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

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Chapter 9. Conclusions

Material culture is a reflection, or a material product, of the social relationships of prehistoric people. Social rules guiding the production processes of implements, from the selection of the raw material to the production, consumption and discard of the tools, create and reaffirme the identity of social groups (Dobres 2009; Gosselain 1998; Ingold 1993). Through analysis of the material culture, intangible practices can be interpreted. The analysis of the Keinsmerbrug, Mienakker and Zeewijk assemblages provided relevant information to answer some of the main research questions formulated in Chapter 1.

9.1 The perception and appropriation of the landscape

The analysis of the assemblages suggested that the Corded Ware communities possessed a deep knowledge of their surrounding landscape. The economy of the groups was based on the exploitation of diverse natural resources. In the case of flint, stone, high quality wood and some fruits and nuts, this implied the use of a territory at least 20 km away from the settlements. A certain degree of mobility and specialization was adopted to take advantage of particular resources, such as fowling and fishing, which would have required a precise familiarity with the natural rhythms of the landscape. Detailed knowledge of the landscape would have been gained from long-term appropriation of different resources, but also through the observation of natural lifecycles, especially in relation to animals and their growth cycles. This type of knowledge is related to long-term memory and can be generated, changed or replaced with more knowledge. It requires attention, memory and the capacity to understand and decode the information contained in the landscape. As discussed in Chapter 3, this type of knowledge would be acquired and transmitted from one generation to another through learning practices, but also during the daily practices of the communities. The landscape formed part of the `collective memory' of the Corded Ware Culture societies, and the perception of resources and features such as bodies of water/rivers of surrounding landscapes would have been heavily embedded in oral traditions, creation myths and other stories (Taçon 1991).

Landscapes are also a means of communication: they connect people and provide relevant information (Stark 1998). Landscapes are not only part of the history of the group, a place where '*history is congealed*', but also a generator of information and knowledge, creating a new history (Ingold 2000a: 150). Material objects are fundamental to construct this history, as they work as an expression of it, with significant consequences for the social and political life of the groups (Chernela 2008). The creation

of memories and tools are '*the fruits of a certain way of living in the land*' (Ingold 2000a: 148).

Therefore, the selection of specific raw materials is, in the first place, an expression of the location of a particular settlement within the wider landscape. However, it also reflects the learning processes and the transmission of knowledge from one generation to another, as well as the social and political relationships the Corded Ware communities established with other groups. The use of specific areas to obtain resources, such as the Pleistocene deposits of Wieringen, could be understood as part of the Late Neolithic communities' relationship with areas that had been used in the past by the other prehistoric communities (see Chapter 8). The materials obtained from that area, such as the flint pebbles and the stones, acted as a physical and a symbolic entanglement of these communities. In addition, water sources were not only a means of communication and subsistence; they also provided some of the materials used by the CWC communities, such as amber nodules, that were later modified and transformed into ornaments that most likely carried strong associations with individual people and were regarded as personal items. These ornaments related the entangled landscape to the Corded Ware personhood as markers, and as symbols of belonging to the community.

9.2 Knowledge, continuity and group composition

The analysis of the Corded Ware assemblages indicates continuity of technological praxis: the '*metapodium technique*' could link the Corded Ware bone technology with the Mesolithic tradition; the use of bipolar technology with small nodules of flint was documented in Vlaardingen and TRB settlements; and the technology associated with the production and maintenance of querns is similar to other techniques already employed by other Neolithic groups (see Chapters 7 and 8).

The suggestion for the existence of a shared knowledge between the TRB, Vlaardingen and the CWC societies implies continuity of traditions, such as pottery and flint production (Beckerman 2012a, 2015; Fokkens 2012; Lanting 1990/2000). The technical traits of the Corded Ware communities, however, could be contextualized within the European Neolithic. As already suggested, the combination of different technological approaches was a common phenomenon during the Neolithic period, probably determined by the '*mixed economy*' spectrum of the groups (Binder *et al.* 1990; Guyodo and Marchand 2005). The continuation of different technological practices could be understood as part of the construction and generation of '*mutual knowledge*' by Neolithic populations. During this process, learning probably took place inside the dwellings, where tools were produced and used. Through praxis, observation and imitation the technical

gestures performed during the production of implements from settlement contexts were learned and embedded in the communal practices and daily life of each generation. But technical skills would not have been the only knowledge transmitted during these encounters; social rules, proscriptions and accepted ways of doing possibly would have also been reproduced and learnt within these daily contexts of practice (Edmonds 1995)

The technical continuity observed in these stone and hard animal material assemblages, however, contrasts with the distinct techniques employed to produce pottery. Pottery changes could be explained by the presence of several cultural traditions (Beckerman 2015), as at Keinsmerbrug, where the different clay and temper choices were interpreted as the result of different choices followed by different groups (Beckerman 2012b). In addition, new techniques in firing, tempering and shaping were probably added to the TRB and Vlaardingen techniques, generating a change in the material culture. A similar phenomenon has been documented in the third millennium BC in Sweden, where the use and combination of new techniques changed the way people produced pottery (Larsson 2008, 2009).

The theory of continuity is also challenged when burial practices are analysed. Although single burials existed during the TRB period, it is clear that this ritual became the standard practice during the CWC. Moreover, the grave goods associated with the burial ritual changed significantly. The change from collective to individual burial has generally been interpreted as the origin of an elite society (Renfrew 1976; Thomas 2000). However, the analysis of the settlements revealed a different situation. Following the definitions of social inequality used by several researchers (Clark and Blake 1994; Hayden 1995, 2001), the Corded Ware groups could be considered as non-highly stratified society. The introduction of agricultural and pastoral practices changed the groups' perception of the animals and the land, as people began to see both as property. The analysis of the Corded Ware settlements, however, suggested that land and animals, and the products obtained from them, were still considered communal possessions and that their benefits were shared among the entire group.

The fact that societies were considered egalitarian does not mean that no inequalities existed within the group (Hayden 2001). The use-wear analysis of the studied tools identified a wide range of activities, which through ethnographic analogies could be potentially ascribed to a specific gender. A gendered division of labour usually applies to herding, with herding tending to fall into the masculine sphere (Russell 1998). Meanwhile, cereal processing, the working of vegetal resources and several steps of hide processing are activities generally linked to women (Adams 1999, 2010; Anderson 2014; Arthur Weedman 2013; Frink 2005). There are, however, some activities to which gender

is difficult or impossible to ascribe, such as for example the production of implements: flint knapping has been traditionally linked to men, but several artefacts uncovered at the sites prove the relationship between women and the production of implements (Arthur Weedman 2010; Gero 1991). Overall, the technology applied to produce the implements did not reveal any characteristic that could point to the necessity of a specialist, and the implements were probably produced when needed by non-specialized people.

9.3 C*haînes opératoires* and cross-craft interaction

Through the analysis of the *chaîne opératoire* of the archaeological assemblages it is possible to understand the networks of activities and cross-craft interactions embedded in different social systems (Brysbaert 2007, 2008; Dobres 2000; Schlanger 1994). As already discussed in Chapter 3, cross-craft interaction can be understood as the process by which two or more crafts interact and the technological and social impact they have on each other (Brysbaert 2007; Foxhall and Rebay-Salisbury 2009/2010). The consequences of these interactions imply the sharing and/or adoption of skills and knowledge necessary for the execution of different activities. Therefore, the study of cross-craft interaction is a way to understand the exchange and transmission of knowledge and materials (Brysbaert 2007: 326), how the technological daily practices of prehistoric groups were structured and which were their social relationships.

The study of the archaeological implements of the three settlements show that there was an interaction between different crafts and different *chaîne opératoires.* The *chaîne opératoire* of the implements was characterized by a high degree of knowledge of the surrounding landscape, but also of the physical characteristics of the materials employed. As discussed in Chapter 3, the landscape was part of the cognitive system of the prehistoric populations. Therefore, and through the perception and use of the landscape, memories and knowledge on the acquisition of raw materials were transmitted and adopted generation after generation. In this sense, and in an environment with a similar geology, the knowledge of areas with suitable stone and flint was probably transmitted from the old generation to the new one after their ascription to the memories of the community. Through interaction between generations and through daily practice, individuals learned to recognise and discard the raw materials needed for the production of implements and ornaments. As suggested in Chapter 4, 5 and 6, the acquisition of different raw materials was probably performed simultaneously and embedded in other activities, as for example pastoring activities or gathering wild nuts and fruits. Therefore, the interconnectivity of crafts and *chaîne opératoires* already started with the acquisition of the raw materials. In the case of bone acquisition, faunal analysis suggests the use of wild animals to produce some of the implements. Therefore, hunting was strictly linked to

raw material acquisition of bones, but also of other animal resources as teeth, hide, fat and meat.

Technologically, an interaction between different *chaîne opératoires* is observed in the three settlements. At Keinsmerbrug, Mienakker and Zeewijk the production and use of flint, stone and bone implements were interrelated, and played a role in several steps of the production system. Flint implements were used to produce ornaments, bone tools, and, as suggested by the use-wear traces in several implements, for hide working and plant processing. Stone tools mainly took part in flint production and in the rejuvenation of stone implements as querns, although use-wear analysis suggest that they were probably taking part in the production of ornaments. And, finally, and bone tools were used for hide processing and plant processing, suggesting their participation in of the production of several tools that have not been preserved at the settlements. As already suggested, the production of implements in the three studied settlements was linked to the domestic space and the daily practices of the communities (Fig. 9.1).

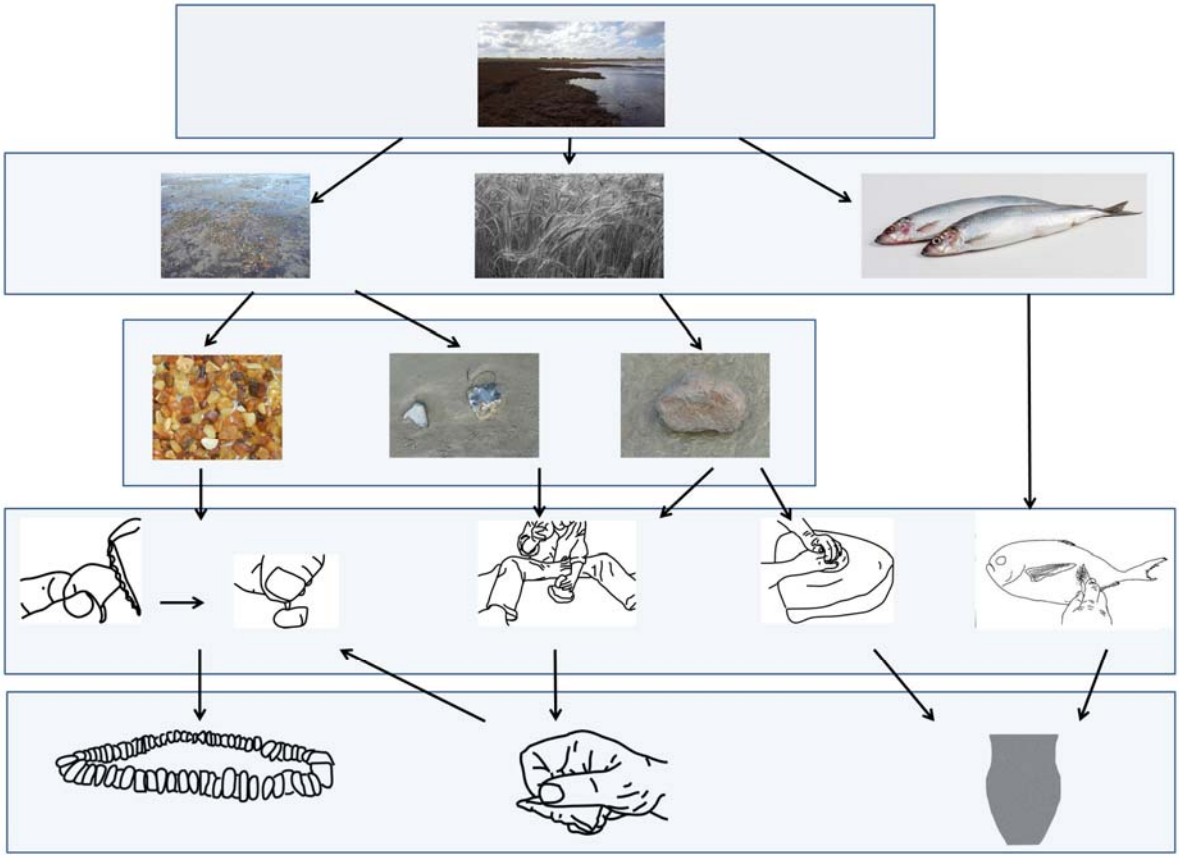

Figure 9.1. Interaction of different chaîne opératoires documented at the Corded Ware settlements. Corded Ware communities used the landscape to obtain different resources. Flint and stone, collected at the Pleistoceine deposits of Wieringen *were mainly used for the production of other tools, as flint and stone tools. Use-wear analysis shows that stone implements were mainly used to processes plant resources, as cereal grains were cultivated in the crop fields located close to Mienakker and Zeewijk. Flint implements were used for different activities, as for example the production of amber beads and pendants, as suggested by the chaîne opératoire observed at Mienakker and Zeewijk, and fish processing, as suggested by the traces documented at eight implements at Zeewijk (García-Díaz).*

The use-wear analysis of the implements and ornaments of the CWC settlements revealed an interconnectivity of different crafts and production systems. Use-wear analysis suggested that tools were interrelated and functioned in different spheres of the domestic life. In fact, tools were probably used for several activities based on their physical properties and qualities, such as grain roughness in the case of stone tools, and the edge angles in the case of the flint implements. Stone tools played a part in subsistence activities, in the form of querns used to process naked barley and emmer grains, while hammer stones were probably used to crack wild nuts such as hazelnuts and acorns and to process flax and orache seeds. In addition, butchering activities and fish processing were performed with flint implements, while flint arrowheads were used in hunting. Craft activities were performed with a range of implements. Hide processing

was the main craft activity carried out at the three sites. Although most of the implements with use-wear traces of skin processing were flint scrapers and retouched pieces, bone tools also played an important role in hide processing at Mienakker and Zeewijk. Soft and hard wood was processed with flint implements, stone and bone tools.

Cross-craft interactions are observable in almost every activity carried at the Corded Ware settlements. One of the main examples is based on the organic residues found in the pottery vessels of the three analysed sites. The residues showed the presence of different organic materials, as for example fish and animal fat, different cereal grains, and plant seeds (Oudemans and Kubiak-Martens 2012, 2013, 2014). All these resources, as already explained, were obtained with the use of different implements. Therefore, and taking a look at the activity of cooking, it is clear that both subsistence and craft activities were interrelated. Cooking and other activities performed in the domestic sphere of the prehistoric communities were part of the daily practices of the Corded Ware Culture. As already suggested, during the daily practices of these activities the mutual knowledge of the community was shared.

9.4 Form vs function

The problematic use of typologies was addressed in Chapter 3, as well as the strict classification of implements without taking into account several constraints affecting the decisions of the tool-makers. At Keinsmerbrug, Mienakker and Zeewijk, specific tool types were created for specific activities: small flint borers were produced to perforate amber beads and pendants, and querns were rejuvenated and maintained to grind cereals. However, most of the flint implements documented in the Corded Ware domestic contexts could not easily fit into a formal typological classification system.

One of the main objectives of this book was to identify tools and their function in the CWC settlement assemblage. Chapter 3 addressed the problem of form and typology, which assumes a single and specific use for some tool types. However, use-wear has shown that those tools were used differently, and that unmodified implements were also functional (Gibaja 2006; Shott 1986; Van Gijn 1990). The results of the study of the flint assemblage of the three settlements have revealed a recurring and consistent use of unmodified implements and non-formal tools to perform various tasks. The selection of these implements was based mainly on the functional characteristics of the tool such as the edge angle. The main technological approach used by these groups, that of bipolar flaking, provided a uniformity of tool shapes and edge angles that favoured certain tool forms, including unmodified flakes. Therefore, unmodified tools played an important role in the economic activities of the groups and coexisted with the formal tools. Instead of

considering these implements as waste, or refuse from flint knapping activities, they should be analysed and considered on their own merits as important items within the technological system of the CWC. This will require a change to the methods used for future research. In addition, tools that are usually related to specific tasks, as scrapers for hide working, have been proved to be used for different activities. To understand all dimensions of flint functionality, the selection of tools should not only cover '*formal tools*', but should also comprise unmodified implements.

In contrast, the technology used to produce the items deposited in the burials had a different character. Although the deposition of domestic implements, such as scrapers and flakes, continued from the TRB throughout the CWC, the majority of the tools excavated from funerary contexts differed from those found in the domestic context. The quality of the raw material, the time spent and the regularity of the implements all suggest an important investment (Van Gijn 2010a; Wentink *in preparation*).

9.5 The function of Corded Ware settlements

As already stated in Chapter 2, several interpretations of the function of CWC settlements in Noord-Holland have been published (Drenth *et al.* 2008; Van Ginkel and Hogestijn 1997; Hogestijn 1992, 1993a, 1993b, 1998, 2001) in which the settlements were classified based on their size – large and small – and on their presumed function. The small settlements, such as Keinsmerbrug, were interpreted as possible logistic camps, occupied for a short period of time to perform specific activities, whereas the larger sites, such as Mienakker and Zeewijk, were considered as base camps, occupied for a longer period of time (Hogestijn 2005). However, some problems derived from these interpretations. These interpretations were based on the analysis of semi-excavated settlements and assemblages that were not studied fully. In addition, they did not take into account the absolute chronology of the settlements; although it was assumed that the settlements were roughly contemporaneous, the fact is that some settlements could have been used while others were not. This is the case at Keinsmerbrug and Mienakker, which were probably not in use contemporaneously. The analysis of the assemblages of the three settlements and the procurement of new absolute dates provided significant information to advance the debate about the function of the settlements (Kleijne 2013; Smit 2012; Theunissen 2014).

The *NWO-Odyssee* project has shown that different types of settlements existed in the North Holland province: permanent, semi-permanent and temporary settlements. The semi-permanent and permanent settlements were based on agricultural and pastoral practices, although hunting, fowling and fishing still played an important role. The

temporary settlements, on the other hand, exploited the landscape to obtain specific seasonal resources such as duck fowling and hunting fur animals, in combination with other economic activities such as herding (Zeiler and Brinkhuizen 2012). To some extent, the type of settlement determined the technological choices followed and the tool types present at the settlements. Keinsmerbrug was a settlement where fowling, fishing and hunting were the main activities. Zooarchaeological and botanical analyses suggested that the occupation of the settlement was seasonal and that it was mainly occupied during late spring and summer, taking advantage of the ducks' moulting period (Zeiler and Brinkhuizen 2012). Although flint knapping was performed at the site, the presence of a small number of implements suggest, in the first place, that relatively few tools were needed, and also that other raw materials such as bone and wood played a predominant role. Due to its seasonal use, it is possible that people brought the implements they needed to the settlement. Flint flaking was focused on producing implements that were in demand. The limited tool variation and minimal development of use-wear traces suggested that the main activities performed at Keinsmerbrug were related to the maintenance and repair of specific tools, and not to their production (García-Díaz 2012).

Mienakker and Zeewijk, on the other hand, were semi-permanent or permanent settlements, where a wider range of activities were performed. Although hunting, fishing and fowling were still important, pastoralism and agricultural practices were growing in importance (Brinkkemper 2014; Kubiak-Martens 2012; Zeiler and Brinkhuizen 2013, 2014). As already discussed, technological and use-wear analysis suggested that the assemblages were part of a complex production system in which the assemblages interacted in several production processes. Therefore, the various techniques employed at both settlements created '*multiple relations of interdependence, which confer on them a systemic character*' (Lemonnier 1986: 154). Flint, stone and bone implements played a role in several steps of the production system. Apart from the use of flint implements for a variety of subsistence activities, flint tools were also used to produce bone implements, stone tools and amber ornaments. Stone tools mainly took part in cereal and plant processing, and bone tools were used for hide processing and plant processing.

9.6 Contribution to technological studies and future research

Until the beginning of the NWO-Odyssee project '*Unlocking Noord-Holland's Late Neolithic Treasure Chest*', the CWC in the Netherlands was mainly known from burials and depositions. Settlements were not systematically studied, and information about the daily life of the Corded Ware people was scarce. By the time the project ended, three settlements had been intensively studied, combining knowledge from different specialists. In the course of this project, three monographs have appeared (Kleijne 2013;

Smit 2012; Theunissen 2014), along with three doctoral theses (Beckerman 2015; Nobles 2016) including the current thesis. Although there is still work to do, our understanding of the CWC in the Noord-Holland province has substantially increased.

The main objective of this thesis was to increase the knowledge of the domestic CWC contexts in the Netherlands mainly through the study of tool assemblages. The study of prehistoric implements is necessary, not only because the tools are an essential part of the material culture unearthed by archaeologists, but also because they are woven into a web of intangible social relations. The raw material provenance of the stone tools shows a close relationship between the Corded Ware inhabitants and their landscape. The procurement of different raw materials for the production of tools used for daily or regularly performed activities was embedded in other economic practices of the groups, such as animal herding, fishing and the collection of wild fruits and nuts. The selection of specific stones to produce tools, as has been observed in Mienakker and Zeewijk, reflected a deep understanding of the textural characteristics of the available material. The technological choices of the Corded Ware groups revealed a continuity of technological practices between other Neolithic cultures and the CWC. The bipolar technology used in Corded Ware tool production was a common practice in other Dutch Neolithic periods, such as the Vlaardingen group and the TRB culture, but was also employed in other contemporaneous European contexts (Guyodo and Marchand 2005). In addition, quern and bone manufacture shows traits that could link this praxis to the LBK and the Mesolithic groups respectively.

The presence of several tools in the archaeological record also provided important information about the social and economic structure of the settlements. In contrast to the limited diversity of tool types and the low degree of traces inferred at Keinsmerbrug, the greater variability of tools at Mienakker and Zeewijk and the specialized tasks performed at the settlements supports the faunal, botanical and palynological analysis (Kubiak-Martens 2012, 2013, 2014; Van Haaster 2012; Zeiler and Brinkhuizen 2012, 2013, 2014) suggesting the existence of different type of settlements: Keinsmerbrug, probably used only during summer, and Mienakker and Zeewijk, used semi permanently or all year round. The activities performed at the settlements also provided some clues about the social composition of the Corded Ware Culture. Therefore, the study of the tools used by the Corded Ware communities during their daily practices provides information about their economic practices, their networks, their knowledge and skills, and about the structure of their society (Dobres 2009; Dobres and Hofman 1994; Lemonnier 1992; Miller 2009).

These connections are significant, but the information also needs to be contextualized within the settlements and with the data generated by other researchers, which is why an interdisciplinary project is important. Thanks to the NWO project, the information about the tools and implements of the CWC could be integrated with other cultural and ecological information (Kleijne 2013; Smit 2012; Theunissen 2014). In the first place, spatial analysis of the three studied sites provided new insights into the social structure of the space. The spatial analysis revealed several dwellings (Nobles 2012a, 2013a, 2014a) and confirmed the predominant role of households as the setting for domestic activities (Nobles 2012b, 2013b, 2014b), and the main economic activities of the CWC were inferred through the analysis of both botanical and animal remains. Herding, fowling and fishing were combined with crop cultivation and the gathering of wild nuts and fruits (Kubiak-Martens 2012, 2013, 2014; Van Haaster 2012; Zeiler and Brinkhuizen 2012, 2013, 2014). Finally, the analysis of pottery remains provided an insight into the social composition of the groups, their technological achievements and their diet (Beckerman 2012b, 2013, 2014; Oudemans and Kubiak-Martens 2012, 2013, 2014). Thanks to the NWO project, new insights into settlement practices and subsistence activities have been identified (Theunissen et al. 2014) and our understanding of the CWC has increased.

The domestic sphere of the CWC in the Noord-Holland province will benefit from the study of other contemporaneous archaeological settlements. Although excavations of Corded Ware and Corded Ware settlements are still scarce in comparison with burials in the entire European context, new discoveries are generating new data and information all the time. An interdisciplinary analysis of the different regional contexts of the Corded Ware phenomenon will illuminate the role played by different local groups, and the analysis of their domestic implements will have an important role to play in understanding the social relationships of these groups.