

A Single Grave Culture burial at Groenlo (province of Gelderland, NL)

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1. Introduction

As apparent from overviews by Van Beek (2009, espec. 66-67) and Schut (1987), the number of finds dating to the late Neolithic Single Grave Culture (SGC) in the Netherlands from the region of the Achterhoek in the province of Gelderland is modest¹. Accordingly only a handful of (possible) graves have been discovered in this area. A flat grave or a levelled barrow at Silvolde was the most thoroughly investigated (Bantelmann et al., 1979/80). It has been excavated after the discovery of a stone faceted battle-axe and a flint axe by a farmer. During the excavation a beaker of type 1a came to light. After the excavation a flint blade was found (Hulst, 1989: 141 & fig. 1). In all likelihood this artefact also belongs to the grave inventory, as the SGC occasionally equipped their dead with a beaker, an axe, a battle-axe and a blade. An example of such a burial assemblage comes from a primary interment of a barrow named 'de Ketenberg' at Eext (Cuijpers et al., 1994; with further references).

Another site from the Achterhoek is Almen, where an excavation took place after a flint axe with a rectangular cross-section (a *Flint-Reckeckbeil*) had come to light in a multi-period barrow (Schut 1987, 21: cat. n° 5). In addition to Almen and Silvolde, a number of beakers and a flint axe are also noteworthy in the present context. Though they have not been encountered during regular excavations, they may very well represent grave goods. At Aalten during sand winning, two beakers with herring-bone motifs were recovered (Lanting & van der Waals, 1976: fig. 9; Schut, 1987: 56, cat. n° 10). They represent the types 1d and 2IIc according to the classification of Dutch Late Neolithic beakers by van der Waals & Glasbergen (1955)². The beakers possibly originate from a flat grave context.

From Mallem, two beakers are known, one of type 2IIb, the other related to van der Waals & Glasbergen's type 2IIc, which may well have been originally placed into the same grave (Bursch, 1933: 54 & pl. I: n° 7 & 8; Lanting & van der Waals, 1976: fig. 15; Schut, 1987: 57, cat. n° 12).

The destruction of a possible tumulus at Vorden resulted in the discovery of a *Flint-Ovalbeil* (Schut, 1987: 91, with further references). This too may well originate from a grave context.

Finally, two beakers should also be mentioned. Although their original context is unknown, the fact that both vessels are complete suggests a provenance from a flat grave

1 The present contribution is a slightly revised and updated version of an archeological report in Dutch by the author (Drenth, 2012) as well of a paper completed in 2012 and submitted for the proceedings of a conference on the Corded Ware Complex at Kraków in 2011.

2 For the classification of the (earthenware) beakers this typology has been used here.

or a barrow interment. The first beaker comes from Winterswijk-de Pas. The upper part of the vessel has been decorated with three horizontal rows of oblique impressions regularly alternating with a horizontal row of vertical impressions (Bursch, 1933: 54 & pl. I: n° 4; Schut, 1987: 57: cat. n° 11). The second beaker originates from Eibergen-Zwilbroek (*Ibidem*: 57, cat. n° 14). In this case the ornamentation, which is confined to the beaker's upper half, consists of horizontal lines of cord impressions, ended by a similar row of triangular impressions. This vessel is a beaker of type 1a.

Recently, a SGC grave was excavated by one of the Dutch archaeological companies, ADC ArcheoProjecten (Amersfoort), at Groenlo (toponym De Woerd), which is a welcome addition to the list above (Fig. 1). This burial constitutes the main focus of this paper, in particular its inventory. The grave itself was nothing more than a pit. Its horizontal dimensions were drawn as c. 1.8 x 0.9 m (Halverstad, 2012; Fig. 2). The photographs taken during the investigation show a slightly larger feature. The remaining depth of the grave pit was c. 0.2 m at most. No indications of a coffin came to light. Neither yielded the investigations any vestiges of a corpse silhouette, let alone a skeleton. This comes in so far as no surprise that the site is located within in a coversand area. As a rule such sandy soils are acidic and therefore hostile to the survival of organic materials. Furthermore, no ditch encircling the grave, which have been regularly encountered in other instances, was observed. Finally, there are no hints whatsoever of a burial mound once having covered the burial. The examination of historical maps also provided no evidence for a burial mound. It should be noted, however, that absence of evidence is not necessarily evidence of absence.

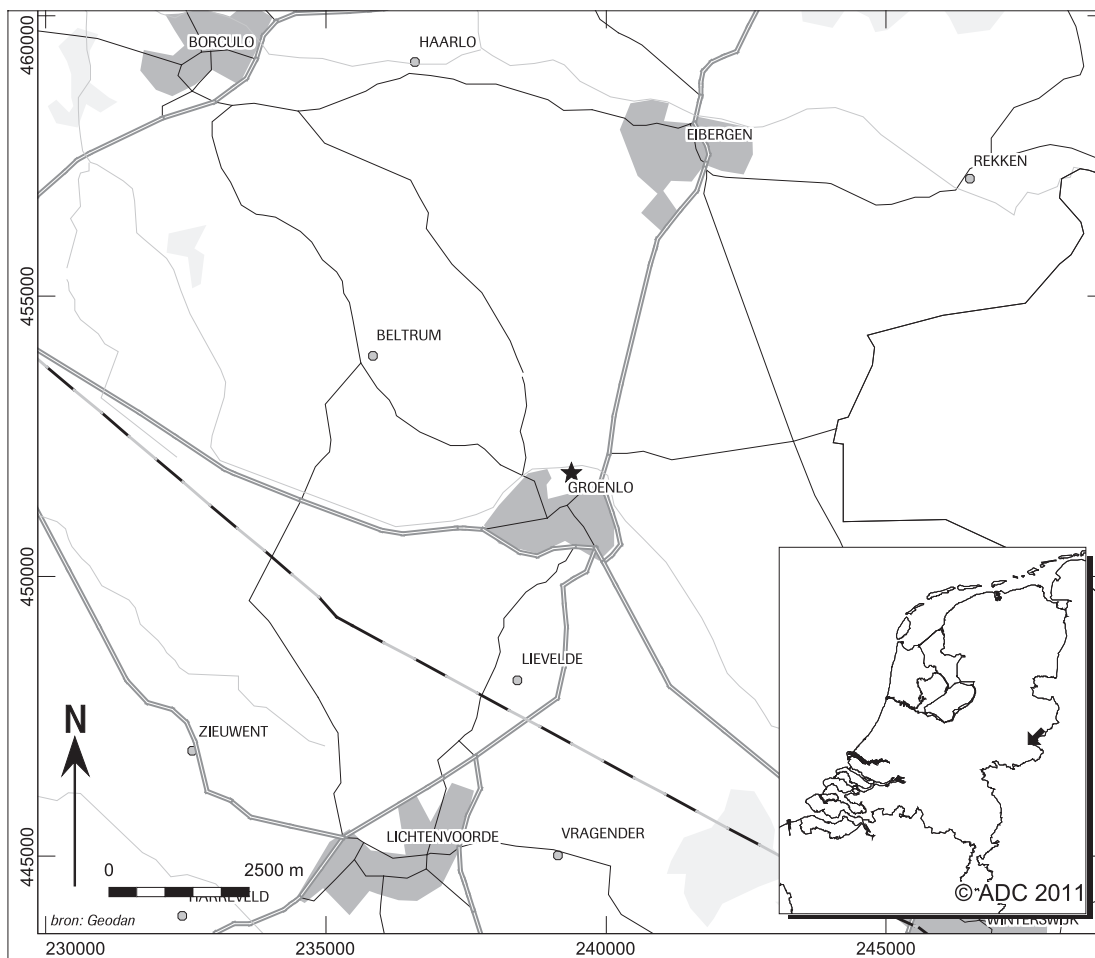
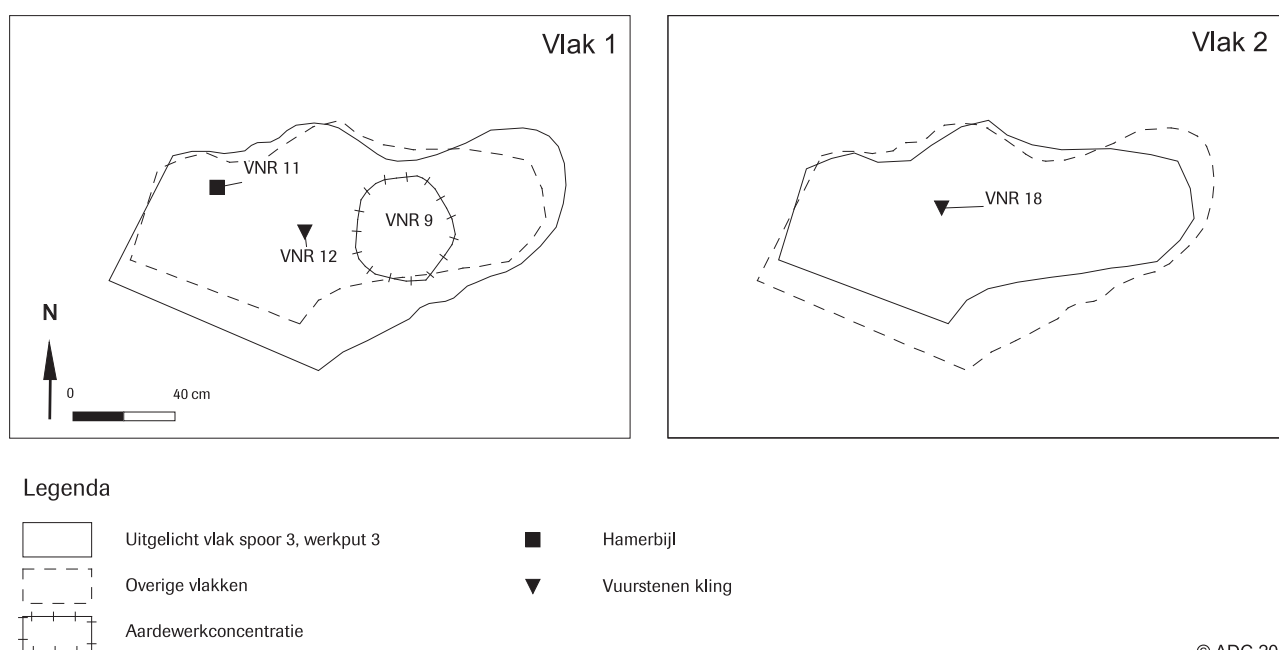


Fig. 1 – Location of the site at Groenlo (marked with an arrow and asterisk).



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Fig. 2 – Contour of the grave pit as recorded in the field. Left: upper level, right lower level. Legend ('legenda'): 'Uitgelicht vlak spoor 3, werkput 3' = level lifted out, feature 3 (= grave pit) in trench 3; 'overige vlakken' = other levels; 'Hamerbijl' = battle-axe; 'Vuurstenen kling' = flint blade; 'Aardewerkconcentratie' = pottery concentration 'VNR' = find no. The straight lines in the West symbolise the locations where vertical sections were made.

2. The grave-goods

2.1. Description and typology

The grave inventory consists of four artefacts. One of them is a diabase battle-axe (Fig. 3). The object is 11.8 cm long and its weight is 360 g. The cylindrical shaft-hole has a diameter of 2.6 cm. The battle-axe is sub-rectangular in cross-section. Practically the complete surface of the object has been ground or polished. A deeper lying part on one of the sides of the lower half belongs to the exceptions to the rule. The same holds true for the top of the neck. It displays traces of hammering. On one of the adjacent sides larger and smaller parts have been splintered off. All these traces attest to use, in particular that the neck served as a hammer. Several features of the lower half also point in the direction of utilisation. The cutting edge is asymmetrical and displays a small scar. This in combination with the 'cheeks' on the cutting half indicates the use and resharpening of the battle-axe before deposition.

Typologically, the SGC battle-axes from the Netherlands consist of three categories: the faceted ones (Brandt, 1967; Lanting, 1982), the 'Jutish' battle-axes (Glob, 1944; Hübner, 2005; Struve, 1955) and the derivatives (Addink-Samplonius, 1968). The Groenlo specimen does not belong to the first group, as it lacks the typical, more or less longitudinally ground facets. The sub-rectangular cross-section furthermore excludes an attribution of this artefact to the group of derivatives. Characteristically, the latter are (partially) oval to round in cross-section. The 'Jutish' battle-axes do have a (sub)rectangular cross-section and the battle-axe from Groenlo can therefore be classified as such. Most, if not all, of the latter's characteristics can be found within the 'Jutish' battle-axe group too.

The most recent classification of 'Jutish' battle-axes is the one by Hübner (2005) in a monograph about the Jutish *Enkeltgravskultur* and the *Einzelgrabkultur* from Schleswig-Holstein. Her typology is a revision of earlier typological subdivisions by Glob (1944)

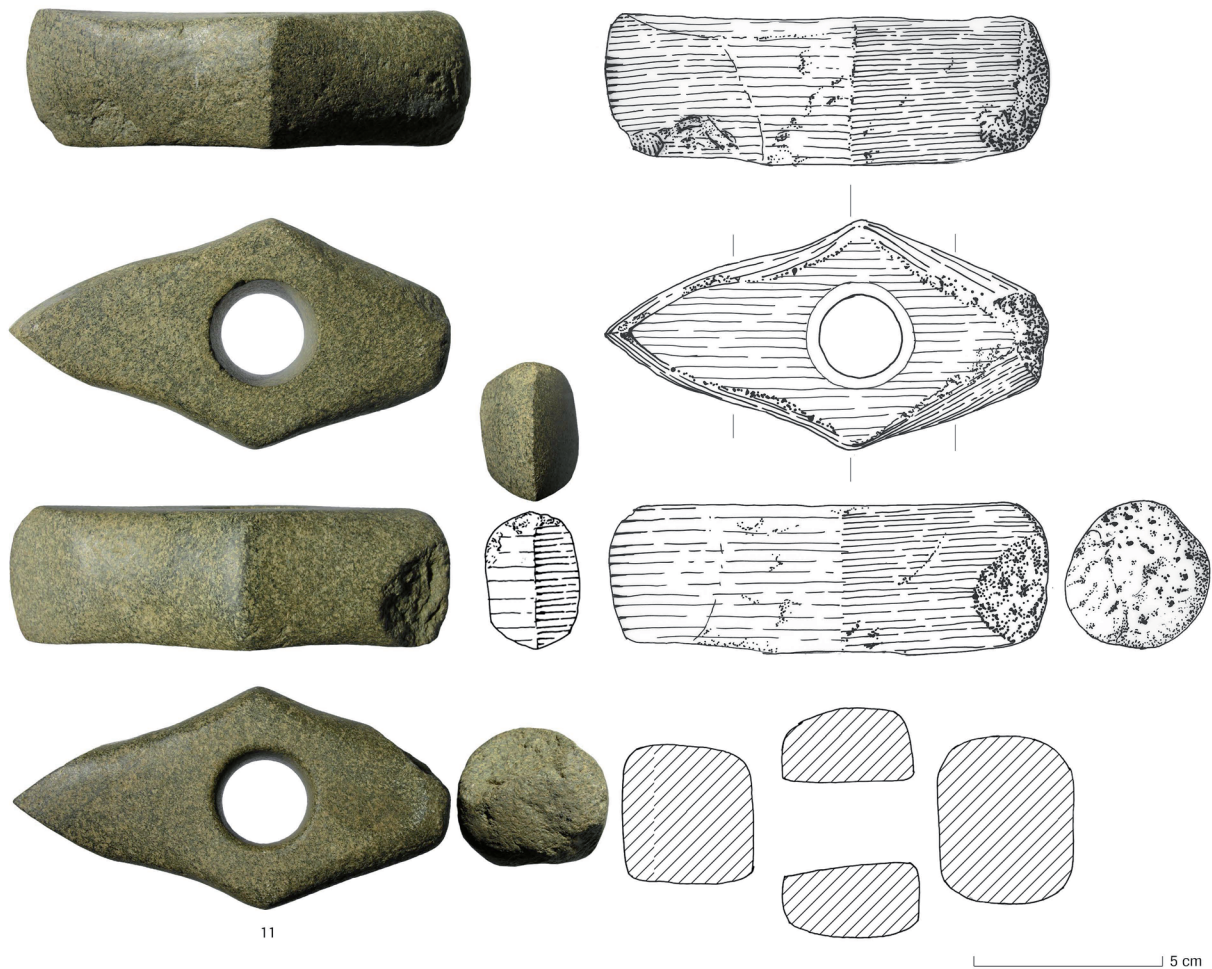


Fig. 3 – Diabase battle-axe from the Groenlo grave. '11' is the specific find number.

and Struve (1955). In comparison with the two latter works, it is better founded thanks to the reordering and measurement of numerous metrical and non-metrical characteristics that the battle-axes have. Despite use and resharpening the basic form of the battle-axe from Groenlo may be considered to have remained unaltered. According to Hübner's typological classification the object belongs to type C1 (Hübner, 2005, vol. I, espec. 89-92, fig. 53 & 54: n^{os} a & b). Apart from by the cross-section, that is indicated, the course of both long sides as seen from aside. Though both are somewhat hollow, this is to a negligible degree. It is therefore more accurate to speak of practically flat sides. It also implies the cutting edge should be labelled as non-widening. Seen from above, the shaft-hole area is carinated and the long sides both above and below this nick are concave. Within the group of C type battle-axes these features are indicative of variety 1. Also according to the classifications of Glob (1944: 21, 23, 25-26 & fig. 5) and Struve (1955: 16-17 & pl. 1) the Groenlo battle-axe represents type C1.

Two flint blades are also part of the grave set (Fig. 4). One of them is to be regarded as complete or practically complete; on the utter proximal part some splintering has occurred. Length, width and thickness are 5.1 cm, 1.4 cm and 0.6 cm respectively. The larger part of the artefact's dorsal face is covered with cortex (rounded off and mainly lustrous). It concerns semi-lucid, fine-coarsed flint. The second blade is represented by a medial part, the fractures being ancient. It consists of dirty white, non-translucid bryozoan flint with depressions as attested by cortex in deeper lying parts along one of the sides. The length, width and thickness are 5.4 mm, 2.1 mm and 0.5 cm respectively.

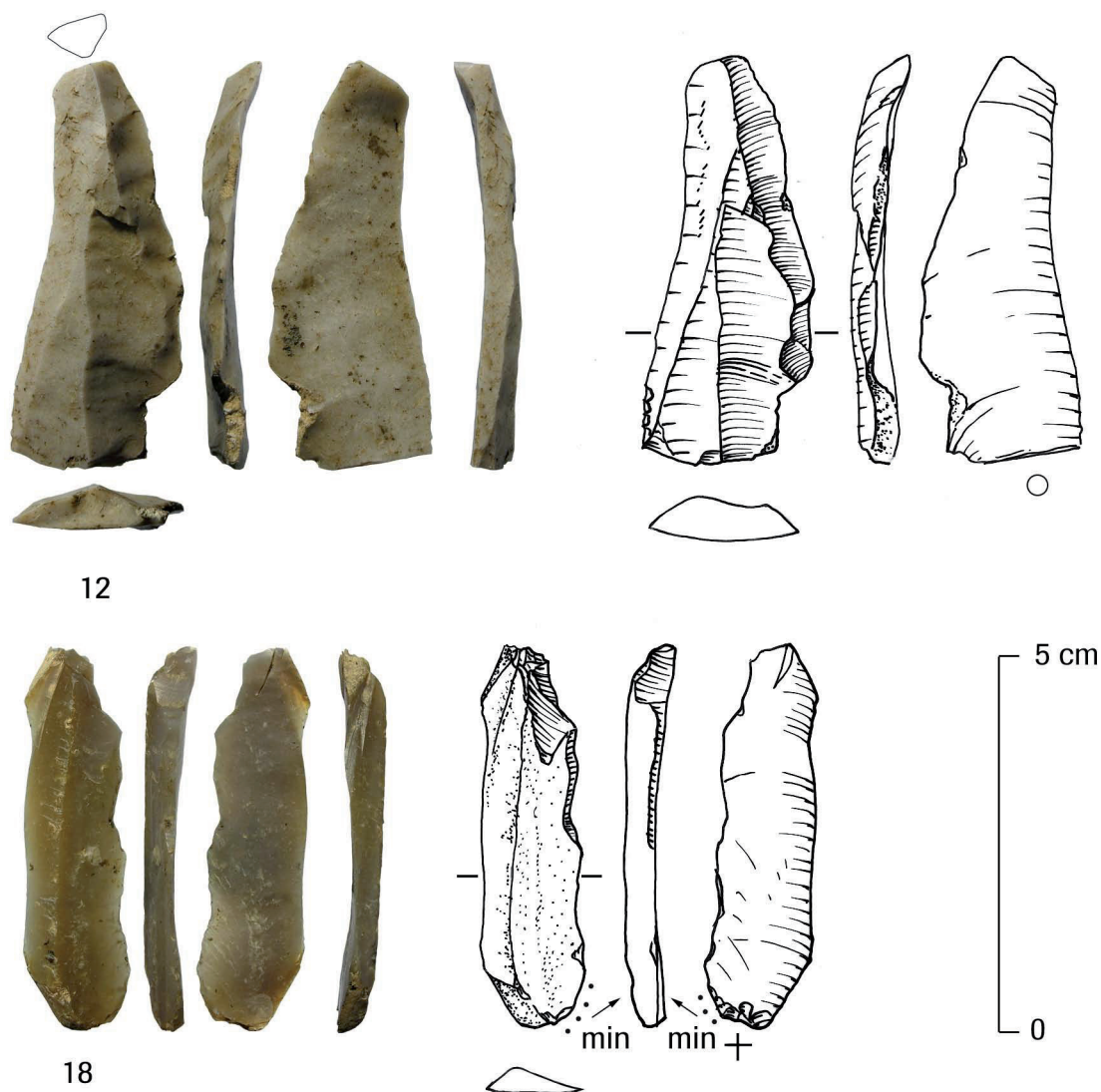


Fig. 4 – Two flint blades from the Groenlo grave (find n° 12 & 18). The symbols accompanied by the text ‘min’ along the edge of one of them (find n° 18) refer to the use of the artefact in cutting/carving a mineral substance.

The last grave-good is a large portion of a beaker with a rounded-off rim and a protruding foot (Fig. 5). The average wall thickness is 5 mm. The inner and outer side are yellow-brown, the core dark. This hints at a production in an environment rich in oxygen. With the naked eye no temper is visible. Thin section analysis by T. Brorsson has confirmed this observation. The outer surface has been smoothed, though weathered parts are visible. The inner side is even more weathered. Despite its fragmentary state it is clear that only the vessel’s upper part has been decorated. The decoration consists of horizontal grooves in zigzag motif regularly alternating with a single horizontal row of oblique impressions. These impressions applied with a smooth spatula are all slanting to the right. It is the former decoration motif that assigns the vessel to the zigzag (ZZ) type beaker group.

2.2. The composition of the Groenlo grave inventory

The SGC in the Netherlands had a wide diversity of grave goods. Pottery, flint and non-flint stone axes, stone battle-axes and unretouched and retouched flint blades are

the main artefacts accompanying the deceased in barrows interments and flat graves. The category of retouched blades encompasses daggers made of French flint (Grand-Pressigny flint as well as French tertiary flint or Romigny-Lhéry flint). Usually this artefact groups is denoted as Grand-Pressigny (GP) daggers. In addition, there are daggers with a close resemblance, though made of different types of flint. For them the term 'pseudo-Grand-Pressigny (GP)-daggers' has been coined³.

The composition of the inventories from c. 250 barrows and flat graves known from the Netherlands appears to be standardised to a degree. If the afore-mentioned artefact groups are taken as a point of departure for classification – For the sake of convenience, here flint chisels made on blades and a flint chisel are thought of as axes – the following groups can be distinguished within the grave equipments⁴:

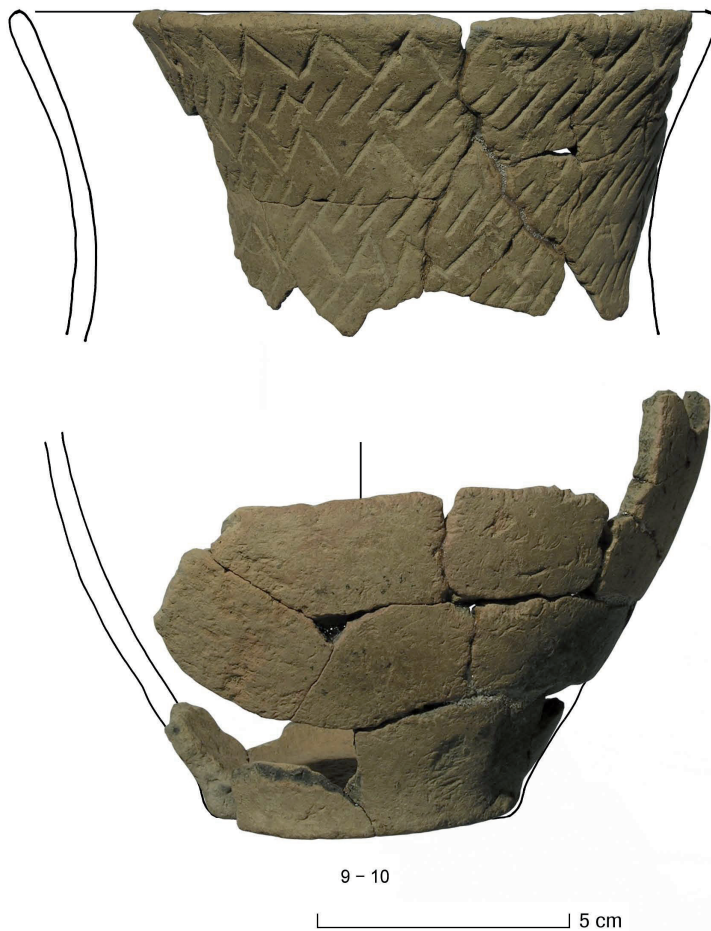


Fig. 5 – Beaker of ZZ type from the Groenlo grave (find n° 9 & 10).

- a. exclusively pottery (in particular beakers, furthermore amphoras, *Dosen* and bowls). In most instances only one vessel accompanied the dead, but graves with up to four vessels are known;
- b. pottery and a (un)retouched flint blade (the retouched ones being GP daggers and pseudo-GP daggers). Usually one beaker, but instances of two up to four specimens are also known. A variation on the theme is a grave inventory consisting of two blades and a beaker;
- c. a beaker and non-flint stone axe;
- d. a beaker and a flint axe;
- e. a beaker and a stone battle-axe;
- f. a beaker, a non-flint stone axe, an unretouched flint blade or pseudo-GP dagger;
- g. a beaker, a flint axe and an unretouched flint blade or GP dagger. A rich variety includes two instead of one flint axes;
- h. a beaker, a flint axe, a stone battle-axe and an unretouched flint blade. Variations are graves with a GP dagger instead of the unretouched blade and an interment in which the place of a flint axe has been taken by a non-flint stone specimen. Furthermore, there are two graves known with in addition to the grave set in question a second flint axe;
- i. a beaker, a stone battle-axe and an unretouched flint blade (or possibly a GP dagger; see below);
- j. only a flint axe;

3 Apart from these artefacts the deceased were occasionally equipped with flint flakes, ditto hammerstones, scrapers or grinding stones. Other kinds of grave gifts are ochre, amber ornaments, a piece of copper (ornament?), a ceramic spindle whorl, two bone awls, cereals, (parts of) cattle and a wooden mace.

4 In addition there are SGC interments devoid of grave-goods (Hogestijn & Woltering, 1990; Pasveer & Uytterschaut, 1992).

- k. a flint axe and an unretouched flint blade;
- l. only a non-flint stone axe;
- m. a non-flint stone axe and an (un)retouched flint blade (including in any case the category of pseudo-GP daggers and possibly also that of GP daggers);
- n. only a stone battle-axe;
- o. a stone battle-axe and a flint axe;
- p. a stone battle-axe, a flint axe and an unretouched flint blade;
- q. a stone battle-axe and an unretouched blade or a pseudo-GP dagger;
- r. only an unretouched blade or (pseudo-)GP daggers;
- s. two blades. They can either be unretouched or retouched. It should be noted that a grave with two GP daggers has yet to be discovered in the Netherlands.

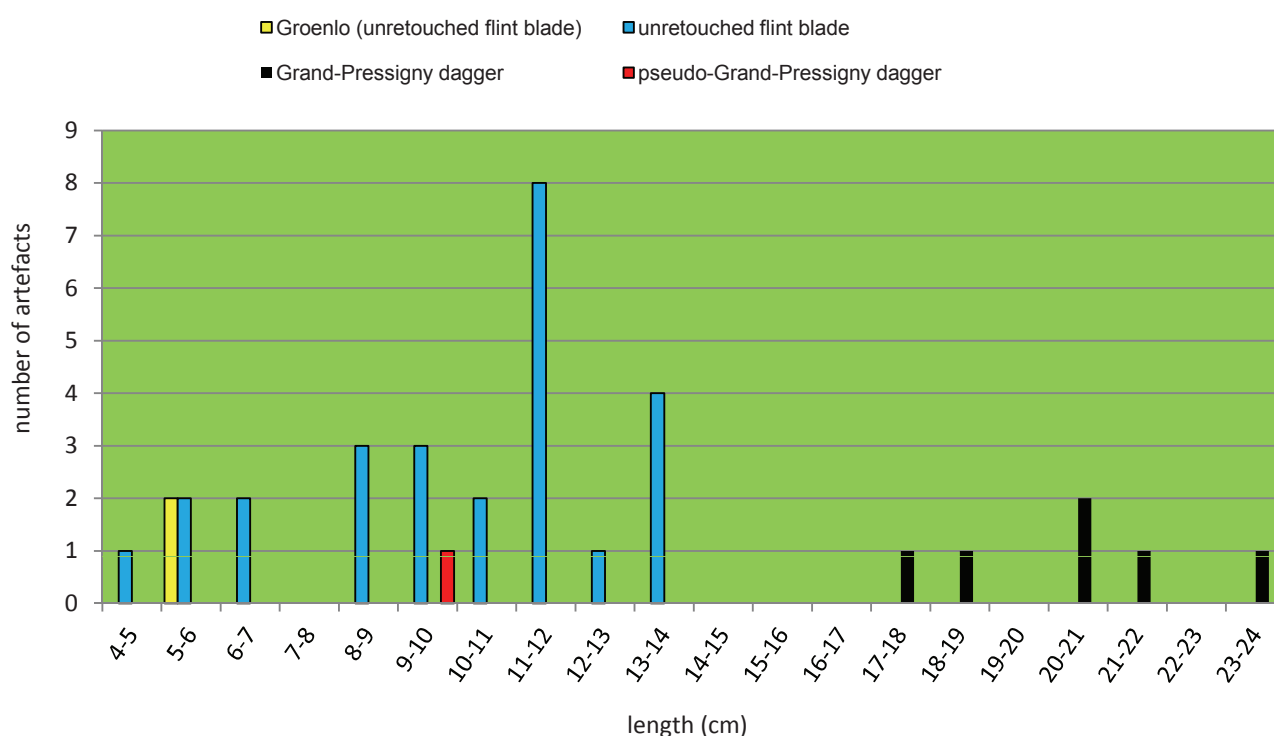


Fig. 6 – In the Netherlands, length of unretouched and retouched flint blades from SGC battle-axe graves (barrows and flat graves).

In my opinion the Groenlo grave falls within group i, despite the presence of two flint blades. Presumably the two specimens were deposited to compensate for the fact that no long blade was available to equip the deceased with. An overview of the length of blades from SGC battle-axe graves shows that the specimens from Groenlo are among the smallest ones (Fig. 6)⁵. The ‘compensation hypothesis’ seems plausible, since the more or less contemporary GP daggers were very much sought after by the SGC (Drenth, 1990, 1992). One of their noticeable features is their length. Morphologically closely related daggers in other kinds of flint are substantially smaller (Drenth, 1990: 103). The pseudo-GP daggers are to be interpreted as copies of GP daggers, which may be regarded as another form of compensation. Judging from the context, such as the size of the associated barrows, as a rule the latter symbolised lower social positions than the former (Drenth, 1990, 1992).

⁵ It should be mentioned that some of these artefacts are broken. The author has yet to study how many specimens exactly. It goes without saying that at present he cannot say how many of these fractures are ancient or (sub)recent.

Lastly, other examples of group i graves from the Netherlands are known from Anloo (Glasbergen & Harsma, 1970), Ede-Hotel Bosbeek (Modderman, 1954: 41-44, fig. 18-19, pl. X-2, XI-1 & LII), the vicinity of Steenwijk (the De Eese estate, tumulus V, second period; Van Giffen, 1930: vol. 1, 139-140, vol. 2, fig. 103), and Peelo (Glasbergen, 1971: NL 5). The list should perhaps also include tumulus b at Eext-Schaapdijksweg with a GP dagger instead of an unretouched blade (Glasbergen, 1957: 35-37 & fig. 13; Waterbolk, 1957: 27-32 & fig. 7, 10, 13, pl. XIV-XV: n° 1). It may be, however, that originally a flint axe was part of this grave inventory too. A group i grave was furthermore discovered on the adjacent German territory (near Meppen in Lower Saxony) at Osterbrock (Genrich, 1938).

3. Dating

3.1. General remarks

The current chronological subdivision goes back to a proposal by Drenth & Lanting (1991a; 1991b), who identified four phases. Although adjustments and additions have been suggested (Cuijpers *et al.*, 1994: 35 [127]): note 5; Drenth, 2005: 349; Lanting & van der Plicht, 1999/2000: espec. 35; see also below), the essence of this chronological scheme has remained unaltered. The summary which the author has presented in 2005 (Drenth, 2005, with reference to Drenth & Lanting, 1991a, for more information), reads as follows:

Phase 1, c. 2800-2750 BC: battle-axes of the types A1 and A2; 1a type beakers with uninterrupted horizontal corded lines on the funnel-shaped neck. Possibly also other beaker types, such as the types 1b (with horizontal groove line decoration of the neck) and 1f (plain beaker). Most probably the first examples of the *Strichbündel*-amphora's and vessels with short-wave moulding.

Phase 2, c. 2750-2650 BC: battle-axes of the types B/A and B; faceted battle-axes of type 1. Alongside beaker with a short decoration confined to the neck, specimens with a longer decoration (from rim up to and including the largest belly circumference at most) occur. The decoration with cord impressions (type 1a) or groove lines (type 1b) can either be without interruption or zoned (decorated and undecorated zones alternating). Furthermore plain beakers (type 1f), most probably also amphora's of *Strichbündel* type and other kinds of amphora's. *Dosen?* During the younger section of phase also C and C/A (= P2) battle-axe types and the earliest examples of beaker with herring-bone motif (type 1d). Vessels with short-wave moulding.

Phase 3, c. 2650-2550 BC: D- and E battle-axe types, probably battle-axes of the types C and P2; regional, derivative battle-axe types (unknown which one precisely); faceted battle-axes of type 2a; varieties of 1a and 1b type beakers; beakers of the types 1c and 1d; 1e type beakers with non-alternating horizontal rows of oblique impression in between horizontal groove lines; 1f type beakers; presumably the first All-Over-Ornamented (AOO)-beakers (type 2IIb, other types as well?); *Dosen*; probably various amphora types (among other things undecorated ones). Vessels with short-wave moulding. Possibly the earliest (pseudo-) Grand-Pressigny-daggers and ground graves (interment on the surface covered by a burial mound)

Phase 4, c. 2550-2400 BC: battle-axes of the types F, G, H, P1 and R/S as well as faceted battle-axes of type 2b. Beakers of the types 1b, 1c, 1d and 1f; possibly still 1a type beakers in settlement context. Furthermore 1e type beakers with exclusively horizontal impressions, all slanting in the same direction alongside the variety already known during phase 3; zigzag type beakers (= beakers with zigzag,

antenna or spruce motifs); AOO beakers (the types 2IIa-d), proto-pot beakers; bowls and *Dosen*. Vessels with short-wave moulding; amphoras? Bell beakers of maritime type. (Pseudo-)Grand-Pressigny daggers and ground graves.

Very recently Drenth & Meurkens (2011a: 303-304) have pointed out that a variety within the groups of 1a and 1b beakers dates to the phases 1 and 2; characteristic of this variety is a horizontal rib or cordon on the neck.

The chronological subdivision for the Dutch SGC rests upon a combination of different sources. Among them grave inventories, play an important role. Settlement finds on the other hand have additional contribution. Radiocarbon dates and dendrochronological data for the *Schnurkeramik* from Switzerland have been used for determining the absolute age for the SGC. It should be furthermore noted that the chronological model is grounded in typo-chronological considerations. The backbone of the chronological subdivision are stone battle-axes. The large majority of these artefacts from the Netherlands are morphologically similar to battle-axes from Jutland and the former are to be regarded derivatives of the latter. Since the global sequence of the Jutish battle-axes is known from barrow stratigraphies in Jutland, a similar chronology is assumed for the Dutch ones. Radiocarbon dates support this theory.

The duration of the four different phases is an educated guess, calculated on the basis of absolute chronological dates from the Netherlands and abroad, in combination with the frequencies of artefact types and other kinds of material culture, such as grave forms.

In their elucidation on the chronological scheme, Drenth & Lanting (1991a: 46; 1991b: 105) have stressed that the definition of the four phases is founded in several instances on but one or a limited number of ¹⁴C-dates, artefact types, associations etc. They thus emphasise the preliminary character of the subdivision. Thanks to excavations in the province of Noord-Holland it has become clear since that bell beakers of the maritime type were already present during the late SGC (Drenth & Hogestijn, 1999: 104-106, 137 & fig. 1, 2001: 312-313, 327-328: Note 10, 2007: 68-77; Lanting, 2007/2008: 37-38; Lanting & van der Plicht, 1999/2000: 35-36). Of the other excavations that were recently conducted, the one at Warmond-Park Klinkenberg is noteworthy. Radiocarbon dates indicate that this settlement was inhabited somewhere between c. 2560 and 2305 BC (Bink, 2006: 60-61). The pottery spectrum includes, amongst other things, sherds of beakers of ZZ type (Mooren, 2006: fig. 11). The results fit into the current chronological model. The other ¹⁴C-dates known since 1991 are hardly of any significance due to a plateau in the calibration curve. After calibration (2 σ) they produce results that together cover several centuries⁶. Illustrative are two dates with respect to beaker type 1e, in particular the variety with only slanting impressions. Burnt bone from a cremation grave at Baarn-De Drie Eiken has been dated to 4065 \pm 45 BP (GrA-14965; 2- σ calibration: 2859-2809/2752-2722-/2701-2475 BC; Lanting & van der Plicht, 1999/2000: 76; Van Tent, 1996). The outcome does not contradict the existing chronology that claims that this beaker type is typical for phase 4, *i.e.* the period between c. 2550-2400 BC. On the other hand, the result cannot be regarded as a reinforcement. The same holds true for the date of a charred hazelnut from a grave with a 1e type beaker at Groningen-Helpermaar (Fens *et al.*, 2010: 42-43, fig. 3-4): 4095 \pm 35 BP (GrA-45909; 2- σ calibration: 2865-2804/2761-2566/2523-2497 BC).

Finally, a monograph about the German site Hunte 1 along the lake the Dümmer, in Lower Saxony has recently been published (Kossian, 2007), which is relevant for the SGC

6 All calibrations in this paper were executed with the help of OxCal v4.2.4.

chronological model⁷. The beakers discovered there are mainly of the types 1a and 1b (exclusively the grooved line variety, that is the combination of groove lines and herringbone motif(s) is absent). The SGC battle-axes that came to light are of the types A, B and B/A. In view of the afore-mentioned artefacts the site appears to represent the early stages of the SGC (phases 1 and 2 or only phase 1)⁸. Radiocarbon dates obtained on soot adhering to the sides of the vessel (?) substantiate this claim (Grootes, 2007: 541-543; Kosian, 2007: 541). The outcomes, after 2- σ calibration, fall between c. 3085 and 2885 BC and lead us to question whether the EGK did not emerge before 2800 BC, as the current chronological framework suggests. All the more since the δ^{13} values are within the normal range of organic samples, and there is therefore no reason to doubt the results (Grootes, 2007: 542). Be it as it may, the Hunte 1 finds fit within the relative SGC chronology suggested by Drenth & Lanting.

Last but not least, Hübner recently (2005) published an extensive monograph on the *Enkeltgravskultur* and the *Einzelgrabkultur* in Jutland respectively Schleswig-Holstein. She has re-assessed previous typological and chronological ideas by Glob (1944) and Struve (1955). The work by Glob was of great importance for Drenth & Lanting in establishing their SGC chronological framework. Glob held the view that barrow stratigraphies and associations of grave gifts allowed the distinction of several phases. Generally speaking, Hübner's study reinforces Glob's opinion. There are also, however, marked differences between the two. One of them is the temporal relation between battle-axes of the types A and B. Both Glob as Struve put the former type at the basis of the chronological sequence. Hübner is of the opinion, however, that the earliest stage of the Jutish *Enkeltgravskultur* as well as of *Einzelgrabkultur* in Schleswig-Holstein is characterised by the concurrence of several varieties of A and B type axes. It is beyond the scope of the present contribution to discuss Hübner's chronology in each and every detail. Nonetheless, it should be noted that not every aspect of her scheme is convincing. One of these is her opinion with respect to zigzag decoration. She assumes that for both for Jutland and Schleswig-Holstein it is characteristic for period 3 (Hübner, 2005: vol. I: 731, 733, 735 & fig. 505-507). This opinion is surprising, considering the finds from the Elbe-Weser triangle, the region immediately south of her research area. At Tiste a grave probably contained a ZZ (zigzag) beaker and a D type battle-axe (Strahl, 1990: vol. 2, 149: cat. n° 657 A, vol. 3, pl. 59: n°s 2 & 3)⁹. Hübner (2005: vol. I, 727, 729 & fig. 503) dates such battle-axes to her periods 1b and possibly 1c. Another zigzag beaker from the Elbe-Weser-triangle was found in a grave at Groß Meckelsen together with a G type or B4 type battle-axe (Strahl, 1990: vol. 2, 112: cat. n° 525 A, vol. 3, pl. 42: n°s 1-3). For Jutland and Schleswig-Holstein these types are assigned by Hübner (2005: vol. I, 727, fig. 503 & 505) to the phases to the phases 1c and 2 and 1b and possibly 1c. Her stance as regards to zigzag decoration arouses even more astonishment, as she herself mentions for her area of research two closed associations, in which beakers with this motif were accompanied by a battle-axe of type H¹⁰. The type is said to be diagnostic for period 2 (*Ibidem*: vol. I, 731).

7 A small portion of the finds from Hunte 1 belongs to the youngest section of the *Einzelgrabkultur*. Together with archaeological remains of the West group of the Funnel Beaker Culture, the Bell Beaker Culture and the Barbed Wire Beaker Culture these finds attest to the popularity of the location during the Neolithic and Early Bronze Age.

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9 Typology after Hübner (2005, vol. 1: chapter 4.1.2.4). Strahl's determination is that of an asymmetrical F type battle-axe. He used a different classification system, however (Strahl, 1990, vol. 1: chapter 2.2.1.1).

10 It concerns the site Horst in Schleswig-Holstein (Hübner, 2005: vol. II, 1482, cat. n° 1671; vol. III, pl. 300: n°s 1-2) and Plovstrup in Jutland (*Ibidem*: vol. II, 1111-1112, cat. n° 747, fig. 579; vol. III: pl. 118, n°s 1-3 (including a flint axe). The beaker from Horst is a variety of a zigzag beaker, as the decoration is not angled, but wavy.

3.2. The dating of the Groenlo burial

The combination within the Groenlo Grave of a C1 type battle-axe and a ZZ beaker shows that the current chronological scheme for the SGC from the Netherlands needs some adjustment. According to this scheme C type battle-axes were no longer current after phase 3. ZZ beakers on the other hand are regarded typical for phase 4. It is difficult at the moment to give the exact direction the revision should take. In any case, the just mentioned find from Tiste indicates that the ZZ beaker type already existed during phase 3.

The Tiste find also shows that the composition of the Groenlo Grave inventory is not as odd, as Hübner's ideas would make us believe. In her opinion, C1 type battle axes are typical of her phase 1b, though she may date the youngest specimens to phase 1c (Hübner 2005, vol. I: 727, 729, fig. 503) in Jutland and Schleswig-Holstein¹¹. Whereas she considers zigzag ornamentation, unrightfully as we have seen, as indicative of phase 3. As she regards battle-axes of D type characteristic of phase 1b, the Tiste find indicates that a C1 type battle-axe may be contemporary with a ZZ beaker. D type battle-axes of which the Tiste grave probably yielded a specimen are in the Dutch SGC chronological model indicative of phase 3, C type battle-axes of the phases 2 and 3.

The two flint blades from the Groenlo grave are of no chronological significance. In SGC barrows and flat graves they occur during the entire SGC period (Drenth & Lanting, 1991a: 46, 1991b: 104). An example from the youngest phase is a specimen from a grave at Wildeshausen-Katenbäker Heide in Lower Saxony (Germany). Though not a Dutch find, it is of direct relevance for the Dutch situation, considering the close resemblance between the SGC in the Netherlands on the one hand and northwest Germany on the other (see above)

To summarise, a dating of the Groenlo grave inventory in phase 4 (c. 2550-2400 BC) or rather phase 3 (c. 2650-2550 BC) is the most plausible. These phases correspond with the periods 2 respectively 1c in Hübner's chronological framework (Hübner, 2005, vol. 1, fig. 496).

Unfortunately it was not possible to obtain a radiometric date for the Groenlo grave, as no datable material was found. But such a date would most probably not have specified its age, as the two following grave finds indicate. At Wildeshausen-Katenbäker Heide two beakers were encountered in a grave covered by a barrow. They have a decoration scheme comparable to the one on the beaker from Groenlo (see below). The other grave gifts include a battle-axe of type H/R, two flint axes, an unretouched flint blade, and a pseudo-GP dagger. Charcoal from the old surface underneath the barrow has been dated (Lanting & van der Plicht, 1999/2000: 76): 4040 ± 50 BP (GrN-4058). Calibration (2 σ) results in the following possibilities: 2857-2811/2748-2724/2699-2467 BC. The outcomes cover practically the entire SGC and are therefore hardly informative about the duration of the zigzag beaker type, in particular the variety with horizontal rows of oblique impressions.

The second grave was investigated at Eext (location Visplas; Van Giffen, 1939). The dead had been equipped with a beaker with a decoration scheme like the Groenlo one, a battle-axe of type P1, a flint axe and a GP dagger. Charcoal of a pointed charred post

11 Hübner (2005: vol. I, 729) remarks on the dating of battle-axes of the types C1-C3 the following: "Mit dem Einsetzen von Phase 1c laufen zahlreiche Gerätetypen der ersten beiden Zeitabschnitte aus (Äxte Typ A, B, C1-C3, D...)". The meaning of this remark is far from clear. Does she mean that the C type battle-axes do not occur anymore in phase 1c or that these artefacts, though in a lower number, are still present in the next phase?

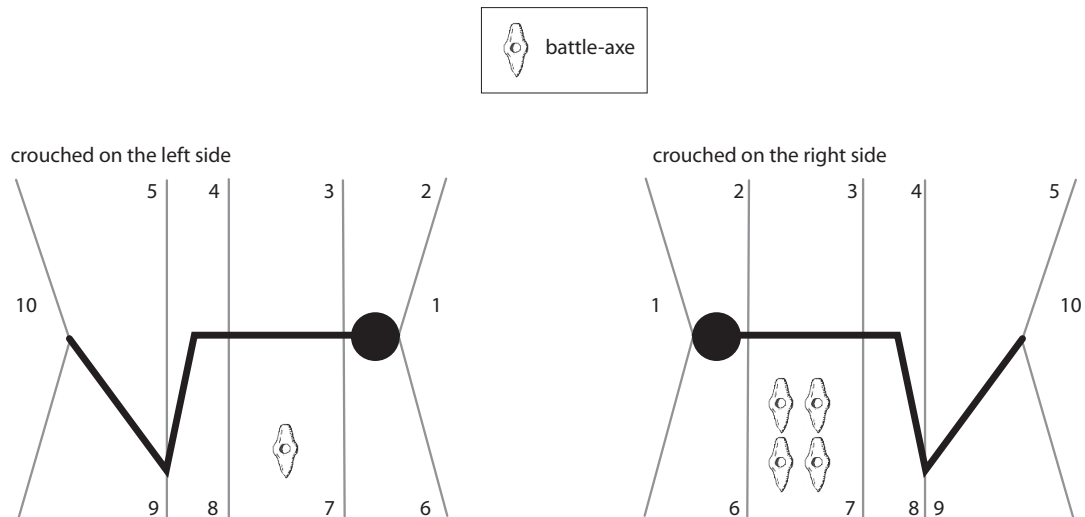


Fig. 7 – Position of stone battle-axes in Dutch SGC barrows and flat graves with respect to the deceased (as attested by corpse silhouettes, schematised here). Following Havel (1978, fig. 4B) distinction has been made in ten positions: 1 = above the head, 2 = behind the head and neck, 3 = behind the back, with the exception of the lowermost part, 4 = behind the lowermost of the back, waist and the upper legs, 5 = behind the upper legs, 6 = in front of the head and neck, 7 = in front of the trunk, with the exception of the lowermost part, 8 = in front of the lowermost part of the trunk, the waist and the upper legs, 9 = in front of the lower legs, 10 = below the legs.

placed into a trench encircling the grave has been ^{14}C -dated (Lanting & van der Plicht, 1999/2000: 75): 4145 ± 30 BP (GrN-6727). Calibration (2σ) renders the following possibilities: 2875-2624 BC. If the results mirror the real age of the grave, this would contradict the current SGC chronology. But it should be noted that the own age of the dated sample is unknown as well as the type of wood it concerns. That is why the outcomes may have distorted by the 'old wood effect'. In the classification system of ^{14}C -dates as proposed by Furholt the one for Eext is rated among the category C-II* (Furholt, 2003: 223-224 & pl. 197). The 'C' stands for a date which may relate to the dated archaeological phenomenon (in this case the Grave inventory) dated. 'II' symbolises that a sample may have a considerable age of its own, whereas the asterisk indicates that it concerns a date from the early stage of ^{14}C -research (*ibidem*: 13-14 & table 1). In comparison, ^{14}C -dates with the highest chronological relevance are labelled AI. They refer to events and are based upon samples with a negligible 'inbuilt' age.

The ^{14}C -date for the burial at Wildeshausen-Katenbäker Heide has been classified by Furholt (*ibidem*: 232 & pl. 220) as 'A-II* t.p.q.'. That means that an event has been dated with the help of a sample that possibly has a considerable age of its own. The ^{14}C -date has been established relatively long ago. The outcome has to be regarded as a *terminus post quem* (t.p.q.), which implies that only after the deposition or burial of the dated charcoal, was the barrow erected.

4. Identity of the dead

4.1. Age and sex/gender

As the Groenlo grave has yielded no human remains whatsoever, a direct statement about the age and sex of the dead is impossible, even the number of individuals within the grave cannot be established. Judging from discoveries elsewhere in better preserved circumstances (see the literature cited here), the size of the grave pit, the number and nature of the grave gifts as well as their dimensions, in particular those of the battle-axe

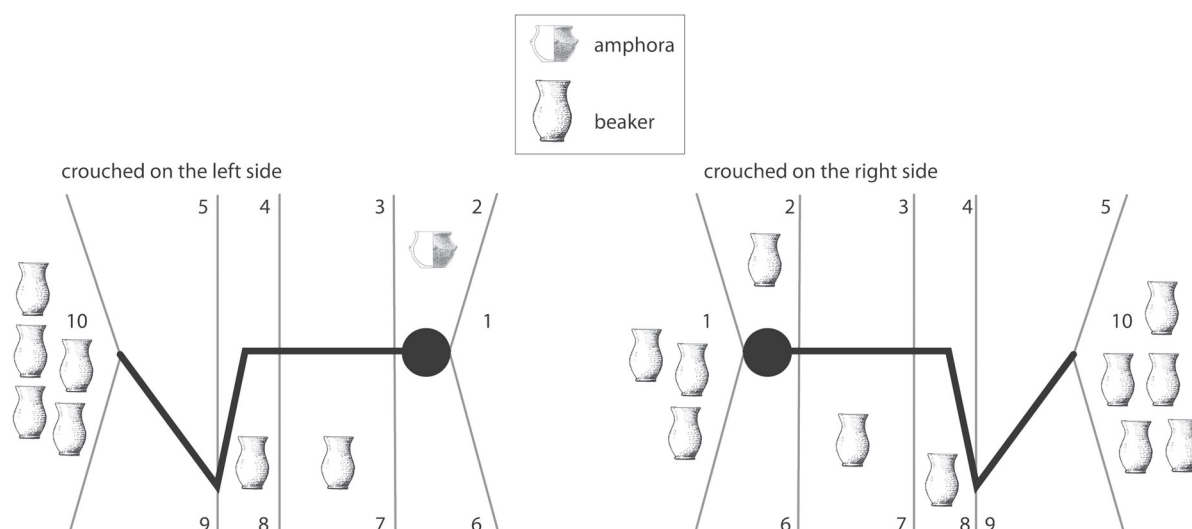


Fig. 8 – Position of pottery in Dutch SGC barrows and flat graves with respect to the deceased (as attested by corpse silhouettes and in one instance a skeleton). For the different locations distinguished see the caption to Fig. 7.

and the beaker, suggest the burial of one adult person. The battle-axe is furthermore indicative of a male. All across the Battle-axe or Corded Ware cultural complex such artefacts are typical for men (for more information see the references made in this contribution). A. E. Lanting (1969) has rightfully argued for an identical situation for the SGC in the Netherlands. Thanks to his research it has become clear that the SGC interred their dead in a position comparable to that in other contemporary groups, with men usually buried in a crouched position on their right side, whereas women were in general interred in the same posture, but lying on their left side¹².

With these rules as a point of departure and in addition with the knowledge that the deceased were usually interred facing southwards (*sensu lato*) an attempt has been made to reconstruct the corpse position for the Groenlo grave with help of the position of the grave-goods. To that end a comparison was made with SGC burials with corpse silhouettes and in one instance a human skeleton found elsewhere in the Netherlands¹³. The grave gifts may have different positions with respect to the corpse. Following Havel (1978, fig. 4B) ten positions have been distinguished.

Within the reference group, battle-axes are without exception lying in front of the upper body (in particular the chest; Fig. 7). With regard to the beaker, it transpires that pottery is not confined to a specific place within the grave (Fig. 8). It is noteworthy that in the case

12 Within the Battle-axe or Corded Ware cultural complex the dead can either be interred entirely lying on their side or in a corpse position with two shoulders on the floor and the legs lying on their side. Here, both postures are grouped together.

13 See for an overview Drenth & Meurkens (2011b: table 5.13 with further references and in addition Meurkens *et al.*, 2015). For the present contribution a SGC corpse silhouette that was recently excavated at Groningen-Helpermaar was not taken into consideration (Fens *et al.*, 2010). The publication on this grave is not clear regarding the position of the only grave gift encountered: a beaker. Inquiries, in which one of the excavators, *drs.* J. P. Huis in 't Veld, was interviewed, did not clarify the matter. Excluded were also the following instances, as there is doubt about the corpse silhouette's posture: Emmen-Angelslo, grave 6, Hijken-Hijkerveld, grave V, barrow 6 at Putten (investigated in 1928) and Zeyen-Noordse Veld, tumulus III. Finally, contrary to the claim by Van Giffen *et al.* (1971) it is questionable whether a corpse silhouette was found during the excavation of a barrow at Putten in 1947 and 1948. According to the field drawings 'the corpse shadow' penetrates so deeply into the ground, that the feature is probably a natural phenomenon.

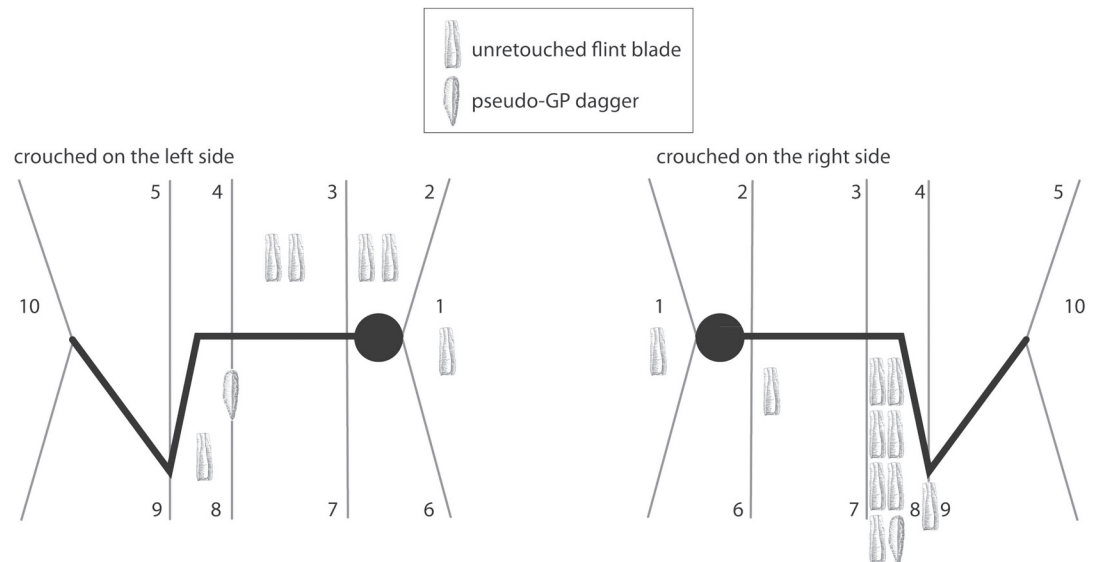


Fig. 9 – Position of unretouched and retouched flint blades in Dutch SGC barrows and flat graves with respect to the deceased (as attested by corpse silhouettes). For the different locations distinguished see the caption to Fig. 7.

of persons interred on the right side flint blades mainly have been recovered from the areas 7 and 8 (Fig. 9). In combination with the observations made for battle-axes, this suggests that in the instance of Groenlo the interment was on the right side. The beaker would then have been standing or lying near the feet, a position which has indeed been recorded frequently. Two assumptions must be made in such an interpretation. The first one is that the angle between upper and lower legs must have been sharp. The second assumption is that originally the grave pit must have been larger (see the introduction), if the battle-axe was lying in front of the upper body. If not, there is not enough space for such a posture, given the recorded short distance between this artefact and the northern long wall of the grave pit. Alternatively, the battle-axe might have lying not in front but behind the upper body. Given the irregular contours and the shallowness the grave had when discovered the author prefers the first option. On the other hand, specimens of another artefact category with a cutting edge, stone axes (including the ones in flint) have come to light lying behind the deceased's head and the torso (positions 2 and 3 after Havel; Fig. 10).

An interment on the left side would imply – assuming the deceased was facing southwards – that the battle-axe would have been deposited below or near the lower legs. This is in strong contrast to what the Dutch reference group shows. Also in other branches of the Corded Ware Complex such artefacts have usually been found in front of the upper body (see for more information the literature cited here).

In conclusion, an interment of the deceased in crouched posture on the right side seems to be the most likely for the Groenlo burial.

4.2. A high or low social position?

The 'man from Groenlo' had in life in all likelihood a rather prominent social position. This is indicated by the battle-axe, since there are several hints that such items were high status symbols within the SGC in the Netherlands (Drenth, 1990, 1992). Accordingly, as grave gifts battle-axes from the phases 3 and 4 have mainly been found in barrows. An interment over which a barrow was erected, points in general at a higher social position than a flat grave burial (Drenth, 1990, 1992; Drenth & Lohof, 2005: 447-449). Age seems to have been one of important criteria for getting a burial mound. Apparently

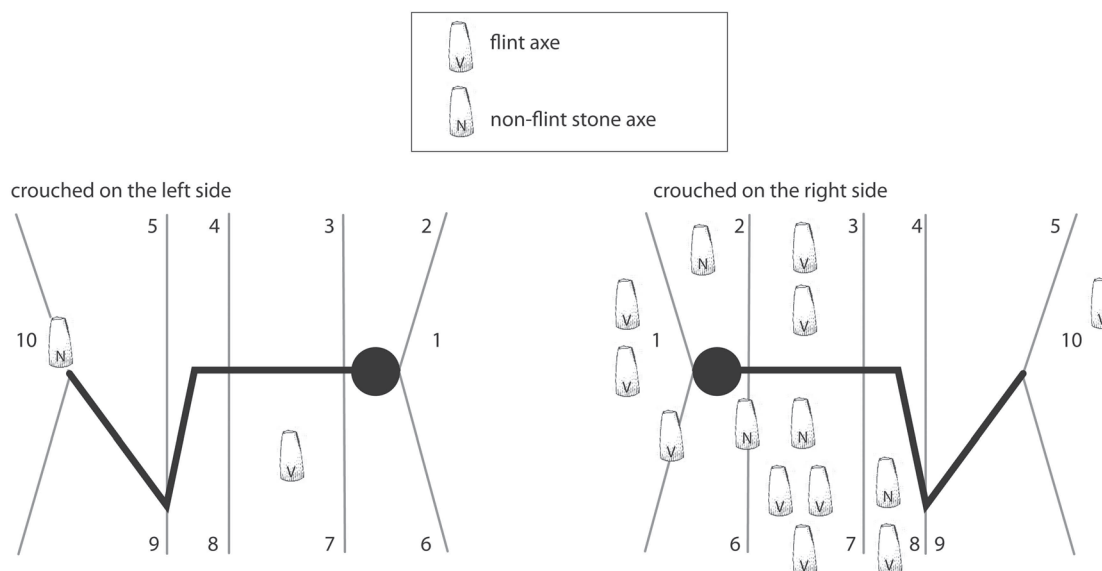


Fig. 10 – Position of flint axes and non-flint stone axes in Dutch SGC barrows and flat graves with respect to the deceased (as attested by corpse silhouettes). For the different locations distinguished see the caption to Fig. 7.

In one case it concerns a flint chisel made on a blade.

It was laying in position 3 accompanying a corpse silhouette in crouched position on the right side.

children hardly had access to this way of burial, as attested by the observations for the SGC, the Jutish *Enkeltgravskultur* and the central German *Schnurkeramik* (Drenth, 1992: 210, with further references).

Though, as already noted, no indications for a barrow were found in the case of Groenlo, this does not necessarily imply that it concerns a flat grave. Given the strong correlation between battle-axes and burials mounds during the late SGC it should be seriously reckoned with that due to post-depositional processes a barrow escapes the archaeological eye. Since the question of a barrow or a flat grave is a recurrent theme, future excavations should try to solve this issue by novel, modern research methods (see below).

It is far from likely that social differentiation within the SGC meant huge vertical social differences. This is among other things indicated by the size of barrows. The largest one hitherto found, tumulus A at Kwadenoord, has a volume of c. 145 m³¹⁴. From experiments it can be inferred that building a slightly larger barrow (160 m³) can be erected in two days by 31 persons (Lohof, 1991: 264 & fig. 157-159; with further references). The points of departure in this calculation are that a working day has 10 hours and that the activities include desodding, transport and the stacking up of sods. The Dutch SGC settlements do not suggest a strongly stratified society (Drenth *et al.*, 2008). It seems that per settlement there was one house or at most a few which stood contemporary (*cf.* Müller *et al.*, 2009 for central Europe). Judging from the size of the house-plans, the number of inhabitants will have been not exceeded several dozen.

4.3. From nearby or afar?

Was the buried person a member of the local/regional community or did he come from afar? To answer this question properly, isotope analysis of the bones is needed.

¹⁴ The volume of the tumulus was calculated as if the burial mound is a segment of a sphere. In reality this is not so. This is why the outcome should be seen as an approximation. The actual barrow size will be smaller rather than larger.

But, as mentioned before, the grave contained no traces of human remains whatsoever. Therefore, conclusions about this issue are to be regarded not so much as definite but rather as indicative.

There are several indications that the buried person was born and raised locally. Firstly, the flint blades are both of flint types that are available in the local/regional boulder clay deposits from the Saalian (or its erosion product: boulder sand). Furthermore, the composition of the grave inventory has counterparts in the northern and central Netherlands. An additional clue is the decoration motif on the beaker from the Groenlo grave. Such a motif has a very limited distribution area within the Battle-axe/Corded Ware cultural complex, as an examination of monographs, catalogues and other kinds of overviews and publication shows (e.g. Bantelmann, 1982; Behrens & Schlette, 1969; Behrens & Schröter, 1980; Beran, 1990; Buchvaldek, 1967, 1986; Buchvaldek & Koutecký, 1970; Buchvaldek & Strahm, 1992; Dresely, 2004; Ebbesen, 2006; Edgren, 1970; Furholt, 2003; Gebers, 1978; Glob 1944, 1952; Hein, 1987; Hübner, 2005; Jacobs, 1991; Larsson, 1989; Loewe, 1959; Lucas, 1965; Machnik, 1966; Malmer, 1962; Matthias, 1968, 1974, 1982, 1987; Siemen, 2009; Strahl, 1990; Strahm, 1971; Struve, 1955; Wiermann, 2004; Włodarczak, 2006). The distribution is confined to Netherlands and the adjacent north-western German area (Fig. 11).

Within the Netherlands parallels come from barrow graves at Eext (Van Giffen, 1939: 124-126 & fig. 5-6; Glasbergen, 1957: 38 & fig. 15) and Putten (Van Giffen *et al.*, 1971). A beaker with an identical decoration scheme was also found at Hilversum-de Vaart/Lange Heul; it is probably a grave gift (Van Iterson Scholten & De Vries-Metz, 1981: 126 & fig. 20). During the excavation of a house-plan from the twelfth century A. D. the vessel was recovered from a dark stain, which was surrounded by the remains of a circle originally consisting of paired posts. This suggests the presence of a multi-period barrow at the location. The SGC beaker may represent the first period. Alternatively, the vessel may stem from a flat grave over which during the Bronze Age a barrow was constructed.

Equally noteworthy in this context is a small beaker probably coming from Ermelo (Hulst,

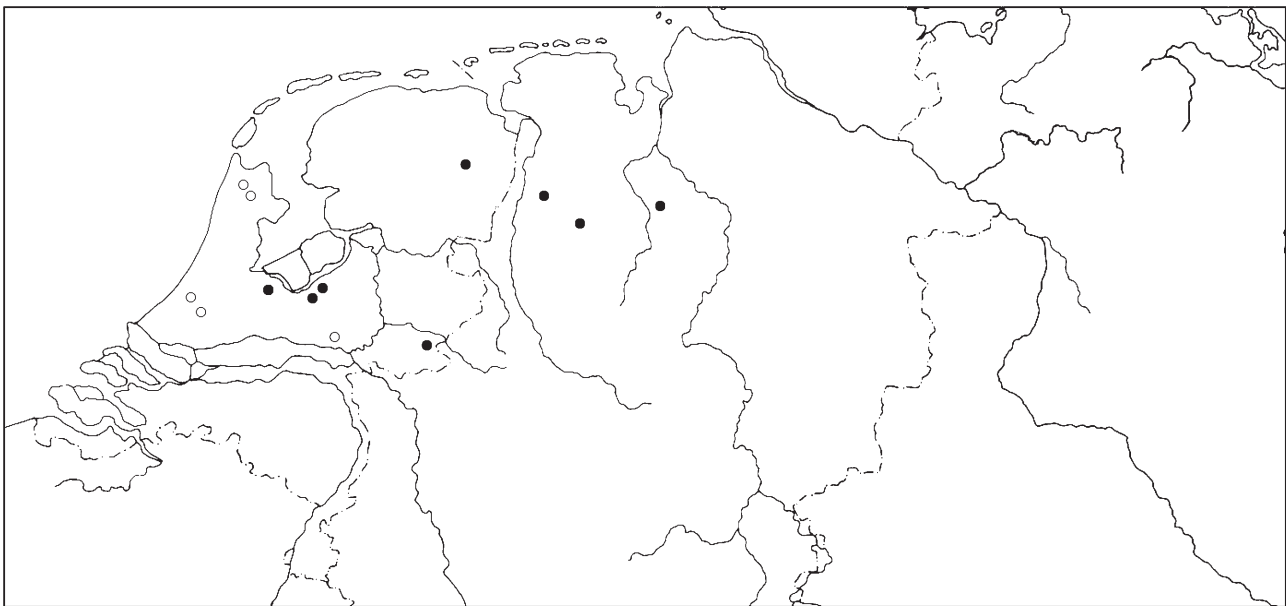


Fig. 11 – The distribution of beakers with alternating zigzags and horizontal rows of oblique impressions, all slanting in the same direction. The black dots symbolise certain instances, the open ones possible cases.

1994: 162 & fig. 1: n° 2). It has on its upper part a single horizontal row of oblique impressions, below which a single row of zigzags has been applied. There are furthermore sherds with zigzags and oblique impressions from Ede-Ginkelse Heide (Drenth *et al.*, 2008: fig. 11, n°s 5 & 6), Hazerswoude-Rijndijk (Drenth, 2010: 136, fig. 8.3.3.17, left), Keinsmerbrug (Van Heeringen & Theunissen, 2001: vol. 2, chapter on site 31, fig. 6), Warmond-Park Klinkenberg (Mooren, 2006: fig. 11, n°s 13 & 14) and Winkel-Zeewijk, (Sier, 2001: fig. 4 & table 15). They may represent the beakers under consideration; in view of the fragmentation some reservation is appropriate, as the overall motif may be different.

The German finds known to the author have all been made within the Weser-Ems-region and consists of vessels found exclusively in barrow graves. Apart from the already mentioned site at Wildeshausen-Katenbäker Heide (Pätzold, 1954), such beakers come from Löningen (*Idem*, 1957) and Surwold (Pätzold, 1954: 23 & fig. 7f; Schlicht, 1954: 42, 45, 46 & fig. 7). Besides, at Steinloge, another site in the Weser-Ems district a beaker has been discovered, whose ornamentation closely resembles the former ones - Despite the resemblance the vessel was not included in Fig. 11. The decoration comprises a zone of six horizontal zigzag lines, bordered both above and below by a horizontal row oblique impressions (Pätzold, 1954: 13-14 & fig. 4c).

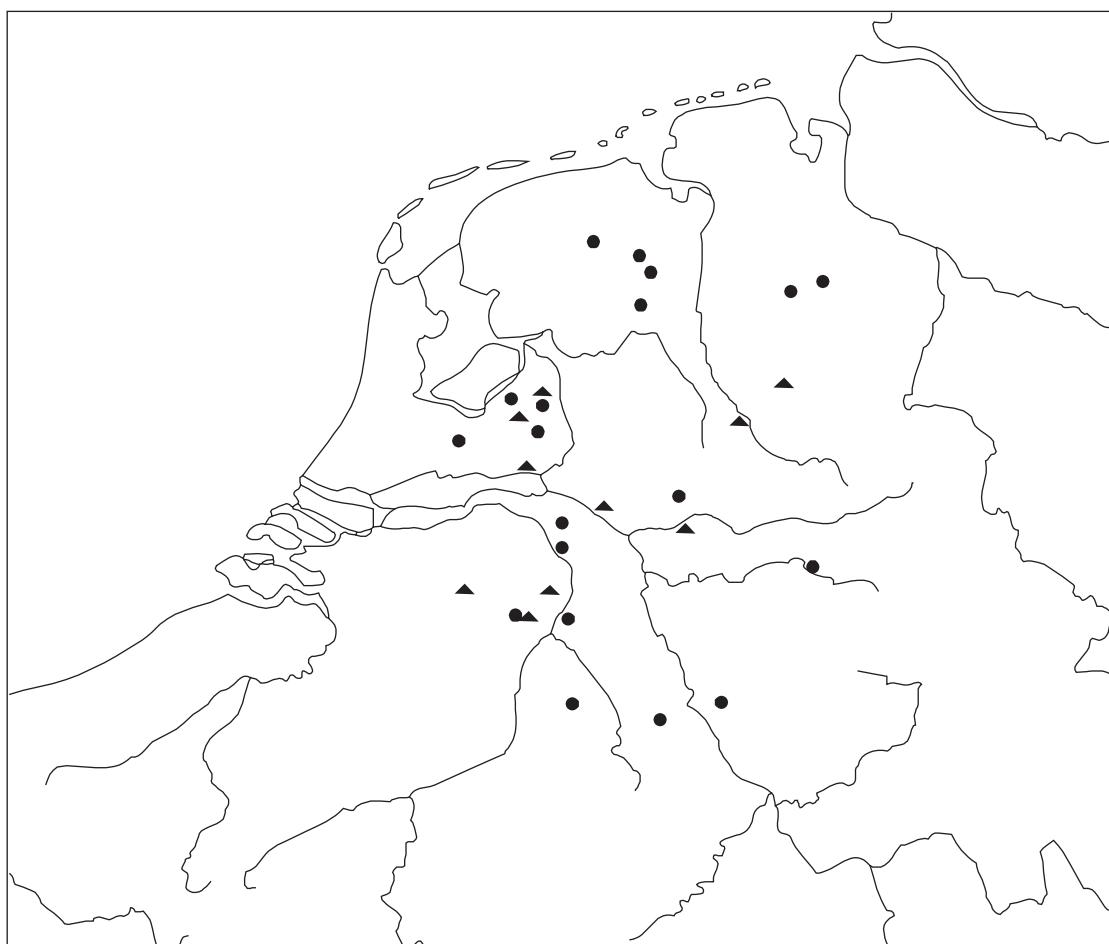


Fig. 12 – The distribution of AOO-beaker graves in the Netherlands and the adjacent regions. After Drenth & Lohof, 2009 (with further references). The triangles symbolise such graves with flint and non-flint stone axes, GP daggers and/or in one case a battle-axe, the dots refer to graves without such associations. Two of the dots indicating sites at Anloo and Swalmen represent two respectively three graves. One of the triangles indicates two graves investigated at Haldern. The locations of the sites as well as the geographical phenomena are approximately correct.

In conclusion, there are no indications for a the burial of a foreign person, that is someone who was born and raised outside the local/regional community. For the sake of clarity, the battle-axe does not play a role in this discussion, as its provenance is at present unclear. If the person nevertheless was an immigrant, he was buried and equipped not in the style of the area from which he came but rather in the traditions of the area in which he was buried. This is, however, unlikely in view of the picture that graves with All-Over-Ornamented (AOO)-beakers seem to tell (Drenth & Lohof, 2009: 124 & fig. 1; Fig. 12). The inventories of these graves suggest exogamy, in which women from the south were married to men in the north. In the northern Netherlands and the adjacent part of northwestern Germany such beakers have until now not been discovered together with stone axes (including ones in flint), stone battle-axes and daggers in French flint, all typical male grave attributes. By contrast, in the central and southern Netherlands and the neighbouring German territory AOO-graves with and without grave gifts typical for men have come to light. The picture that therefore emerges is that both sexes were buried with AOO-beakers in the latter area, while more northerly this type of burial may very well have been restricted to women. These findings are of relevance for the interpretation of the Groenlo burial. The AOO-beaker graves suggest that the composition of the SGC grave inventories refers, at least partially, to the origin of the deceased. In the instance of Groenlo the grave goods are therefore suggestive of a local/regional origin.

4.4. Old or new, filled or empty?

Were the battle-axe, the two flint blades and the beaker especially made as grave gifts and what was the beaker's content? To answer these intriguing questions, the lithic artefacts have been subjected to a microscopic use wear analysis by *drs. K. Wentink*. Residu-analysis, in particular in search of lipids, of a bottom sherd has furthermore been carried out by Debono Spiteri & Meersman (2012).

As pointed out above the battle-axe, in particular its neck shows damage that is visible with the naked eye. Together with the asymmetrical cutting edge and the 'cheeks' on the battle-axe's lower half they indicate a used and re-sharpened artefact. This conclusion is reinforced by the microwear analysis. In an e-mail d.d. 17-10-2011 *drs. K. Wentink*, points out that the battle-axe must have been heavily used. He draws the attention to the fact that due to repeated use, the shaft-hole has become polished. He furthermore points at the abrasion and damage of the edge, as attested by a flake negative. This part of the battle-axe seems to have been resharpened several times. *Wentink* thinks that on the occasion of being deposited in the grave the cutting edge has been sharpened one last time, which explains why clear traces of use are not visible. In addition, the neck of the battle-axe displays traces of battering. *Wentink's* overall conclusion is that the object represents a heavily worn tool and not a specialised weapon, though it may have been used as such in times of emergency. Instead, a daily practical function is thought of, possibly for heavy wood-working (e.g. as a wedge in the splitting up of wooden trunks) or the removal of tree-stumps from a newly reclaimed arable land. *Wentink* stresses that these interpretations must be tested by experiments.

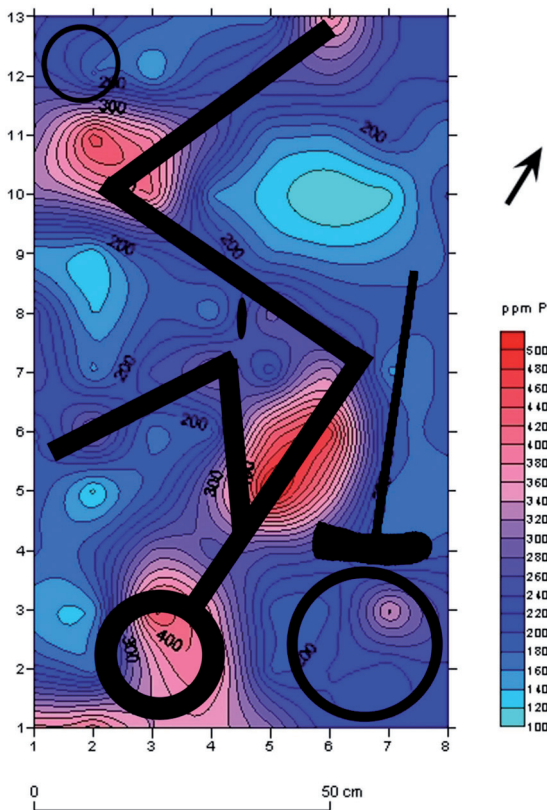


Fig. 13 – Results of the phosphate analysis at Loxstedt, Lower Saxony (Germany), including a reconstruction of the corpse position. The arrow points to the North. After Strahl, 2007.

One of the blades (find n° 12) displays no use wear. The other one (find n° 18) shows traces of having been utilised for cutting or carving a mineral substance. The exact nature of the contact material however cannot be determined.

The result of the residue analysis is negative. Whether this implies that an empty vessel was deposited or that its content has disappeared because of decay is unclear. In view of the absence of temper a function as cooking vessel before the deposition can be excluded¹⁵. For the same reason it is unlikely that the beaker was given to the dead to serve as such in the hereafter.

The deposition of used artefacts has several parallels within the SGC from the Netherlands¹⁶. Exemplary are the amber ornaments from barrow graves at Aalden and Garderen (Lanting & van der Waals, 1976: fig. 11 & 14). Several of them show secondary perforations, after the breakage of the ornaments over the primary perforation. In addition, due to use several perforations have an oval shape. To give a second example, a beaker from tumulus VII at Emmen shows signs of wear before its insertion into the grave (van der Waals & Glasbergen, 1955: 40 & pl. XVIII, n° 50). On several spots the wall has been perforated for fixing clamps to keep the fractured vessel together.

5. Final remarks: 'new' graves ask for modern excavation methods

The grave discovered at Groenlo makes one realise that the current SGC chronology is not perfect. Equally the interment emphasises once more the potential SGC burials have to reconstruct social aspects of society, particularly if scientific research is carried out. One of the other lessons to be learnt is in line with the latter remark. During excavations modern scientific methods should be used more often. As mentioned before, in the case of Groenlo, corpse position and the question whether or not a barrow had been erected are points at issue. To understand the SGC social organisation, reliable information on both aspects is crucial. Phosphate analysis can shed light on the former field. This is shown by a Late Neolithic pit with a stone battle-axe, a flint strike-a-light, a beaker and a bowl that was investigated at Loxstedt (Lower Saxony, Germany; Strahl, 2007). With the naked eye no traces of the deceased were visible. But thanks to the measurement of phosphate values not only it became clear that the pit was a grave but also the corpse position was detected (Fig. 13). Measurement of the percentage of organic substance in soil samples is also a method to be mentioned here, as it perhaps enables to identify levelled barrows (Van der Velde & Exaltus, 2011).

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15 E-mail d.d. 17-8-2011 by Dr T. Brorsson, who did a thin section analysis.

16 Currently *drs.* K. Wentink is preparing a dissertation on this issue.

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Abstract

The present paper discusses a Single Grave Culture burial that was recently excavated at Groenlo in the eastern part of the Netherlands. The grave gifts consist of a diabase battle-axe of type C, two flint blades and an earthenware beaker with zigzag decoration. They indicate that the grave was probably constructed between c. 2650-2550 BC. It further hints at an earlier occurrence of Single Grave Culture beakers with zigzag decoration in the Netherlands than hitherto assumed. Though the Groenlo grave yielded no human remains whatsoever, the battle-axe suggests the interment of an adult man, who probably had a rather prominent social position. He was probably of local or regional origin in view of the decoration on the beaker. Zigzag lines regularly alternate with a single row of oblique impressions. Within the Battle-Axes or Corded Ware Cultures, of which the Dutch Single Grave Culture is the northwestern branch, this motif has until now only come to light in the Netherlands and northwestern Germany.

Keywords: Groenlo, prov of Gelderland, the Netherlands, Single Grave Culture, burial, chronology, social status, excavation methods.

Samenvatting

Onlangs is te Groenlo (provincie Gelderland) in het oosten van Nederland bij archeologisch onderzoek een bijzetting van de Enkelgrafcultuur tevoorschijn gekomen. De grafgiften bestaan uit een hamerbijl van het type C uit diabaas, twee vuurstenen klingen en een aardewerken beker met zigzagversiering. Zij wijzen erop dat het graf waarschijnlijk tussen ca. 2650-2550 v.Chr. is aangelegd en dat 'zigzagbekers' eerder voorkwamen binnen de Enkelgrafcultuur van Nederland dan tot dusver werd aangenomen. Hoewel geen menselijke resten zijn ontdekt, doet de hamerbijl de teraardebestelling van een volwassen man met een hoge(re) sociale positie vermoeden. De versiering op de beker suggereert dat hij van lokale of regionale origine was. De regelmatige afwisseling van zigzaggen en een horizontale rij schuin gestelde indrukken blijft binnen het complex van Strijdhamer- of Touwbekerculturen, waarvan de Enkelgrafcultuur deel uitmaakt, beperkt tot Nederland en Noordwest-Duitsland.

Trefwoorden: Groenlo, provincie Gelderland, Nederland, Enkelgrafcultuur, graf, chronologie, sociale status, opgravingsmethoden.

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