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The domestic sphere of the Corded Ware Culture: a functional analysis of the domestic implements of three Dutch settlements

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Citation

García Diaz, V. (2017, February 23). *The domestic sphere of the Corded Ware Culture: a functional analysis of the domestic implements of three Dutch settlements*. Retrieved from <https://hdl.handle.net/1887/46262>

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Issue Date: 2017-02-23

Chapter 2. The domestic Corded Ware Culture in Europe and the Netherlands: An overview

2.1 Introduction

The European CWC and the SGC are mostly known by their funerary architecture and the depositions of goods, and the Netherlands is no exception. Archaeological excavations of settlements are a recent phenomenon, and the number of excavated sites is still low. In this chapter, a brief introduction to the history of research in the Netherlands and Europe is offered, after which the main characteristics of the Dutch CWC settlements will be presented. The objective of this chapter is to sketch a context for the three case studies which will be discussed in Chapters 4, 5 and 6. Therefore, the settlements excavated until 2013 are the main subject of this chapter, although the fundamental characteristics of burials and depositions are also briefly discussed.

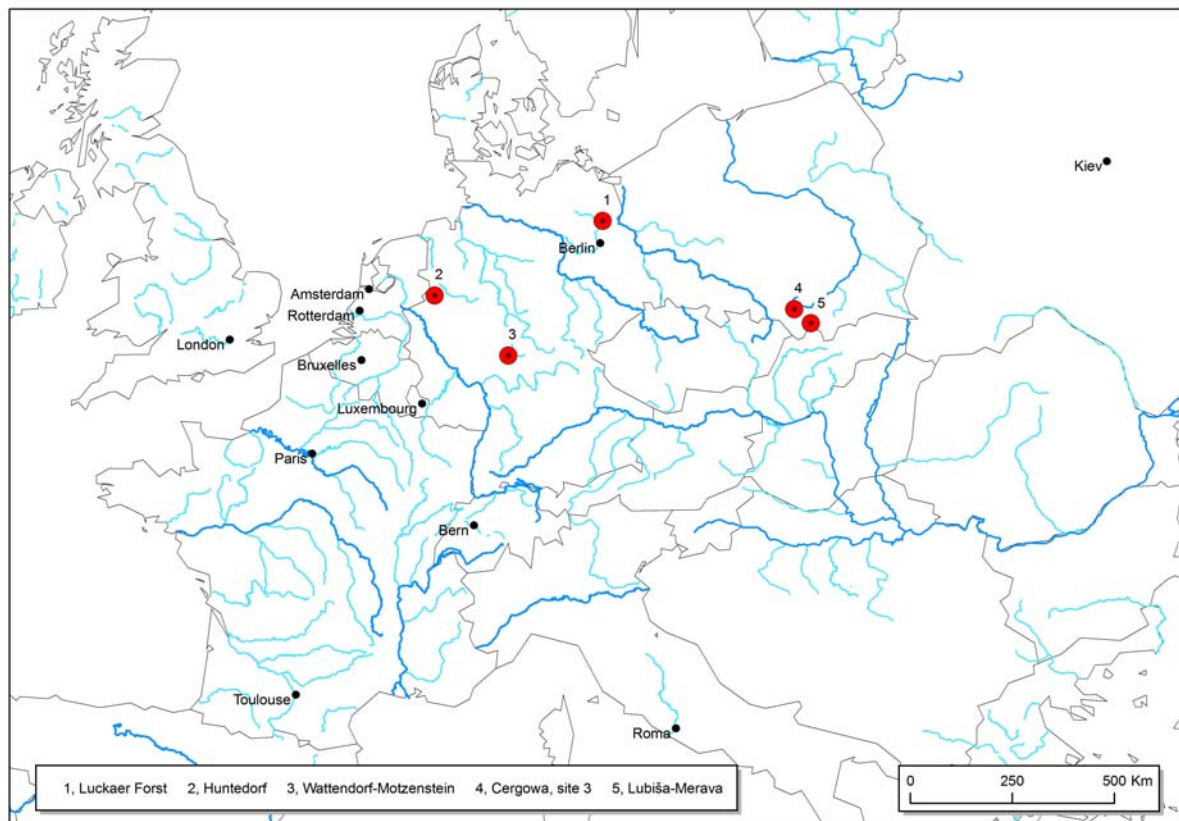


Figure 2.1. Map with the European Corded Ware Culture settlements cited on the text. 1: Luckaer Forst; 2: Huntendorf; 3: Wattendorf-Motzenstein; 4: Cergowa, site 3; 5: Lubiša-Merava (Image courtesy of Mar Escalante Fernández).

2.2 Domestic contexts in European Corded Ware Culture

With some exceptions, Corded Ware settlements in Europe started to be excavated during the late 1970s. The available information is uneven and diverse, depending on the country and the region. Although publications about settlements are still infrequent, some remarks could be made for the main distribution areas of the CWC¹.

Central Europe

Several domestic sites are known from Central Europe. In a recent dissertation, Hecht (2007) compiled a synthesis of 226 settlements in a study area covering Southern Germany, France and East Switzerland, including the lake settlements in the region of Zurich. Hecht described three different types of settlements: villages, hamlets and farmsteads. Villages were recorded mainly in Switzerland, although the German settlements of Luckaer Forst, Hunterdorf 1, Dümmer and Succase were also considered villages (Hecht 2007; Loewe 1957). Hamlets and farmsteads were the more characteristic settlements, but a typical Corded Ware house could not be distinguished. According to Hecht (2007: 101-192) the following characteristics of the settlements were described: houses were usually small (no more than 10m in length), except in the case of CWC structures, where houses tended to be slightly larger; the inner space was divided into two or three spaces and fireplaces and hearths were located within the domestic spaces. It was suggested that small groups lived in the houses and performed several activities within the domestic space: the results obtained from the analysis of the faunal and botanical remains suggest that subsistence strategies were based on a mixed economy (Hecht 2007: 244-246). Agriculture and pasturing were of growing importance and were combined with gathering, hunting and fishing.

Results of the recent excavations of a small Central German hamlet, Wattendorf-Motzenstein, dated to 2660-2470 cal BC, were published in 2008 and 2009 (Müller 2009; Seregély 2008) and provided new insight into the domestic organization of the CWC. The uniqueness of Wattendorf-Motzenstein is not only due to the presence of several Corded Ware domestic structures, but also to their association with a ritual place on a rocky outcrop nearby. Although the settlement was only partially excavated, at least four domestic huts were identified during the excavation and several activity areas were interpreted inside one of the excavated huts. A cooking area and a living area were distinguished from a waste deposit area. Finally, a workshop for the production of grinding tools was found. Grinding and cereal processing tools were an important part of

¹ For the Netherlands, the settlements will be discussed in section 2.3.

the site, playing not only an economic but also a ritual role, as inferred from the deposition of three querns and a grinding stone in the ritual area (Müller 2009; Seregély 2008). Other stone implements, such as blades and scrapers of local flint and stone adzes, were also produced at Wattendorf-Motzenstein. Local flint coexisted with better-quality flint implements and stone axes imported from the Czech Republic and Poland.

In Poland, most of the Corded Ware remains are barrows and graves (Józefowski 1969; Włodarczak 2006, 2008), but a compilation of Southeastern Poland and Western Ukraine settlements is available (Kadrow 2008; Witkowska 2006) including both open-air contexts and caves, the former also used as deposition places. Although most of the settlements were interpreted as campsites, Cergowa, site 3, Brestov-Dielňa and Lubiša-Merava were interpreted as '*homestead flint processing places*' (Kadrow 2008: 244). Flint was worked in specialized places, and the final stage of the tools was performed at the settlements (Witkowska 2006). The CWC in Poland is linked with the preceding TRB groups. Where TRB groups were present, the CWC developed the traditional economic system of the previous inhabitants. Pollen analyses show the importance of cereal production within an economy based on cattle and sheep herding, whereas in mountainous areas, where TRB groups were less prevalent, the economic patterns changed. Pollen diagrams show that '*the indicators of human activities are absent or very modest*' (Kadrow 2008: 246). It has been argued that the exploitation of the mountainous areas during the CWC was linked not only to herding but also to the use of new economic resources, such as salt mines (Pelisiak 2008: 56). In general, the Corded Ware society in this region has been interpreted as mobile, nomadic, and composed of small groups of herders. Settlements were occupied for a short time and were strongly related to the location of burial sites, mostly during the first stages of the CWC (Witkowska 2006).

Estonia, Finland and Latvia

In the Baltic countries, as in the rest of Europe, burial finds predominate over the domestic structures. However, some information about domestic structures, their tools and their economy is available. In addition to axe depositions and burials, a total of 58 settlements have been documented in Estonia (50 inland and eight on the main Estonian islands) (Kriista 2000). The sample is not homogeneous and the research has not been systematic. Most of the archaeological finds belonging to the CWC are pottery sherds, but most of the settlements have several occupation layers and the undecorated pottery sherds are sometimes mixed and misplaced among other archaeological deposits. At Estonian Corded Ware settlements, flint and stone are rare and flaked implements are almost never present. Besides the axes, flint implements are found at a low percentage

of sites, generally in the form of triangular and heart-shaped flint arrowheads, chisels and scrapers (Kriista 2000). The study of the settlement patterns in Estonia showed a change in mobility and location. Even though recent research (Kriista 2000) concluded that cereals started to be cultivated in Estonia during the previous Neolithic phase, the Combed Ware Culture, the agricultural practices determined the location of the settlements during the CWC. The quality of arable lands and pastures for cattle were the main characteristics sought by the inhabitants of Estonia, but hunting and fishing were still important (Kriista 2000). A similar pattern is suggested for Corded Ware settlements in Finland and Latvia. Possibly, small groups were moving around the territory founding different settlements with habitations of different duration (Kriista 2000).

Remains of 17 habitation sites containing Corded Ware pottery have been investigated in Latvia (Loze 1992). Most of the sites were located on the inland zone, in Lubana Lake depression. Beakers, household pots and amphora were the main types of vessels obtained from domestic contexts, and blades, axes, scrapers and arrowheads make up domestic flint assemblage. Stone boat-axes were found in a high quantity (more than 150 implements). Thanks to the good preservation of organic materials several bone spears and chisels were documented. Bones were also used for an ornamental purpose and tablets with toothed, ribbon-shaped ends were common, not only in domestic contexts but also in burials. Further, several beads and pendants of Baltic amber were found at the sites, with different shape and typology (Loze 1992).

Finally, several sites with Corded Ware pottery were documented in Finland. The settlements were located on slopes where sandy soil changed into clay soil, near running water but not on the coastline. The settlements provided a high number of pottery fragments but a small amount of flaked stone and flint (Edgren 1984 in Kriista 2000; Kriista 2000; Larsson 2007/2008).

Scandinavia

Settlements were almost unknown in Sweden until the 1970s, when digging machines were incorporated into archaeological excavations. The first archaeological excavation performed with this new methodology revealed several houses from different periods, but publications did not appear until the late 1980s and the beginning of the 1990s. Several Neolithic houses, including Corded Ware structures, were found. The longhouses consisted of two aisled structures, and occasional evidence of a sunken floor was found. The amount of finds found inside the houses was low. In a recent publication by Larsson (2007/2008), an estimation of less than 200g of pottery and between 100g and four kilograms of stone was documented. Bone remains were unequally preserved at

the settlements. Several occupations of Corded Ware houses have been documented in a number of cases, suggesting a reiterated use of the space by later communities (Larsson 2007/2008).

In Denmark, Jutland has been the centre of Single Grave research. There, during the 1980s, a large number of settlements were excavated. The sites were characterized by long houses associated with small assemblages containing amber, flint, stone and pottery (Liversage 1987). The origin of the SGC in Jutland was interpreted by Kristiansen (1991) as the result of the influence of several migrations, but Damm (1991) proposed that the SGC had local roots and originated in the previous TRB groups. The early Neolithic population in Denmark evolved differently during the TRB period: while in eastern Denmark the groups tended to stress their collective identity by using collective megaliths to bury their ancestors, in western Denmark individual graves predominated and the use of megaliths coexisted with the stone packing graves. During the Late TRB, the differences between both groups grew, and a deep change of the material culture, and a different group, the SGC, originated (Damm 1991). Excavated settlements in Denmark have provided house plans, pottery remains, a low quantity of flint and stone and fragments of amber ornaments. Finally, some pollen and zoo-archaeological remains were analysed in the late 1980s and early 1990s (Damm 1991; Kristiansen 1991; Larsson 1991; Liversage 1987; Robinson and Kempfner 1987).

In Norway, the SGC is interpreted as the arrival of a sudden and deep economic and political change (Liversage 1987). The pollen diagrams show the disappearance of the forest and the development of a landscape covered by grasses. The clearance of the forest has been interpreted as a reflection of the new economy of the groups. The settlements of the SGC were small with self-sufficient households. Subsistence strategies were dominated by herding and small scale cereal cultivation, but fruit gathering, hunting and fishing would complete the economy of the groups (Liversage 1987). In the region of Thy, settlements were interpreted as summerhouses where specialized activities were carried out by nomadic people. The Single Grave groups moved around the territory due to hard weather conditions during winter in this area of the country (Liversage 1987; Vandkilde 2005).

2.3 The Corded Ware Culture in the Netherlands

2.3.1 The chronology of the Corded Ware Culture in the Netherlands and the history of the research

Research into the CWC started during the late years of the 18th century (Fokkens 2005). Barrows were clearly visible in the landscape, and these structures soon caught the attention of the first Dutch scholars, but also of the first treasure hunters; unfortunately, some of the barrows were plundered and the context of the found materials destroyed. The excavations of Holwerda in the first decade of the twentieth century are considered the first systematic archaeological excavations accomplished in the Netherlands. The descriptions of the barrows and their associated archaeological materials were published, and Holwerda's work was followed and continued during the 1930s and 1940s by Van Giffen and several of his students, such as Van der Waals, Glasbergen and Waterbolk (Fokkens 2005). The first typo-chronology accepted by these Dutch scholars for the period was proposed and published in 1955 (Van der Waals and Glasbergen 1955), based on the typology of the thin-walled pottery associated with the excavated barrows and extended in 1965/66 (Anonymous 1965/1966). This typo-chronology remained in use until Lanting and Van der Waals (1976) proposed a continuity between the pottery of the CWC and that of the Bell Beaker period. A year later, this typology was reinforced with the publication of a series of radiocarbon dates for the prehistory of the Netherlands (Lanting and Mook 1977). Some new revisions were published during the 1990s (Drenth and Lanting 1990; Drenth and Hogestijn 1999) and the first decade of the current century (Lanting 2007/2008; Lanting and Van der Plicht 1990/2000). The publication by Drenth and Lanting (1990) was the first attempt to generate a typo-chronology based on a material culture different from pottery. The hammer axes found in the barrows of Drenthe were the basis to create a material distinction between the four phases of the CWC (Drenth and Lanting 1990). The articles opened a new debate on the last phase of the CWC, that is until now unresolved (for a further discussion see Beckerman 2012a).

According to Drenth and Lanting (1990) and to Lanting and Van der Plicht (1990/2000), the CWC is divided into four phases (Drenth and Lanting 1990; Lanting and Van der Plicht 1990/2000):

- a) Drenth and Lanting (1990) proposed a first phase starting with a chronology around 2900/2850 BC. However, Lanting and Van der Plicht (1990/2000) suggested a later beginning for phase 1, around 2800/2759 BC. In addition, Furholt (2003a) compiled several ¹⁴C dating for

northwestern Germany and the Netherlands, showing that the CWC in that area started around 2900 BC. The first phase is characterized by the presence of type A1-2 hammers, type 1a beakers without cord impressions and maybe type 1b and type 1f beakers with groove-lines decoration. At the end of this phase and at the beginning of phase 2, type 1a beaker with cord and fishbone impression emerged along with type A-3 hammers. In addition, amphora and waveband beakers occurred since the first phase and lasted until the fourth phase.

- b) The second phase of the CWC in the Netherlands is dated around 2750-2650 BC. The phase is characterized by type B/A hammers, type B hammers, and faceted type 1 hammers. Decorated and undecorated beakers are present. Type 1a and type 1b beakers with cord and fishbone impressions are found along with type 1f beakers. At the end of the phase 2, type C and type C/A hammers and type 1d beakers are also found.
- c) The third phase is dated around 2650-2550 BC. This phase is characterized by type D and type E hammers, faceted type 2a hammers and type 1a, type 1b, type 1c, type 1d and type 1f beakers. At the end of the phase the first AOO-beakers and the first Grand-Pressigny daggers are found.
- d) Lanting and Van der Plicht (1990/2000) proposed a chronology of 2550-2400 BC for the fourth CWC phase. This phase is characterized by type H, type P1 and type R/S hammers and faceted type 2b hammers. In addition, type F and type G hammers are found outside graves. Several Corded Ware Beakers (type 1b, type 1c, type 1e and type 1f) are found in the graves. In addition, type 1e beakers are occasionally found at settlements. Along with these CWC beakers, AOO-beakers and ZZ-Beakers are also found. Finally, Grand-Pressigny daggers are found in the graves.

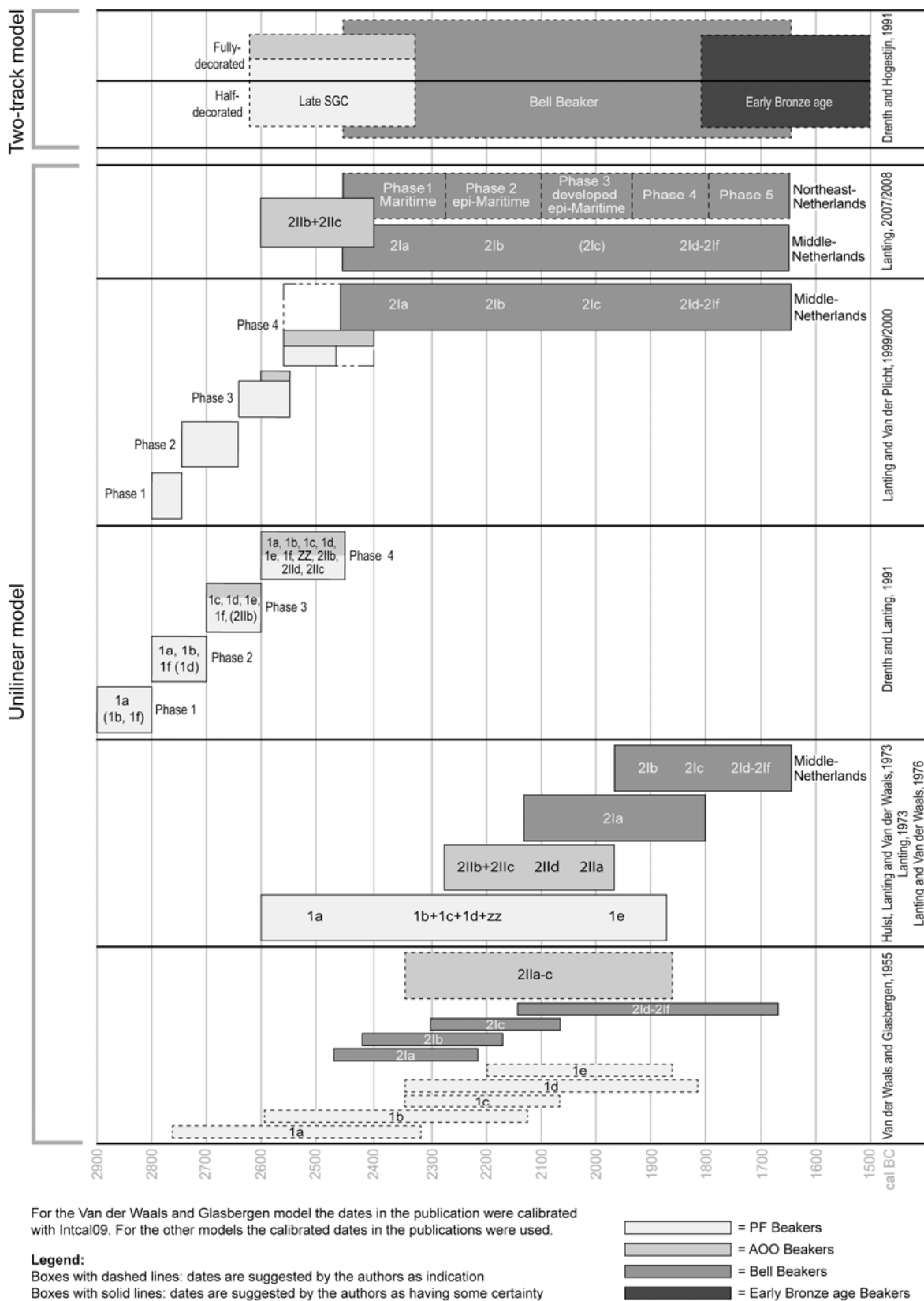


Figure 2.2. Different chronological models proposed for the CWC (Beckerman 2012a).

Recently, Beckerman (2016) proposed a different chronology for the Dutch coastal CWC groups. The study was based on technological analysis of sherds from different settlements of the Noord-Holland province and its correlation with the 29 ¹⁴C datings available for the region (Beckerman 2016: 167). Although absolute dates could not be exactly assigned to the groups, Beckerman classified the ceramics in two different groups: Group 1, or early Corded Ware, characterised by ceramics often tempered with stone grit and more often thick-walled, and with a decoration often consisting mainly of spatula motifs, but with cord and fingertip decoration also present (Beckerman 2016: 173); and Group 2, or late Corded Ware (Beckerman 2016: 173), characterised by a lower use of stone grit as temper material and a higher number of thin-walled pottery (Beckerman 2016: 173). The decoration was often applied with cords and All Ornamented beakers are found more often in this group. However, and due to the lack of technological data available for the rest of the country, it is still uncertain if the model is valid for the whole of the Netherlands.

2.3.2 The discovery of Corded Ware Culture settlements in the Netherlands

Corded Ware settlements known in the Netherlands are not numerous. The fact that most of the research conducted for this period has focused on the excavation and documentation of barrows and graves has probably underrepresented the domestic sites. The preservation of archaeological sites is also affecting the existing sample. First of all, the geology of the Netherlands plays an important role in the identification of the settlements. Organic remains are almost absent in the sandy regions, affecting the economic knowledge for the entire Neolithic period. Therefore, the good preservation of this type of remains in the wetlands is crucial for the understanding of the Dutch Neolithic. Secondly, in the Noord-Holland province, the archaeological remains of the CWC were located near the surface. Consequently, the preservation of the settlements was deeply affected by natural erosion and recent agrarian activities (Hogestijn 2005).

Before the Second World War only one settlement, Zandwerven, had been excavated. The excavation was started by Van Giffen in 1929 and continued by Van Regteren Altena in 1957 and 1958 (Van Regteren Altena and Bakker 1961), but it was not until the 1970s that the excavations of settlements became more common. There are several reasons for this new research interest. First, since 1961 a new law had protected the barrows and megaliths, considering them heritage monuments. The total protection of the monuments caused an almost complete suspension of excavations of graves and barrows and diverted research into settlements. Secondly, the development of New Archaeology generated an interest in the economy and the social aspects of the inhabitants of the past communities. This interest was evidenced by the development of

new excavation techniques and methods such as the introduction of flotation techniques and the use of sieves. The technical and methodological developments of archaeology were parallel to an expansion of building and railway construction projects in the Netherlands. Most of the excavated settlements of the CWC were discovered and excavated during the development of large-scale infrastructure.

Flint, stone and bone artefacts coming from settlement contexts received little attention, although the study of some flint artefacts was published in some publications (Fokkens 1982; Peeters 2001c). Stone tools from Kolhorn were also published in one article by Drenth and Kars (1990a) and bones were partially published in several publications (Van Ginkel and Hogestijn 1997; Van Heeringen and Theunissen 2001; Van Wijngaarden-Bakker 1997). These articles contain mainly typological and technological analyses of the stone and flint material, with few exceptions (Scheurs in Van Heeringen and Theunissen 2001: 137-138; Van Gijn 1985). Systematic use-wear analysis was not applied to any assemblages until 2009. From 2009 onwards, use-wear analysis was applied to flint, stone and bone remains from three different sites in Noord-Holland: Keinsmerbrug, Mienakker and Zeewijk (García-Díaz 2012, 2013 and 2014a; see Chapters 4, 5 and 6). Along with these publications, one unpublished bachelor's thesis focused on the analysis of the lithic material of Steenendam, and use-wear analysis of 50 flint artefacts (Van Roozendaal 2011).

Before the beginning of the *NWO Odyssee* project, some overviews of CWC were published (Drenth 2005; Fokkens 2005; Hogestijn 2005; Van Heeringen and Theunissen 2001). Probably the most complete overview, taking into account the entire territory of the Netherlands, was published in 2008 (Drenth *et al.* 2008). Since then, few new discoveries concerning CWC settlements have been published. CWC archaeological remains can be found in four different geological areas (Drenth *et al.* 2008; Van Gijssel and Van der Valk 2005)(Figure 2.3):

- a) The coastal barriers and older dunes area: the coastal barriers were formed during the sea level rise during the first half of the Holocene. The increase in annual temperatures at the end of the last glaciation caused the melting of the glaciers and the polar ice caps. Holocene sedimentation started with the development of a thick peat layer in front of the estuaries. Water carried sediments that were deposited in front of the estuaries, which covered the peat deposits with clay (De Vries 2007). Finally, the low older dunes formed from drift sand blown onto the coastal barriers of the western Netherlands and were suitable for occupation from 4400 BC onwards.

- b) The central river district was characterized by the confluence of a large number of rivers, including the Rhine and the Meuse. Geologically, the region was formed from the tops of former pre-Holocene river dunes located on peat and clay sediment deposits. In the surroundings, freshwater areas with plenty of wild animals and fish were available (Van Gijssel and Van der Valk 2005).
- c) From a geological point of view, the northern, central and southern Dutch Pleistocene areas have remained unchanged during the last 10,000 years. The more humid conditions of the Holocene caused the expansion of a river system on sloping areas and the growth of extensive raised bogs on poorly drained flat areas (De Vries 2007: 309). Most of the Pleistocene soil was composed of sand, boulder clay and loess and, to a lesser extent, some areas of raised bog.
- d) The tidal area in the province of Noord-Holland: this region is part of the marine and estuarine part of the Holocene Netherlands, and is characterized by tidal flats, salt marshes, levees and gullies. The large tidal basins of West-Friesland started to silt up between 4500 and 4000 BC as a result of sea level rise and became habitable around 2900-2800 BC (Smit 2012). At the beginning of the third millennium BC, extensive peat marshes started to form behind the coastal barrier (De Vries 2007: 305). The tidal branches caused several changes in the landscape, beginning between 4500 and 4300 BP (approx. 3200-2900 BC) when a lagoon formed and during the period 4300-3800 BP (approx. 2900-2250 BC) two tidal branches divided the territory and created a rich landscape, which was occupied by several Neolithic settlements. A brackish marsh environment connected to the Vecht and IJssel rivers characterized the landscape. Finally, the eastern border was formed by broad peat bogs, whereas the northern border was marked by the Pleistocene outcrops of Wieringen and Texel (Smit 2012: 17).

Although information about settlements was obtained from different environmental contexts throughout the Netherlands, the knowledge available for the various areas is uneven. The best-known area is the province of Noord-Holland, where extensive surveys were conducted. In the rest of the country, materials dated to the CWC are scarce and usually come from test-pits or partial excavations. In the next section, a compilation of the information concerning the CWC settlements is presented. The aim of this section is to offer a comparative framework for the case studies presented in Chapters 4, 5 and 6. Therefore, special emphasis is placed on flint, stone, bone and amber assemblages.

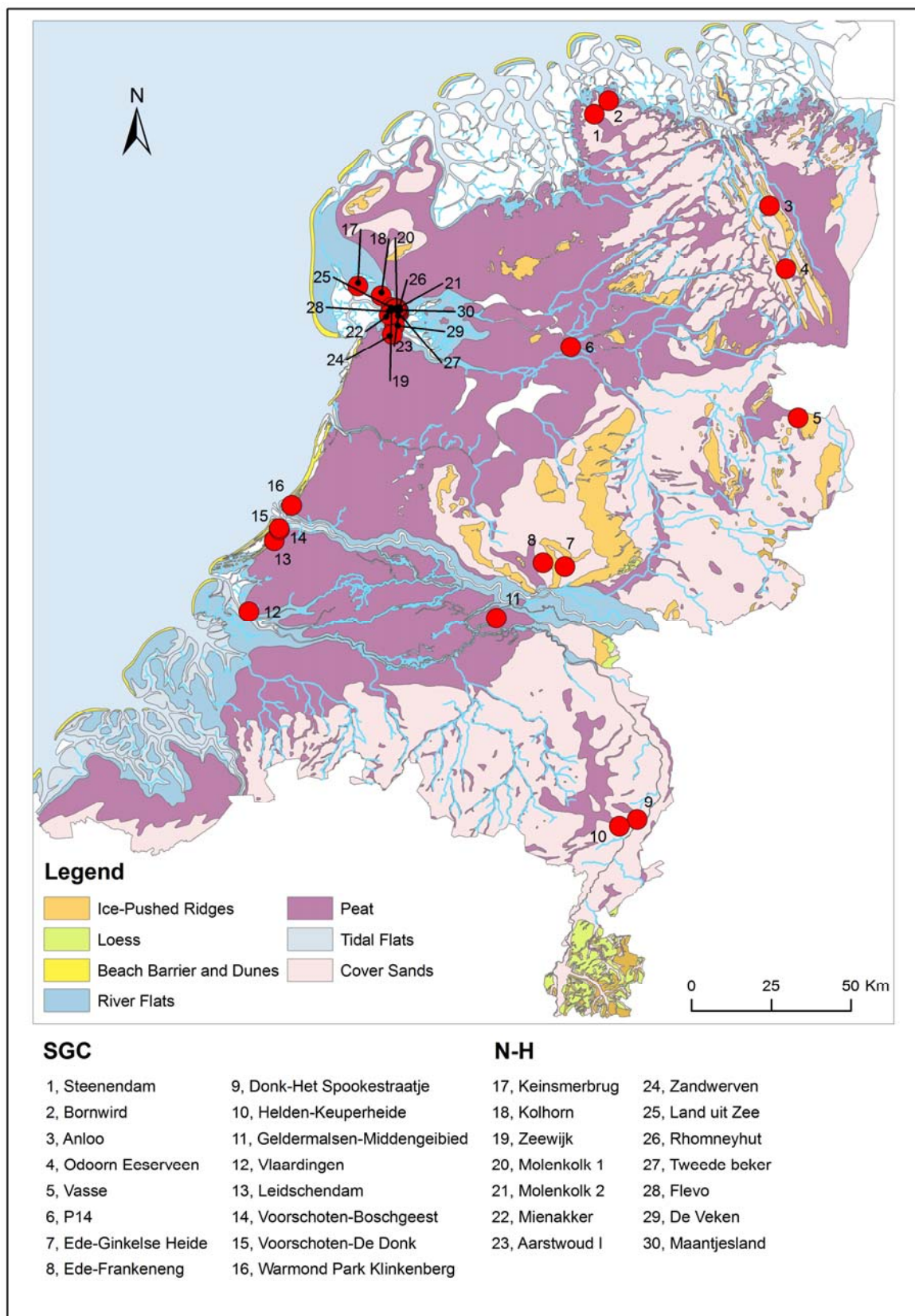


Figure 2.3. CWC settlements in the Netherlands (after Vos and de Vries 2011).

2.3.3 Corded Ware settlements of the coastal barriers and older dunes areas

Remains from the CWC were found in four different sites: Leidschendam, Voorschoten-Boschgeest, Voorschoten-De Donk and Warmond-Park Klinkenberg. The four sites were characterized by the existence of a grey organic layer containing CWC remains. The four sites were only partially excavated and the exact dimensions of the settlements were not determined. For Voorschoten-De Donk a minimum dimension of 25x25m was calculated while Warmond Park Klinkenberg was estimated to be at least 50x30m (Drenth *et al.* 2008: 168). The discovery of CWC remains over an older Vlaardingen site complicated the dating of the pottery at Voorschoten-De Donk. This is also the situation at Leidschendam, a Vlaardingen settlement where only two clusters with CWC pottery were interpreted during the excavations. In addition, one axe fragment could also be attributed to the CWC period (Glasbergen *et al.* 1967). The palynological research shows two settlement phases, with the earliest phase dated to the CWC. Only two structures were found during the excavations of the four sites: two water pits in Warmond Park Klinkenberg (Bink 2006).

Warmond-Park Klinkenberg

The settlement, located close to the current shoreline, was partially excavated in 2005. Pottery remains were mainly associated with the habitation layer. The assemblage consisted of 951 sherds, characterized by their small size and usually very polished walls. Just 62 of the fragments were decorated. Based on this decoration, a CWC phase-4 occupation was proposed (Mooren 2006). The typo-chronology was supported by three ¹⁴C samples² providing a chronological average between 2562 and 2307 BC, and an occupation of 150 years was proposed (Bink 2006). The botanical analysis indicated the predominance of wild plants such as tubers, blackberries, and elderberries, although the cultivation of barley nearby was also suggested (Van Beurden and Van Waijjen 2006). Additionally, hunting, fishing and pig herding activities completed the subsistence activities practised on the site (Peters 2006).

Stone and flint implements were found in low numbers during the excavation of Warmond Park Klinkenberg (Table 2.1 and 2.2). The stone assemblage consisted of 123 implements made from several raw materials (Table 2.2). Although the majority of the raw materials were locally collected, quartzite was interpreted as a possibly imported raw material (Dijkstra and Bink 2006). Manufacturing traces were present on a low percentage of the tools. Flakes were the most represented tool type. One fragmented

² UtC13795 4010±70; UtC13796 3887±47 and UtC13798 3946±45 (Bink 2006)

quartzite quern, three possible grinding tools and four hammer stones completed the sample. Finally, the excavations revealed several stones related to the production of ornaments. Fragments of amber, jet and lignite were recovered in low numbers, but no final products, such as beads or bracelets, were found (Dijkstra and Bink 2006) (Table 2.4).

The flint assemblage is small in number (Table 2.1). Although it was mostly related to the habitation layer, some of the implements were also found inside one of the watering pits. A preliminary study of the flint assemblage was published in 2006 (Dijkstra and Bink 2006). Flint implements were described in terms of raw material, typology and technological traits, but, unfortunately, no use-wear analysis was performed. The flint is characterized by its low quality and flint tools were mainly produced with local raw material. Rolled nodules of northern flint were selected as cores, although some flakes were produced from broken flint axes. Flint technology was directed towards flake production, and the main approaches used were bipolar and direct hard percussion. Due to the use of small rolled pebbles, the implements obtained were of small dimensions. Retouched tools were not numerous (Table 2.1), and the main tool types are unmodified flakes, scrapers, borers, retouched flakes and retouched knives. Scrapers were predominantly made out of flakes, while borers were made from flint fragments (Dijkstra and Bink 2006).

2.3.4 Corded Ware settlements of the central river district

Just two possible settlements were identified on the central river area and only one was excavated. The first site, Vlaardingen, was located on top of another Vlaardingen site, making the chronological attribution of the site complicated. Three pottery sherds with 'maritime'-type decoration suggested a possible attribution to the CWC, but the sherds could not be definitively assigned to the late CWC phase, or to the early Bell Beaker Culture (Drenth *et al.* 2008). The second site, Geldermalsen-Middengebied, was partially excavated and some archaeological materials without a clear archaeological context were recovered (Drenth *et al.* 2008).

2.3.5 Corded Ware settlements of the northern, central and southern Dutch Pleistocene areas

The archaeological evidence available for this region is not plentiful. The Pleistocene areas only revealed a small number of implements, lacking a clear archaeological context. Based on the description provided by Drenth *et al.* (2008: 170-172) two groups of archaeological finds could be distinguished. The first type consisted of concentrations of finds (generally pottery sherds or flint implements) without a clear

association to structures or habitation contexts. Helden-Keuperheide, Ede-Ginkelse Heide, Ede-Frankeneng and Donk-Het Spookestraatje are examples of this type. The assignment of the materials to the CWC is based on pottery decoration. Other implements such as flint arrowheads helped to form the chronological estimation of two settlements, Ede-Frankeneng and Donk-Het Spookestraatje (Drenth *et al.* 2008). The second type of evidence is characterized by the presence of other archaeological finds linking the materials with the CWC. Most of the finds are associated with burials, as in the case of Anloo³ (Jager 1985; Waterbolk 1960), P14 (Gehasse 1995; Ten Anscher 2012) and Ordoorn-Eeserveld (Bakker 1973). Additionally, one possible house plan was found during the excavation of Vasse, but its chronological attribution is still under discussion (Drenth *et al.* 2008: 172; Hogestijn and Drenth 2000).

Bornwird

The excavation of Bornwird (Fokkens 1982) provided several types of pottery from TRB and CWC associated with three postholes and two pits. Stone and flint implements were also found during the excavation. The chronological attribution of the flint implements was complicated due to the limited tool type variability for the northern part of the Netherlands during the Late Neolithic cultures. This low variability is probably due to a continuity in technological traditions (see Chapters 7 and 8). In addition, it is also determined by the low number of possibilities that the most-used raw material (moraine flint) offered the flint knapper. In addition, a clear stratigraphic correlation between the implements and the archaeological layers could not be established, and the study of the material culture did not provide information about the internal organization of the site.

Flint implements were considered to '*resemble to a number of – vaguely described – TRB assemblages*' (Fokkens 1982: 104). Flint implements were produced with local moraine flint. The assemblage was composed mainly of waste (99%), while 1% was classified as '*used or further worked*' (Fokkens 1982: 102). The functional classification of the tools was based on the retouched edges of the implements, as no use-wear analysis was performed. Therefore, 201 retouched tools were classified typologically in five groups and a presumed function was assigned based on the shape of the retouched edge. The main types were blades and flakes showing a convex retouch and/or use retouch, used for scraping or cutting; blades, flakes and blocks with a notch or concave retouch and/or use retouch used for scraping; flakes and blades with a pointed projection and a retouch

³ The interpretation of Anloo is still under debate. Although the main interpretation is that the remains found belonged to a cattle-kraal, several authors consider that the archaeological remains could be part of a settlement (Bakker 1979; Van Gijn and Bakker 2005; Voss 1982).

used for drilling; and flakes and blades typologically characterized as arrowheads due to their retouch. A trapezoidal arrowhead was classified as typical for the TRB groups, while a leaf-shaped point was considered to belong to the Late Havelte groups (Fokkens 1982: 102).

Steenendam

At Steenendam, an inventory of the 1972-1973 excavation generated a list of almost 12,500 flint implements (Fokkens 1980 in Van Roozendaal 2011). Recently, a selection of 127 flint implements (1.01% of the total assemblage) have been re-studied using the typo-technology classification system of the database of the Laboratory for Artefact Studies (Leiden University)(Van Roozendaal 2011). Although the number of implements studied was low, some relevant conclusions were obtained: the assemblage was characterized by the use of local flint; cores were flaked without a previous platform preparation, and the use of bipolar technology was extensive; flint cores were small and were exploited randomly, displaying two or more flaking platforms; and flint technology was oriented towards flake production, although a low number of blades were also documented. The number of retouched implements was small, and tool types were dominated by scrapers and retouched flakes (Table 2.1) (Van Roozendaal 2011).

Use-wear analysis was performed on 45 flint implements, predominantly unmodified flakes and blades (Table 2.1). The number of artefacts showing use-wear is low and no general conclusion can be made, but the results show a predominance of the use of flint implements to process vegetal resources (Van Roozendaal 2011) (Table 2.5).

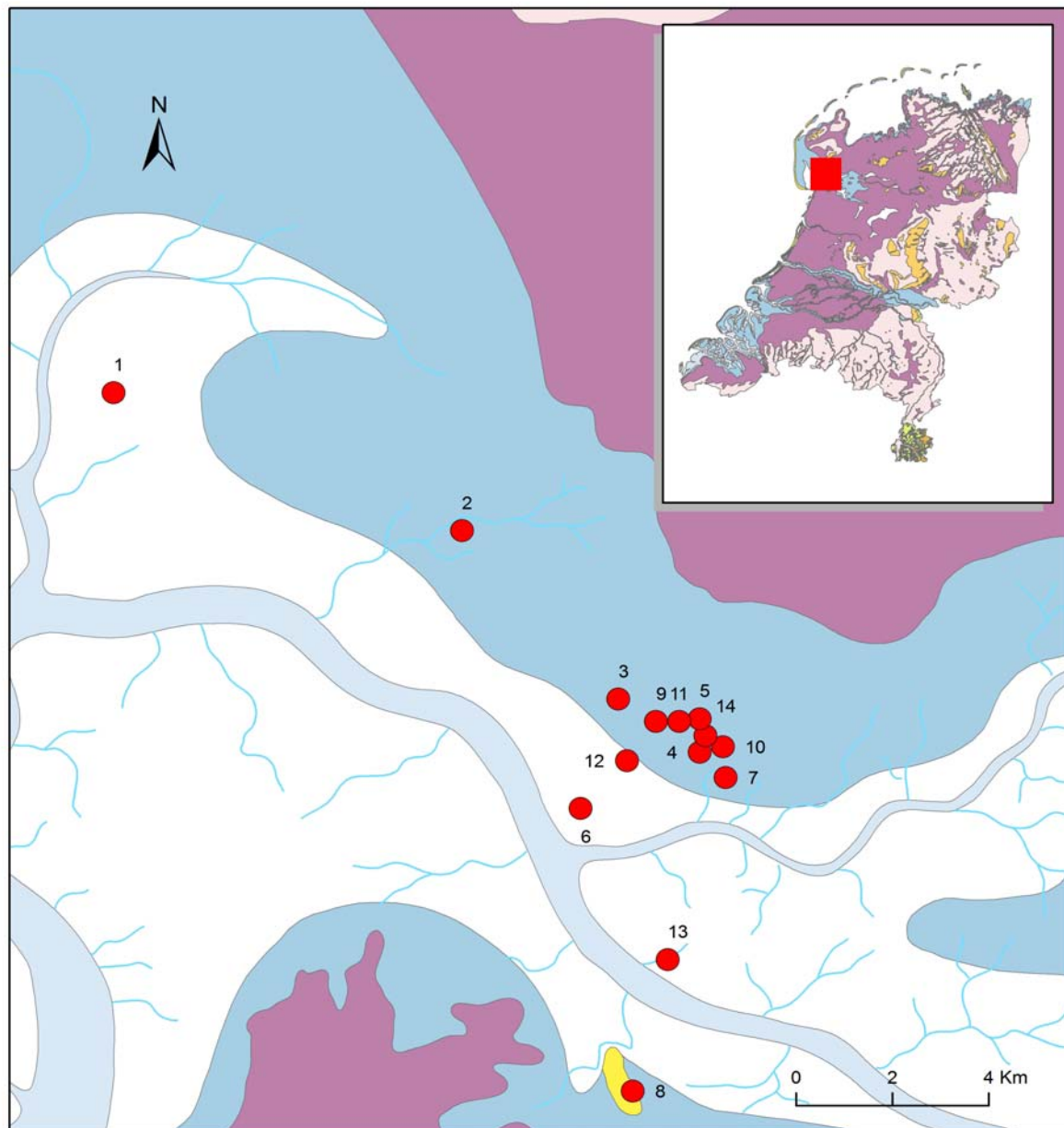
2.3.6 Corded Ware settlements of the tidal area: the province of Noord-Holland

In the Noord-Holland province several archaeological interventions were performed from the late 1970s until the late 1990s, and a large number of archaeological settlements dated to the CWC were documented (Figure 2.4). The archaeological settlements were concentrated in the higher parts of the tidal areas, relatively close to fresh water sources and to the sea line. The presence of several ecological niches in the area provided a rich environment to be exploited by Neolithic communities, and archaeological settlements started to flourish during that period. Due to the good preservation of the organic remains, the Noord-Holland province is the region with the highest number of documented CWC settlements. This region provided the most complete information about habitation patterns and economic strategies in the entire country (Van Heeringen and Theunissen 2001).

The settlement classification was performed on the basis of different archaeological finds, and therefore the category '*settlement*' encompasses a wide variety of sites. In the first place, some of the settlements consisted of isolated finds, as in the case of Rhomneyhut and Tweede Bejker (Van Heeringen and Theunissen 2001); some were discovered thanks to several drilling campaigns performed in 1989, although few materials were recovered (van Heeringen and Theunissen 2001) (Table 2.2); some sites (Land uit Zee) were considered as possible settlements after initial analysis, but they were never excavated (Van Heeringen and Theunissen 2001); and, finally, other settlements, such as Aarstwoud I, Molenkolk 1 and Molenkolk 2, Zandwerven, Zeewijk and Kolhorn, were subjected to large-scale excavations, although only two settlements, Keinsmerbrug and Mienakker, were excavated completely.

Hogestijn (1992, 1998, 2001, 2005) divided the sites into two groups on the basis of their size and form. Group 1 was composed of settlements larger than 3,000 m², situated close to open water, with a large assemblage. These types of settlements were interpreted as permanent residential settlements occupied by relatively large groups. Group 2 settlements were smaller and not situated close to open water, and the material culture associated was less extensive. The settlements from this group were interpreted as seasonal camps occupied by small groups performing specific activities (Hogestijn 1992, 2001, 2005). Subsistence activities were also different in the two types of settlements: while fishing and fowling are largely represented at Group 2 settlements, the presence of ard marks mostly at Group 1 settlements indicates that agricultural activities were principally performed on larger settlements (Hogestijn 2005).

Before the beginning of the NWO *Odyssee* project, the typo-chronology of the Noord-Holland settlements showed a small number of settlements during the early phase of the CWC period, a dense concentration of settlements during the main phases of the CWC, a continuation during the Bell Beaker period, and a change of settlement patterns during the Bronze Age with the reduction of the number of settlements in the area. However, during the NWO *Odyssee* project Beckerman (2016) re-analysed pottery sherds from several Noord-Holland settlements and suggested that the differences observed between the two distinguished pottery groups could be chronological (Beckerman 2016: 173; see section 2.3.1). Following Beckerman (2016: 173), Group 1 consists of the top layers at Zandwerven, Zeewijk-Oost, the northern part of Zeewijk-West, Aarstwoud and Keinsmerbrug, while Group 2 consists of the southern part of Zeewijk-West, Mienakker and De Venken. Although most of the calibrated dates available for the region fall within 2880-2200 BC, Beckerman points out that actually Group 1 does contain the oldest dates of the region (Zandwerven and the northern part of Zeewijk-West).



N-H

- | | |
|-----------------|------------------|
| 1, Keinsmerbrug | 8, Zandwerven |
| 2, Kolhorn | 9, Land uit Zee |
| 3, Zeewijk | 10, Rhomneyhut |
| 4, Molenkolk 1 | 11, Tweede beker |
| 5, Molenkolk 2 | 12, Flevo |
| 6, Mienakker | 13, De Veken |
| 7, Aarstwoud I | 14, Maantjesland |

Legend

- | | |
|--|---|
| Ice-Pushed Ridges | Peat |
| Loess | Tidal Flats |
| Beach Barrier and Dunes | Cover Sands |
| River Flats | |

Figure 2.4. Corded Ware Culture settlements in the North-Holland province (after Vos and de Vries 2011).

[illegible]

When the tool types or the material are mentioned but the number is not specified, an asterisk is used (GP: Grand-Pressigny).

Use-wear analysis was performed on two assemblages, Kolhorn and Aarstwoud. At Aarstwoud, use-wear analysis was performed on nine tools interpreted as a 'possible deposition' (Scheurs in Van Heeringen and Theunissen 2001: 137-138). The implements, seven scrapers and two flakes, were found while taking new samples for an internal report of the predecessors of the Cultural Heritage Agency, the State Service for Archaeological Investigations (Rijksdienst voor het Oudheidkundig Bodemonderzoek, ROB) in 1999 (Scheurs in Van Heeringen and Theunissen 2001: 137-138). Although the preservation of the tools was not good, some results were obtained from use-wear analysis. Seven implements, six scrapers and one unmodified flake were probably used to scrape hide; one flake, with bifacial retouch, was possibly used to cut an undetermined hard material; and one scraper showed some polish that could be interpreted as hafting traces (Table 2.2).

At Kolhorn, a pilot study was performed on a random selection of 29 scrapers (Van Gijn 1985). Only seven scrapers displayed possible traces of use, and in only three of these cases the contact material could be interpreted. One scraper may have been used to work an indeterminate plant material, while two scrapers were used for hide scraping (Table 2.2).

		Aarstwoud	Steenendam	Kolhorn	Total
	Hide	7	1	2	10
Animal	Hard Uns	-	1	-	1
	Soft Uns	-	1	-	1
	Plant Uns	-	1	1	2
Plant	Hard Plant	-	3	-	3
	Reed	-	1	-	1
	Siliceous Plant Uns	-	2	-	2
Plant/Hide	-	-	1	-	1
Hafting traces	Unknown	1	-	-	1
Undetermined	Hard	1	3	-	4
Unsure/Unknown	-	-	2	-	2

Table 2.2. Results of the use-wear analysis performed to flint implements of three CWC settlements in the Noord-Holland province (Uns: unspecified).

Stone

Although some analysis was performed on the stone assemblages from Aarstwoud I (Van Iterson Scholten 1981), De Vrijheid 1 and De Vrijheid 2 (Van Heeringen and Theunissen 2001), the only settlement that was systematically analysed was Kolhorn (Drenth and Kars 1990b). At Kolhorn, stone implements were predominantly produced

using local raw material, which was collected, as in the case of flint, from the nearby areas of Texel and Wieringen (Drenth and Kars 1990b) and from the east coast of the IJsselmeer (Van Iterson Scholten and De Vries-Metz 1981: 131). Imported materials were also used to produce stone artefacts, as corroborated by the fragment of a gabbro hammer-axe, the 63 pieces of Meuse River gravel and the two pieces of red sandstone documented at Aarstwoud I (Van Iterson Scholten and De Vries-Metz 1981). Grinding stones and querns are the best-represented tool types, but other tool types, such as rubbers, whetstones, pounders, battle-axes, cubic stones and hammer stones, were also recovered (Table 2.3). A selection of raw materials to produce some implements was inferred at Aarstwoud I and Kolhorn. At both settlements, querns were mainly produced using granite (granite and gneiss in the case of Kolhorn, and granite in the case of Aarstwoud I), while quartzite and sandstone were chosen to produce hammer stones (Drenth and Kars 1990b; Van Iterson Scholten and De Vries-Metz 1981). Several production traces were documented on handstones, querns and grinding stones from Kolhorn. Querns and grinding stones usually displayed negatives of flake removals, the result of flaking used to sharpen or shape the implements. Additionally, some handstones showed traces of percussion along their lateral perimeters, indicating that the tools were hammered to obtain the desired shape (Drenth and Kars 1990b). Use-wear analysis was not performed on the stone assemblages, but some functional inferences were made for the implements from Kolhorn. Processing cereals, polishing bone tools, grinding amber and cracking hazelnuts were some of the uses proposed by the researchers (Drenth and Kars 1990b). Unfortunately, until use-wear is performed, the exact function of these tools will remain unknown.

	Flake	Quern	Grinding tools	Hammerstones	Rubbing topol	Whetstones	Pounder	Battle Axe	Weight	Cubic stones	Stones general
Warmond Park	*	1	3	4	-	-	-	-	-	-	123
P 14	-	-	-	-	-	-	-	-	-	-	-
Bornwird	-	-	1	7	-	-	-	-	-	-	-
Steenendam	-	-	-	-	-	-	-	-	-	-	-
Aarstwoud	-	*	*	*	*	*	*	1	-	-	7471
Molenk 1	-	-	-	-	-	-	-	-	-	-	-
Molenk 2	-	-	-	-	-	-	-	-	-	-	-
Portwelw	-	1	-	-	-	-	-	-	-	-	-
De Veken	-	-	-	-	-	-	-	-	-	-	-
De Vrij 1 and 2	-	-	1	-	-	1	-	3	-	1	-
Flevo	-	-	1	-	-	-	-	-	-	-	-
Pooland	-	-	-	-	-	-	-	-	-	-	-
Mees	-	-	-	-	-	-	-	-	-	-	-
Gouwe	-	-	-	-	-	-	-	-	-	-	-
Maantij	-	-	2	1	-	-	1	-	1	-	*
Westfr	-	-	-	-	-	-	-	-	-	-	-
Stridham	-	-	-	-	-	-	-	8	-	4	*
Tweede B	-	-	-	-	-	-	-	-	-	-	-
Zaandwerven	-	-	-	-	-	-	-	1	-	-	-
Kolhorn	-	38	9	25	9	-	*	4	-	7	150
Texel	-	-	-	-	-	-	-	-	-	-	*
Anloo	-	-	-	-	-	-	-	-	-	-	-
Total	-	40	17	37	9	1	1	17	1	12	

Table 2.3. Stone tool types and number of implements found at the settlements cited in the text. When the tool types or the material are mentioned but the number is not specified, an asterisk is used.

Bone

Although one of the characteristics of the Noord-Holland province is the good preservation of the organic implements, only the bone assemblage from Aarstwoud I has been studied. Bone awls and pins from the 1972 excavation were published in 1981 (Van Iterson Scholten and De Vries-Metz 1981). Additionally, two 'hamerknop' needles⁴ were published in 2001 (Van Heeringen and Theunissen 2001). A preliminary study of 174 bone implements was carried out in 1994 (Cavallaro in Drenth *et al* 2008). Most of the worked bone assemblage at Aarstwoud I consisted 'primarily of needles and awls, but also included spatulas, ornaments, weights, scrapers, axes and retouchoirs' (Drenth *et al.* 2008: 164)(Table 2.4). Other animal products were also used to produce ornaments (Table 2.35). Three perforated teeth (from a dog, a pig and a deer) were recovered during the excavation. In addition, some isolated bone implements were also studied and published, such as the bones interpreted as possible flutes made out of bird bones at De Vrijheid 1 and 2 (Table 2.4).

⁴ These types of needles could be defined as pins with a flat, square, broad end.

	Awls	Pins	Needles	Spatulas	Ornaments	Weights	Scrapers	Axes	Retuchoirs	Flutes	General
Warmond Park	-	-	-	-	-	-	-	-	-	-	-
P 14	-	-	-	-	-	-	-	-	-	-	-
Bornwird	-	-	-	-	-	-	-	-	-	-	-
Steenendam	-	-	-	-	-	-	-	-	-	-	-
Aarstwoud	*	*	2	*	3	*	*	*	*	*	174
Molenk 1	-	-	-	-	-	-	-	-	-	-	-
Molenk 2	-	-	-	-	-	-	-	-	-	-	-
Portwelw	-	-	-	-	-	-	-	-	-	-	-
De Veken	-	-	-	-	-	-	-	-	-	-	-
De Vrij 1 and 2	-	-	-	-	-	-	-	-	-	1	3
Flevo	-	-	-	-	-	-	-	-	-	-	-
Pooland	-	-	-	-	-	-	-	-	-	-	-
Mees	-	-	-	-	-	-	-	-	-	-	-
Gouwe	-	-	-	-	-	-	-	-	-	-	-
Maantij	-	-	-	-	-	-	-	-	-	-	-
Westfr	-	-	-	-	-	-	-	-	-	-	-
Stridham	-	-	-	-	-	-	-	-	-	-	-
Tweede B	-	-	-	-	-	-	-	-	-	-	-
Zaandwerven	-	-	-	-	-	-	-	-	-	-	-
Kolhorn	-	-	-	-	-	-	-	-	-	-	-
Texel	-	-	-	-	-	-	-	-	-	-	-
Anloo	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	2	-	3	-	-	-	-	1	

Table 2.4. Bone tool types and number of implements found at the settlements cited in the text. When the tool types or the material are mentioned but the number is not specified, an asterisk is used.

Ornaments

At Aarstwoud I, amber, shell and ceramic beads and pendants were produced. Piena and Drenth (2001) studied almost 200 fragments of amber (Table 2.4) indicating the local production of amber beads. Small nodules of amber were collected from nearby seashores. Flint borers were used to produce amber beads with a conical perforation, while bone borers were probably used to produce beads with a long and cylindrical perforation. Flint borers are likely to have been hafted with wood or bone, and used together with ceramic discs (Piena and Drenth 2001). Unfortunately, no evidence of these borers was found during the analysis of the bird remains (Van Wijngaarden-Bakker 1997). The local production of amber beads and ornaments was inferred from the presence of splinters, flakes and core fragments recovered during sieving. Shell and ceramic beads were probably produced locally (Table 2.5). The ceramic beads were produced with clay tempered with chamotte⁵. Two clay beads, one disc-shaped and the other ball-shaped, were discovered during the excavation. Clay was also used to produce a small female figurine interpreted as a statue of a mother-goddess (Van Heeringen and Theunissen 2001). Finally, three disc-shaped shell beads with a central perforation were

⁵ *Chamotte*: fragments of crushed pottery and/or fired clay added to a clay body as a temper (Rice 1987).

also recovered (Table 2.5). The beads were produced with a plaque of an oyster shell and were perforated. On two examples the perforations had an hourglass shape, while the third implement showed a conical perforation.

		Amber		Jet	Lignite	Shells	Ceramic beads
	Fragments	Beads/pendants	Amber general				
Warmond Park	3	-	-	1	32	3	2
P 14	-	-	-	-	-	-	-
Bornwird		-		-	-		
Steenendam		-		-	-		
Aarstwoud	*	35	200	-	-	3	2
Molenk 1	-	1	-	-	-	-	-
Molenk 2	3	-	-	-	-	-	-
Portwelw	-	-	-	-	-	-	-
De Veken	-	-	-	-	-	-	-
De Vrij 1 and 2	-	-	-	-	-	-	-
Flevo	-	-	-	-	-	-	-
Pooland	-	-	-	-	-	-	-
Mees	-	-	-	-	-	-	-
Gouwe	-	-	-	-	-	-	-
Maantij	-	-	-	-	-	-	-
Westfr	-	-	-	-	-	-	-
Stridham	-	-	-	-	-	-	-
Tweede B	-	-	-	-	-	-	-
Zaandwerven	-	-	-	-	-	-	-
Kolhorn	*	*	150	*			
Texel	-	-	-	-	-	-	-
Anloo	-	-	-	-	-	-	-
Total	6	36	350	1	32	6	4

Table 2.5. Ornament types and number of implements found at the settlements cited on the text. When the tool types or the material are mentioned but the number is not specified, an asterisk is used.

2.3.7 Depositions in the Netherlands

The first evidence of depositions in the Netherlands dates to the Late Mesolithic, although depositional practices would not become more common until the Middle Neolithic. These practices continued during the Late Neolithic, the Bronze Age and the Iron Age (Fontijn 2002; Wentink 2006; Wentink *et al.* 2011).

A deposition could be defined as an implement, or a group of objects, deliberately placed in a spot. CWC depositions were made up of one or more objects, mostly axes (flint axes, stone axes or battle axes), flint blades and pottery vessels. Depositions consisting of one-piece wooden wheels are also typical of the CWC (Van der Waals 1964). The first evidence of wooden wheels in the Netherlands is dated to the first half of the 19th century and, although it was not until more than a century later that a second example appeared at the excavation of the Neolithic track-way of Nieuwe-Dordrecht,

since 1955 a total of 13 disc wheels have been recovered from the peat deposits of the provinces of Drenthe, Groningen and Overijssel (Van der Waals 1964). Wooden wheels were produced from one single piece of oak wood and have similar dimensions. Disc wheel depositions were interpreted as ritual implements due to the connection between the wheels and the track-way. The hoards were considered as a reflection of the importance of networking and communication in the symbolic world of Late Neolithic communities. Finally, Drenth *et al.* (2008) argued that some bone remains found in connection with burials or barrows should also be considered intentional depositions.

Flint and stone depositions have been found in the Netherlands in the form of multiple or single object hoards. Ter Wal (1996) conducted an extended compilation of flint depositions in 1996. In addition, Wentink (2006) and Van Gijn (2010a) analysed twelve CWC depositions from the north of the Netherlands. Nine were multiple object depositions and three were single object hoards. The implements were described technologically and use-wear analysis was performed. The artefact depositions analysed were mainly made up of blades and axes, but chisels and scrapers were also present.

Implements found at the depositions were produced using local and imported materials. While axes were made of both local and imported flint, blades, except for the implements coming from the hoard of Elp, were produced using French or Scandinavian flint. Other tools, such as chisels and scrapers, were produced using exclusively local flint (Van Gijn 2010a : 184-192). Scrapers and chisels were probably produced in domestic contexts and transported to the place of the deposition. Although no local flint nodules or cores were deposited in the hoards, they were found at the excavated settlements. However, little information is available for the production of axes and blades. Evidence of workshops has not been found in the Netherlands and, among the domestic flint assemblage analysed, there are no indications of axe production. Nevertheless, the small size of the axes was interpreted as an indication of their continued use (Van Gijn 2010a : 184-192). Imported daggers probably arrived as finished products. Although Grand-Pressigny fragments were recovered in some domestic contexts, the production sequences of the imported blades are missing.

Microscopic analysis showed that some of the tools had been used before their deposition. Traces related to use and hafting were present on most of the axes analysed. Axes were used to cut wood, they were often reshaped and some were buried, covered by ochre (Van Gijn 2010a : 185). Blades mainly display plant-polish-like use-wear traces, and, in addition, one blade showed hafting traces. Finally, at least seven blades displayed traces of contact with hide all along their surface. These traces were interpreted as a result of the transport of the blades inside a hide cover. The use-wear of the blades shows that the implements arrived at the deposition as finished products (Van Gijn

2010a : 191). Chisels were related to wood working as well, and in one case the tool was also buried, covered by ochre. Finally, the scraper from the De Pieperij hoard did not show use-wear traces, but the microscopic observation of the tools showed that the surface was covered by the red-orange traces of ochre (Van Gijn 2010a: 236).

2.3.8 Burials: Barrows and flat graves

In Late Neolithic, the funerary rituals changed. Although flat graves were still in use during the CWC period, the CWC people started to bury their dead in individual graves, mainly in barrows. Barrows are part of a burial ritual that includes the construction of a tumulus, or mound, to cover a grave. The use of barrows in the Netherlands started during the CWC, and lasted until Roman times. Mounds implied a change from a collective to an individual practice. Several authors (Barret 1989; Bradley 2005) propose the intentional durability of the barrows, used as visual markers (Llobera 2007) and creating a new landscape: a barrow landscape (Bourgeois 2013). CWC barrows have been found mainly concentrated in two areas: firstly in the northern Pleistocene part of the Netherlands, mostly in the provinces of Drenthe and Friesland, and secondly in the central part of the Netherlands, in the provinces of Gelderland and Utrecht. So far, no Corded Ware barrows have been found in the rest of the country (Bourgeois 2013; Drenth *et al.* 2008). Flat graves consisted of human inhumations in the ground, without a mound or a construction marking the burial. Flat graves have been found in the Pleistocene areas of the country, for example at Anloo (Jager 1985; Waterbolk 1960).

Under the barrows and in the flat graves, individual bodies were generally buried lying in a bent position on their left or right side (Drenth 1992). Bodies were usually accompanied by a vessel with a typical protruding foot beaker or AOO beaker decoration and three or four additional objects, commonly including a stone battle-axe or a flint dagger. Sometimes other flint tools, such as flint arrowheads, scrapers, flakes and hammer stones, were placed in the grave (Van Gijn 2010a: 141-142). Imported raw materials were used to produce several implements found among the grave goods. Scandinavian flint was brought to the Netherlands in the shape of unretouched blades, and was placed in flat graves and barrows. Usually, just one Scandinavian blade was placed on the grave; however, in several cases, two blades were found among the grave goods. Axes produced using northern flint were usually present in the burials. Occasionally, two axes were found in the grave, one small and one larger. Grand-Pressigny and Romigny-Léhry daggers were imported from France during the 2550-2400 fourth CWC phase (AOO period). The number of daggers was relatively small compared with other regions of Europe such as France and Switzerland (Van Gijn 2010a: 145). Consequently, around 15% of the barrows contained a dagger. Imported flint implements

were brought to the Netherlands already shaped. Almost no evidence of workshops or imported material was found in the settlements, with the exception of several fragments of Grand-Pressigny flint (see Chapter 5). Traces of edge rejuvenation were observed during the microscopic analysis of several flint axes, indicating the preparation of the implements for use as grave goods (Van Gijn 2010a: 144).

Not only flint was imported. Other stones, such as quartzite, that were scarce in the northern part of the Netherlands were used to produce battle-axes (Wentink 2006). Local materials were used for a low percentage of grave goods. Small flint implements associated with the burials were produced using low-quality local flint. Small rolled pebbles and low quality flint were selected to produce scrapers and unmodified flakes. Local raw materials were used to produce other stone tools, such as querns, found in a small number of graves. Amber beads were found in only five graves (Van Gijn *in press*; Wentink *in prep*). As in the case of the settlements, amber beads were probably shaped using local flint gathered from the coastline. Finally, although bone objects were not preserved, the likelihood of their deposition should not be completely ignored (Prummel and Van der Sanden 1995).

Grave goods from barrows and flat graves have been studied from a typological and technological point of view (Hulst *et al.* 1973; Lanting and Van der Waals 1976). Use-wear analysis has been performed on grave goods from 14 barrows and three flat graves (Wentink 2006; Van Gijn 2010a). Only flint implements have been analysed and published, and no stone tools were present in the sample; hopefully further analysis will provide information about the use and production of stone tool implements, an important component of the burial goods (Wentink *in prep*). The results of use-wear analysis are diverse. While Scandinavian blades, daggers and unmodified flakes were not intensively used, or not used at all, flint axes and arrowheads showed more distinctive traces of use. The first ones displayed traces related to chopping wood, while impact traces were found in every single one of the eight arrowheads analysed (Van Gijn 2010a: 144). Nevertheless, microscopic analysis provided important information about the symbolic use of the implements; for example, the plant-polish-like traces distributed all along the edges and the ridges of the Grand Pressigny daggers were interpreted as the result of contact between the dagger and a woven sheath (Van Gijn 2010a: 145).

Grand-Pressigny daggers were studied in other European contexts (Beugnier and Plisson 2004; Vaughan and Bocquet 1987), and their use was mainly associated with cereal processing. Sickles from European Neolithic contexts have been interpreted as identity items (Palomo *et al.* 2004: 194), which seems coherent within a context when agricultural practices were common and established in most parts of Europe. In the Netherlands, the analysis of several daggers suggested a different interpretation (Van

Gijn 2010a). No evidence of cereal traces was found on the surface of the analysed blades and the contact traces left by the sheath were interpreted as damage caused while showing the daggers on special occasions (Van Gijn 2010a: 145). The low numbers of daggers and the difficulty in obtaining the implements have been proposed as reasons for the differences in use and significance of the items across the various regions. A third possible explanation could be the lesser importance of agricultural practices in the north of the Netherlands compared with countries like Switzerland or France (Beugnier and Plisson 2004; Vaughan and Bocquet 1987). Although agricultural practices were common and were extended during the CWC, harvesting, gathering, hunting and fowling had a significant impact on the economy of Late Neolithic societies (see Chapters 7 and 8).

The lack of flint sickles is a common phenomenon for this period. They are rarely found in settlement contexts, except occasionally as fragments. It is likely that a combination of the above mentioned factors provoked a different use of the Grand-Pressigny daggers in the Dutch context. The importance of the dagger in this context was probably related to the quality and symbolic properties of the raw material and the shape itself, and not to the use of the tool as in the French and Swiss contexts (Beugnier and Plisson 2004; Vaughan and Bocquet 1987). Traces of ochre were also displayed on the surface of some of the CWC Dutch daggers (Van Gijn 2010a: 189). The use of ochre has been archaeologically documented in other Mesolithic and Neolithic Dutch contexts, and its use has been considered as symbolic/ritual (Van Gijn 2010a: 228).

Additionally, two graves have been found in the tidal area in the province of Noord-Holland, at De Veken and Mienakker, related to habitation layers and features. The Dutch wetlands are known for the excellent preservation of organic remains, and human bones are no exception. To date, the two skeletons in these graves represent the best direct evidence for archaeologists to understand the Late Neolithic population in the Netherlands. The two Noord-Holland skeletons were first studied and published in 1992 (Pasveer and Uytterschaut 1992). The first one, found near Sijbekarspel, was a female skeleton between 27 and 34 years old and around 1.53 metres high. The second, found during the excavation of Mienakker, was a 26-34-year-old male skeleton (Plomp 2013: 179). Some results relating to the diet and the health condition of both individuals were inferred. First, the analysis of the diatoms found on the teeth of both specimens revealed a diet based on cereal-like plants and typical species from a marine or brackish environment. Apparently the basis of the diet followed by the two individuals was the same or similar, yet the number of pathologies detected on the skeletons exposed different health conditions. While the male skeleton did not show a single pathology, the female skeleton showed several. While her arthritis and collapsed vertebrae could be

related to ageing, several instances of caries and the growth disturbance in their bones show different growing conditions (Pasveer and Uytterschaut 1992: 5-7).

A male predominance in Late Neolithic societies has been proposed on several grounds, such as a higher representation of males in the graves, distinct grave goods based on gender and the image of the male-warrior based on the battle-axes and the daggers (see Chapter 1). Although these theories have been traditionally used to explain Late Neolithic Dutch society, the lack of well-preserved skeletons in the Netherlands impedes a proper comparison. If there were social distinctions based on gender during the Late Neolithic, then a physical reflection could be expected. A lower-quality diet and several pathologies related to specific activities have been found in other assemblages where gender played a role in the socio-economic stratification of the society, and similar results have been obtained from similar assemblages in several European Late Neolithic burial contexts (Arnold 2006). Unfortunately, the skeletal sample in the Netherlands is too small for the results to be compared to the rest of Europe.

2.4 Conclusions

This chapter has presented the domestic evidence available for the European and the Dutch CWC. The information available is unequal: while burials, barrows and depositions have been studied in detail, Corded Ware settlements remain only partially excavated and the associated materials have not yet been systematically studied. In the Netherlands, interpretations of domestic implements are mainly based on typological studies. Technological studies are scarce and use-wear analysis has been performed on only two flint assemblages. The lack of a systematic study of the domestic implements of the CWC illustrates the importance of the present work. The analysis of the flint, stone and bone assemblage of three CWC settlements will be discussed in chapters 4, 5 and 6.