 4).

The stone and flint axes and, as argued in this chapter (Section 5.6), the battle axes, can be seen as part of a toolkit related to woodworking and landscape management. It was suggested that the large flint and stone axes were used for heavy woodworking (such as the felling of trees), the battle axes for uprooting of the tree stumps, and the small flint axes could be employed for the finer carpentry. Although these objects were probably valued items in their own right, their main importance comes from the task they were used for: woodworking. Although 'stone' is used to characterise the Neo*lithic*, the vast majority of material culture actually would have been made out of wood. The felling and uprooting of trees created a landscape suitable for agriculture, ploughing and grazing livestock. It moreover created the open landscapes in which the barrows were erected and transport by cart and horse were possible. The wood itself was used in a multitude of ways varying from the building of houses, fences, trackways, carts and wheels, to all sorts of domestic tools and furniture. These were the objects used to shape the landscape and create a large part of the Neolithic material world.