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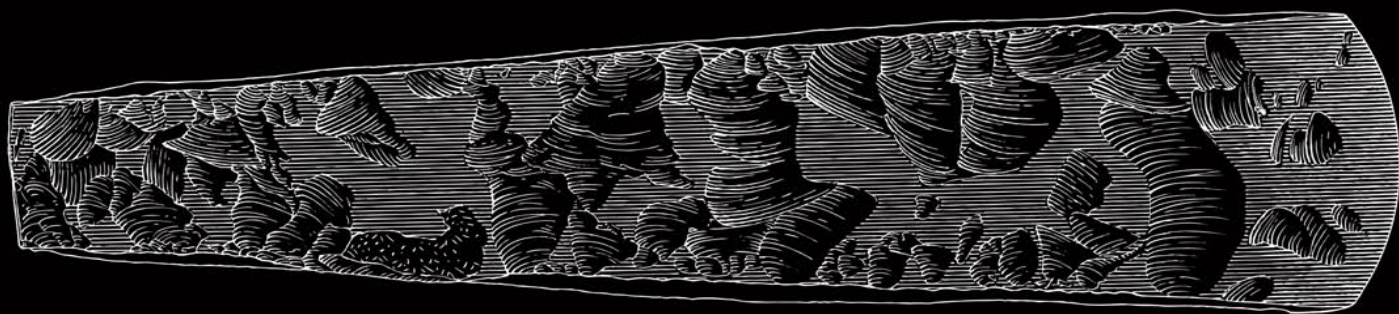
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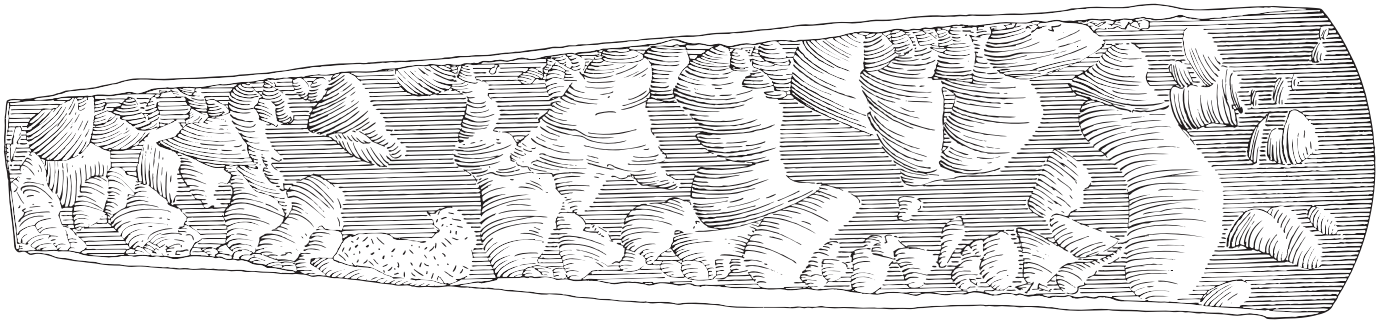
Neolithic Depositions in the Northern Netherlands

Karsten Wentink

Ceci n'est pas une hache



Sidestone Press



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Neolithic Depositions in the Northern Netherlands

Karsten Wentink

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Preface

Depositions have amazed people since they were first recognized as such in the late 19th century. Why did people place such finely crafted objects of flint, copper, bronze and even gold in bogs, rivers and swamps? This is a question that generations of researchers have struggled with. These depositions present us with some problems. How to make sense of a practice that from our perspective is completely irrational and a pure waste of nice objects? It was David Fontijn who, in his study of Bronze Age depositions, successfully addressed this problem. He examined depositions by looking at what it was that people actually did and how such practices and their performance may have been meaningful to them. His thesis provides us with a comprehensive book revealing how deposition was structured and how it may have been meaningful.

There were however some questions that remained; where did this practice of placing objects in bogs come from? The Bronze Age was neither the first nor the last period in which objects were deposited. There are numerous depositional practices recorded for the Neolithic, however none of these had ever been investigated and interpreted on a scale similar to bronze depositions. At a symposium on bog finds organized by the Drents Museum, prof. Louwe Kooijmans gave a lecture on Neolithic depositions. He gave an overview of several depositional practices and presented numerous examples of finely crafted flint objects that had been deliberately placed in bogs and swamps. However, such practices have so far not been subjected to systematic examination and interpretation.

The subject was also touched upon during Annelou van Gijn's seminar on the meaning of flint in prehistoric societies. During this seminar it became clear that these objects and the practice of deposition must have been highly important and meaningful to the people performing such depositions. However, without a large-scale systematic investigation, it remained unclear how such practices were structured and how they were meaningful. It was in this light that I decided to try to make sense of the seemingly irrational practice of flint axe deposition. Why were these objects placed in the peat? Did the same principles that structured bronze depositions also apply to the Neolithic, or were the Neolithic flint axe depositions a completely different phenomenon?

David Fontijn's thesis provided the methodological backbone for the present thesis. Through looking at what people actually did and did not do, and putting these actions in their cultural context, I tried to find out how deposition was structured and how this should be interpreted. I started my research by reading sociological and anthropological theory about sacrifice, gift exchange and ritual. These studies all indicated the importance of the cultural context in which exchanges and rituals are performed. For this reason I started to compile a database with all sorts of information about sites and finds that could help interpret potential patterns. The most important source of information however, was without doubt, the flint axes themselves. After performing an extensive survey of published finds, I turned to the actual objects. Various museum collections were inspected and flint axes were transported to the Leiden University Laboratory for Artefact Studies. Here the axes were subjected to metrical and functional analysis using high-power microscopy.

In the context of her research project on the social significance of flint for Neolithic and Bronze Age societies, Annelou van Gijn (in prep.) had already examined some of the flint axes found in multiple object depositions. She however supported my interest in depositions and let me join that part of her research project. Beside objects in museum collections, some objects subjected to functional analysis were kept in private ownership and could not be taken to the laboratory. In order to study these objects Annelou van Gijn and myself went on a road-trip to Drenthe taking along our microscope to perform functional analysis on location. By so doing objects in private ownership, or some objects that had been part of museum collections for over a century were inspected in search of new information.

The analysis of the flint axes revealed a great deal of new information about how the axes had been treated and how deposition was structured. These results are presented in this thesis along with an extensive interpretation of the meaning and significance of Neolithic depositions. It appeared that compared to Bronze Age depositions, the Neolithic depositions should indeed be seen as a completely different phenomenon!

PART I

RESEARCH QUESTIONS, DATA AND PATTERNS

1.1 Introduction

As early as the 19th century discoveries of groups of large axes puzzled those confronted with them. The fact that most were found in waterlogged places in particular formed the basis of speculation as to the nature of these objects. Surely people would not have been living in such inhospitable areas. Such axes were believed to represent hidden trade-goods, left there by merchants to be retrieved later. Or perhaps they were treasures hidden in times of trouble. Only when all “profane” explanations could be excluded, was a ritual explanation proposed. Presently such interpretations, so clearly devised by minds influenced by Western capitalism and rationalism, are widely dismissed (see Brück 1999; Fontijn 2002, 19). However until now, new studies focusing on the nature and interpretation of the Dutch Neolithic depositions remained absent.

Worsaae was the first scholar to publish on the topic in 1866 (in Ter Wal 1996, 146). He concluded that in order for a find to be classified as a deposition it should contain at least two artefacts and should be associated with organic material of some sort. Although he classified depositions, he did not attempt to explain this strange phenomenon. In 1886 Müller (in Ter Wal 1996, 146) adds to this definition by specifying that depositions should come from specific contexts, namely from a bog or swamp, near a big rock or from a stone cist. So far these finds were assumed to have been lost. Although Müller suspects that a more ritual explanation is appropriate, he does not substantiate this belief. In an attempt to explain why some of the most beautiful archaeological artefacts were found in such inhospitable places Schumacher (1914, in Ter Wal 1996, 146) compiled a list of possible explanations. These include such categories as trader’s hoards, hidden wealth and votive hoards. In recent years it has become evident that these categories mainly conform to Western capitalist ones and do not seem to conform to prehistoric categories (see Fontijn 2002; Bradley 2005).

Although various sorts of depositional practices will be taken into account, this thesis will primarily concern flint axe depositions. Why were these objects, which belong to the most beautiful and technically advanced Neolithic artefacts, abandoned in the peat? Why were the objects that today adorn the showcases in archaeological museums discarded in seemingly natural places? As part of a wider research project conducted by Annelou van Gijn, concerning the social significance of flint for Neolithic and Bronze Age societies (Van

Gijn in prep.), this topic is re-examined. An attempt will be made to shed light on the nature and significance of flint axe depositions.

In this chapter the research goals, data and methodology will be defined. However, before doing so, first a brief overview will be presented of the research area and the period in question. In addition the current understanding of the subject of Neolithic depositions will be introduced. This will provide a basis for my research questions and methods.

1.2 Spatial and chronological framework

The focus of this research is on the depositional practices associated with the Middle Neolithic Funnel Beaker Culture (TRB) (3400-2750 BC) (Lanting & Van der Plicht 2000, 68). The Dutch TRB has a more or less restricted geographical distribution within the Netherlands, being mostly confined to the northern half of the country. The densest concentration of TRB finds can be found on the Drenthe Plateau, located in the province of Drenthe (Bakker 1982). This till plateau was formed in the Saalian ice-age and is composed of sediments transported by the glaciers. In the Holocene period it became intersected with streams and was for the greater part surrounded by large peat areas. The most important of these is the “Bourtanger Moor”, which is one of the largest peat-lands in Europe, measuring some 1600 km²



Figure 1.1 Research area.

before systematic reclamation started in the late 16th century (Groenendijk 2003, 36).

Evidence of earlier TRB activity in northern Germany concentrates predominantly in the wetlands formerly exploited by Mesolithic predecessors (Midgley 1992, 311). The Dutch TRB bog finds, however, are basically confined to peat trackways and finds of an alleged ritual character. As of yet no evidence is present to suggest that the bogs were actively exploited as part of the subsistence strategy by the TRB. Most settlements and graves were located on the Drenthe Plateau, which at the time was still densely forested.

Although the till contains many large boulders that were used for the construction of the passage graves, it rarely contains good quality flint. This caused TRB people to be dependent on exchange contacts to acquire good quality flint axes, which were mainly produced in northern Germany and Denmark. There is no evidence to suggest that high quality flint axes were locally produced (Beuker 2005, 277). TRB flint axes share a very distinct technological feature; they are rectangular in cross-section, making them easily distinguishable from the axes with an oval cross-section, made in the Atlantic tradition. The latter are predominantly found in the southern half of the Netherlands. These oval axes are knapped in a bifacial manner and are relatively easy to produce. This means that there are two edges that are both worked on two sides. The square TRB axes, however, have four edges that need to be worked on two sides each. It follows that the production of a TRB axe is much more complicated than the production of an oval axe.

Although some of these southern oval axes did reach the Plateau and were found in graves, they are absent from wet context depositions (Bakker 1982, 95). The imported northern TRB axes, however, are found in numerous depositions containing either single or multiple objects that were retrieved from waterlogged places. A major problem when investigating the oval axes is that they cannot be typologically connected with a particular Neolithic culture. This makes it virtually impossible to interpret potential depositions of oval axes, as they cannot be related to settlements, graves or any other known context. Although many of the oval axes in the southern Netherlands are retrieved from wet contexts, hardly any multiple object depositions are known. As a result none of these finds, including those from wet locations, have ever been interpreted as depositions, which they very well may have been. Recently however two multiple object depositions and one single object deposition were published (Brounen 1999). These finds concerned unpolished axe rough-outs with an oval cross-section, deposited in wet contexts. Although these finds indicate that depositional practices are

not confined to the TRB, they still do not provide us with the resolution necessary for interpreting these practices.

TRB depositions are thus selected since they contain typologically distinct axes that can be related to contemporary sites such as settlements and graves. Moreover the TRB culture has a relatively restricted distribution within the Netherlands. This relatively small area contains many sites making spatial and contextual analysis potentially more fruitful. The subsequent cultural group known as the Single Grave Culture (SGC) also used rectangular axes, these however are ground and polished using a different technique, making them easily distinguishable from the TRB axes. Although the focus will lie with the TRB axes, some SGC depositions were also examined in order to compare them to the TRB depositions.

1.3 Past research

At present 20 multiple object depositions are known from the Netherlands containing axes, rough-outs, flint nodules and other tools (for a full description see Achterop 1960; Ter Wal 1996). Ter Wal (1996) has convincingly argued for the existence of single object depositions containing only one large axe, which was deliberately placed in the peat. Furthermore, several other types of objects were deposited in bogs in Neolithic times, such as horns of cattle, pottery vessels (probably containing foodstuffs) and disc-wheels. Although the former occurred during the TRB period, the depositing of disc-wheels is exclusively dated to the SGC (Van der Waals 1964).

Although several multiple object depositions consist of only two axes (n=7) most contain three to five axes (n=9) with only a few containing more. The latter however do not only consist of axes but also of flint nodules, long blades or other flint tools. Eight depositions, based on typology, can be placed in the TRB period and nine can be attributed to the subsequent SGC. The remaining three were unfortunately not of a distinguishable character (Achterop 1960; Ter Wal 1996). Most depositions were discovered during peat-cutting activities at the end of the 19th and beginning of the 20th century. Although many axes ended up in museum collections, contextual information is often of poor quality or completely lacking. Several objects were left in the field, lost, stolen or destroyed, and on one occasion the complete deposition was lost and is only known from 19th century written sources (see Pleyte 1882, 52). The reclamation of the peat began as early as the late 16th century and continued well into the mid 20th century. As most depositions have been found during the last 50 years of this reclamation one can only imagine what has been lost.

The TRB depositions are generally very uniform; they contain axes of the same length and type, whereas SGC depositions contain axes of varying lengths and types (Ter Wal 1996, 153). TRB depositions moreover exclusively contain axes or chisels, either fully polished, partially polished or unpolished and sometimes flint nodules, either undamaged or with negatives of test flakes. Bakker (1959, 93) noticed that these TRB depositions often contain axes that represent the different stages of axe production, from flint nodule up to fully polished axe. The SGC depositions can also contain blades and scrapers and thus are more heterogeneous in nature (Achterop 1960). Based on macroscopical examination, it also appears, that whereas the TRB axes from depositions never show traces of wear or hafting, the SGC axes usually do show traces of use.

Although Ter Wal's (1996) study of axe depositions revealed some interesting patterns, none of them were explained or interpreted. His study is limited to some general observations concerning axe depositions. He shows that many of the depositions are found at the transition from wet to dry contexts. Also axes from depositions are, generally speaking, longer than the axes retrieved from graves. Similar observations however, had already been noted for the Danish and German depositions (Rech 1979; Ebbesen 1982; 1993; Olausson 1983; Midgley 1992; Karsten 1994). Basically all studies on Neolithic depositions performed to date have primarily been concerned with the problem of definition. How can we make the distinction between discarded, lost and deposited axes? None of the studies aimed to explain, interpret or understand axe depositions, which is precisely the aim of the present study.

What these researchers did convincingly present however, was evidence that permanent depositions occurred in the first place. This is particularly evident in the case of the multiple object depositions of seemingly unused axes and raw material that were placed in locations in the landscape from which they could not be retrieved. Moreover for Germany, Rech (1979) has shown that such collections of axes are often carefully arranged and not randomly discarded. The fact that there is uniformity in internal composition as well as spatial arrangement of these depositions indicates that these represent deliberate acts of deposition. Moreover many single axes also conform to these patterns making it plausible that they were also deposited (Ter Wal 1996).

1.4 Research questions

The structure and goals of the present research are largely inspired by Fontijn's work on Bronze Age depositions. His research questions also apply to the current thesis, the fol-

lowing questions are therefore adapted from Fontijn (2002, 6-7).

1. *Is there any evidence that permanent deposition of flint axes took place in the TRB culture of the northern Netherlands?*
2. *If so, what depositional patterns can be observed among them? How was selective deposition structured?*
3. *How should we understand such patterns? Can we make sense of the meaning of objects from their role in selective deposition?*

The first question can already be positively answered, based on the outcome of research performed by the above mentioned researchers. However, they primarily concerned themselves with the first question, not addressing the other two questions. These latter will form the central theme of the current thesis.

This thesis is divided into two parts. Part one will deal with the subject of how data should be studied theoretically, the data itself, and ultimately the results of that study. The goal of the first part of the thesis will be the definition of patterns that can be observed, and thus used to provide an answer to the second research question. Using a rather *etic* approach questions will be addressed, concerning the actions performed by people in the past and the patterns these actions produced. The main methods of research will be metrical and spatial analysis (preliminary results are reported in Wentink & Van Gijn in press), but foremost functional analysis using high power microscopy (see section 1.5.2).

The second part of the thesis will relate to the interpretation of these patterns, and thus take on the third research question. It will deal with the theoretical issues involved in interpreting patterns. Using a rather *emic* approach an attempt will be made to explain and interpret the patterns on a cultural level. Why did people in the past do the things they did, how were these actions meaningful and important? If these depositions are the material residue of meaningful acts performed in the Neolithic, then the patterns this produced ultimately provides information of what was considered meaningful to these people. The goal for the second part of the thesis will be to provide answers to these questions. Moreover the results will be contrasted with the patterns observed for SGC depositions. Although the SGC depositions were not subjected to an extensive and systematic examination, known SGC depositions were included in the dataset and some SGC axes were also subjected to functional analysis. The observations are compared with the TRB data

in order to see how both are related and what potential there is for future research.

1.5 Methodology

1.5.1 Database

The main tool used to gain access to patterns and subsequent interpretations of depositional practices was the compilation of a database (MS Access) containing information on sites related to the TRB culture. The definition of a site here being any location where TRB finds have been retrieved. Numerous sources were used for the compilation of the database. Besides an extensive survey of published sources, site information was retrieved from the Dutch National Archaeological Database (Archis) and included amongst others all known megalithic monuments, stone cists, TRB flat-graves, peat trackways, excavated settlements, find-scatters, single-finds and possible depositions. Object information was partly retrieved from published sources and partly from museum collections. From the latter, axes were examined and contextual and metrical information was recorded. Sites or objects from the above sources were only incorporated when the find-location could be pinpointed with an accuracy of at least 2 km. Many of the older finds, for which only a rather vague description of the find-location was available, were therefore ignored. Presently the database contains 1672 records, 1061 of which describe individual axes. A full list of sources used for the compilation of the database is included in appendix 1. Besides contextual information also all research results are recorded in the database. This includes metrical, typological and technological information as well as the results of the micro-wear and residue analysis.

Although stone axes were also incorporated in the database they were not subjected to an extensive analysis. This is mainly related to the fact that none of the stone axe types can be exclusively attributed to the TRB. Their shapes are to a large extent influenced by the form of the nodule they were manufactured from, and their subsequent use-life (see Bradley & Edmonds 1993, 46-48). Only in a few instances were these axes retrieved from a dated context such as a tomb or a multiple object deposition. Moreover stone axes are more susceptible to post-depositional processes. Although flint axes from the bogs are generally well preserved, the stone axes from the same contexts often appear corroded. Micro-wear or residue analysis therefore becomes futile.

1.5.2 Functional analysis

A total of 77 objects was subjected to micro-wear and residue analysis. Besides flint axes this selection also included two chisels, seven blades and a scraper. The latter two categories were part of multiple object depositions from the SGC. The axes of several multiple object depositions in the collection of the Drents Museum were part of a traveling exhibition and were therefore not available for this research. Fortunately some of these axes had already been subjected to functional analysis on a prior occasion within the framework of Van Gijn's research project (Van Gijn in prep.). Her results were gratefully incorporated into the present research.

Axes from a variety of contexts were examined, among which objects from multiple object hoards, supposedly single object hoards, finds from megalithic tombs and a collection of stray finds. Two excavated TRB settlements that were examined in the context of Van Gijn's research project, in which the author participated as a research assistant, contained no complete flint axes but only some axe fragments (Van Gijn, in prep.).

The selected sample has been subjected to residue and micro-wear analysis at the Laboratory for Artefact Studies at Leiden University. For the analysis a stereo-microscope (magnifications 10-160x) and an incident light microscope (magnifications 100-500x) were used. The incident light microscope used was attached to an adjustable stand, thus enabling high-power, functional analysis on large objects. Photographs were taken with a Nikon DXM1200 digital camera. With the aid of the stereo-microscope a general survey of the object was carried out and obvious traces of residue located. For examination with the incident light microscope some objects were partially cleaned with alcohol to remove finger grease after the absence of potential residue was attested using both microscopes. Phenomena such as edge-removals, rounding, polish, striations and residues were recorded (see Van Gijn 1990). Comparison of recorded phenomena with experimentally used tools led to the interpretation of the object's functional life. The aim of the residue and micro-wear analysis was to obtain information on the use of flint axes in general and also to gain information on the use-life of individual axes.

1.5.3 Spatial analysis

For each object or site in the database, coordinates (Netherlands National System) were recorded, making it possible to plot them onto a series of maps using the GIS software MapInfo (Version 7.0). The records were combined with cartographical information including geological maps, soil maps, historical maps, land-use maps, palaeo-geographic

maps and a detailed digital elevation model of the province of Drenthe (AHN). Of many of the objects in the database only an approximate find location was known. For this reason an additional variable was added to each set of coordinates, describing the accuracy of the record. This could vary from an accuracy in the range of 1-10 m, 10-100 m, 100-1000 m or more than 1 km. The latter could only be

used to give an approximate overview of find distributions. By using the GIS software, the spatial component of any of the variables described in the database could be investigated. The aim of the analysis was to obtain information on the relation between sites and finds and also to investigate their relation to the landscape (for a detailed description of the applications of GIS see Gillings & Wheatley 2002).

2.1 The distinction between ritual and profane

The use of ethnography has been much debated in modern archaeology. It has become abundantly clear that we cannot use direct analogies between the ethnographic and archaeological record. Directly projecting ethnographic data upon the past is considered a theoretical sin. When things look the same, it does not necessarily mean that they are the same. Instead, ethnographic data should be used as a source of inspiration. Unfortunately it is often forgotten that we, as archaeologists, are often projecting concepts upon the past. As promoted in an *idealist* epistemology, perceptions only acquire meaning as a result of selection and classification that goes on in the observer's mind (Trigger 1998). While examining our data, there is the risk that we only look for things and patterns that look meaningful to *us*. By doing so we are projecting concepts and ideas from our personal world and experience upon the past. Ironically, our own world-view is probably even less comparable with the past, than that in most ethnographic sources.

As was already mentioned, until now the primary questions posed by most researchers dealing with Dutch Neolithic depositions had to do with distinguishing between ritual and profane. Which axes should be considered ritual, votive depositions and which could be attributed a more profane or secular meaning. There are some serious objections to be made to this approach. First of all this categorization was often the final step of the analysis. Usually, the statement that certain depositions were part of a prehistoric ritual formed the conclusion rather than the introduction. The meaning or function of the alleged ritual was not explored and interpretations were lacking. More important however, was the distinction between ritual and profane in the first place. Each researcher gave a definition to both terms and tried to categorize the archaeological data accordingly. Modern or even personal concepts of certain categories such as ritual, profane or domestic were projected upon the archaeological record. Methodologically this can be considered analogous to the projection of ethnographic data upon the past. In this case however the ethnographic data were not derived from cultures in a comparable political and technological situation, but were extracted from our own Western, rationalist, market economy. Archaeological data are thus organised and classified according to preconceived categories that originated from our own world. Brück (1999, 314) no-

ted that 'the notion of ritual as a distinct category of practice is not common to all societies. Rather, the identification and isolation of ritual is based on models of human practice and ways of knowing that are peculiar to contemporary society.' Bell summarized the concept of ritual as follows:

'The idea of ritual is itself a construction, that is, a category or tool of analysis built up from a sampling of ethnographic descriptions and the elevation of many untested assumptions; it has been pressed into service in an attempt to explain the roots of religion in human behaviour in ways that are meaningful to Europeans and Americans of this century.' (Bell 1997, 21)

The categorization of ritual and non-ritual behaviour is thus a product of post-Enlightenment rationalism. As a result the definition of what constitutes a ritual (although every scholar defines it differently) is often that what opposes rationality. Ritual is thus regularly described as non-functional or irrational behaviour (Brück 1999, 317).

Fontijn discussed this problem extensively, with regards to how depositional practices often are explained. He argued that 'what underlies all arguments is the assumption that *practical* behaviour is presupposed and self-explanatory, whereas *ritual* is something that requires efforts above what is needed in functional terms. [...] The *economic, practical* interpretation seems to be self-explanatory, whereas *ritual* is something which should be proven' (Fontijn 2002, 17, my emphasis). Thus the distinctions that have been made between the different categories merely reflect our own, and do not take into account the categories that were meaningful to the people that are studied. As a consequence, such studies potentially tell us more about the way our own society is structured than how the archaeological culture under study is structured.

This problem of ethno-centrism is not something that is restricted to archaeology. Other disciplines have also struggled with it. An example from social anthropology, can be found in the 1938 paper on personhood and identity by Marcel Mauss (1985). In this paper Mauss dealt with the fact that the notions of the self, identity and personhood are different in other cultures and in other times. True as this may be however, he projected concepts of personhood upon ethnographic sources, to find that these were not compatible. Thus, he concluded that certain notions about individuality were not present in most "primitive" societies (Mauss's

terms). Lienhardt (1985) criticized Mauss on this point (especially for using the work of Lévy-Bruhl). He argued that the concepts investigated by Mauss are ultimately Western and do not apply to the ethnographic sources, since these “primitive” people have different notions, concepts and categories. Individualism is a thing that in fact does exist among those cultures, but is expressed in a different way. The problem according to Lienhardt was primarily caused by language problems. Words like “individual” or “person” are abstract terms, which have a negotiated meaning. It is not surprising that African or Native American people did not have exact synonyms for these words. This however does not imply that they are unfamiliar with the concepts these words entail (Lienhardt 1985). They are only expressed in other ways, emphasized in different manners.

What happens in archaeology is basically the same. When we try to distinguish between “ritual” or “profane” behaviour, which are also abstract terms with a negotiated meaning, it is ultimately the researcher who defines the meaning of these concepts. Richard Bradley (2005) devoted a full book to this problem. This book dealt with the distinction archaeologists often make, between domestic and ritual life, as two separate spheres of activities. He presented numerous examples of seemingly “domestic” items appearing in “ritual” contexts and vice versa. For example domestic products like cereals being a component of votive depositions, or depositional pits as parts of domestic settlements. He therefore concluded that these two spheres are in fact entangled and that this distinction, which is our own, does not reflect an archaeological reality. This realization was not new in archaeology as Childe already argued the following:

‘Sociologists, whether archaeologists or ethnographers, want to observe cultures. But instrument of observation is itself culture. The results of observation must be expressed in the categories which we have inherited from our own society.’ (Childe 1952, 5)

[....]

‘We cannot imagine our Sussex farmers of the Stone Age equipped with our categories any more than with our tractor-ploughs.’ (Childe 1952, 18)

But how then should we proceed, how should we look at the data in a manner that reflects prehistoric behaviour, rather than our own? From Bradley’s book the reader might conclude that since ritual and domestic life are completely intertwined, it is useless to search for distinct spheres of activities at all. This is however not the case.

Throughout the world and throughout time, people have organised and structured their world, and formed concepts and categories that were useful and meaningful to them. Ritual is often portrayed as being irrational, illogical and unpractical. Although this may seem to be the case to us, the people who performed such “rituals” would not agree. That, which we would label as ritual, are practices that are meaningful and rational to those who practice it. Within the scheme of a particular world-view or ideology, these practices are used to manipulate the universe. These are actions that cure diseases, avert danger or make crops grow. Ritual is thus considered rational and practical to those who perform it (Brück 1999, 321). The concept that people operate within a certain paradigm or world-view is not new. Already in 1949 Gordon Childe remarked that human beings do not adapt to ‘the material environment that natural science can reconstruct and observe as an external object’, but rather to ‘the society’s collective representation of that environment’ (Childe 1952, 23). Thus, human behaviour can only be fully understood in context of that world-view. According to Brück we should therefore no longer concern ourselves with the redundant question of how ritual behaviour can be identified. We should rather accept that prehistoric behaviour was structured by other “rationalities”, and be concerned to find out what past actions can tell us about the nature of such prehistoric “rationalities” (Brück 1999, 327).

To come back to the point of distinguishing between separate spheres of activities we can say that on many occasions domestic and ritual seem intertwined. However Fontijn (2002, 21) is right when he warns us that ‘specific practices can be a social action that is distinguished from other activities as a separate field of discourse.’ When we however project concepts such as ritual or domestic upon the past we find things in contexts we did not expect. This does not *a priori* mean that the archaeological agents did not recognize separate fields of discourse, but rather that their definition of a specific discourse is incompatible with ours. To us, certain things may seem entangled, while for Neolithic people these represented mutually exclusive categories. As was the case with individuality amongst “primitive” societies, the problem was not its absence, but that it was expressed in a different manner. In order to understand these people we need to stop asking questions in our own language, but rather adapt to theirs. Whether or not prehistoric people distinguished between different spheres of activities and what the meaning of those activities was, must be studied through the patterns they left behind. If, and how those categories overlap with our categories, such as ritual or profane then becomes merely a language game, and ultimately irrelevant.

2.2 Reconstructing structures

Although in a manner that may be incompatible to our own notions, prehistoric people will have structured their world in a way that made sense and was meaningful to them. When we look at flint axe depositions we find that there are a number of patterns. Although none of them have been explored on an interpretational level, it has been noted that multiple object depositions comprise only specific objects and are deposited only in specific places. This suggests that we are dealing with some form of structured behaviour, in which certain things were done in a particular way. Fontijn (2002, 21) argues that ‘when depositions were carried out in a patterned way, then deposition is certainly not an “irrational” act but a meaningful one.’ If we are to understand these prehistoric actions, irrespective of whether we could label them as ritual, profane, secular or domestic, we should look for those prehistoric “rationalities” that define their meaning.

These patterns can only exist if people operated according to a particular structure, a structure that dictated that certain things were to be done and others were not. These patterns provide information about which things were important and which were not, and how these things were related to each other. In essence this method is an adaptation from Giddens’s (1979; 1984) structuration theory. Human action (agency) is guided according to what can be labelled as a specific ideology, rationality, discourse or social structure. This structure defines the meaning of the actions performed by the agents. These actions are logical, rational and meaningful within the rationality of that structure. By analysing human behaviour, by looking at what people do, we can get grip on the structure that defines their meaning and interpret the behaviour in the context of that structure. Agency however, does not refer to the intentions people have in doing things, but to their capability to do those things in the first place (Giddens 1984, 9). It can thus be argued that ‘unconscious acts, unintentional acts and deliberate non-action are all aspects of agency and are therefore all potent forces for the transformation or maintenance of social structures’ (Barrett & Fewster 2000, 27). This means that things people did not do, are potentially just as informative as the things people did do.

When we look at the archaeological record we find patterns. Specific actions were repeated again and again. This indicates that these actions were considered meaningful and that the manner in which these actions were performed was prescribed by the structure which gave them their meaning. By analysing the patterns we can thus learn something about the rules and taboos that were observed while performing the actions that occasioned these patterns. With regard to flint axe depositions for example, it has already been noted that

these depositions occur in specific places and not in others. These multiple object depositions also contain specific axes and not others. In order to interpret these patterns we should not only look at the patterns that can be found within the dataset of deposited axes, but we should also contrast these with other patterns we find in the same cultural context. Only then we can learn how these depositions relate to other actions performed in prehistory. Thus according to Fontijn (2002, 38) ‘as much as possible, contextual evidence should be gathered on the character of the location during deposition. Similarly, contextual evidence of contemporary sites where apparently no objects were deposited should be gathered and compared.’ By doing so we can get a grip on those elements that were considered important and those that were not. These elements should be subsequently interpreted in order to find out how the actions, causing the patterns, were meaningful to the actors performing these actions.

Implicitly structuration theory also predicts exceptions to each rule. ‘Agency makes itself in relation to certain structural conditions, but in making itself it also remakes and transforms those conditions. Structure cannot simply be seen as a constraint, but also as a mechanism of enablement’ (Barrett & Fewster 2000, 28). This means that every agent operates in the context of structural conditions, dictating to a certain degree which action the agent will and will not perform. However each agent can, and probably will, interpret these conditions differently, which unavoidably leads to diversity. Structuration theory therefore predicts not only the existence of patterns that can be used to approximate the structure which caused these patterns; it also predicts exceptions to these patterns, caused by human agency, which ultimately form the basis of social and cultural change.

We should keep in mind that this interplay between structure and agency, which Giddens (1984, 25) refers to as ‘the duality of structure’, does not imply two separate phenomena. It would be a mistake to suppose that the patterning of archaeological data reflects structure, and that anomalies reflect agency. In fact all archaeological data is produced by individual agents, who together are part of a structure, or as Barrett and Fewster (2000, 28-29) put it: ‘Structures have to be defined in terms of agency, for it is only through the practices of agency that social structures are brought into being, and agency must be defined through structures, for without structures agency cannot locate itself within the world.’ In essence the interplay between this “duality” can be seen as a circle in which structure influences the actions of agents and these actions in turn influence the character of the structure. All archaeological data, whether part of a pattern or an anomaly, is generated by both structure and agency since these cannot be divided.

Ergo, 'agency can never exist in some way outside of, or abstracted from, the context in which it practices [the] creation of history' (Barrett & Fewster 2000, 27-28). Since the exceptions to patterns we find originated in the context of the same structural conditions, they potentially contain information about these conditions. When looking at depositions for example we find a pattern consisting of a certain set of elements. We find specific objects in a specific place given a specific treatment. Some however will not conform to the patterns of the majority, deviating in one or several ways. Other elements however are in conformance to the patterns we usually observe, if not, such a find would possibly not even be classified as a deposition in the first place. The manner in which specific depositions deviate from the commonly observed patterns can therefore provide information as to which elements of the practice were open to reinterpretation and which were not. Anomalies could therefore provide us with information concerning which "rules" were held to be fundamental, were unambiguous and not likely to change, and which "rules" were more ambiguous and more susceptible to interpretation.

2.3 Isolating patterns

When we try to isolate patterns from the archaeological record we should remind ourselves that once again we are projecting concepts upon the past. Instead of definitions of what a ritual should be, we are now organising the data according to what we have defined as a pattern. The patterns we see are closely related to the techniques we use and the questions we ask, and therefore by definition subjected to some form of subjectivity. The archaeological data may be patterned in a multitude of ways, and it is theoretically impossible to explore all. We must therefore accept that we can only observe a limited number of patterns. Moreover, as structuration theory predicts, we have the problem of agency. With each pattern we recognise there will probably be some exceptions, which can be explained by human agency. From time to time people do things just a bit differently, either consciously or unconsciously. We can therefore never understand the full range of activities that took place in prehistory. We can however identify the general trends, the most commonly upheld rules and taboos. Fortunately these probably represent the most important aspects of a particular practice, since these were never or hardly ever broken. Although we cannot reconstruct individual narratives, we can recognise more widely adopted practices and investigate how these were meaningful. Fontijn (2002, 38) listed the following criteria in order to recognize intentional depositions:

1. *If it is patterned, that is, within the region [flint axes] are repeatedly found in similar locations, and not in others.*
2. *If such patterns cannot be explained by other (depositional) processes (discard, general non-retrieval of stores in the case of social crises).*
3. *If such patterns are not solely determined by post-depositional processes and research factors.*

2.3.1 Pattern disturbing processes

If objects were repeatedly deposited in particular places and not in others, this is indicative of deliberate and meaningful acts. Thus, when the find-context shows a particular patterning this cannot be related to loss or discard, as this would cause a random distribution of finds. In such a scenario the finds would 'enter the archaeological record in an arbitrary way, following the general discard patterns of other materials. [...] [Then], only post-depositional processes (the presence of artefact traps) may yield some patterns' (Fontijn 2002, 37). Although Fontijn (2002, 37) argues that loss and accidental non-retrieval are unlikely, since this would suppose a general clumsiness and forgetfulness of prehistoric people, there are ethnographic sources that contradict this. Among the Duna of New Guinea, adzes are reported to have been thrown away in anger when they were damaged during work, even though they could have been repaired. Others could get lost during expeditions, when their bindings loosened and the adze-head slipped out of its haft (Modjeska & White, 1978a, 282-283). Most men however possessed more than one stone adze. As they only used one at a time, the others were often stored for safekeeping. These were cached in houses or were buried in a garden or at the foot of a nearby tree. From time to time these caches were lost, when the owner died and the next of kin did not know where the deceased had hidden his adzes (Modjeska & White 1978a, 280; also see Modjeska & White 1978b). These caches however are marked by the fact that they can be retrieved. With regard to never-retrieved temporary stores it is therefore of fundamental importance that they were placed at locations where they could be retrieved. However, we have already seen that hoards of axes are typically found in bogs, places from which objects cannot be retrieved after deposition. Once deposited in a bog it is not possible to collect the axes afterwards and thus finds from such places qualify as permanent depositions.

Ter Wal (1996, 130) rightfully points out that artefacts from bogs are more likely to have been found than artefacts from dry locations. Stone or flint objects would have attracted more attention in a peat context than in a stony sand

context. Moreover, basically all peat in Drenthe has been cut, making it more likely for objects to have been found in such locations than on the sands. The fact remains however that these objects were present in what can be described as places from which these axes could not have been retrieved after deposition. When we consider over-representation due to archaeological attention, this potential problem is largely solved by the peat-cutting activities. Many archaeological finds are made by amateur archaeologists, who often survey particular areas. When investigating spatial patterns, there is the potential danger that some areas are more intensively investigated than others, due to the activities of these collectors (see Fokkens 1991; Wansleben 1987). These activities may distort distribution patterns, this however predominantly applies to the finds from dry contexts. Of all the axes from multiple object depositions or axes generally interpreted as single object depositions, there are virtually none that have been found by amateur archaeologists. They are exclusively found either by peat-cutters during the reclamation of the bogs, or by farmers who subsequently worked the reclaimed land. A problem we do have is the fact that the systematic reclamation already started in the late 16th century (Groenendijk 2003, 36). From historical sources we also know that numerous archaeological finds were encountered during these activities, none of these however entered the archaeological record (Bergen *et al.* 2002, 20). As we do not know what we are missing we can only hope that what we do have is a representative sample.

Another phenomenon that may have altered our patterns can be found in folklore. Throughout Europe and even adjacent areas there was the widespread belief in thunder-stones (Blinkenberg 1911). These peculiar stones (prehistoric flint and stone axes) were thought to have crashed into the earth during a lightning strike. Although nowadays this superstition has largely vanished, it was still widely accepted in the first half of the 20th century. Deinse (1925, 102-111) describes this situation for the Dutch province of Overijssel, directly south of Drenthe. He reports that virtually every farmer has at least one prehistoric axe at his farm. They were believed to protect the house against lightning, as lightning never strikes the same place twice. He even reported that particular axes were believed to possess special powers. Small bits of stone were scraped off these axes and were given to children as a medicine against convulsions. Fascinating as it may be, if Deinse's observations are correct and every farmer possessed a stone or flint axe, this could have distorted the archaeological record a great deal. Depending on how many farmers had such axes and how long this tradition was upheld, there are potentially hundreds if not thousands of lost or secondarily displaced axes. There is however no way

to accurately estimate the extent of this "post-depositional process". A few of the axes from the National Museum of Antiquities, examined in the light of the current thesis, were bought by a collector prior to 1922 from a farmer, who kept them in the assumption that they were thunder-stones.

2.3.2 Minimizing pattern disturbance

In order to minimize the risk of these processes disturbing potential prehistoric patterns the contextual evidence of each find must be thoroughly investigated. Depending on the nature of the contextual evidence it must be decided whether or not it is safe to include an object in the eventual analysis. So far however we have solely focused on the potential spatial patterning and the problems thereof. With regard to flint axes there are however a number of other features that can reveal patterning, which will be investigated. As has already been noted in previous research (Ter Wal 1996), there is a metrical difference between the type of axes deposited in multiple object depositions and types deposited in graves. Furthermore the individual use-life of the flint axes are investigated using functional analysis. This includes both micro-wear and residue analysis. All of these three methods namely spatial, metrical, and functional analysis can reveal patterns. Moreover, the patterns revealed through the use of the different methods, sometimes overlap, thus strengthening the case that something special is going on with a particular group of axes.

2.4 Interpreting patterns

After patterns have been identified they can be used to interpret the practice of deposition. According to Fontijn (2002, 24), 'such patterns can only exist if people in different places, and at different moments, deposited similar objects in more or less similar ways.' The patterns observed using the different methods each shed light on particular aspects of the practice of deposition. Each method can thus be used to answer different questions. The contextual or spatial information will provide information as to where depositions took place. We should keep in mind that we need to find out the character of the landscape during deposition. Only then can we investigate which parts of the landscape were selected for depositions and how these are to be interpreted. The metrical analysis will primarily provide information as to what types of axes were deposited. This however also raises secondary questions as to how and where these types of axes were produced. If production was not local, then where were these axes produced and how did they subsequently end up in Drenthe? The functional analysis can reveal parts

of the individual life-history or biography of the axes. Do they show traces of use, and if so what can we conclude from this? Have these axes been used or not, or did they receive a special treatment which is reflected by the presence of either micro-wear traces or residue?

In order to recognize as many patterns as possible other evidence should also be investigated. Since hardly any axes from secure settlement contexts are known and stray finds of local atypical axes are impossible to date, the evidence is predominantly derived from either possible depositions and graves. Using the same techniques axes from both contexts

have been investigated. To what degree do the results overlap, and if not, how should we interpret potential differences? Also a diachronic analysis may shed light on particular practices. How does the TRB evidence relate to the depositional practices noted for the SGC culture? Although only a restricted number of axes have been investigated from SGC context, this can help to recognise and interpret specific patterns within the TRB. Moreover it presents us with additional questions as to how particular practices developed through time. How are new rules and taboos adopted while old ones fell into oblivion?

3.1 Introduction

The aim of this thesis is to explore the character and interpret the meaning and significance of flint axe depositions. These depositions however are only one element in the life of the people depositing these objects. In order to understand the meaning of these depositions we therefore need to take into account the cultural context of which they were part. Only through studying TRB society as a whole we can try to understand why specific elements were important and meaningful. For this purpose an overview is presented in this chapter about TRB society as a whole. Where did the TRB culture come from, where did they live, what did they eat, how did they bury their dead? All these elements form the cultural context that together defined a framework for the meaning attributed to flint axes and their deposition.

In the context of this thesis it was neither possible nor necessary to perform an in-depth, pan-European analysis of the entire TRB culture. For this reason an overview is presented here, which is based to a large degree on the work of Bakker, Tilley and Midgley who, taken together, provided us with an easily accessible synopsis of TRB culture. Although many different aspects of the TRB culture will be explored in this chapter the emphasis will be on the ritual aspects of TRB life as reflected in burial customs and the various sorts of depositions occurring throughout northern Europe.

3.2 The early Neolithic of the north-west European plain

3.2.1 Neolithisation

The origin of the TRB culture is a much-debated topic in which so far no conclusions have been reached. Around 5300 BC the loess areas in central Europe were settled by the first Neolithic farmers, generally referred to as the Linear Bandceramic Culture or LBK. Although some authors seem to plead for partly local acculturation of, and interaction with, the indigenous Mesolithic population (see Newell 1970; Bentley *et al.* 2001; 2002), the general consensus is that the LBK were primarily colonists (De Grooth & Van de Velde 2005). Although the presence of Neolithic artefacts indicates contact with the Neolithic farmers, the hunter-gatherers living north of the loess areas seem unaffected by the presence of the farmers in the initial stages of the LBK colonization. Around 5000 BC these hunter-gatherer groups

start to adopt some elements of the “Neolithic package”.

In the Netherlands this group is referred to by the name Swifterbant culture. Although the Swifterbant culture is classified as “Neolithic” there still is a strong “Mesolithic” cultural component present in the archaeological data. The Swifterbant culture produces its own pottery and evidence for domestic animals is present. However, so far no unambiguous evidence has been found to indicate sedentism and crop-cultivation. Although Swifterbant crop-cultivation is debated, the Swifterbant people certainly had access to cereals (Louwe Kooijmans 1987; 1993; 1998; 2005).

For southern Scandinavia and northern Germany the story is slightly different. Here the Ertebølle and Ellerbek cultures are classified as Late Mesolithic, and although they have much in common with the Swifterbant culture, there are also some differences. The Ertebølle and Ellerbek cultures mostly rely on hunting, fishing and gathering for their main subsistence (Midgley 1992). Although there is no evidence for animal husbandry, there is however a general trend towards sedentism and animal resource management, in the form of selective hunting, is noted (Tilley 1996, 27; Jarman 1972). This stands in contrast with the evidence for less managed and structured animal exploitation during the preceding Maglemose (Tilley 1996, 56). During the Late Mesolithic pottery production is adopted and the presence of adzes and the so-called Rössener Breitkeilen seem to indicate exchange relations with the southern Neolithic farmers (Klassen 2004; Tilley 1996; Verhart 2000; Raemaekers, 1999; Persson 1999). On some sites domesticates such as cereals have been retrieved. However, these are not believed to have been locally produced but are supposed to have been exchanged with the Neolithic farmers (Jennbert 1997).

3.2.2 The rise of the Funnelbeaker Culture

Although similar developments towards a more agricultural economy took place over the entire north European Plain, the earliest dates for the occurrence of the typical TRB-type pottery are to be found in central-northern Germany and can be dated between 4500-4000 BC (Midgley 1992, 47). The early stages of the TRB seem to be highly heterogeneous with many local nuances and variation. There is also still a strong presence of Mesolithic traits. This can be illustrated by the find of Neolithic pottery in a series of coastal Ertebølle sites in Skåne, Sweden. The two styles of making pottery,

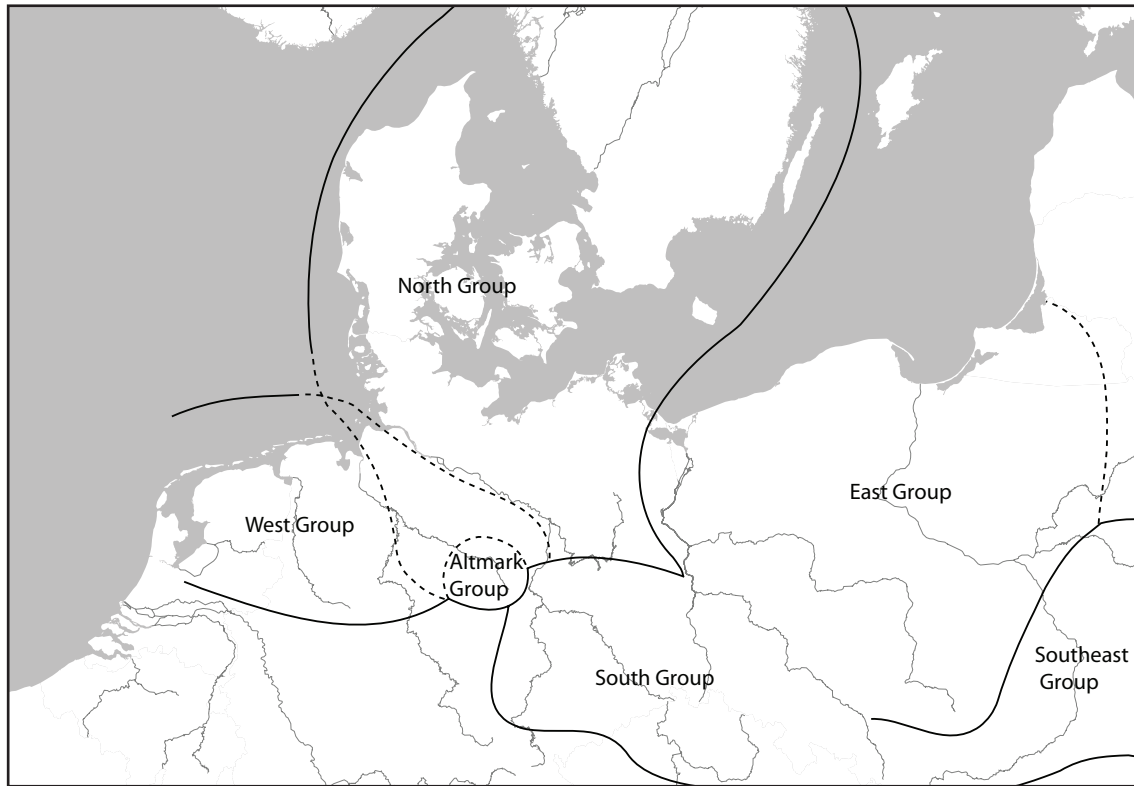


Figure 3.1 Distribution of the TRB groups in Europe (after Van Ginkel *et al.* 1999, 37).

one of Ertebølle character, the other of early Neolithic type, occur side by side and appear to have been manufactured using the same clay and tempering materials (Tilley 1996, 86). Similar observations are made at the site Rosenhof, eastern Holstein, Germany, where a layer dated between 4270-4000 BC contained both Neolithic and Ertebølle-Ellerbek type pottery (Midgley 1992, 50). Although this mixture of Mesolithic and Neolithic pottery is also recorded at the German site at Hude on the Dümmer Lake in Lower Saxony the compression of the layers makes it impossible to tell whether or not these finds were contemporary (Midgley 1992, 51). Rosenhof is also the earliest site to show some traces of domestic animals and cultivation, which is dated between 4950 and 4300 BC (Persson 1999, 195). Organic remains at this site suggest, however, that although some domesticates were present, wild resources were still of primary importance (Persson 1999, 198). Other datings of the earliest agriculture in northern Europe are considerably later and fall within the range of 4100-3800 BC (Persson 1999, 195). These Early Neolithic sites in Germany and southern Scandinavia are located along the lowlands, areas previously occupied by the hunter-gatherer communities. This suggests that in this stage hunting, gathering and farming were

not mutually exclusive but rather complementary (Midgley 1992, 310).

The archaeological evidence suggests that roughly between 4000-3500 BC the TRB culture developed simultaneously in southern Scandinavia, northern Germany and Poland. This period is also marked by a drastic lowering of the amount of C13 in human bones from sites on the seashore. Although the reasons for this change are not undisputed, a plausible explanation is the substitution of marine resources by agricultural products (Persson 1999, 196). For the region west of the Elbe there is only little evidence for the presence of the TRB in this period. Here it seems that the TRB only began to emerge after 3900 BC (Midgley 1992, 222). It is not until 3500 BC that a very homogeneous (archaeological-) cultural group is established which can be described as the classic TRB culture. The classic TRB can be subdivided into four main groups, referred to as the north-, east-, south-, and west-group. The focus in the present thesis will be on the west-group, spanning the northern Netherlands and north-west Germany, and the adjacent north-group, spanning southern Scandinavia and northern Germany. The TRB seems to “arrive” in the Netherlands as this well defined cultural group around 3400 BC.

3.2.3 *Colonization or acculturation; the Dutch Funnelbeaker Culture*

The transition, that took place around 3500 BC, has led to much debate among scholars. This homogenisation developed very rapidly and radically. It is reflected in material culture such as pottery and flint tool typology, but also in settlement patterns, food-production and burial practices involving megalithic tombs. Since this transition seems to have affected all aspects of social life, the logical explanation, that has often been postulated, is migration, although some authors, such as Hogestijn (1990), do not agree with the colonisation theory. Hogestijn's argument for acculturation is mainly based on the fact that the earliest (pre-megalithic) TRB pottery in the Netherlands occurs on the Swifterbant site P14 near Schokland. This, in his opinion, is suggestive of a gradual acculturation of the native Swifterbant population to TRB (Hogestijn 1990, 178). It is, however, my opinion that pure acculturation cannot account for this rapid and all affecting cultural homogenisation. The location of this site does concur with the German Early Neolithic sites; however at this stage P14 seems to reflect the exception rather than the rule. Moreover no bog settlements are known from the Netherlands, whereas these are common all along the north European plain in the Early TRB. The lack of TRB bog settlements in the Netherlands would thus reflect a different economic strategy from that of the earlier period (Midgley 1992, 311). Although acculturation will probably have occurred on some level, it does not explain the subsequent cultural homogeneity of the TRB on the one hand and the lack of local Swifterbant influences on the other hand. In fact, the material culture of the Dutch TRB has more links with the Danish Ertebølle than with the indigenous Swifterbant. This is reflected for example by the presence of the highly characteristic TRB transverse arrowheads. Although this tool-type is alien to the Swifterbant culture it is typical for the Ertebølle culture (Midgley 1992, 14).

3.3 Settlement patterns and ecology

3.3.1 *Crop-cultivation as a technology*

Technology is a subject that is often overlooked when it comes to dealing with the topic of neolithisation. Around 5300 BC the loess soils of central Europe were settled by the LBK farmers. It is often debated why it took so long for the surrounding Mesolithic groups to adopt farming. Although many factors can, and probably will, have played a role in this, one of the problems has to do with technology. The LBK agricultural techniques were adapted to a specific ecological zone, namely the loess soils. This technique could

not just be extrapolated to the sandy soils of the north, for their physical attributes necessitated a different technique of agricultural food-production. The LBK farmers possessed the "formula", to quote Bakker (1982), for subsistence on the loamy loess soils, but not for the sandy soils of the north. The TRB culture restricted themselves to the sandy "islands" of the north not crossing the loess boundary (Bakker 1982, 88).

If the agricultural techniques of the LBK were indeed incompatible with the northern sandy soils this could explain why the rapid spread of agriculture halted when the borders of the loess expansion of central Europe had been reached. Although it might be questioned whether or not different soils necessitated different agricultural techniques, it is a fact that hardly any LBK settlements are found on the sand and hardly any TRB settlements are located on the loess. However, an exception to this "rule" can be found in Poland where the presumed internal TRB expansion seemed to have caused the presence of TRB settlements in regions previously inhabited by the LBK and the partly contemporary Lengyel groups (Midgley 1992, 308). This however did not take place until the Middle TRB and although they located themselves in the loess zone, still the relatively less fertile zones were preferred, in contrast to the former Lengyel groups, who preferred the more fertile zones (Midgley 1992, 309).

Technology, although a factor of potential importance, was certainly not the only factor that determined why and how agriculture became adopted by the pre-TRB hunter-gatherer societies. Imported artefacts indicate the existence of an exchange network between the northern Ertebølle societies and the West-European Michelsberg culture (Klassen 2004). Since the Michelsberg culture also practised agriculture on the sandy soils, Klassen (2004, 374) argues that the reluctance of the Ertebølle societies to adopt farming is mainly due to ideological motivations rather than technical constraints.

3.3.2 *Settlement location and farming strategy*

The fact that the TRB mainly settled on dry sandy soils has caused some problems as to archaeological visibility. In the Netherlands hardly any unambiguous settlement has been discovered. According to Bakker (1982, 87) this is due to post-TRB podzolisation, which has left us until now with no house plans and only very few refuse pits. This creates a sharp contrast with the 343 sites recorded in the research database, which predominantly concern surface-find scatters generally believed to represent TRB settlements. In Scandinavia however some clear settlement sites are present, which are held to be representative for the Dutch TRB settlements. In

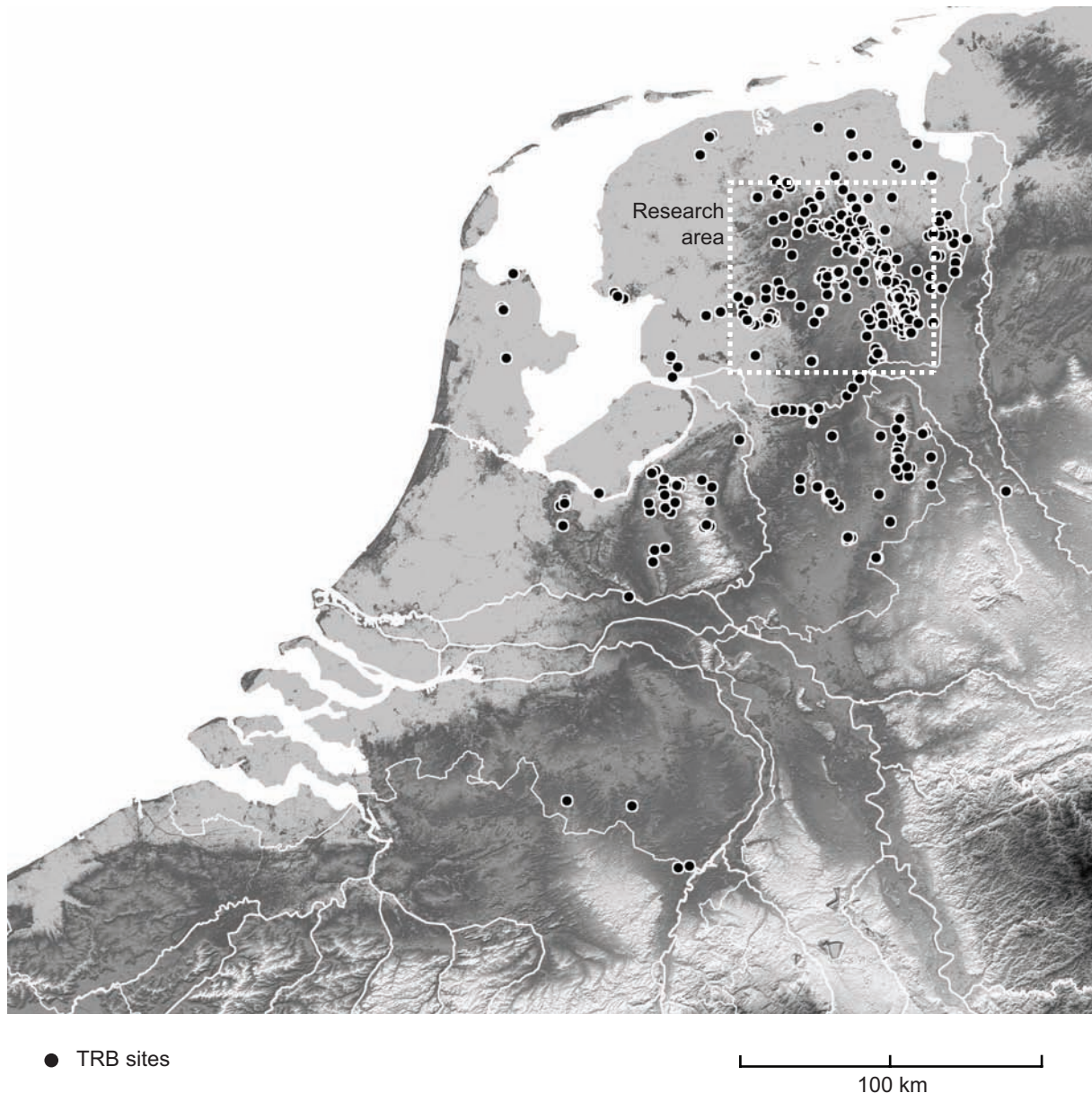


Figure 3.2 Distribution of TRB sites (including single finds) in the Netherlands (Digital Elevation Model provided by Archol).

Skåne site catchment analysis revealed a close relationship between the presence of sandy/gravel soils and wet boggy environments. This suggests that proximity of a variety of ecological zones was of fundamental importance (Midgley 1992, 304). In Jutland settlements seem to concentrate along the coast and inland along the major rivers (Midgley 1992, 305; Jensen & Madsen 1982). Around 3500 BC the uplands would still have been densely forested. The strong association of settlements with water could represent the importance of watercourses with respect to transport (Davidsen 1978, 150).

Bakker (1982, 88) makes the observation that the distribution of TRB sites in the Netherlands and adjacent areas in

Germany almost perfectly coincides with the area once covered by the glaciers in the Saalian Ice Age. The presence of till and ice-pushed sediments provided the TRB people with granite and other erratic rocks for the manufacture of stone axes, battle-axes, querns, grinding stones and small flint tools. In some regions there were enough large boulders for the construction of the megalithic tombs (Bakker 1982, 88). Although the TRB habitation in Drenthe is mostly located on the Drenthe Plateau, also some Pleistocene outcrops (e.g. Wetsingermaar, Bornwind, Heveskes) in the marine wetlands north of the plateau were inhabited, until these became covered by marine clay (Bottema *et al.* 2004, 38).

Due to the relative poor fertility of the sandy soils, it was necessary to relocate settlements and fields every now and then. This type of shifting-cultivation resulted in the fact that although settlement sites generally shifted to new places in the course of time, the use of the megalithic tombs continued (Bakker 1982, 114). Shifting-cultivation allowed abandoned fields to regenerate, thus facilitating potential future use of those fields for agricultural activities (Van Gijn & Bakker 2005, 282). Based on pollen spectra retrieved from the megalithic tombs in Drenthe it can be reconstructed that the graves were located in small open areas in a *Quercetum mixtum* or mixed oak forest (Bakker 1982, 114-116). These small arable fields would have been either under cultivation or used as pastures for grazing cattle. Some pollen spectra showed indications of forest regeneration, but in some cases heath expansion also took place (Bakker 1982, 114-116). These observations are further substantiated by the results of archaeo-botanical studies from the TRB settlement site of Flögeln in Germany. The evidence indicated the presence of arable fields located in the direct vicinity of the settlement (Bakels & Zeiler 2005, 322.) The surrounding environment consisted mainly of a mixed foliage forest dominated by oak and lime. Furthermore cereals and species like plantain, grass and heath indicated that parts of the forest were felled in order to lay out arable fields. After some years of use they were laid fallow, probably for cattle to graze (Bakels & Zeiler 2005, 322).

Compared to other types of data such as those related to graves, ceremonial sites or depositions there is still only little known about TRB settlements. This is particularly regrettable as Louwe Kooijmans (2000, 324) reminds us that 'however important monuments, ritual places and cemeteries might appear, we should realize that 90 per cent of life revolved in and around the settlement. The settlement was the navel of the Neolithic people's world.'

3.4 TRB funerary traditions

3.4.1 Introduction

The most famous and well-known archaeological monuments of the Netherlands are without doubt the megalithic tombs or "hunebedden" as they are locally referred to. Although these are constructed by the TRB people, they only form one aspect of the TRB funerary tradition. They are furthermore part of a sequence of funerary traditions in which the Netherlands only seems to play a peripheral role. Currently something in the order of 50 tombs are preserved in varying conditions in the Netherlands. If we however add the demolished tombs known either from historical sources

or from archaeological excavations, we come to a number between 75-80. Still other tombs will have been lost during the past 5500 years making a conservative estimate of 100 megalithic tombs plausible (Louwe Kooijmans, pers. comm. 2006). If we compare this with the figures from adjacent countries it becomes clear that when we investigate the nature and significance of these monuments, we cannot only take into account the Dutch archaeological record. For Germany, Laux (1990) published a record of 357 megalithic tombs between the rivers Elbe and Eems, and Holtorf (1998, 25) mentions 1200 megaliths to be present in Mecklenburg-Vorpommern. The estimates for Denmark indicate the original number of tombs around 23.000, only 2364 of which remained as visible upstanding monuments (Tilley 1996, 130). This is still a conservative assessment since Skaarup (1990) estimated the original number of megalithic tombs in Denmark at 25.000. The northern Netherlands thus only form the westernmost part of a much larger distribution area.

3.4.2 Megalithic tombs

The rise of monuments

As early as the Late Mesolithic grave fields appeared across Europe. By contrast, the Late Mesolithic cemetery of Marienberg in the east of the Netherlands (Verlinde 2005) is only a trivial site compared to the Danish cemeteries of Vedbeak or Skateholm (Albrethsen & Petersen 1976; Larsson 1984), where organic remains were preserved. Although these sites provide us with the earliest spatially anchored cemeteries, they generally lack physical structures that are so typical for the later Neolithic monuments. The construction of monuments is a phenomenon that takes place all along the European coasts. The earliest grave monuments in northern Europe are the so-called long mounds. Interestingly these long earthen barrows predominantly occur in the zone of glacial out-wash sands. This zone is located north of the loess but south of the young-moraine and coastal belt with its continuing concentrations of Mesolithic settlements (Sherratt 1990, 159; Midgley 1985, fig.5). The latter areas would later become the heartland of the TRB megalithic tombs (Sherratt 1990, 159). Recent work, however, has questioned some of the interpretations of Danish excavations. Some sites which had previously been interpreted as long houses, not unlike those of the LBK, are now reinterpreted as long barrows (Bradley 2005, 62). This suggests that these monuments were also present in Denmark, where they pre-dated the development of their megalithic successors.

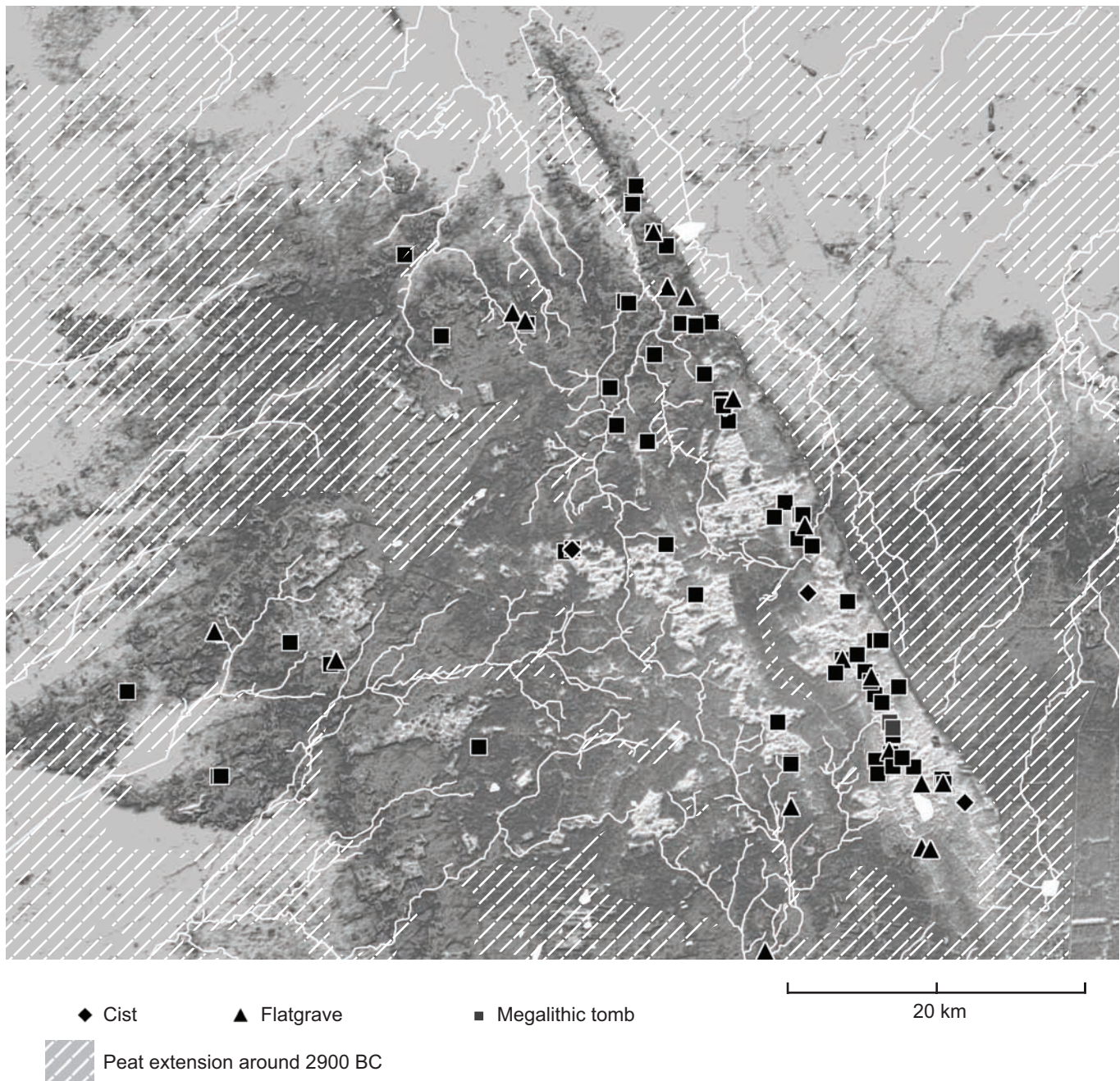


Figure 3.3 Distribution of TRB graves on the Drenthe Plateau (Digital Elevation Model provided by Archol).

While “megalithism” in western France began somewhere around 4600 BC, it only appeared in Denmark at a relatively late date around 3800 BC (Sherratt 1990, 151). The early types of tombs mainly concerned dolmen, small round or rectangular chambers constructed of only a few megalithic boulders. These dolmen can be covered by round or rectangular mounds, but the majority were covered by round stone cairns (Midgley 1992, 420). The highest density of dolmen can be found in Denmark where between 5.000 and 6.000 monuments are usually quoted (Midgley 1992, 418). The distribution of this type of monument further includes Schleswig-Holstein and Mecklenburg. The river Elbe is usually regarded as the border between the TRB north- and west-group and it appears that the Elbe also forms an effective western boundary of the TRB’s dolmen province (Midgley 1992, 418). In the Netherlands no dolmen occur, here there are predominantly passage graves which seem to date slightly later. Only the demolished tomb G5 of Hevekesklooster, near Delfzijl could possibly be classified as a dolmen. This megalith however, was already partially demolished prior to 2200 BC when the site became overgrown by peat (Bakker 1994, 75; Van Ginkel *et al.* 1999, 194).

The main difference between dolmen and passage graves is the position of the passage. In a dolmen it is always placed at one end of the chamber, but when it is leading towards one of the sides of the chamber the structure is classified as a passage grave (Midgley 1992, 422). The distribution zone of these passage graves shows considerable differences with the distribution zone of the dolmen, particularly towards the west and south. Associated with the expansion of the typical TRB *Tiefstich* pottery, the new distribution zone of the passage grave includes the entire western TRB group (Midgley 1992, 430). This new type of monument seems to be particularly popular in the regions where no megalithic monuments were previously constructed. In the region where previously dolmen were constructed, the passage graves account for considerably fewer monuments (Midgley 1992, 430). In the Netherlands the construction of tombs can be dated to the first half of the TRB, locally referred to as the *Drouwen* phase (3400-3050 BC) (Van Gijn & Bakker 2005, 288). Other authors date the construction of the hunebedden to an even shorter period, namely between 3400-3200 BC (Van Ginkel *et al.* 1999, 56). The tombs are, however, used throughout the TRB and even during the Late Neolithic, activities took place inside the tombs. This is represented by numerous finds of SGC and Bell Beaker Culture pottery inside the hunebedden. Even Bronze Age, Roman and Mediaeval pottery is retrieved from inside the chambers of the megaliths.

Inside the tombs

Unfortunately hardly any of the Dutch hunebedden have been thoroughly excavated. Most of the find material recovered from the tombs was excavated in the first half of the 20th century, or was excavated from the ploughed remains of a destroyed hunebed. The record of finds, however, seems to fit surprisingly well with the patterns observed in Germany and Denmark. By far the largest category of finds is pottery, the sherds of which must have belonged to hundreds of pots that were placed inside the chambers. The largest number of vessels inferred from pottery remains in the Netherlands comes from tomb D53 excavated by Van Giffen in 1918. The minimum number of vessels originally present was estimated at 660. Presently this number is debated but still a number of about 500 vessels seems plausible (Van Ginkel *et al.* 1999). Also at other tombs vast quantities of pottery were retrieved. The estimates for the minimum number of vessels are usually varying between 100-500. Besides pottery, many flint artefacts have also been recovered. These include transverse arrowheads, sickles, strike-a-lights, flakes, waste and numerous flint and stone axes (Van Gijn in prep; Van Woerdekom in prep.). Also ornaments such as jet and amber beads are generally present and in one occasion (tomb D43) a pendant made of a small ammonite was recovered. In this fossil a small hole was drilled and it was possibly coloured with red ochre. We must however not forget that certain categories of finds will have been lost due to taphonomical processes. In a number of Danish tombs for example bone tools were retrieved (Tilley 1996, 292) that, if present, would not have been preserved in the Dutch tombs. A nice example of this is the find of two decorated bone wrist guards associated with the inhumations of a man and a woman in the Danish dolmen of Frellesvig, Langeland (Skaarup 1990, 78).

For more detailed accounts of what practices occurred in and around these monuments we are dependent on the archaeological record abroad. When considering sites from Germany and Denmark we do however have to keep in mind both the spatial and diachronical differences and nuances of the grave ritual. Skaarup (1990) performed an extensive study of the grave ritual of the islands south of Fyn, located in south-east Denmark. Although the tombs contain remains of men, women and children they only represented part of the population. The tombs seem to have been used for individual interments during which an articulated body was buried. There does not seem to be any evidence for the disarticulation of the corpse prior or after deposition in the megaliths (Skaarup 1990, 80-81). Skaarup relates the disturbed nature of the human remains to the continued practice of burying persons in the tomb, thus disturbing the already present human remains. Some of the tombs show remains of

at least 100 interments related to a 1500 year period of use, which could mean one interment every 15 years (Skaarup 1990, 85).

This practice, of burying individual corpses, contrasts with the observations based on the archaeological record of Mecklenburg, Germany. Here all bones in the megaliths seem to have been re-arranged. The deceased probably had been buried or were exposed at a separate location before being taken to the tomb (Midgley 1992, 444-445). The latter practice is generally assumed to have occurred at the Dutch hunebedden as well, however the lack of preserved human remains makes it impossible to positively infer this. The only human remains retrieved from the Dutch tombs are small amounts of burnt bone. Although the interpretation of intact bodies being buried in tombs prevailed amongst Scandinavian archaeologists, recent excavations seem to indicate different practices. The excavation of a double passage grave at Aldersro, Zealand, revealed that it was body parts rather than articulated bodies that were placed in the tomb, as is the case in Germany. It appeared that although preservation was excellent, bones from hands and feet especially were practically absent, indicating secondary burial of body parts (Holten 2000, 289).

Outside the Danish tombs

Besides the activities that took place inside the chamber related to the interments of individuals, disarticulated bones or the depositing of grave goods of various kinds, there is an abundance of evidence for activities that took place outside the tomb. At the tomb of Trollasten a low offering cairn was located outside the entrance to the chamber where eleven skull fragments, ribs, vertebrae and long bones were deposited along with broken flint axes or fragments of flint axes, chisels, arrowheads, blades, waste flakes, amber beads, potsherds and hazelnut shells (Tilley 1996, 222).

A more often encountered phenomenon is the presence of large numbers of pottery sherds outside the passage of the tombs. Initially these were interpreted as grave goods that were periodically cleared out of the chambers (Midgley 1992, 455). Currently, however, a different interpretation has been more widely accepted. The depositions of pottery in front of the tombs rather seem to represent votive offerings associated with a burial or some other ceremony (Midgley 1992, 455). Excavations at the Jordhøj passage grave led researchers to believe that pottery vessels were placed along the top of the kerb on a shelf-like arrangement of slabs, which stretched for several metres on either side of the entrance. The arrangement of sherds indicated that the vessels were either deliberately smashed on the spot or that they tumbled down in the

course of time to the foot of the kerb (Midgley 1992, 455). These pottery vessels that were probably specially produced for ceremonial practices seem to have been deliberately broken (Tilley 1996, 303).

Moreover at the Trollasten dolmen it appeared that fragments of the same axe were found in different piles outside the tomb. This indicated that the axe had been deliberately broken, the fragments were gathered together after which they were deposited in separate piles (Tilley 1996, 303). Excavations at the well-preserved passage grave of Nissehøj in Zealand revealed some interesting patterns in this respect (Holten 2000, 291). Although sherds of some pottery vessels were found neatly concentrated, others lay scattered around the entire site, suggesting the intentional destruction of pottery and the random distribution of the sherds. Moreover, the majority of the pots were only represented by a few sherds. It was estimated that almost 80% of the original weight of the vessels was unaccounted for. It was suggested by Holten that many of the vessels were deliberately broken after which only a selection of the sherds was deposited in and around the tomb. This would be potentially analogous to what happened to the human bodies of which certain body parts (hands and feet) appeared to be missing, in spite of good preservation. In the end, however, one must conclude that unfortunately only very few well-preserved tombs have been thoroughly excavated. Although the cases discussed above present us with some interesting observations, much more reliable data is required to securely reveal recurrent patterns.

Changing practices in and around the tombs

In Denmark offerings of pottery outside the tomb was not a practice performed throughout the TRB period. It seems that the vast majority of pottery finds outside the passage can be dated to the MN I-II, which corresponds with a date between 3300-3000 BC (Tilley 1996, 303-305; Midgley 1992, 456-457). This seems to be a phenomenon that can be found throughout Denmark. Whereas pottery continues to be placed in the chambers of the tombs, after the Blandebjerg style goes out of fashion (around 3000 BC) the kerb offerings cease (Midgley 1992, 456). This point in time seems to have marked a more general cultural change that is reflected in the grave ritual, but also in the wetland depositions in southern Scandinavia. Although the deposition of pottery outside the tombs ceases, the offerings themselves do not. Pottery, however, is replaced by depositions of burnt and unburnt flint tools, mostly axes and chisels (Midgley 1992, 456). The contents of the offerings placed inside the tombs also become more focused on flint, whereas the amount

of pottery placed in tombs gradually diminishes (Midgley 1992, 456). This indicates that either flint itself or practices involving the use of flint started to assume a relatively more significant role at this point in time.

Also the character of the pottery itself changed, which is marked by a dramatic reduction in ceramic variety from 3000 BC onwards. There are fewer types of pots being made and the forms become less distinct. Throughout the TRB north-group, the pottery becomes more homogeneous. This forms a contrast with the strong regional diversity associated with the preceding period during which most of the megaliths were constructed (Midgley 1992, 256-457). There is no evidence in the Netherlands for diachronic differences concerning grave offerings. Pottery finds indicate that although some individual tombs show some hiatus, pottery dating to all TRB phases are found in the hunebedden (Brindley *et al.* 2002, 80). Ter Wal however, notes that axes only occur in graves in combination with Brindley's (1986b) horizons 1-4 pottery, dating between 3400-2950 BC (Ter Wal 1996, 128). This would mean that while in the north-groups axes became more popular grave goods after 3000 BC, they cease to appear in the Dutch graves from 3000 BC onwards. This observation concurs with the data collected for the present study, although we should remember that absence of evidence is not evidence of absence.

Outside the Dutch tombs

Midgley (1992, 457) stated that the practice of placing offerings outside the tombs took place exclusively in southern Scandinavia and represented a specific aspect of the ritual not evidenced elsewhere. According to Bakker (1979a, 152) the absence of offerings outside the entrance and the profusion of ceramic and flint depositions within the chamber in the western TRB group constitute two fundamental differences between the megaliths of the north- and west-group. Although the abundance of pottery depositions outside the entrance of the tombs is not encountered in the Netherlands, there does seem to be evidence of specific activities that took place outside rather than inside the tombs.

Although approximately 40 of the Dutch tombs were examined or excavated we must keep in mind that most concern excavations conducted between 1850-1950 at which time finds outside the tombs were not considered to be of particular interest. Also field documentation, if present, hardly contains information on the find-locations of the retrieved artefacts. Still, for twelve of the Dutch tombs finds are reported that can be interpreted as potential offerings outside the chamber. A feature outside the entrance of tomb G1 was interpreted as a flatgrave possibly containing two

children. The finds of some pottery and flint artefacts placed this feature in the TRB period (Bakker 1983, 174). Although at first the feature in front of the entrance of D32 was also interpreted as a flatgrave, this interpretation was questioned by Lanting & Van der Plicht (2000), who suggested that it was a sacrificial pit instead. During the 1960 excavation of tomb D43 Van Giffen reported the presence of three, of what he labelled as "ritual pits", that were covered with stones (Van Giffen 1962). A similar pit, containing many stones, was found in front of the entrance of tomb D21, which Van Giffen described as having an "old fill" (Bakker 1983). Between the tombs D43 and D43a, which lie close together, a pit was found underneath the mound of D43, containing the remains of a burnt flint axe and Horizon 1-2 pottery dating between 3400-3300 BC (Brindley *et al.* 2002, 79).

At the remaining seven megaliths the presence of pottery outside the tombs was reported. At tomb G2, TRB vessels were found in five places outside the tomb (Lanting 1975; Brindley 1986a; Van Ginkel *et al.* 1999). Excavations at the tombs G3, D6e and D32c also revealed the presence of pottery outside the tombs, on some occasions these consisted of complete vessels (Van Giffen 1927; Lanting 1975; Lanting & Verlinde 1996; Taayke 1985, 140). Tomb D40 revealed pottery finds in at least 4 places outside the tomb. All these finds were located on the entrance-side of the tomb. At least two of the pottery finds concerned complete vessels placed at the edge of the primary mound (Brindley & Lanting 1992, 127). One of the most clear examples of this however, was encountered during the 1961 excavations at tomb D20 where in a pit, outside the stone-setting, three TRB vessels were found placed inside each other (Glasbergen & Van Giffen 1964; Van Ginkel *et al.* 1999). Most circumstances of the finds so far presented have been poorly recorded. There are however some finds from tomb O2 located near Mander, which are well recorded and should therefore be discussed in greater detail.

Hunebed O2, located in Mander (province of Overijssel), concerned a destroyed monument that was excavated in 1957 and re-excavated in 1995 (Brindley & Lanting 2004). In the light of the current discussion three pits, found outside the tomb's entrance, are of special interest. The distribution of the pits seems to follow the contours of the mound, which originally covered the megalith. These three pits contained respectively one, two and three vessels. The pit that only contained one complete vessel is of particular interest, since the fill of the pit also contained a large number of pottery sherds. Apart from a single vessel dating to horizon 5 (3050-2950 BC), this pit, which was located directly outside the tomb's entrance, contained 250 sherds belonging to at

least 60 pots. These however could be attributed to horizons 2, 3 and 4 (3350-3050 BC), thus pre-dating the pit itself. Brindley & Lanting (2004, 81) suggest that these finds indicated the presence of a spread of pottery sherds in front of the entrance of the tomb. These sherds were only preserved in the pit, that had been dug into the ground for the deposition of a pottery vessel, since it served as a “find-trap”. The possible remains of a more extensive spread of sherds in front of the tomb's entrance have probably been ploughed away.

Conclusion

It is interesting to note that although the Dutch megaliths show evidence of ritual activity outside the tombs, it remains scanty. In Scandinavia thousands of pottery sherds are commonly found in front of the tomb's entrance (Holten 2000, 290). The lack of such an amount of finds in the Netherlands cannot just be attributed to post-depositional processes. When we compare the contents of the tombs, however, we can see a similar contrast. Although there may be thousands of pottery sherds outside the Scandinavian tombs there are usually only relatively few inside the tomb. In the Netherlands on the other hand there are only limited numbers of finds retrieved outside the tombs but inside the tombs hundreds of vessels must have been present. In light of this contrast I would suggest that it is very well possible that whereas in Scandinavia the secondary depositing of pottery (and possibly its food contents) took place outside the tomb, in the Netherlands such a practice possibly took place inside the tomb. This ‘fundamental’ difference between the north- and west-group, as Bakker (1979a, 152) puts it, may in fact merely be a different nuance. Anyhow these finds indicate that the megalithic graves did not act solely as repositories for ancestral bones. As Tilley (1996, 292) remarked, they also formed major ritual centres, involving feasting, drinking and offerings during which the deposition and destruction of artefacts took place.

3.4.3 Non-megalithic graves

Apart from the communal megalithic graves flatgraves and cists also occur throughout the TRB. These mostly concern inhumation graves, although in the late TRB cremations also start to occur (Voss 1982, 31). Although there is some indication that the cists were covered by a low mound (Bourgeois in prep.), there is no evidence in the Netherlands for any structures demarcating flatgraves. There appears to be some evidence of Danish flatgraves having been covered by low barrows, either covering individual graves or small groups of graves, this however seems to be the exception rather than

the rule (Midgley 1992, 413-416). It is probably for this reason that not many flatgraves have been discovered. Several of the cists and flatgraves were discovered by chance, during settlement and barrow excavations.

Types of non-megalithic graves

Although cists usually appear to have been isolated features, flatgraves can be found single, as well as grouped in small cemeteries. During land reclamation and agricultural activities some sites have been discovered that could potentially be either flatgraves or cists (Waterbolk 1958). However it is presently impossible to verify this since often no archaeologist was present at the time of discovery to inspect these sites. Due to the character of the finds we can currently estimate the number of single flatgraves in the Netherlands between 10-15. The same estimation applies to the number of flatgrave cemeteries, usually containing 4-10 graves each. Approximately 10 sites may represent cists, as especially for the older sites it is often impossible to infer whether a reported site consisted of a disturbed flatgrave, cist or even a small demolished tomb. Of the cists five contained pottery that could be dated to a period between 3400-3200 BC (Brindley 1986b), which suggest that the construction of cists is contemporary to the construction of the megaliths. So

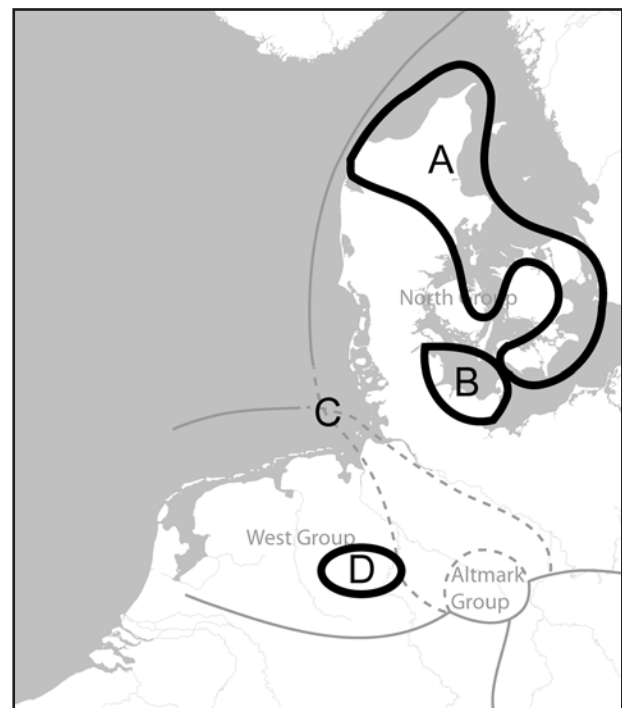


Figure 3.4 Occurrence of flint sources used for the production of imported axes. A primary sources, B secondary sources, C Helgoland, D Wiehengebirge (after Beuker 2005, 277).

far no evidence is present to suggest the construction of cists after 3200 BC. The use of both single flatgraves and flatgrave cemeteries occurs throughout the TRB period as pottery from graves can be dated in the full range between 3400 and 2750 BC (Brindley 1986b).

Chronology

Although in some parts of the Netherlands the lack of large boulders would have prevented the construction of megaliths, this is not related to the use of either tombs or flatgraves. The close association between the Dutch flatgraves and megaliths, both spatially and temporally, can be illustrated by the sites at Mander, Overijssel. Here a flatgrave cemetery containing eight graves, was located just 10 m east of the already mentioned demolished tomb O2 (Brindley & Lanting 2004). Both grave types appeared to have been in use simultaneously, as is indicated by the pottery finds (Van Ginkel *et al.* 1999, 199). However, another possible scenario could indicate that the tomb itself was only in use between 3300-3050 BC, after which, during 3050-2950 BC, the flatgraves were constructed. As only very few finds dating to 3050-2950 BC are found inside the tomb these could also represent later votive offerings rather than actual burial activities (Brindley & Lanting 2004, 77). Although Waterbolk (1958, 10) claimed that flatgraves are located well away from the megaliths, the present dataset however, indicates that this is not the case. Various flatgraves can be found in close proximity to megalithic tombs, although the latter do have a more restricted distribution area, which is related to the distribution of large boulders in the Netherlands. This pattern of contemporary use of both flatgraves and tombs is also attested in southern Scandinavia (Midgley 1992, 413).

Social differentiation

Since both types of graves seem to have co-existed, questions as to social differentiation between the two are obvious. However, there is unfortunately little data to support any particular interpretation. Skaarup (1990, 85) supposes that the persons buried inside the tombs would have represented a high-ranking social group. He interprets the grave goods, which often contain amber beads and weapons, as status symbols. Flatgraves, however, contain the same set of objects that are often encountered in megaliths; fine pottery, axes, flint and stone tools and ornaments. It is however interesting that of the eight flatgraves at the cemetery of Mander, only one contained flint artefacts, while they all contained pottery vessels (with the exception of one disturbed grave). The flint tools retrieved from this grave included a thin-butted

axe (Blandebjerg-type), three axe-flakes that could be fitted together, six unmodified flakes and a transverse arrowhead (Brindley & Lanting 2004). Although these finds might indicate differences between individuals, it does not show clear status differences (gender or age) between people buried either in tombs or in flatgraves.

3.5 Routes of exchange

3.5.1 Axes

The origin of axes

The TRB occupation in the Netherlands is mainly focussed on the Drenthe Plateau. Although this till plateau contains northern moraine flint and large boulders used for tomb construction, it does not contain the high quality flint needed for the production of the large axes and chisels. In particular, the kind of axes often retrieved from waterlogged places cannot be produced from the local raw material. Although the smaller irregular looking axes could have been locally produced, Bakker (1979a, 80) proposes that all axes exceeding a length of 15 cm should be considered as imported artefacts. Bakker rightfully states that for now we have to content ourselves with this unsatisfactory rule. The main problem is that the local, poor quality flint, that can be found in the till has been transported by the Saalian glaciers. As this transported flint originated from Scandinavia it is basically identical to the high quality flint used for the production of the imported axes (Beuker 2005, 277). The poor quality of this flint is reflected in the general character of the TRB west-group flint assemblage. Whereas the flint tools of the north-group are basically macrolithic in appearance, the flint tools of the west-group are generally very small. The only concrete typological link between the north- and west-group can be found in the occurrence of the transverse arrowheads (Bakker 1979a, 76). The entire area west of the Elbe is thought of as a region dependent on exports (Midgley 1992, 279).

The nearest flint source with good quality flint can be found in Schleswig-Holstein in northern Germany. These flint outcrops, however, also concern secondarily transported materials, which makes pinpointing sources extremely difficult. This means that although axes that are longer than 15 cm are classified as imported objects their exact origin is often uncertain. They either came from northern Germany or even from southern Scandinavia, and must thus have been produced by the TRB north-group.

The import of axes or raw material?

The large axes must have been imported as finished tools as there are no finds indicating local production. Moreover the production of these axes would have required years of training and thus large amounts of good quality flint to practice on. Since there is no good quality flint in Drenthe, it would be impossible for Dutch TRB people to master this skill (Beuker 2005, 277; pers. comm. 2006). Also the locally manufactured *Flachbeile* generally portray poor craftsmanship, illustrating that the people making these axes would not have been able to produce the finely crafted north-group axes. If people had been importing high quality flint, this would also have been reflected by other artefacts than axes, such as those found at tombs and settlements. These however, generally portray poor knapping skills and are manufactured from local moraine flint (Bakker 1979a, 76; Van Gijn in prep.). In other parts of Europe the transportation of large quantities of raw material did take place. In the Polish region of Kujavia for example 42-85% of the flint found at the settlements, was chocolate flint, the source of which was located over 200 km away. The presence of this high quality flint in Poland is reflected by a predominantly blade technology. Although the average length of these blades is 17,4 cm some examples may reach 30 cm in length (Midgley 1992, 240-241). For the Netherlands it can thus be concluded that the primary source of raw material was local moraine flint and the high quality axes were imported pieces from the north-group.

Besides high quality axes from the north group *Flachbeile* were also exchanged within the west-group. Lydite axes are manufactured in the region of the German *Wiehengebirge* and are found throughout the TRB west-group (Bakker 1979a, 83-84; Brandt 1967). Until now no lydite axes have been reported from the Netherlands, although Bakker (1979a, 84) did state that they should be expected here. However one lydite axe appeared to be present in the collection of the National Museum of Antiquities, which was retrieved during the 1912 excavations of tomb D19.

Another source of raw material was located on the small island or peninsula of Helgoland. This is the source of the bright red flint that is on occasion encountered in the Dutch archaeological record. The most famous Helgoland find is without doubt the red axe rough-out of the 1940 Eenerveld deposition. Besides this rough-out the deposition contained some nodules, a partially polished flint axe and one fully polished flint axe, according to Beuker (1986; pers. comm. 2006) all but the latter are also likely to have originated at Helgoland. These however were not produced of the characteristic red flint, but of another flint variety typical for Helgoland. Also manufactured of the red Helgoland flint were some stray find flint axes that could be dated to the

TRB period. These however were all the irregular looking *Flachbeile* that seems to illustrate that they were locally produced by the west-group, something that is supported by the presence of axe production flakes of Helgoland flint in Drenthe (Beuker 1986). Except for the partially polished axe of the 1940 Eenerveld deposition, no finely crafted axes, that are so typical for the north-group, were manufactured of Helgoland flint. Moreover the finds of flint nodules and axe production flakes of Helgoland flint in the Netherlands suggest that this Helgoland flint was exchanged in the form of nodules instead of finished axes. This forms a clear contrast with the northern axes that would have been exchanged as finished tools.

The preference of northern axes

The northern flint in general is well distinguishable from the southern flint sources. Moreover, these northern axes are rectangular in cross-section, which forms a clear and easily recognizable contrast with the oval axes produced in the Atlantic tradition. This rectangular cross-section is also more difficult to produce than the oval axes. The axes retrieved from TRB contexts are virtually exclusively rectangular in cross-section. Although the preference clearly lay with the rectangular northern axes, also some oval axes have been found in TRB contexts. This preference must illustrate a cultural choice and associated with it, a well-established exchange network, since both the northern and the Atlantic axe production centres are located at approximately the same distance (200-300km) from Drenthe. The few oval shaped axes found in Drenthe which can be ascribed to the TRB, seem to illustrate the same use-life as the northern axes. They are located in tombs and appear to be completely worn-down. When these axes are located in datable contexts such as tombs, where they show traces of the same treatment as the accompanying finds, a TRB date may be envisaged. However these oval axes are produced throughout the Neolithic, which therefore makes an attribution to a specific archaeological culture impossible if they are not retrieved from a distinctive context.

Some isolated finds of southern axes are present in the northern Netherlands, but these cannot be positively ascribed to any particular cultural group or period. The fact that these oval axes are never found in TRB multiple object depositions seems to indicate that TRB depositions contained exclusively rectangular axes of a northern origin. However some oval axes were retrieved from waterlogged places that might very well represent intentional depositions. One of the most telling examples was found in Barger-Oosterveen a small town south-east of Emmen (Archis obj.

23AN-13). Here a small oval axe, manufactured of Rijckholt flint, was retrieved from the peat. According to the finder a pit had been dug into the peat, at the bottom of which some boulders were placed. On top of these boulders the axe was placed, the cutting-edge of which had been re-worked. Unfortunately finds like these cannot be ascribed to any particular cultural group and must therefore be left out of the current analysis.

3.5.2 Other links between the north- and west-group

It is usually assumed that there is a strong cultural bond between the TRB north- and west-group, but there are only very few finds that support this. Virtually the only find group that positively links the north- and west-group are the flint axes, that are produced in the north-group. Surprisingly none of the locally manufactured west-group *Flachbeile*, are found north of the Elbe. According to Bakker (1979a, 80) these small irregular *Flachbeile* would have been considered inferior by the north-group, who had access to good quality flint. Perhaps one of the few non-axe finds that could represent a link between the north- and the west-group is a small pottery vessel retrieved from the Dutch tomb D21. Based on typological characteristics it could be stated that the vessel was atypical for west-group pottery and showed strong affiliations with the MN III north-group pottery (Lanting 1983).

Although less certain, another indication of contact could be the small copper objects retrieved from the Dutch tombs. Although in Denmark copper objects, including ornaments and axes, are a well documented find group, they are generally lacking in the Dutch TRB. Although some copper items were retrieved from the Dutch megaliths (tombs D15, D19, D28 and D52a), they are impossible to date since most of the megaliths also contained Bell Beaker material, a cultural group that is usually connected with the first Dutch copper finds. Moreover the Danish copper finds, which date from 3800-3700BC onwards, and the west-group copper finds, are made of different metal alloys, suggesting that they in fact represent two separate phenomena (Midgley 1992, 302). At tomb Emmeln-2 in Germany however, two copper discs were found inside a TRB vessel (Voss 1982, 33). For now we have to accept that the west-group copper objects remain a problematic find category.

Also the occurrence of grinding stones manufactured from so-called Dala-sandstone form a problematic group of finds. Although the primary outcrops of this stone type can be found in central western-Finland, and along the coasts of the Gulf of Bothnia (Van der Lijn 1958, 177), it is unclear whether or not this type of stone has been secondarily transported by the Pleistocene glaciers. If this is the case these

stone sources could possibly be present in the moraine of the Drenthe Plateau. Jet and amber are two materials that occur regularly in the tombs in the form of beads. Again these materials are a bit problematic as both can be found washed up on the Dutch beaches, they however can also represent imported materials.

3.5.3 TRB roads

The alignment of monuments

The distribution of finds and sites are often used to infer possible contact and exchange routes. Although it remains very difficult to reconstruct these routes, there are however some clues to be found. It is sometimes assumed that the TRB megaliths were constructed alongside roads. This can be illustrated by the tombs located between Emmen and Odoorn, which seem placed alongside a straight line (see figure 3.5). Although this is presented as evidence of a prehistoric route (Van Ginkel *et al.* 1999, 112) such an interpretation can be questioned. No doubt any random group of dots will contain some that can be connected by a straight line. Moreover it is more logical to assume that prehistoric routes would be curvy and would follow the natural relief rather than to be straight like a modern motorway. The linearity of the distribution pattern of megalithic tombs may to a large degree be caused by the natural occurrence of large boulders, which could be found on the east-side of two parallel till-ridges on the Drenthe Plateau (Van Ginkel *et al.* 1999, 57). A similar linearity has been noted in Bohuslän, Sweden. Also here it was found that the distribution of tombs revealed a linear pattern that was often assumed to reflect the position of TRB roads. Sjögren (2004, 179) however, convincingly argues that this linearity is caused by the natural ridges and escarpments. Although these arguments do not imply that the distribution of tombs do not reflect prehistoric routes, it does imply that this need not be the case.

For the later periods long alignments of Late Neolithic and Bronze Age barrows form more convincing evidence for the presence of prehistoric roads (Modderman 1955; Jager 1985). Although Bakker (1979b) did study the possibility of reconstructing TRB roads, he did not come up with any conclusive findings. He was not able to draw a map with TRB roads, although he did present some likely general routes of contact. While reconstructing these routes he proceeded from the principle of least effort. He concluded that the most likely routes, those connecting Drenthe with the TRB north-group, would have run either along the coast, following the coastal plains, or the inland route running south of the large bog areas in north-western Germany. Both

of these routes show evidence of TRB activity represented by both sites, including tombs, and stray finds (Bakker 1979b; Beuker 1986).

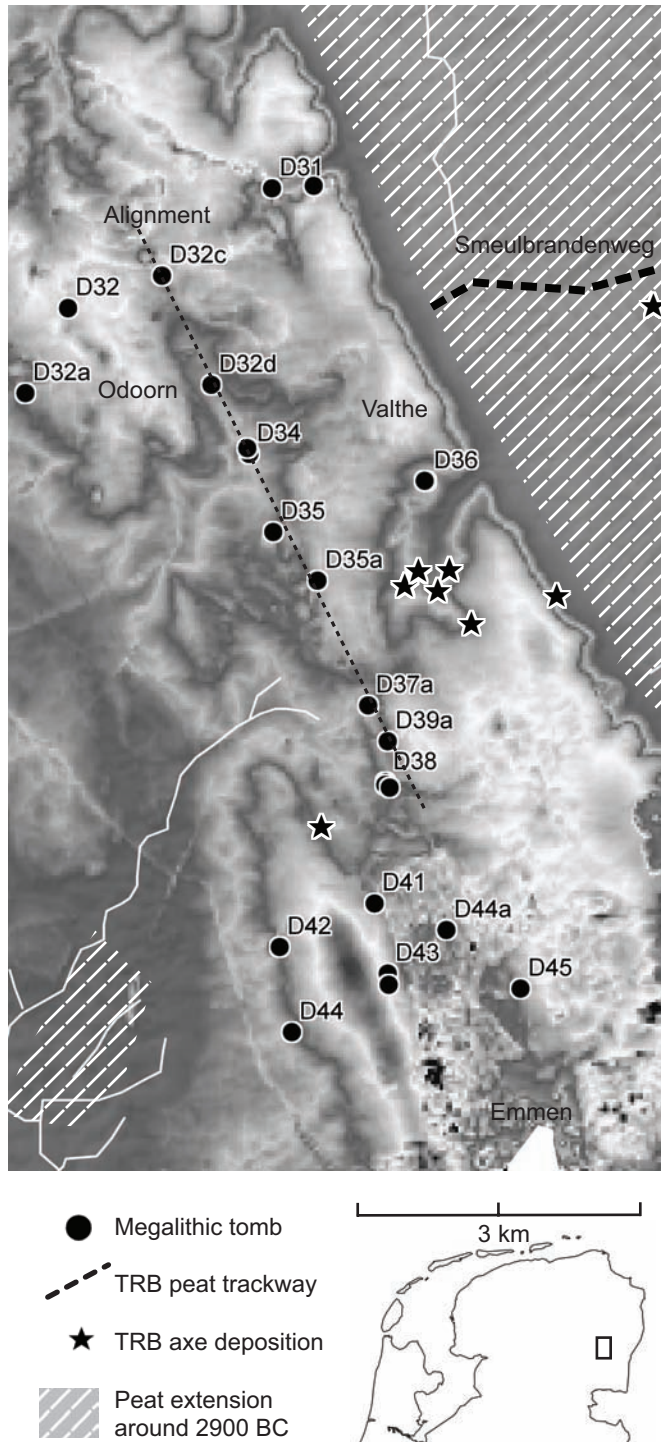


Figure 3.5 Alignment of megalithic tombs between Odoorn and Emmen, note that only the large peat extensions are indicated, most stream valleys would also have been filled in with peat. (after Van Ginkel *et al.* 1999, 112).

Peat-trackways

There is more concrete evidence in the form of peat trackways. Although many trackways were recorded during peat-digging activities, only a few were scientifically excavated. The present record of trackways should be considered a meagre representation of what once was. Unfortunately most of the trackways were discovered and examined before the invention of C14 dating, leaving us with many ambiguous finds. Only two trackways were positively dated to the TRB between 3400-3100 BC (see figure 3.6) (Casparie 2005, 401). These trackways are referred to as the Buinerbrug (XII Bou) and the Smeulbrandenweg (XXIX Bou) (Casparie 1987; Van der Sanden 2002). Eleven trackways still remain undated and probably even more have never been investigated at all, as these may have disappeared during peat-cutting.

The two peat trackways that could be dated to the TRB were both investigated before the invention of C14 dating. The Smeulbrandenweg was long thought to be a northern sub-path of the famous Iron Age Valtherbrug, which was believed to have crossed the Bourtanger Moor over a distance of over 12 km (Casparie 1987). Recently however, a piece of wood was discovered belonging to the Smeulbrandenweg, which came from the collection of a local collector. Since no wood had been sampled during the official archaeological investigation by Van Giffen in 1936, this piece of wood provided the only clue as to the exact date of the trackway. Dendro-chronological research combined with C14 dating revealed a date of approximately 3300 BC (Van der Sanden 2002, 105). Also no wood had been preserved from the Buinerbrug, therefore a test pit was dug in order to retrieve some of the wood remains. Although the condition of the wood was very poor, it did provide a date that unambiguously placed this trackway in the TRB period (Van der Sanden 2002, 108).

The question that now remains concerns the function of these trackways. The Buinerbrug was constructed of transversely laid roundwood and is known to have extended over a length of at least 800 m. Casparie (1987) deduced from the excavation documentation that the side-branches were only roughly cut off. This would have made it very difficult to use the trackway. There were no finds documented during the excavation, nor were there any finds retrieved from the immediate vicinity of the trackway. It seems to have run from a fluvial ridge over a distance of about 800 metres to end at the small stream the Achterste Diep (Casparie 1987, 40). The other recently identified TRB trackway is believed to have extended over a length of at least 4 km. It began at the Hondsrug between Valthe and Exloo and ended near a small stream called the Vledderdiep. At neither of the trackways finds were reported that might indicate a ceremonial func-

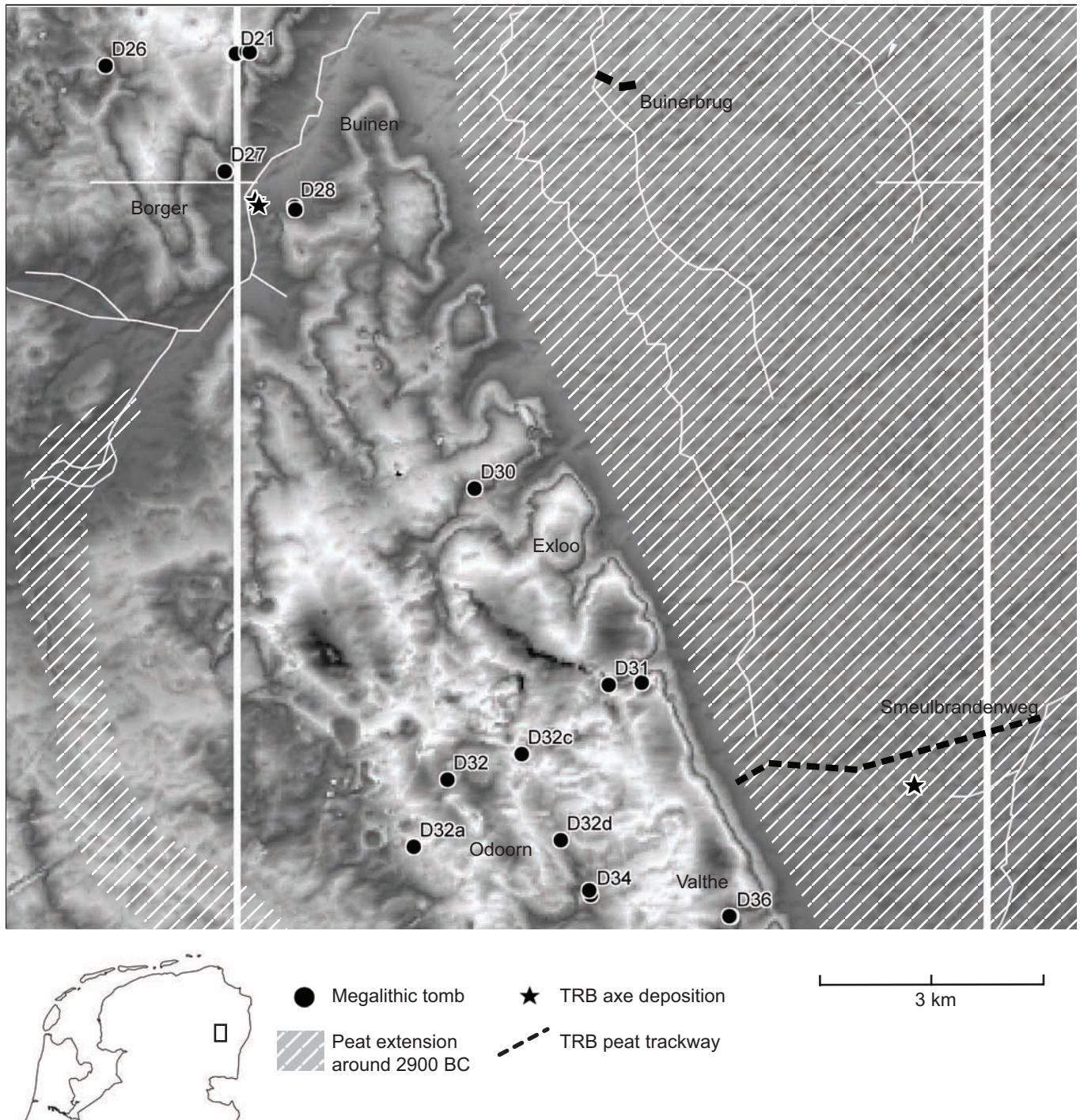


Figure 3.6 Location of TRB peat trackways to the north of Emmen, note that only the large peat extensions are indicated, most stream valleys would also have been filled in with peat.

tion. However the deposition of Valtherveen containing three flint axes and a huge flint nodule seems to have been found approximately halfway down the Smeulbrandenweg. The find location of this deposition, however, is far too imprecise to positively link the two phenomena.

The most commonly envisaged functions of peat trackways have either to do with transportation or with the performance of rituals resulting in depositions of some sort. Although the deposition of Valtherveen may have been associated with the Smeulbrandenweg there is no way to positively infer this. Although neither of the trackways seem to have crossed the Bourtanger Moor, both of them did end at a stream, perhaps a point from which transportation via water was more convenient. Unfortunately there does not seem to be a whole lot of evidence to support either of the theories. With respect to the possible function of these trackways as means of transportation we must keep in mind that the peat bogs had not yet reached their maximum expansion. Although the trackways did not cross the entire Bourtanger Moor, some peat covered isthmuses were still passable (Bakker 1979b, 67). Perhaps the trackways served to only bridge some impenetrable parts of the bog.

Both functional and ritual explanations have some argument in their favour, however in both cases these are rather poor since so little archaeological evidence is present to support either of them. Moreover it is highly plausible that both ritual and functional actions were elements of the use of the same structure. No doubt the trackways had something to do with the movement of people through the landscape. At the same time concepts associated with movement (e.g. mobility, contact, exchange) are closely related to more ritual and ceremonial concepts associated with the cosmology of people (see Helms 1988). Following Bradley (2005) we should therefore not try to isolate any one interpretation in our data, but must envisage that both concepts would probably have been intimately intertwined. With regard to the question of TRB road reconstruction we must be very critical. Although there are finds that suggest well established exchange networks within the TRB, physical evidence as to the presence of actual roads, paths or trackways is lacking.

3.6 TRB rituals

3.6.1 Introduction

Throughout the TRB period all sorts of “ritual” behaviour is recorded. The majority of this is reflected by depositions of finely crafted objects in wet places, the construction of causewayed enclosures and the enigmatic finds of animal, but above all, human remains in waterlogged places. It

goes without saying that the depositional practices that are described in this thesis must be interpreted in context of the entire range of “ritual” practices. As mentioned in chapter 2, problematic in this context is the definition of what actually constitutes a ritual and moreover how can ritual practices be recognized by archaeologists? Bradley (2005) recently argued for the abandonment of the distinction between ritual and domestic spheres. These modern categories do not necessarily apply to prehistoric notions. Moreover he rightly argues that there does not need to be a rigid distinction between ritual and non-ritual activities. Following Bradley it would be wrong to use the title “TRB rituals” for this paragraph as it implies that the data presented in the preceding sections are not ritually related. Although I do not want to deny their ritual potential there are however some categories of finds that have traditionally been interpreted as being of a ritual character. It is the aim of this section to present an overview of these categories.

3.6.2 Depositions

The origin of depositions

The practice of depositing objects was not a Neolithic invention, its origins must be placed as early as the Mesolithic. The earliest intentional depositions known in the Netherlands were pottery vessels that were buried in pits together with pieces of antler, bone and wood at the Late Mesolithic site De Bruin at Hardinxveld-Giessendam (Louwe Kooijmans 2001, 512). Although some other Late Mesolithic/Early Neolithic finds are known that could be interpreted as intentional depositions, these are still a subject of debate (pottery vessel and red-deer antler from Bronneger (Louwe Kooijmans 2001, 112), three clusters of flint at Hoge Vaart (Hogestijn & Peeters 2001, 41)). The main problem here is that so far there is a lack of patterning. All observations that may indicate Mesolithic depositions seem unique events that can be explained in numerous ways both in terms of ritual or profane behaviour.

The archaeological record in southern Scandinavia however contains more evidence for Mesolithic depositions. Tilley (1996) has summarized the evidence for the Ertebølle and Lihult populations. In the Late Mesolithic there is a growing amount of evidence indicating the significance of bogs as places for depositions. In Lolland and Zealand these can be found in the form of whole elk skeletons, highly decorated antler and bone artefacts (which are often absent from domestic sites (Tilley 1996, 46)), possibly limited numbers of pots and flint, stone and bone axes. All of these objects were recovered from bogs (Tilley 1996, 68). In

some cases these were the same bogs in which, during the Neolithic, polished flint axes were deposited. The excavations of the Hindby bog in south-west Skåne revealed besides numerous Neolithic axe depositions, also three Ertebølle axe depositions (Tilley 1996, 110). Although I do not intend to plead for a historical continuity, as Tilley did when comparing the Mesolithic and Neolithic depositional practices, I do think one should keep both in mind during a study of either. The evidence does suggest that already in the Mesolithic bogs were attributed a special significance.

Axe depositions

The most often encountered objects recovered from the bogs concern stone and in particular flint axes. Although there is a reasonable number of flint axes retrieved from the Dutch bogs, the Danish records outnumber the Dutch record by far. For the Netherlands both multiple object depositions and single object depositions combined contained somewhere in the order of 60 axes dating to the TRB period. In Denmark this number is surpassed in one single deposition. This deposition, which is the largest in Denmark, has been found at Knud in southern Jutland. Three different piles of carefully placed axes were found deposited with short intervals between them around 2900 BC. Combined, these three piles contained a total of 99 axe blades and chisels (Ebbesen 1993, 124). This deposition however is exceptional even for Scandinavian standards, as most depositions tend to comprise between two and four axes (Midgley 1992, 281).

It is rather difficult to get a comprehensive picture of the total number of axes and depositions found in Denmark since most researchers limit themselves to particular areas or periods and each has a rather personal set of criteria as to what constitutes a deposition. Karsten (1994, in Tilley 1996, 289) made an inventory of Danish axe depositions and documented a total of 444 single finds and 155 depositions which he considers to have a ritual character. In this study however, only axes dating from the Danish Early Neolithic up to the Middle Neolithic II (ca. 4000-3000 BC) are included. For the contextual analysis Karsten distinguished between the different types of axes, which were dealt with separately. However it is sufficient to conclude that the vast majority of depositions came from wet contexts. Of the finds that came from dry contexts a large proportion lay associated with large stones (Karsten 1994, in Tilley 1996, 289). This practice of placing axes near large boulders has been documented throughout Denmark and Skåne (Rech 1979). Finds are documented to be found underneath stones, placed next to them, and sometimes arranged in semicircular patterns around

them. It is suggested that these large stones would have acted as natural “menhirs” (Tilley 1996, 290).

Whether placed in bogs or near large stones, the axes appear to be carefully arranged (Rech 1979, 15). They clearly were not randomly tossed away. The careful arrangement of these axes suggests that the act of deposition was a very conscious and meaningful one. Although depositions are found in virtually all types of wetland contexts, according to Malmer (2002, 39) there does seem to be a preference for association with running water. The fact that axes tend to be found close to the surface of the bog, generally at a depth of less than 1 m, indicates that they were deposited at or very close to the edge of the peat.

The densest concentrations of axe depositions in southern Scandinavia overlap with the distribution of megalithic tombs (Tilley 1996, 290). Ebbesen (1982, in Midgley 1992, 282) showed that half of the depositions were found within a distance of 500-1500 m from the nearest megalith. This suggests that each social unit structured their surrounding landscape and assigned within it places where tombs should be constructed as well as places where it was appropriate to deposit objects. In this way a separation between the two, as well as a connection between the two was brought about. The same pattern can be observed in the Netherlands but this will be discussed in detail below.

The axes deposited in bogs often appear to be unused. This can be substantiated by comparing the average length of axes from depositions with axes retrieved from settlements. Olausson (1983) showed for southern Scandinavia that axes from settlements have an average length of 15,2 cm whereas axes from depositions are on average 25,8 cm in length. Although many depositions contain unpolished specimens, over half of the axes have been fully polished (Midgley 1992, 281). They rarely show any traces of wear or damage that can be attributed to usage. These observations concerning the usage of axes, however, are not based on high-power microscopy. It is striking that although the axes in depositions often portray different stages of production, different types of axes are rarely found in one deposition (Midgley 1992, 281). The finds of axe depositions are most common and largest in those parts of Denmark where natural flint is easily accessible. Moreover depositions comprised solely of axe blanks are only found close to potential production centres (Ebbesen 1993, 124).

Bog pots

Bakker and Van der Sanden (1995) made an inventory of all Dutch TRB vessels that were retrieved from the bogs. Unfortunately it appeared that during the peat reclamation

of the late 19th and early 20th century pottery finds had not received much attention as only five pots are known to have come from the bogs. These vessels however conformed to the patterns known from southern Scandinavia. In Germany only one TRB vessel is known to be deposited alongside three unpolished axes, found near Wanhöden (Bakker & Van der Sanden 1995, 132).

In order to learn more about the characteristics of the pottery depositions we once again have to rely on southern Scandinavia. The German and Dutch record combined yielded but six vessels. Koch (1998; 1999) made an inventory of the Danish bog pots and her analysis alone comprised 700 vessels from 253 find spots from 100 wet areas. Pottery vessels placed in wetland areas date primarily to the TRB, although some Ertebølle pots are also known to have been deposited in these contexts (Koch 1998, 15). There is however a difference between the two, since TRB vessels seem to have been deposited away from settlements, in a "natural" environment, whereas the Ertebølle pots usually occur in connection with settlement debris (Koch 1998, 15).

The Neolithic bog pots were not deposited completely isolated in the natural landscape. They are often found within 400-800 m of a megalithic grave and in many cases contemporary settlements are only 500 m away. This suggests that the TRB people of Denmark had their offering places close to the places where they lived and where they buried their dead (Koch 1999, 125-127).

The majority of finds concern single pottery vessels without accompanying finds. Most of these pots were found empty, however in some instances the presence of residue proved that these pots had contained foodstuffs. In only one case these remains were preserved and have been identified. One Danish pot (Jordløse IX) contained burnt and unburnt bones of two pikes, one tench, one duck, one beaver and remains of eggshells (Tilley 1996, 100). These results were not unexpected since the ceramic vessels found in bogs are typically complete used vessels, showing traces of use as cooking pots (Koch 1999, 127).

Association of axes and pots

In some cases bog pots are accompanied by other materials such as stone or flint axes, objects made of wood, bone, amber, plaited nets, animal or even human bones (Bakker & Van der Sanden 1995, 133). Interestingly the find of axes combined with pottery is very rare. Finds of many axes together typically concern only unused and sometimes even unpolished axes. When axes are combined with pottery, these are always worn, but still usable axes (Bakker 1959, 93; Koch 1999, 128).

The unused axes typically found in axe depositions are thus kept separate from pottery vessels. This is not only reflected in the absence of these items in the same depositions, they are also placed in spatially distinct places. Axes are always deposited at the edge of the peat, whereas pots seem to have been placed in or near open water (Bakker & Van der Sanden 1995, 133; Ebbesen 1993, 123). Pottery finds in bogs mostly occur about 2 m under the bog's surface, indicating that they were placed or thrown into open water (Tilley 1996, 99). Sometimes platforms were erected to facilitate access to the places where pots were deposited (Ebbesen 1993, 123). A good description of such a platform is provided by Koch (1999):

'The best described platform was found in 1893, located at Veggerslev on Djursland, Jutland. The finding-place is a stretch of bogs and wet meadows, 400-500 m wide and running NE-SW. The wooden platform was lying crosswise to this, but could only be followed over about 50 m, even though the excavator Daniel Bruun searched thoroughly for a continuation, to check whether it had been a road, or just a platform. He had to conclude that it had been a platform. It was about 10 x 50 m, constructed by rammed down poles, on which dispersed horizontal branches and trunks rested, lying in the same direction as the whole structure. Upon these, crosswise to the structure, was placed a compact layer of branches and trunks, and on top again dispersed trunks and branches, placed in the same direction as the structure. On and around the wooden platform seven vessels from the early middle neolithic TRB were lying, together with five thin-butted flint axes and a flint chisel. Several other offerings of Neolithic origin come from the same bog, but further away.' (Koch 1999, 127)

Chronology of pottery and axe depositions

The depositing of pottery vessels mostly occurs in the Danish Early and Middle Neolithic between 4000-3000 BC. As mentioned above, after 3000 BC pottery ceases to be deposited in graves and is replaced by flint tools. The same pattern can be observed in pottery being deposited in wet environments. At some bogs where objects have been deposited over a long period of time it can be observed that after 3000 BC the depositing of pottery vessels radically declines to be replaced by depositions of stone and flint axes, chisels and battle axes (Midgley 1992, 457). These changes in the use of pottery as object of deposition is reflected in the other materials that ended up in bogs. The peak of both pottery and axe depositions is reached at the end of the Danish Early

Neolithic around 3500 BC, the same time as large numbers of dolmen and passage graves began to be built (Tilley 1996, 100, 285). Compared to the Early Neolithic, there are relatively few axe depositions dated to the Middle Neolithic between 3500-3000. During this period it seems that it was pottery rather than axes that constituted the most important items to be placed in bogs. In some areas, such as Jutland, axes appear once more in depositions towards the end of the Middle Neolithic after 3000 BC (Tilley 1996, 273).

Bog bodies

Although the practice of depositing objects in waterlogged places already existed in the Mesolithic, it was in the Neolithic that this phenomenon developed into a well-defined practice. In the Scandinavian Early Neolithic between 4000-3500 BC in particular, a broad spectrum of intentional depositions in bogs is recorded, including human sacrifices, finds of pottery, axes and disarticulated human and animal bones (Tilley 1996, 97). Human bones of a minimum number of 150 individuals have been found in bogs, at least some of whom died through strangulation, which is indicated by the presence of rope around their necks (Koch 1999, 128). These remarkable bog-finds are usually interpreted as sacrifices, something that could be substantiated by the often-encountered traces of violent deaths. Besides remains of ropes, indicating strangulations, another cause of death is represented by one adult male from Porsmose, whose remains contained two flint arrowheads. One was found in his skull, the other in the sternum, the upper breastbone (Bennike 1999, 29). Among the unfortunate individuals are men and women of all ages including children (Tilley 1996, 99). Interestingly enough however, is the fact that individuals in the age-group of 16-20 years are more highly represented (37% in bogs whereas only 11% of this age-group is found in graves) (Bennike 1999, 29).

Koch argued that not all human remains in bogs need to represent sacrifices. She illustrated her point by the example of the dug-out canoe, found in the Øgarde-complex. Near the canoe, the skeleton of a man was found, possibly washed out of the boat. C14 datings made it reasonable to connect the two finds, which may represent a particular burial practice (Koch 1999, 130). Many remains however showed clear signs of violence suggesting that these people's lives were intentionally terminated. Fascinating in this respect are 19 Early Neolithic skulls from Denmark that showed strange lesions. These were interpreted as trepanations, suggesting that these people underwent surgical treatment (Bennike 1999, 31). Their function was probably to smooth splintered bone and to remove bone fragments after the skull had been

fractured due to an injury (Christensen 2004, 138). Since most of these trepanations were found on the left side of male skulls, it is suggested that these individuals had injuries inflicted on them during battle (Bennike 1985, 98; 1999, 31). There were, however, also human remains that showed signs of other lesions, suggesting that the body was cut up before deposition. Other collections of disarticulated human bones indicated that skeletal parts were deposited in the bogs after the flesh had been removed or rotted (Tilley 1996, 99; Bennike 1999, 29). Tilley summarized the most telling examples, which justifies quotation:

'A skeleton from the Føllenslev bog showed clear traces of being chopped up before the flesh had decayed. The legs and lower arms were removed. At Sigersdal Mose in northern Zealand two human skeletons, both possibly female, one aged between eighteen and twenty, the other around sixteen were discovered 5 m apart. The older woman had a cord around her neck which had been used to strangle her. She had been deposited in the bog in a flexed position with the legs drawn up around the chest. These human remains were associated with a large undecorated lugged pot, cow's skull, three lower jaws of young cattle, the lower jaw of a roe deer and part of a pond tortoise [...].' (Tilley 1996, 99)

Humans, animals and objects

Often human remains are interpreted as sacrifices and animal bones as remains of sacrificial meals. The evidence suggests however that such a rigid distinction need not always be the case. This can be illustrated by the finds retrieved from the Gammellund bog near Troldebjerg on Langeland. Among many other finds, the skull of a 35-50 year old woman was retrieved who had been killed by a blow to the head. In the same bog also ox skulls were found that showed traces of blows to the head (Tilley 1996, 101). Both the oxen and the woman appeared to have been delivered the same injury. Although some animal remains, especially those associated with pottery vessels should probably be interpreted as remains of food-offerings, we should keep in mind that animals and humans may both have been treated in the same manner. Although some animal remains would have represented food, Neolithic human bones are never split or marked in other ways that suggest cannibalism (Koch 1999, 129). Diverse as the evidence may be, it does seem that at least in some cases the lives of individuals were intentionally ended after which they were deposited in bogs. These included apparently healthy individuals, persons with pathologies related to sickness or accidents, or people who had already

been injured, possibly during battle (Bennike 1999). In a way these human sacrifices do not seem comparable with the depositions of pottery and flint tools in bogs. In recent literature, however, it is often postulated that objects can be considered as “living” entities too (Cooney 2000; Fontijn 2002; Brück 2001, Fowler 2004). The deposition of these objects in bogs can therefore be considered as the termination of their “lives”, potentially very much analogous to what happened to these humans and animals.

Although some bog-bodies are known in the Netherlands, none of them can be dated to the TRB period. However, historical sources indicate that between the 17th and 19th century on occasion human and animal remains were encountered during peat reclamation (Bergen *et al.* 2002, 20). Since these finds were lost before they could be scientifically examined a TRB date cannot be excluded. However the Drents Museum does have a collection of 116 cattle horns retrieved from the bogs that were probably intentionally deposited. Only fourteen of these horns were subjected to C14 dating revealing that three of those dated to the TRB period (Prummel & Van der Sanden 1995). Although this indicates that animal remains, namely horns, were deposited in bogs during the TRB period, the number of horn depositions is too low to reveal any patterns that can be subjected to interpretation. More data is needed in order to try to extrapolate patterns which will shed light on the nature of these depositions

Miscellaneous depositions

The greatest number of objects retrieved from bogs concern axes, and pottery vessels. Other objects however, are also encountered although at a much lower frequency. In the TRB east-group every now and then collections of good-quality blades and sickles occur in waterlogged places. A number of depositions in Mecklenburg, Germany, contained, besides axes, chisels and blades (Midgley 1992, 281). In southern Scandinavia amber beads are encountered as part of multiple object depositions in combination with flint or stone axes, but these finds tend to be exceptional (Midgley 1992, 281). More numerous are depositions of amber either without accompanying objects or in combination with a pottery vessel. These depositions can contain just raw amber, half-made beads, new beads and worn beads as well as fragments of old broken beads (Ebbesen 1993, 123). Although graves in Jutland do not generally contain more than 100 amber beads per burial, the depositions in bogs often contained many more than that. The amber find from Laesten consisted of over 4.000 beads weighing a total of 8,5 kg, while at Mollerup 13.000 beads were found in one

deposition (Midgley 1992, 291). As is the case with flint axes, amber too seems to represent a material that was highly valued by the TRB and was widely exchanged. The find of an enormous stock containing 400-500 kg of raw amber in the Polish TRB settlement near Wroclaw, is interpreted as indicative of the importance of amber as a trading commodity (Midgley 1992, 291).

Depositions in dry places

By far the largest group of finds, generally interpreted to represent ritual behaviour, are the depositions found in waterlogged places. Besides depositions in wet contexts there are also a number of other contexts in which objects are deposited. Evidence of intentional deposition has also been found in several settlement sites (Bradley 2005; Tilley 1996, 291), as well as the deposited axes that were associated with large boulders which may form natural “menhirs” in the landscape (Midgley 1992, 282; Tilley 1996, 290). As far as settlements are concerned, Bradley (2005, 130) describes two TRB sites of Skumparberget and Skogsmossen in eastern Sweden. Here all sorts of depositions containing pottery and stone and flint tools are observed in pits and postholes throughout the sites. Tilley (1996, 291) also lists several settlement sites where intentional depositions of artefacts have been encountered in pits and postholes. One of the examples cited by him comes from the site of Troldebjerg on Langeland. Here parts of a small beaker and a flint axe, placed with the cutting-edge upwards, were found in a pit next to a house foundation. A different kind of depositional practice in dry context occurred in south-east Skåne at the site of Svartskylle. Here on the crown of a prominent hill, surrounded by boggy areas, lay a large surface collection of hundreds of fire-damaged flint axes. As neither settlement debris nor graves were found in the vicinity it appears that this location was solely used for the destruction of flint axes by fire (Bradley 2005, 137; Tilley 1996, 291). The depositional practices associated with megaliths and causewayed enclosures are presented in sections 3.4.2 and 3.6.3 respectively.

Conclusion

Although the different types of depositions are only superficially dealt with here, it is clear that there are patterns. For each type of deposition, specific places were selected and the objects comprising a deposition were carefully selected and arranged. This all indicates that the practice of placing objects in waterlogged places, as well as in other places, was considered to be meaningful and important by the TRB people. These finds do not reflect illogical or irrational beha-

viour, but rather the opposite. These acts were very meaningful and highly structured, according to the rules of these past people's world-view.

3.6.3 Causewayed enclosures

Contemporary with the construction of the megalithic tombs in southern Scandinavia, between 3500-3200 BC, causewayed enclosures were built (Svensson 2002, 29). These sites consist of multiple interrupted ditches, sometimes accompanied by palisades on the inside of the ditches. The enclosures can cover extensive areas (c. 1,6-20 ha) and are predominantly located on low promontories at valley bottoms, surrounded on two or three sides by rivers, streams or bogs (Svensson 2002, 20; Tilley 1996, 279-280). Midgley (1992, 342) lists the following elements to be generally present at causewayed enclosures.

- Ditch segments that are separated by causeways, which either cut off a promontory or outline the perimeter of the site.
- Ditches that form either single or double rows, sometimes even more.
- Individual ditch segments, sometimes appearing to have been fenced or surrounded by arrangements of posts.
- At a number of sites the ditches are accompanied by timber palisades, either set in the trench or free standing.
- Most sites, but not all, appear to have been relatively simply laid out.
- In the inside of the enclosure postholes and offering pits can be found.

The ditches usually contain large numbers of finds including pottery, animal bones, flint tools and axes. These objects are sometimes placed on areas of stone paving or are associated with fire. The ditches seem to have been filled in with soil after depositions had taken place, sometimes to be opened up at a later time for additional depositions (Tilley 1996, 280). Due to the nature of their layout and the finds associated with them, they are generally interpreted as some sort of ritual centres.

At present this type of enclosed site seems to be mostly confined to the northern TRB group. However several sites were initially interpreted as settlements with defensive structures, only later to be re-interpreted as being cause-

wayed enclosures (Midgley 1992, 421). Potentially this may lead to the discovery of similar sites elsewhere in Europe. In the Netherlands there is one site that should be mentioned in this respect. The nature of this enclosed site, located on the Drenthe Plateau near Anloo, is still debated. The site has continually been presented as either a cattle kraal or a settlement (Waterbolk 1960; Bakker 1979a; Voss 1982). Although Van Ginkel, Jager & Van der Sanden (1999, 96) proposed that the site could be causewayed enclosure. In the 2005 book on Dutch Prehistory it was once again described by Bakels & Zeiler (2005, 322) as representing a cattle kraal and in the same publication Van Gijn & Bakker (2005, 287) referred to it as a settlement site.

The enclosure, which is completely excavated, consists of 2-3 double interrupted ditches surrounding an area of approximately 70 x 100 m (see figure 3.7, also see figure 6.2). No domestic structures were observed at the site, but there were palisades and pits that contained depositions (Van Ginkel *et al.* 1999, 96). At one of the pits for example a complete quern was retrieved, both the mano and metate. Settlements and kraals would represent categories of sites closely connected with domestic subsistence activities. It would therefore be logical to assume that such sites would be regularly encountered phenomena. However, at present this site remains unique in the Netherlands. Since this site seems to conform to all characteristics described for cause-

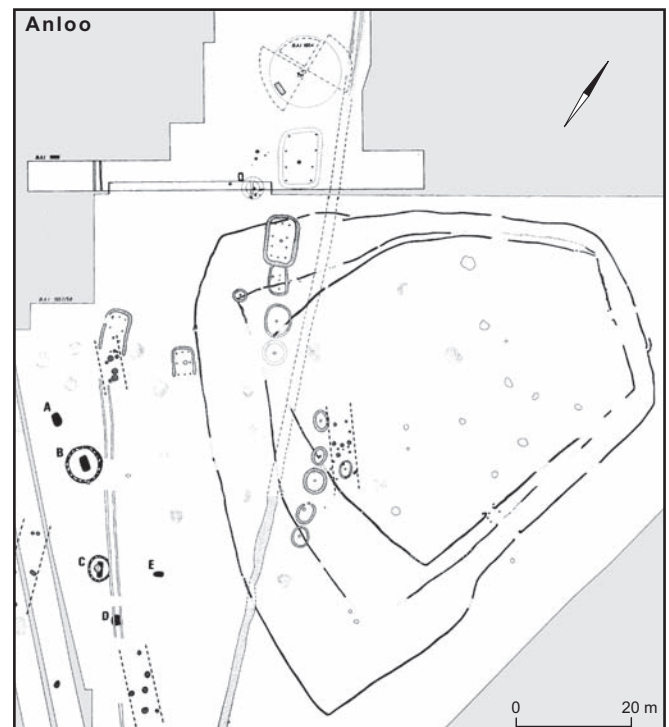


Figure 3.7 The enclosure of Anloo (Van Gijn & Bakker 2005, 288).

wayed enclosures by Midgley, it is my opinion that this is the most logical interpretation. Irrespective of which interpretation is chosen, the fact remains that this site is unique in the Netherlands. In order to learn more about the nature of causewayed enclosures and the activities that take place here, we should for now focus our attention on southern Scandinavia.

One of the most archaeologically visible activities taking place at the enclosures is the digging of the ditches. Whereas megalithic tombs were built to last and to defy time, the ditches, so elemental to the outline of the enclosures, are almost immediately backfilled. This can be inferred from the fact that on many of the sites evidence of natural silt-ing-up of ditches is lacking (Midgley 1992, 345). Before the ditches were backfilled artefacts were often deposited in them, mainly pots and flint tools including axes but also oyster shells and remains of burnt human and animal bone are often encountered. The objects were either placed directly in the ditch or placed on areas of stone paving (Tilley 1996, 279). After the ditches were filled in with the soil that had originally been dug out of them, they were often opened up again to receive further depositions (Midgley 1992, 345; Tilley 1996, 280; Holten 2000, 293). The depositions that occur in wet places usually concern objects that are carefully selected and arranged, here however, we find a different kind of deposition. The contents of the ditches often portray a rather heterogeneous range of activities. It seems as if the material residues of certain activities ended up in these trenches, not carefully selected and arranged objects. For this reason these enclosures are often connected with ritual feasting. Only rarely are specific depositions encountered such as dog skulls or human jaws that were placed in ditches (Midgley 1992, 345).

At Sarup a two-phased enclosure has been excavated. It is however assumed based on the refilling of the ditches and the inward slanting of the fences that both phases were only in use for a few months (Tilley 1996, 283). The enclosures thus seem to have existed only during the period activities took place, to be abandoned afterwards. Besides digging ditches, setting posts and depositing objects, other activities also took place at the enclosures. At at least a few enclosures there is evidence of pottery production at the site. At Hevringholm on the Djursland peninsula a pit was found that had been used for firing pottery (Midgley 1992, 345). Besides making pottery, fire itself also seems to have played an important role. Many of the objects and bones deposited had been burnt and often traces of lighting fires are encountered (Midgley 1992, 345).

The analysis of the pottery found at the Sarup enclosure revealed the presence of different regional styles. Whereas megalithic tombs usually contain a distinctive style of pottery, the pottery excavated at Sarup seems to include several of these styles. This suggests that the enclosure was used by several groups that individually used different megalithic tombs. If we assume that one family or clan used a megalith, this could suggest that several families or clans together were involved in the activities taking place at the enclosures (Andersen 1997, 100).

3.6.4 Tombs, enclosures and natural places

When compared with tombs and wet context depositions, the enclosures occupy an interesting place. Megaliths were built to last, they form *permanent locations* where human remains accumulate and objects are deposited. The important aspects of these places are continuity and stability. Wetland depositions are not bound to specific places, but rather to specific concepts of places. It is bogs in general that are selected for depositing objects not a particular location in the bog. The important aspects of these depositions seem to be predominantly focussed on the *objects* that are deposited, as they are carefully selected and arranged. The causewayed enclosures however were not built to last nor were they the arena of specific objects deposition. The important thing of the enclosures seems to have been the *activities* taking place. The importance of objects or location itself seen in tombs and in wetland depositions, seems to play an inferior role at the enclosures. Tilley (1996, 284) rightly points out that 'the important feature of these sites seems to have been more the process of their construction and the deposition of artefacts inside and outside them rather than that they should last.' Midgley (1992, 345) also notices that 'the digging of the ditches appears to have been particularly important itself.' Although tombs, wetland depositions and enclosures all contain some of the same elements such as object deposition, specification of place and the activities that subsequently take place, they all seem to constitute a different niche. The fact that there are recurrent themes in all three phenomena can be explained by the presence of a certain cultural/ritual logic or material language. However, irrespective of the similarities, all three phenomena seem to emphasise different elements. Different elements that are ultimately connected with each other through the minds of the acting people, they are all parts of the same world-view.

4.1 Typology and chronology

Over the years a vast body of literature has been published concerned with the typology of TRB flint axes (see Becker 1957; 1973; Brandt 1967; Nielsen 1977; 1979). Seeing as different researchers used different variables, a selection was made for the current thesis. A distinction has been made between seven types of flint axe (for the determining criteria of the types used see appendix 2).

The most basic distinction that was made concerned the separation of the imported axes from the locally produced *Flachbeile* (Brandt 1967, 102-108). As was described in section 3.5, the latter are small (<15 cm) irregular axes, produced from the local moraine flint. These occur in the entire region west of the Elbe. Although these axes would have constituted a very important tool for the TRB people, this group does present us with some problems. In addition to the TRB, this type of axe was also used by the subsequent SGC and probably also by the Bell Beaker Culture (Bakker 1979a, 83-84). As long as they are not found in a secure context, they can therefore not be used in the analysis. The only axes that can be attributed to the TRB, based on physical properties of the axes themselves, are the large (>15 cm) imported pieces (see section 3.5). Many of the imported axes came from multiple object depositions or supposedly single object depositions and were retrieved in mint condition. These axes were very well suitable for typological determination. However, there were also some axes that were completely worn-down, reworked and resharpened. Although these would usually be interpreted as *Flachbeile* on some occasions very regularly worked facets were still present to indicate that these axes had once been large imported objects and not locally manufactured pieces. As these axes were exchanged, used, resharpened, got damaged and were reworked, their original form was substantially altered. For this reason, this group of axes could often not be positively assigned to any of the types.

The imported axes can be divided into two main groups based on the thickness of the axe blade. The thin-bladed axes have a maximum thickness less than 2 cm, whereas the thick-bladed axes have a maximum thickness of more than 2 cm (see Bakker 1979a, 82). The thin-bladed axes occur rarely in the Netherlands and are not believed to date to a specific phase within the TRB. The vast majority of imported flint axes are thick-bladed specimens. The subdivision of the thick-bladed axe is largely based on the form of the butt. The

chronologically early types are referred to as the thin-butted axes. With these axes the butt-end is of a similar shape to the cutting edge, making them more or less symmetrical when looked at from the side. There are two types of thin-butted axes, referred to as “Old Type” and “Blandebjerg”. The “Old type” axe has a sharp, fully polished butt, whereas the “Blandebjerg” axe has a slightly thicker butt with unpolished side-facets. The other subtype is thick-butted and can be subdivided in the types “Bundø”, “Lindø” and “Valby” depending on the width-thickness ratio of the butt (butt-index). The Valby type is the youngest, dating to the end of the TRB and the beginning of the SGC. For these types the thickness of the butt increases relative to the width of the butt, until the cross-section of the butt approaches a square.

For a long time it was supposed that the different thick-bladed axe types dated to particular periods within the TRB, much like the typo-chronology of pottery. This view has however been abandoned. It appears that the different types of thin-butted axes are not associated with a particular period but rather to particular subgroups within the north-group. The different TRB axe-types thus no longer seem to indicate different periods but are now seen to represent separate TRB groups known as Oxie, Volling and Svaleklint. These were all roughly contemporaneous and geographically distinct (Midgley 1992, 266). As far as the thick-bladed axes are concerned there does seem to be a chronological component present. However this is not as typical and distinct as was once believed. There only appears to be a general tendency for the butt to become thicker and more square-shaped (Midgley 1992, 273). This does indicate that the thin-butted axes represent the early TRB culture whereas the thick-butted types, such as Lindø and Valby, represent the final stages of the TRB period. The thick-butted Bundø type occurs only rarely and it is suggested that in fact it is not really

thin-butted	Old type	20	
	Blandebjerg	15	
	<i>total</i>		35
thick-butted	Bundø	4	
	Lindø	12	
	Valby	6	
	<i>total</i>		22
<i>total</i>			57

Table 4.1 Numbers of axes assigned to a specific type.

a type recognized by TRB people, but rather a transitional form between the Blandebjerg and Lindø type axes. The chronological differences however only represent a general trend and certainly not an absolute typo-chronology.

Only a relatively small proportion of the axes in this study could be assigned to a specific type. Many of the axes are only known from literary sources in which no typological information is included. Moreover not all axes in the museum collections were described in great detail as research time was mostly devoted to record and examine specimens that came from secure contexts. As was argued above the only axe type that can be linked to chronology is the thick-bladed axe. Although the several subtypes are hardly indicative of a specific period, they can be used to portray a general chronological trend. Moreover the axes found in the Netherlands had to travel at least 200-400 km to reach their final destinations. As gift-exchange is the most commonly accepted mechanism for the circulation of objects, it is possible that axes would only have reached the Netherlands after a considerable period of time, further blurring the chronological scheme. If we nonetheless make a conservative estimate (for the Netherlands) one could argue that the thin-butted types should probably be placed between 3400-3000 BC. The thick-butted types would then represent the period of 3100-2750 BC. It is not altogether clear at what date the TRB ends and the subsequent SGC starts, in fact dating evidence suggests a period of overlap. This would also explain the occurrence of the Valby type axes in both TRB and SGC context, although in the latter period the axes were polished in a different fashion. In total, 57 thick-bladed axes could be assigned to a specific sub-group. The number of axes in each group suggests a gradual decline in the number of imported axes (see table 4.1). The thin-butted axes, dating between 3400-3000 BC, are the most numerous, and the thick-bladed Valby type is the most rare. In fact, as the butt-index gradually increases (e.g. the butt cross-sections approaches a square) the number of axes gradually decreases.

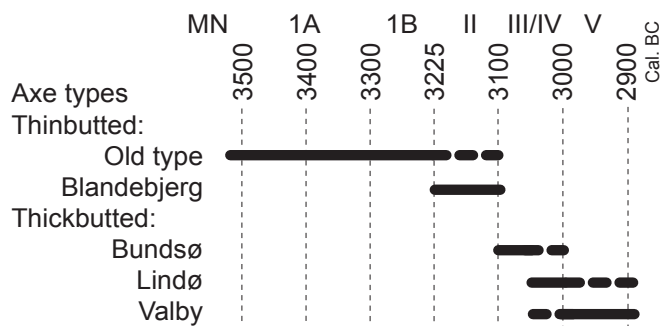


Figure 4.1 Typochronology of Danish flint axes (after Midgley 1992).

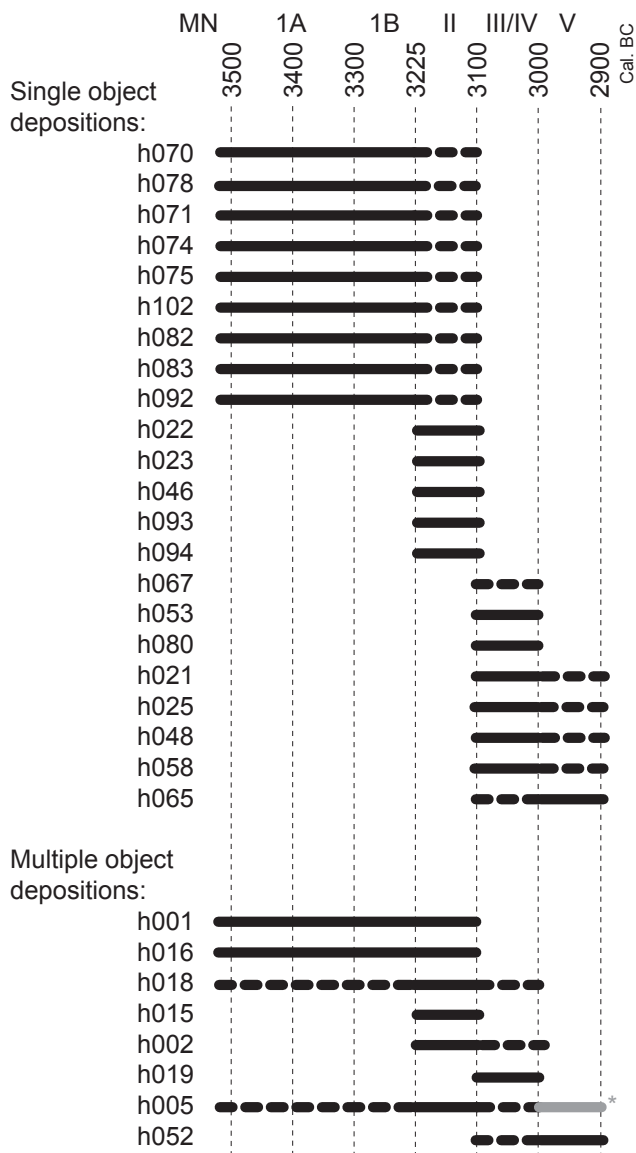


Figure 4.2 Overview of chronological distribution of deposited axes from the Netherlands based on the Danish typo-chronology. Identification code can be related to the database.

(* The association of one axe with the rest of the deposition is uncertain, it was found at the same place but on a different occasion and is of a different type.)

context	wet		border		dry/unknown		total	
material	n	av. length	n	av. length	n	av. length	n	av. length
flint	57	153	28	233	387	116	472	127
stone	25	140	19	143	280	127	324	129
total	82	149	47	196	667	121	796	128

Table 4.2 Number and average length of stone and flint axes from varying geological contexts.

4.2 General metrical observations

The most conventional way of studying stone or flint axes is by means of a metrical analysis. Ter Wal (1996) carried out an extensive metrical analysis on a sample of 433 axes from the Drents Museum in Assen and concluded that it appears that axes from a wet context are generally much larger than those from a dry context. Although the current dataset is much larger, the patterns are similar to Ter Wal's observations. At present the database contains records of 1061 axes, these however could not all be used in a metrical analysis. The older find descriptions in particular do not contain detailed metrical information about the axe, and in the light of the nature of this research it would take too much time to measure all available axes manually. Moreover many of these axes are not accessible, since they are part of private collections. Also a number of axes had to be dismissed from the analysis because they were incomplete. For the variable "length" 796 axes could be used in the analysis which is over 75% of the total number of axes in the database and can therefore be seen as a representative number.

As can be seen in table 4.2, both stone and flint axes are similar in terms of length, although stone axes tend to be a bit larger on average, with the exception of a few extremely large flint axes. However axes of different lengths are not

evenly distributed over the landscape. Flint axes from dry (and unknown) contexts are generally smaller than the average 127 mm, while flint axes from wet contexts are larger than average. Flint axes from border contexts (i.e. transition zones from dry to wet places) are almost double the length of the average. It is precisely this context from which most multiple object depositions seem to originate. The problem here is that many older finds are often only described as "coming from the peat" whereas their vertical position relative to the underlying sand is not mentioned. This vertical position is of interest as the peat gradually grew over time, making the present land-peat border unrepresentative of the Neolithic situation. Depositing an object at the edge of the peat would mean that the axes would be positioned near the underlying sand, which would subsequently be covered by a layer of peat up to several meters thick. In the cases where the vertical position is mentioned, it is clear that these axes are often found in, on or near the underlying sand. This suggests that at the time, they were deposited at the edge of the peat, something that is also observed in Denmark (Tilley 1996, 101).

It should be noted that the observed length of the axes represents the end-stage of the "life" of each individual axe. Although some of the larger axes may represent lost axes, the majority of the finds entered the archaeological record

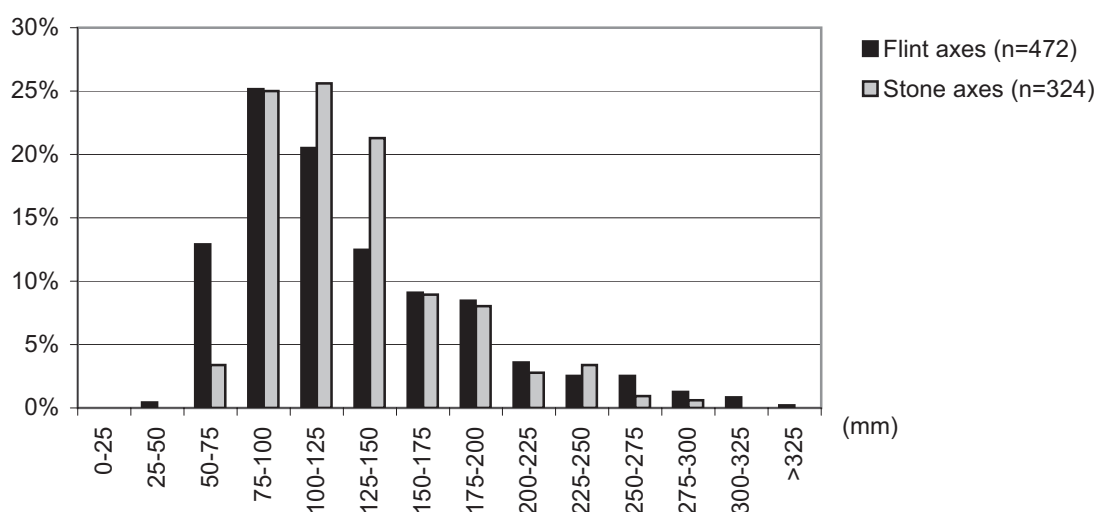


Figure 4.3 Frequencies of length relative to raw material.

when they were discarded after they wore down or broke. The number of flint axes, as can be seen in figure 4.3, shows a gradual increase as length decreases, with a peak in the 75-100 mm range. Stone axes however show a more extreme pattern of discard which already starts in the 125-150 mm range, to peak at the 100-125 mm range. While a fair number of flint axes are still used into the 50-75 mm range, stone axes in that range are virtually absent. It seems that stone axes are discarded slightly bigger than flint axes. For this pattern a functional explanation can be offered.

With the aid of experiments Olausson (1983) showed that the main difference in usage between flint and stone axes lies in the configuration of their edges and inherent qualities of the raw material. A flint axe blade is generally sharper and thinner resulting in a deeper penetration with each blow, making it more suitable for fine carpentry. Stone axes have a blunter edge, but their raw material is less susceptible to damage. This, together with the total weight of the tool makes it more suitable for heavy work. Reduced length and therefore weight of the stone axe has a negative effect upon its effectiveness as a tool. With flint axes it is predominantly the sharp edge which makes the tool functional, resulting in an overall pattern of discarded stone axes being slightly bigger relative to the flint axes whose effectiveness is less linked with tool length or weight.

4.3 TRB axes

The dataset used above reflects a palimpsest situation as no distinction has been made between axes belonging to different cultures or periods. In fact this is quite difficult to do since many axes cannot be attributed to a specific Neolithic culture. This is with the exception of the larger axes - the

imported objects - which can often be assigned to either the TRB or SGC. The smaller - locally produced - axes do not have any defining characteristics. As they were produced from poor quality flint, the raw material defined to a greater degree the eventual shape of the artefact. This local flint was moreover transported by the Saalian glaciers from Denmark and northern Germany to the Netherlands. Therefore the local raw material itself, although of poor quality, is indistinguishable from the raw material used for the production of the imported axes. Based on the nature of the local raw material, Bakker (1979a) has suggested 150 mm being the maximum length of locally produced axes. If we consider only those axes attributed to the TRB, we find that these can basically be assigned to two groups. They either represent the large imported pieces, or finds retrieved from graves; both groups thus being over represented when compared to the rest of the data. However it is possible to relate these groups to each other, as for both a complete inventory was made. Interestingly, virtually all imported pieces larger than 150 mm came from wet contexts. For this reason a comparison will be made between axes coming from grave contexts and axes coming from wet contexts.

4.3.1 Grave contexts

There are currently 53 flint and stone axes recovered from megalithic tombs recorded in the database. Ter Wal (1996) noted that TRB axes from graves are much smaller than those from wet contexts. When plotting the relative distribution of these axes per length group this becomes particularly clear, as can be seen in figure 4.4.

It is evident that we can speak of a very selective distribution. Virtually all axes are below the 150 mm line which

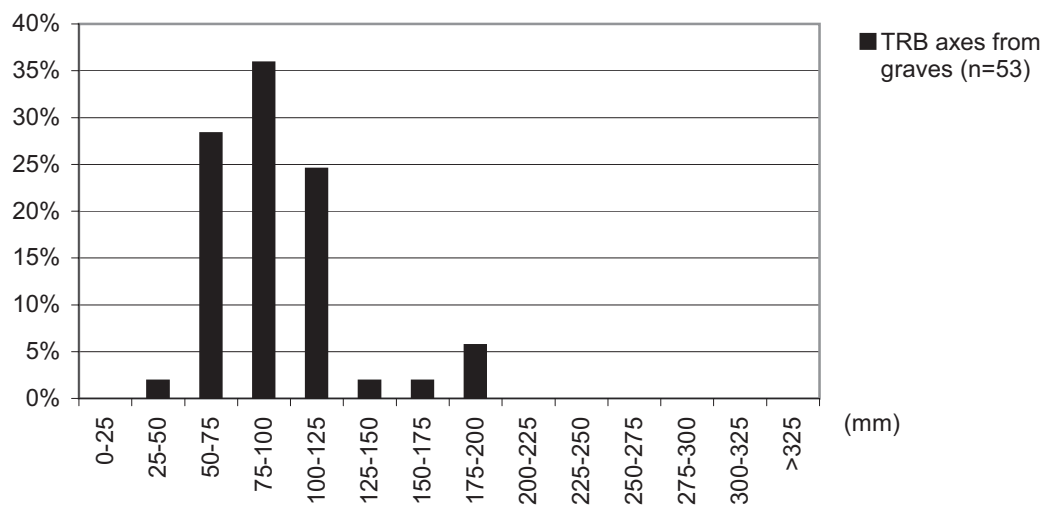


Figure 4.4 Relative distribution of TRB axes from grave contexts per length group.

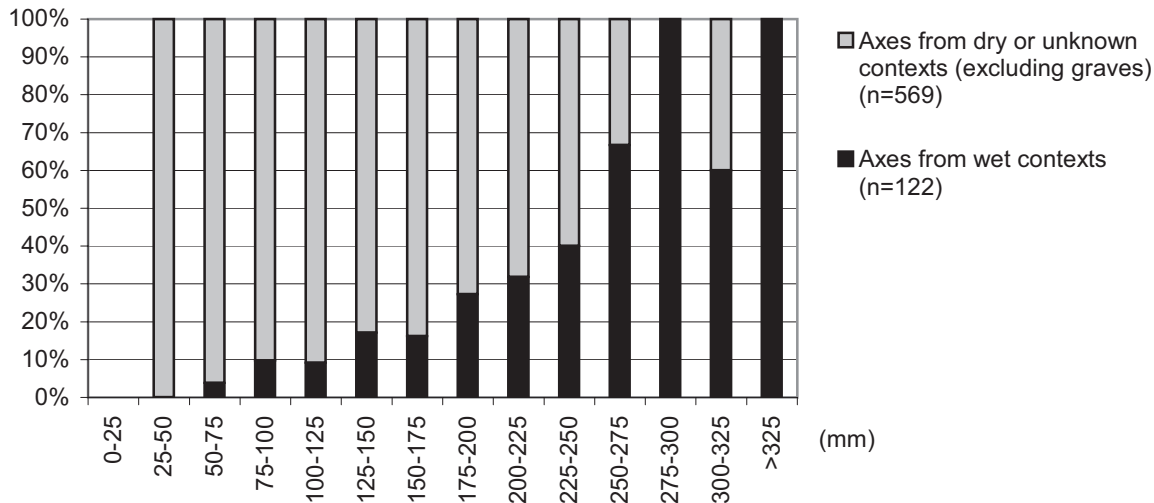


Figure 4.5 Distribution of all axes from wet contexts relative to axes from other or unknown contexts.

according to Bakker (1979a) separates imported axes from locally produced axes. When examining the individual axes from grave contexts, it can be seen that many were indeed locally produced, however a number may have been worn-down remnants of imported axes. This can be seen on the butt end of some of the axes as these are very regular and well made, indicating that they represent worn-down imported pieces. Such imported axes often changed shape radically, as they were resharpened and repaired (see Bradley & Edmonds 1993, 48). It is, however, often impossible to securely distinguish between the two groups. What is interesting is that the worn-down imported pieces that could be recognized, consisted of both northern and southern imports. The latter can be recognized by being oval in cross-section. These axes, which were products of the southern flint mines, were also completely worn-down and seemed heavily used. Although these axes form evidence for the existence of exchange relations with the south, it is interesting to see that in depositions these southern axes are completely absent. The overall character of this find-group suggests that predominantly, if not exclusively, used, worn axes accompanied the dead in their graves, something that will be elaborated upon below in the section dealing with the results of the functional analysis.

4.3.2 Wet context finds

Functionality and context of large axes

According to the explanation presented above in section 4.2, the majority of the axes were discarded when their decreased length/weight-ratio began to counter tool effectiveness. However, a number of axes also entered the archaeological

record while being still long enough to be effective (ca. 26% of the total number of axes were longer than 150 mm). This can partly be explained by people losing axes, something that would undoubtedly have occurred every now and then and which is also witnessed in ethnographic contexts (see Modjeska & White 1978a). This, however, does not explain the presence of the more extreme cases. With the extremely large axes there is the question of functionality. For flint axes in particular, the risk of breakage (due to end-shock) increases when the axe blade is longer. It has therefore already been postulated by other researchers that these largest axes could not have been used for everyday tasks (Bradley 1990; Bradley & Edmonds 1993; Tilley 1996; Apel *et al.* 1995 in: Johansson 2003). A hypothesis therefore might be that many flint axes exceeding the length of 200 mm were not functional, due to the imminent risk of end-shock, but also because of practical reasons related to hafting. The fact that most axes found in depositions are of extreme length (>250 mm) and in mint condition might indicate that they never served as functional tools (as usage would cause an axe to wear down). This can also be substantiated by the results of the functional analysis, the detailed results of which are presented below, showing that none of the axes examined longer than 218 mm displayed traces of use. Further evidence as to the non-functional role of these large axes can be found when examining the find contexts from which they came.

In figure 4.5 it can be seen that although a number of smaller axes were also retrieved from waterlogged places, these form only a very small proportion of the total number of axes. The largest axes are found almost exclusively in wet contexts (the remainder coming from unknown contexts). This would suggest that more practical reasons generally

pertain to the discard of small flint axes. The fact, however, that the extremely large axes are only found deposited in wet contexts suggests the need for a ritual rather than a functional explanation for discard.

The intentional manipulation of size

The production of tools of extreme sizes meant for non-functional purposes is a phenomenon that is also encountered in ethnographical context. In the Kimberley region of north-western Australia, so-called Kimberly points were manufactured. Some points were specially produced for exchange purposes. These points could be recognized as such by their being much larger than the normal, functional points (Akerman *et al.* 2002, 18). Another example comes from Malinowski who reports the following concerning arm-shells associated with the Kula-exchange:

[...] by far the greater number of the arm-shells, easily ninety per cent, are of too small a size to be worn even by young boys and girls. A few are so big and valuable that they would not be worn at all, except once in a decade by a very important man on a very festive day.'
(Malinowski 1961, 88)

Manipulation of size can thus be regarded as a powerful strategy to emphasize the special status of an object, and by doing so it is placed apart from conventional, everyday tools.

For any Neolithic person who would have been intimately familiar with the use of flint axes, it would have been clear-cut that the extremely large axes would shatter upon impact, when put to functional use. Their size placed them apart from functional life, an assumption, which is being substantiated by the lack of use-wear traces and the almost

exclusive deposition of these implements in wet contexts. We must also keep in mind the fact that these axes were not locally produced, but would have traveled 200-400 km before reaching the Netherlands. The lack of use-wear would therefore also prove that during the "life" of the axe, which would undoubtedly have involved exchange and transport, at no time was the axe put to a functional use. It also suggests that the flint-knapper who created the axe, knew upon producing it, that the axe had no functional purpose, a characteristic that was also recognized and respected by all people (owners?) that stood between the flint-knapper and the person/group depositing the axe 200-400 km down-the-line. Apparently some axes were solely produced for non-functional purposes and ended their lives being deposited in waterlogged places. We may therefore conclude that these axes were produced for ceremonial rather than functional purposes and also circulated in this sphere.

Unpolished axes

Something that would further explicate the ceremonial rather than functional status of the flint axes from wet contexts, is the presence of unpolished axes in the Netherlands. Among the imported axes, there are 28 specimens which can be dated to the TRB period that are either completely unpolished or partly polished, leaving the cutting edge unpolished. These unpolished axes form a well-known part of many multiple object depositions known from The Netherlands and are also often found in wet contexts with no accompanying finds. When inspected for the presence of use-wear, no traces of use were found on any of these objects. The lack of use-wear traces, together with the find context indicates that they should be seen in the same light as the extremely large axes.

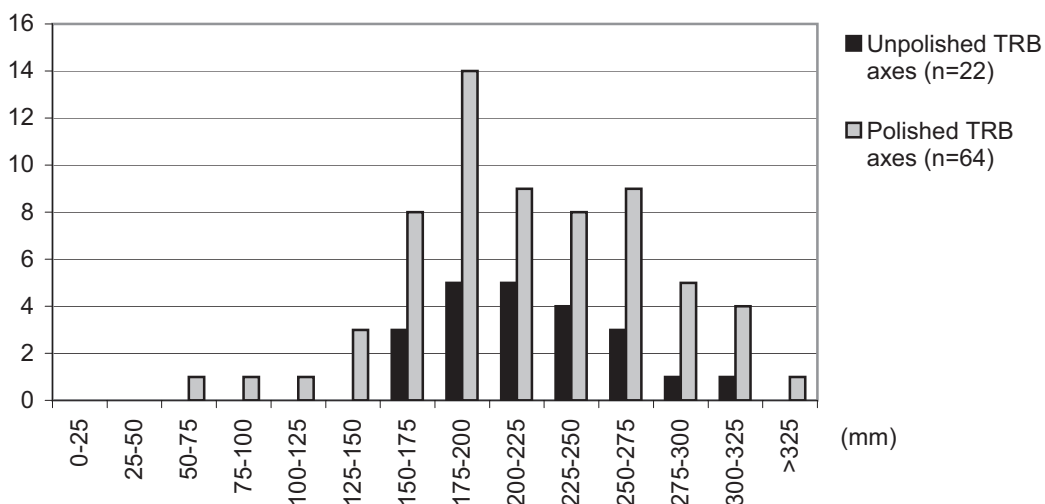


Figure 4.6 Relative distribution of unpolished TRB imported axes compared to polished TRB imported axes.

As can be seen in figure 4.6 the unpolished axes represent about 30-40% of the imported axes. A way to clearly distinguish them from functional tools, besides extreme length, would have been by not polishing them. This is further emphasized by some axes, which are partially polished with exception of the cutting edge. In these situations time and energy was invested in partially polishing the axe with the exception of the cutting edge, which in theory is the only functional part of the edge that needs polishing. The fact that all of the unpolished axes came from wet locations, lacked traces of use and were often of extreme lengths, all indicate that this group of axes was never meant for use but were specially produced for ceremonial rather than functional-related activities. They further illustrate the fact that these ceremonial axes were not to be tampered with. After production their physical form was not altered. This can also be seen among the polished axes, which often show minor depressions near the cutting edge of the initial retouch. This illustrates even when they were polished, only a small proportion of flint had been grinded away. If these axes had been resharpened after initial polishing such depressions would have vanished, indicating that these axes too were left untouched by people other than the axe maker.

Conclusion

At the production centers in northern Germany or Denmark axes were produced specially for ceremonial (exchange) purposes. There were different ways in which it could be made visually apparent that these axes should be placed apart from the functional axes. Axes could be made to such a size they would be totally impractical, or they could be circulated in unfinished form. The latter would often have been partially polished, with the exception of the cutting edge emphasizing the fact that they were not meant for functional use. These axes traveled vast distances to reach the Netherlands without ever being put to use. Moreover these axes ended their lives of exchange in waterlogged places, where they were deposited either as a single object or as part of a multiple object deposition.

4.4 Craftsmanship

One of the most apparent things one notices when working with TRB flint axes is their beauty. They are all very carefully shaped, which must have been the work of specialists. Particularly the larger axes would have required several years of training in order to develop the skills needed to craft such finely shaped axes. Although the second part of the thesis will deal extensively with the theoretical implications of

craftsmanship, there are some things that should be discussed here. When working on Scandinavian axes, Rudebeck (1998) noticed that about 70% of them had a small piece of cortex on the butt. These small pieces of cortex could have easily been removed, if one had wished to do so. Since, in general, much attention was paid to detail while making these axes, he argued that we must interpret the presence of these small pieces of cortex as the result of intentional choices.

As I had not recognized the potential significance of this, the presence of cortex was not systematically recorded in my database. Therefore numbers cannot be presented, however, I can confidently state that also many of the Dutch axes have a small portion of cortex, often on the butt. Rudebeck (1998, 322) argues that cortex and flint properties contain information about the raw materials used, both in the sense of identification of the source and the quality of the flint. Thus flint sources would be identifiable through the presence of cortex. Although I agree that these pieces of cortex must have been left there intentionally, I do not agree with Rudebeck's interpretation. Since the flint outcrops of Scandinavia have been re-arranged by glacial processes, one can find similar or even identical types of flint, over vast areas. This is the reason why today we cannot pinpoint the source of each particular axe, prehistoric man would have undoubtedly have had the same problem. While discussing this problem with John Whittaker, an expert flint-knapper (see Whittaker 1993), he proposed an alternative explanation. He simply stated that by leaving a bit of cortex on the butt of the axe, it is indicated that the axe could not have been any bigger (Whittaker, pers. comm. 2006). The limiting factor was thus the size of the flint nodule and not the skills of the flint-knapper. The craftsman had made optimal use of his resources. Furthermore most flint nodules have a slightly darker color just beneath the cortex. Often this darker color was also present at the cutting edge, further illustrating that the craftsman used the full potential of the nodule.

In light of these observations there is one axe that should be discussed in detail. This particular axe was found in Zuidbarge to the south of Emmen, right on the southern edge of the Hondsrug. Here on the south-eastern edge of the Drenthe Plateau, the largest TRB axe of the Netherlands was found. This beautifully shaped Valby type axe is 325 mm long. Only the main sides were polished leaving the sides unpolished. The butt was covered with a small piece of cortex, which could have easily been removed. As the sides were unpolished one could see the skill with which flakes had been removed. Usually flaked surfaces are somewhat irregular. In this particular case, the flakes had been so thin that in fact a very smooth, regular surface had been created. After examining most of the Dutch TRB axes I must say that this

one is by far the most beautiful of them all. This may seem as a somewhat subjective description of this axe but I feel it is legitimate to do so based on the following observations.

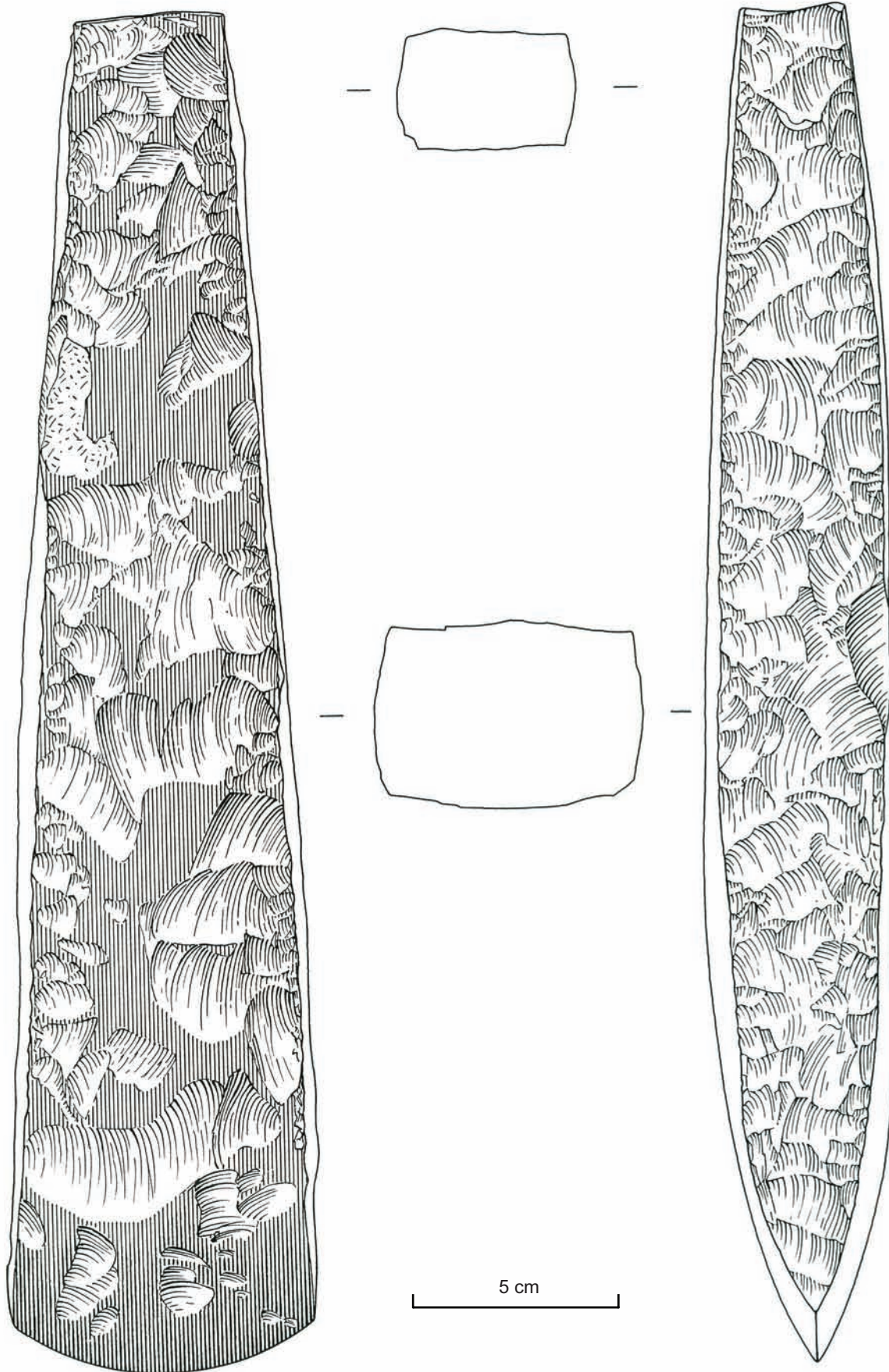
While examining the axe with the incident light microscope I noticed, that although the sides were not polished, there was in fact a small spot of about one square centimeter that showed traces of grinding. Why had the axe-maker only polished this tiny fragment, leaving the remainder of the side-surface untouched? When looking at the axe from the side, this made sense. It could be seen that in the middle of this surface, near the butt-end of the axe, there had been a small hinge-fracture. This had left a small protruding ridge in a position that could not have been removed by flaking. Although this would have been a ridge of just one or two millimeters it apparently had bothered the axe-maker, who had subsequently removed the ridge by grinding this tiny spot.

Using an anecdotal approach to this single axe, we can learn a great deal about some of the concerns of the axe-maker. S/he paid a lot of attention to detail. When s/he saw a small protruding point s/he found this to be so annoying that s/he got up, went to the grinding stone and removed it. At the same time s/he did not grind the rest of the surface, because if s/he had done so, s/he would have removed all evidence of their skills. Everyone with enough time and patience can take a piece of flint and create a smooth surface by grinding it, however, flaking a smooth surface on such an axe would have required years of practice not to mention talent. The axe-maker thus made sure that this surface was left intact, while only removing his/her small error. At the same time we can see that although the axe-maker was very much concerned with detail, s/he left the butt full of cortex. It is thus safe to assume that the cortex was left there inten-

tionally in order to indicate that the flint-nodule had been optimally worked.

Craftsmanship thus appears to be one of the central elements with regards to these axes. Although they had no practical purpose, a great deal of time and energy was invested in their production. Moreover, the craftsmen left clues that could be recognized by other flint-knappers, which indicated how skilled they were. These flint-knappers would not necessarily have had to be axe makers, but it is clear that one needs to have practical experience in working flint in order to fully understand and appreciate these axes. Only those familiar with working flint would be able to understand these clues and fully recognize the skill and craftsmanship required to produce the axes. In the Neolithic it is likely that everyone would have had experience with knapping flint. However, for archaeologists to fully comprehend such elements they should also have practical experience with prehistoric technologies.

These axes were specially produced for non-functional purposes. Based on the nature of these objects in relation to their find conditions, generally in waterlogged places, they were probably related to ritual or ceremonial practices. The qualities that made them suitable for such practices were thus not (solely) acquired through time, but were already manifested during production. Based on the above-mentioned observations concerning craftsmanship I would like to argue that craftsmanship was at least one of the qualities that made these axes suitable for these ritual or ceremonial practices. If we thus wish to further explore our understandings of the meaning and significance of these objects, we have to further explore the nature of craftsmanship, skill, knowledge and know-how. These topics will be further analyzed in the second part of the thesis in relation to the other patterns that were defined.



5.1 Introduction

A total of 77 objects were subjected to functional analysis. These artefacts came from different collections and included finds from the National Museum of Antiquities in Leiden, The Groninger Museum in Groningen, the Drents Museum in Assen and objects currently in private ownership. The sample exclusively contained flint objects and predominantly axes (67 axes, 2 chisels, 7 blades and one scraper) from several different contexts. Of the 67 axes 25 were grave finds, 13 were single finds (including both “stray finds” and objects generally interpreted as single object depositions) and 29 axes were part of multiple object depositions. The axes were of differing taphonomical quality. Some axes showed signs of patination, which could to some extent influence micro-wear analysis. Moreover, many axes had been part of museum collections, sometimes for over a hundred years. The mere handling of these objects could have obscured old traces and possibly caused new traces to develop. Also a variety of recent residues were encountered including white paint, ink, nail polish, and glue. Sometimes the total lack of dirt residues indicated that the objects had been well cleaned, possibly also leading to the removal of potentially present archaeological residues. The functional analysis embraced axes from both TRB and SGC contexts. The latter consisted of only a few specimens including the chisels, blades and scraper. This chapter will focus on the results of the TRB axes, the observations made concerning the SGC artefacts will be dealt with later in this thesis (see chapter 11).

When plotting the length of the TRB axes selected for functional analysis relative to the total number of TRB flint axes in each length group, it can be seen that axes from nearly each group were present in the analysis (figure 5.1). Although the focus of the research lay with the large axes found in supposed ritual contexts (single finds from water-logged places, multiple object depositions and unpolished pieces), the sample also contained some of the smaller axes that were analyzed for comparative purposes.

Usually the aim of high-power functional analysis is the attribution of a certain motion and contact material to a flint implement. When working with polished axes however this becomes somewhat problematic. The micro-wear that develops on a polished edge looks rather different than the micro-wear developing on an unpolished piece of flint. This makes comparison with experimental tools difficult. When attributing a specific contact material we often have to rely on polish that developed inside small edge-damage scars. Moreover axes are types of tools that are prone to be used for a multitude of tasks, making it unlikely that one specific contact material can be attributed. Although attribution of a specific contact material may not always be possible, it is possible to look for traces of usage in general. An unused axe portrays very clear traces of polishing in the form of grooves running transverse to the cutting edge. When an axe has been used these grooves become “filled in” with polish along the cutting edge. Moreover edge-damage and rounding may

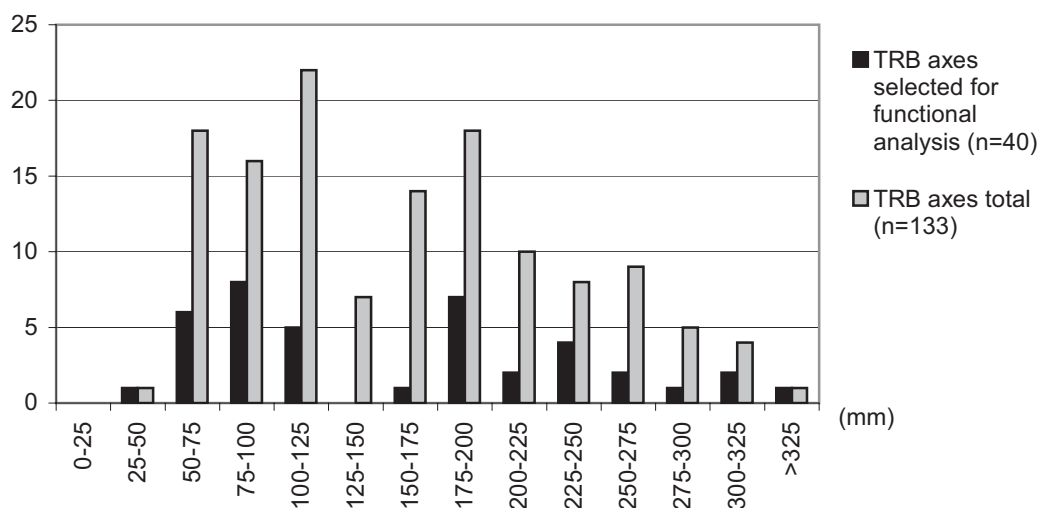


Figure 5.1 Numbers of TRB flint axes selected for functional analysis and the total number of TRB flint axes per length group.

tombs	use			resharpened			
	yes	unsure	total	yes	no	unsure	total
D19	12	2	14	8	4	2	14
D5	1	-	1	1	-	-	1
G2	3	1	4	1	3	-	4
G3	1	-	1	1	-	-	1
D26	2	-	2	2	-	-	2
Diever cist	1	1	2	2	-	-	2
total (n)	20	4	24	15	7	2	24
total (%)	83.3	16.6	100	62.5	29.2	8.3	100

Table 5.1 Micro-wear traces on axes from graves.

occur as indicative of usage. It is therefore possible to discern between used and unused axes. Moreover, with the aid of the microscope, differences within the grinding-traces could be observed as indicative of the use of different grindstones. These differences were often accompanied by slight differences in the grinding angle and thus interpreted as being the result of secondary resharpening of the axe. Traces of hafting could be observed in the form of friction gloss, and on occasion black residue (possibly remnants of birch-tar) could be identified. Figures 5.3 - 5.14 are microscope photographs in colour which are included in appendix 5.

5.2 General patterns

Use-traces were not equally present on all examined length groups. No TRB axe longer than 215 mm appeared to have traces of use. I proposed that a functional cut-off point lies around this mark. The fact that the largest SGC axe with use traces is 218 mm long appears to substantiate this assumption. Many of the axes with use-traces showed clearly developed use polish, which overlies the traces of grinding. Moreover rounding and micro-retouch were present indicating usage (see figure 5.3, appendix 5). Also on some occasions, especially among the grave-finds, axes had been resharpened before deposition. Although on some occasions a clear polish was present which indicated woodworking, often an exact interpretation on contact-material level was not possible. This is most probably related to the fact that axes were used for all kinds of activities and not solely for the working of one particular contact-material. Besides practical activities such as woodworking, tools may also have served in activities, the character of which we may never envisage. Among the Dani in the New Guinea Highlands for instance, stone adzes are used to amputate finger joints during ritual procedures (Hampton 1999, 295). Such activities would hardly cause use-traces to develop. If we were to focus too

much on the inferred contact material, we would thus neglect the potential complexity of such a tool. Although we are able to recognize a number of activities, there are also a great deal of activities that remain invisible to the use-wear analyst, activities that may be just as, or even fundamentally important when it comes to the role such objects play within a society.

5.3 Grave contexts

As was already mentioned the overall character of axes found in grave contexts can be typified as small and seemingly worn down. This is corroborated by the results of the functional analysis. In total the database contains records of 53 TRB axes coming from grave contexts, 45 of these were flint axes and eight concerned stone axes. Of these, 24 flint axes were examined for the presence of use-traces, which is 45% of the complete sample or 53% of the flint axes. The examined axes were retrieved from five different passage graves (D26 Drouwen, D19 Drouwen, D5 Zeyen, G2 Glimmen and G3 Glimmen) and one stone cist (Diever). Of the 24 axes, 20 could be positively described as having been used, as can be seen in table 5.1. On one case the axe had been resharpened to such a degree that all potential traces of use were erased. The remaining three were classified as unsure, since it appeared that post depositional processes had obscured possible traces of use, not definitely excluding the possibility that they in fact were used.

Although the majority of the axes from graves appear to have been used, also a fair number of these were resharpened before deposition. In these cases, the cutting-edge predominantly displayed only very fresh-looking traces of polishing. However, inside deeper negatives (caused by use) that remained untouched by the grindstone, use-polish could still be seen. Also on some occasions the angle used for resharpening had left the extreme edge of the axe intact including

use-traces in the form of use-polish, rounding and edge-damage (see figure 5.4, appendix 5). Besides actual use-traces the majority of these axes (70%) also displayed traces of hafting (see figure 5.6, appendix 5). The examined axe from tomb D5 showed minor traces of red ochre on its cutting-edge, something that will be elaborated upon below.

It can be concluded that used axes accompanied the dead in the graves. This is also supported by the overall worn character and minimal length of the total number of axes from grave contexts as described above. The resharpening of the axes seems to indicate that many were prepared for use to make sure that the deceased was accompanied by an axe that was ready for use. These axes could very well have represented some of the personal possessions of the deceased, therefore being intimately linked to the person who owned them. They would have been used during the clearing of fields and the construction of houses. Moreover these small axes would have often started out as being much larger, however each time an axe was resharpened its length decreased. It is therefore not improbable that axes like these were the possessions of specific people for many years.

As these axes were employed during many important activities during a person's (or a group's) life, the axe potentially forms a powerful symbol of both that person or group

and the activities involved. During his research concerning Bronze Age depositions Fontijn (2002) found similar patterns of used, resharpened axes being placed in special contexts. During the Bronze Age, however, axes with such a biography were deposited in wet locations. TRB axes with such a use-life, however, were deposited in graves. The bronze axes all concerned exotic exchange objects, whereas the greater part of the flint TRB axes could have been locally produced. Nonetheless many of the flint axes would also have been exchanged objects. Some axes are clearly worn-down northern import axes, while others are oval in cross-section, indicating an origin in the flint-mines of the southern Netherlands or even Belgium. Thus, although bronze axes were deposited in wet places and TRB flint axes ended up in graves, the biographies of both share structural similarities. The axes would have been commensurable with previous owners and important activities in the life of a person or group. Both were subsequently selected and placed in special contexts, be that graves or bogs.

It is of course not postulated that these are indications of some sort of historical continuance. It is however suggested that in prehistoric agricultural societies, specific objects have a certain metaphorical potential. It is probably for this reason

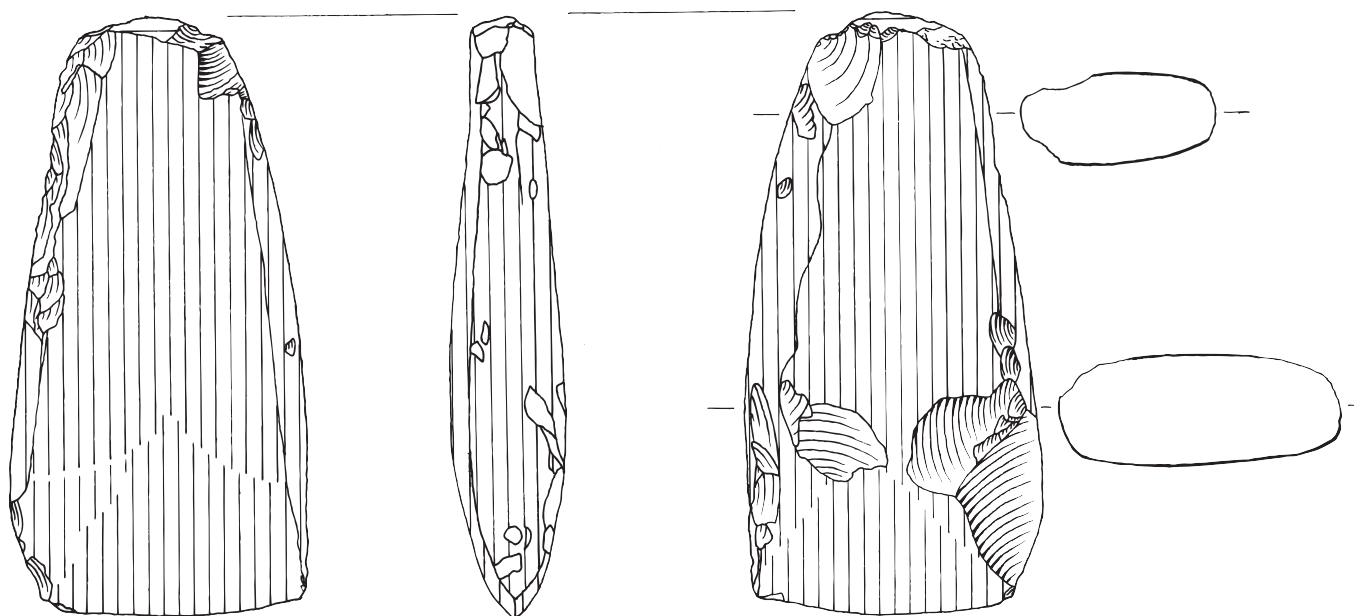


Figure 5.2 Axe from tomb D19 (RMO c1912-XII-9) with traces of use and hafting (see figure 5.4, appendix 5), this is a typical example of axes from grave contexts.

that similar objects, such as axes, are picked out again and again throughout prehistory and throughout Europe.

5.4 Depositions

A total of 19 TRB axes of a potentially ritual character were selected for functional analysis. These were part of a multiple object deposition or single finds that were either unpolished or much larger than average. These were basically all axes that were readily available for research. Of the axes examined, there were 13 that came from multiple object depositions. Six single finds of large axes were selected solely upon the physical characteristics of the axe. For only one of the single axes was it known that it came from a wet context, of the remaining five no detailed contextual information was known, making it as yet impossible to determine whether or not these could have been deposited axes. However a very homogeneous picture emerged while performing the analysis. It appeared that none of the selected axes had traces of use, however, they did display traces of another activity.

5.4.1 Unused axes

On 14 of the 19 axes very clear wear-traces were found. They appeared to be caused by friction with a rather soft material, possibly bark or some vegetable material. Interesting however was the overall presence of this polish. All ridges, cutting-edge and higher ribs (of the unpolished axes) displayed this gloss. Due to the overall presence of the gloss it was interpreted as having been caused by a material in which the object was wrapped. This is not unthinkable since the axes originated some 200-400 km from Drenthe making it highly plausible that during transport the axe was wrapped in a soft material to protect it from damage. Another explanation is that since these unused axes were deposited in wet contexts, they also played a ceremonial role prior to deposition. This could have involved the object being wrapped in a certain material and being unwrapped on special occasions for display purposes, an activity that is also witnessed in many ethnographic contexts such as among the Dani of New Guinea (Hampton 1999), Australian Aborigines (Akerman *et al.* 2002; Paton 1994; Weiner 1992), or the Baruya of New Guinea (Godelier 1990;1999). There are thus two hypotheses presented that could explain the nature of the wear-traces found on these axes:

1. The axes were wrapped in a material to protect them during transport.
2. The axes were repeatedly wrapped and unwrapped for display purposes.

In order to answer these questions several experiments were conducted. To test the transportation hypothesis five pieces of flint were wrapped in leather, dried grass, willow bark, lime bark and stinging nettle fibers. These objects were subsequently carried around in a backpack for five weeks in order to simulate transport. When examined for micro-wear afterwards none appeared to have developed. Apparently when flint is packed in a material and transported, there is hardly any friction, which is required for traces to develop. Since these results did not match the archaeological traces the experiments were continued. It was envisaged that the wrapping and unwrapping of a piece of flint would cause more friction and was thus more likely to cause wear-traces to develop.

A total of seven wrapping experiments was carried out during which a piece of flint was wrapped and unwrapped 100-250 times. The contact materials used were leather, leather colored with red ochre, flax rope, stinging nettle rope, reed-mace and wool. Most of these experiments caused wear-traces to develop with a similar distribution as those observed on the archaeological material. Polish developed around all edges and ribs, however the type of polish still did not match the archaeological traces. It is therefore concluded that although the most likely activity was wrapping and unwrapping, the exact contact material has not yet been determined. The fact that the polish observed on the TRB axes was very well developed indicates that these objects must have been wrapped and unwrapped hundreds, if not thousands of times. Since all archaeological pieces showed identical traces, they must have been wrapped in the same contact material. This would imply that this standardized contact material thus had a specific significance. Hopefully future experiments will shed light on the character of this material.

Axes for which contextual information was available and which displayed these traces, came exclusively from wet contexts. These traces were also witnessed on some single find axes, for which no contextual information was recorded. This might indicate that they could very well have had the same biography as those for which contextual information was present, suggesting that they would also have been deposited in wet contexts.

Another interesting phenomenon encountered while examining these axes was the presence of a red residue on over 68% of the axes (see table 5.2) interpreted as being red ochre (see figure 5.10-5.14, appendix 5). This interpretation was confirmed after residue analysis at the Delft University of Technology. In cooperation with Joris Dik, samples of the ochre were examined using a polarized light microscope. Under crossed polars the particles showed a strong red color with no significant extinction effects. Based on these optical

depot type	polished		ochre		wrapping		context	
	yes	no	yes	no	yes	no	wet	unknown
multiple (n=13)	7	5	7	5	8	4	12	-
single (n=6)	1	5	6	-	6	-	1	5
total (n)	8	10	13	5	14	4	13	5
total (%)	44.4	55.6	72.2	27.8	77.8	22.2	72.2	27.8

Table 5.2 Presence of wear-traces and residue per find type.

characteristics the red particles could be identified as haematite (red ochre). After optical examination one axe was tested using X-ray powder diffraction. This confirmed that the red residue was indeed ochre (for a technical description of both techniques see appendix 3).

The ochre seems predominantly located on the cutting-edge of the axes and was especially well preserved on the unpolished axes. This is probably related to the fact that on an unpolished surface there are more crevices for the residue to adhere to. On some occasions only small fragments of red residue were encountered, however, on most axes clear traces of ochre were present all along the cutting edge. The residue was not accompanied by use-traces, which would have been the case if these axes were involved in some sort of contact with unprocessed ochre. It can thus be concluded that the ochre most probably was applied as a pigment paste.

In the preceding section it has already been argued that some axes were produced solely for ceremonial purposes. This is substantiated by the fact that the axes do not show traces of use and moreover, often do show traces of being wrapped in a soft material. The potential significance of wrapping will be elaborated upon in the second part of the thesis. Another feature that distinguished these “ceremonial” axes was the presence of a red pigment on the cutting edge, further emphasizing the fact that these axes were not meant for usage.

5.5 The exception to the rule

In the preceding two chapters it has been posited that there is a distinct difference between the axes placed in graves and the ones ending up in depositions. The former being extensively used tools, the latter being specialized ceremonial objects that could never have been used. Apparently these two distinct categories of objects were kept strictly separated. There is however one exception.

Among the flint artefacts retrieved from tomb D19 there are four fragments of an axe that are of particular interest. It appears that they are fragments of a largely unpolished axe,

only on one fragment the higher ribs are slightly polished. The ribs further indicate that it was a regularly knapped axe that was apparently only partially polished. Two of the fragments come from the butt-end of the axe and comparison with other axes indicates that the original axe would have had an approximate length of about 200 mm. Although the four fragments could not be fitted together, their regularity and raw material type suggest that they are probably fragments of the same axe. We thus have four fragments of a regularly knapped axe that is only partially polished and approximately 200 mm in length. Whether or not there would have been more fragments of this axe in the tomb is impossible to tell. The finds were all retrieved during the excavation in 1912. It is therefore not unlikely that many finds went unnoticed or were lost.

Based on the patterns described in the preceding two chapters it could be stated that such an axe would normally occur in a deposition rather than a grave. Also micro-wear analysis revealed the presence of wrapping traces on one of these axe fragments. Although it was just argued that grave type axes and ceremonial type axes were kept strictly separated, it appears that we should now nuance this claim. There are however some observations regarding the treatment this axe received, prior to being deposited in the tomb, that should first be mentioned.

This axe, which should typically have been deposited in a waterlogged place, was intentionally fragmented. The fragments showed bulbs of percussion indicating that they had been removed intentionally. Moreover each fragment showed minor traces of burning, indicated by some potlids and cracks. Before entering the tomb, the axe was thus first smashed and broken into fragments. Then the fragments were exposed to heat, and only then, at least some of the fragments were placed in the tomb. It seems that this axe could only enter the tomb after a particular treatment, which could be interpreted as a possible *rite de passage*. It is not sure whether or not this was a standardized practice. The contents of some other tombs were inspected for similar fragments, however, without success. Although there are no other finds

of this type, and we may for now attribute it to acts of 'human agency', the exception to the rule can often shed more light upon the general practice.

Most importantly I would like to argue that the separation between grave type axes and ceremonial type axes was also upheld in this particular case. The ceremonial type axe could only enter the domain of the other, after some sort

of transformation. Possibly powers or forces preventing the mixing of these two domains were neutralized by this treatment. Graves and depositions thus formed two separate, exclusive spheres. Objects associated with these two spheres could normally not be mixed. Only after fragmentation and burning, fragments of an axe, formerly associated with the sphere of deposition, could enter the sphere of burial.

6.1 Introduction

For the spatial analysis relatively few data could be used, as often objects cannot be dated to a specific culture. As mentioned before, Late-Neolithic axes are virtually indistinguishable from TRB axes, especially when it comes to the locally produced specimens. Plotting all Neolithic axes on a map would therefore result in a palimpsest in which all potential patterns would be obscured. However, when we only plot TRB dated axes, we will inevitably only see either axes coming from secure TRB contexts (mostly graves) or the large imported flint axes, which are predominantly interpreted as being ritual in character. Although we can look for patterns within the distribution of these large TRB axes, it is hardly possible to compare this with the distribution of the small, used axes, found outside graves. We know for a fact that at least a proportion of these small used axes were retrieved from wet contexts. This could indicate intentional deposition, however, since we do not know the dates of these axes, they cannot be used for interpretational purposes as to TRB cultural behaviour.

Based on the observations described above, the following characteristics can be presented to identify objects that are likely candidates of selective deposition:

- Specimens longer than 218 mm (this being the largest used flint axe from the sample selected for functional analysis).
- Unpolished specimens longer than 150 mm.
- Presence of red ochre residue on cutting edge.
- Lack of use-traces, but presence of wrapping traces.
- Found together in a multiple object deposition with other objects that conform to either of the above stated characteristics.

All objects in the database have been reviewed with the above characteristics in mind. Objects were individually evaluated, to decide whether or not they should be interpreted as an intentional deposition. Most objects labeled as intentionally deposited conformed to more than one of the above-mentioned characteristics. Objects that scored positive on the presence of ochre or presence of traces of wrapping were only

selected if they also scored on any of the other characteristics. Objects that were longer than 218 mm, unpolished or coming from a multiple object deposition were automatically selected. This method resulted in the selection of 60 objects (including five nodules of flint and three chisels) belonging to 37 possible depositions, which could be interpreted as being of a potential ceremonial character.

6.2 Natural landscape of depositions

When the 37 possible depositions were spatially plotted, a clear pattern emerged. When examining the spatial distribution it is striking to see that virtually all selected axes are located in stream valleys that would have been filled up with peat (see fig. 6.1). It was already noted that many depositions with contextual information were found near the border of the bog. In Drenthe, however, peat-growth was common in many different places. The obvious lack of the selected axes in the most extensive raised bogs such as the Bourtanger Moor, must therefore be noted. Depositions only seem to occur here in the direct vicinity of an intersecting stream.

Also a high proportion of other TRB axes between 150 mm and 218 mm appeared to be located in the stream valleys, possibly suggesting that these were also deposited objects. This group therefore would be an interesting subject for further research. The same applies to many of the TRB battle-axes that have gone unmentioned so far, but were also often found in stream valleys. Virtually no contextual research has been carried out for this group in the Netherlands. It is however known from Denmark that battle-axes appear in a variety of ritual contexts, such as at enclosures (buried in pits with pottery and flint axes at Sarup), or as part of multiple object depositions (Midgley 1992, 245; Skaarup 1990, 86; Tilley 1996, 101).

The stream valleys in which the selected axes were found, were formed predominantly in the Pleistocene, when at the end of the Saalian ice-age streams of meltwater eroded their way through the newly formed till plateau (Spek 2004, 203). In the Weichselian these valleys were deepened and widened. However at the end of the Weichselian the valleys were blocked by large deposits of cover-sands, resulting in the formation of large strings of small bogs and fens (Spek 2004, 203; Kuijer 1991, 23). Due to the Holocene rise in groundwater-levels (as a result of rising sea-levels) these obstructions eventually eroded and streams re-emerged. During

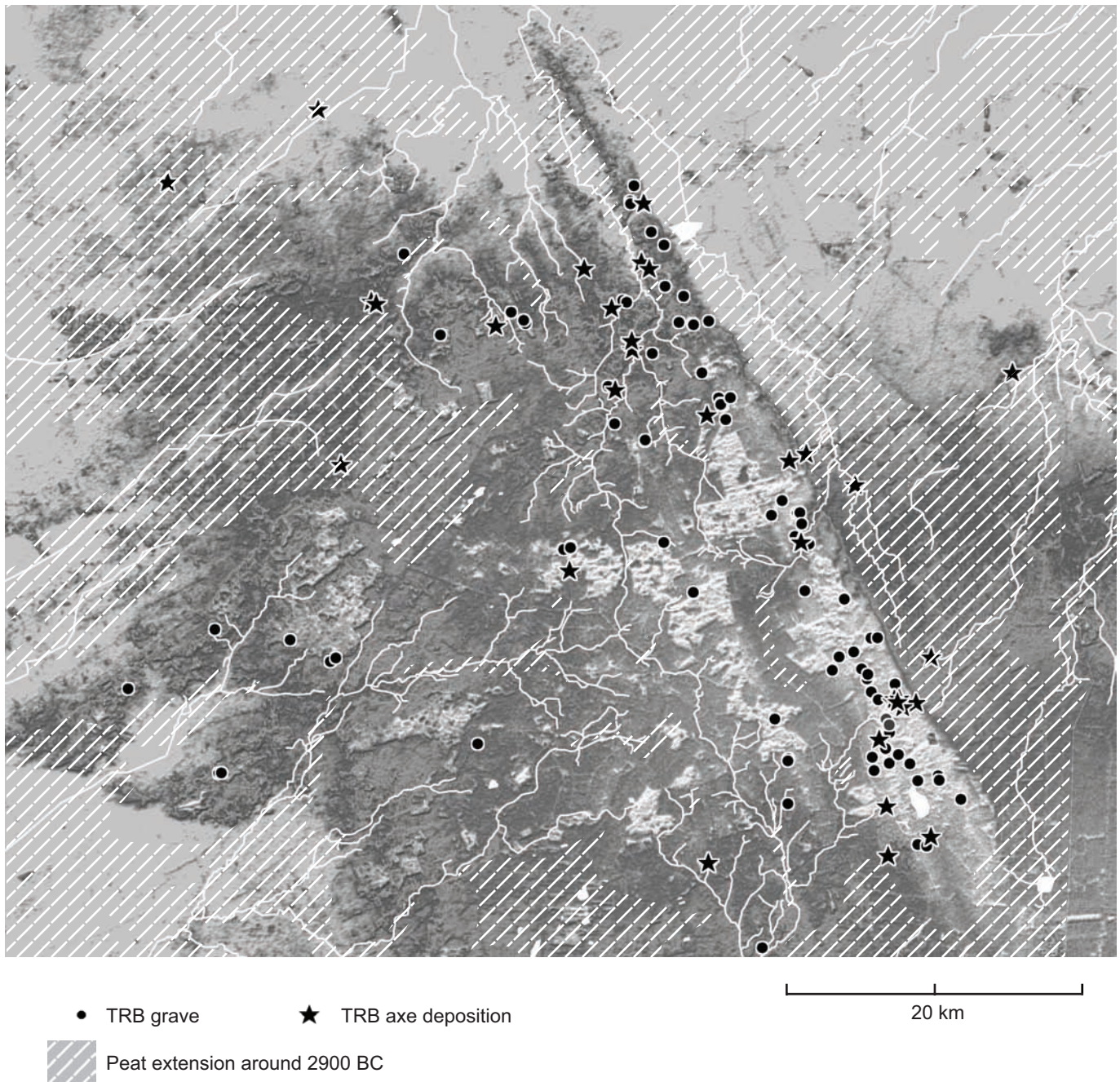


Figure 6.1 Spatial distribution of TRB graves and depositions on the Drenthe Plateau (Digital Elevation Model provided by Archol).

the Atlantic, sea-levels continued to rise causing the streams to become more stable and stimulated peat growth in the stream valleys (Kuijer 1991, 23). This would have resulted in a situation during the Middle-Neolithic in which the lower parts of the valleys would be the domain of peat growth and would be flooded during winter. The lack of clear wood-remains indicates a fairly open landscape with only few trees, in contrast to the higher grounds on which a dense forest was present (Spek 2004, 209; Bakker 1982, 114).

A number of depositions are located near the starting point of a stream while others are found further downstream in the valleys. Within these valleys the selected axes are predominantly found at the border of the peat, which would have been the most practical position since then the person(s) depositing the axes would not have to enter the potentially dangerous peat zone. Although archaeologists usually focus upon the peat itself in their explanations, Neolithic people did not necessarily do the same thing. As many depositions are located at the transitional point in these valleys between the lower peat and the higher sands, the latter may potentially be equally important.

At some locations on the higher grounds in the valleys, non-permeable layers of sediment (till, loam) were present beneath the sand. In historical times, it is known that water would seep from the ground at these places. These places would have been recognized by people by obvious differences in local vegetation (Spek 2004, 206). It is impossible to predict exactly where these places would have been located in the Neolithic (due to highly variable groundwater-levels and local geology). Also groundwater levels would have been influenced by the dense forest on the higher grounds, which would have caused high evaporation rates, thus lowering groundwater levels (Bakker 2003, 62; Spek, pers. comm. 2006). It is striking, however, that most of the depositions in the stream valleys are located on a soil type that would be expected in the above scenario. If we connect this with the observation that part of the depositions are located at the beginning of streams we might envisage that people were depositing items at places where water emerged from the ground. These places would not have been clear wells, although historical sources indicate the existence of specific names to describe such places from the Middle Ages onwards (Spek 2004, 206). This indicates that people did recognize such places and could attribute special meaning to them. At this point it is unfortunately impossible to prove such a scenario, as it would require the exact find location of each deposition and also detailed geological information of that find spot. Since the first is generally lacking the latter is impossible to gather. The point being made however is that we should not solely focus on the peat as being of prime

importance. For some depositions for which detailed contextual information is present, it is clearly stated that finds were retrieved from the sand, near the peat and not from the peat itself. Furthermore the rise in groundwater-levels caused the peat to grow and to cover areas that in the Neolithic would have been sand. Therefore axes recovered during peat digging or during other activities on the land that would formerly have been covered with peat, were not necessarily deposited in the peat but might well have been engulfed by it during later times.

6.3 Cultural landscape of depositions

The spatial distribution of the 37 selected depositions conformed very well to the overall distribution of TRB graves, depicted in figure 6.1 and 6.2. For Denmark it was noted that half of the depositions were found within close proximity (500-1500 m) to megalithic graves (Midgley 1992, 282; Tilley 1996, 61; Ebbesen 1982, 61). This also appears to be the case in the Netherlands as clearly many locations can be found where a deposition was located close to a megalithic tomb, but also proximity to flat-graves can be noted. Many flat-graves will not have been discovered, due to their obscured visibility. It is possible that depositions that do not conform to these observations are instead located in proximity to undiscovered flat-graves or demolished megaliths.

About half of the selected axes (53%) could be found within a range of 600-1900 m from the nearest grave. Although this suggests a link between the two, it also indicates a separation since no deposition was found less than 600 m from a grave. This is in contrast to many of the find-scatters, possibly remnants of settlements, which are located within 600 m of a grave. This implies that it was apparently not considered problematic to locate a settlement within 600 m from a tomb (or vice versa, assuming these find-scatters represent settlements), whereas all depositions were kept well outside this range. Depositions occurred relatively near graves, however at the same time a certain distance was maintained between the two.

An important point that should be made is that it cannot be concluded that there is an inherent spatial link between megaliths and depositions. We should not envisage TRB people measuring out the distance from a tomb in order to find an appropriate location for depositions. What is clear however is that both tombs and depositions were placed in specific places and not in others. Tombs were predominantly located on the higher grounds, although mainly on the slopes and not on the highest points. Depositions, however, were placed at the transition between sand and peat along running water. This dichotomy automatically leads to a

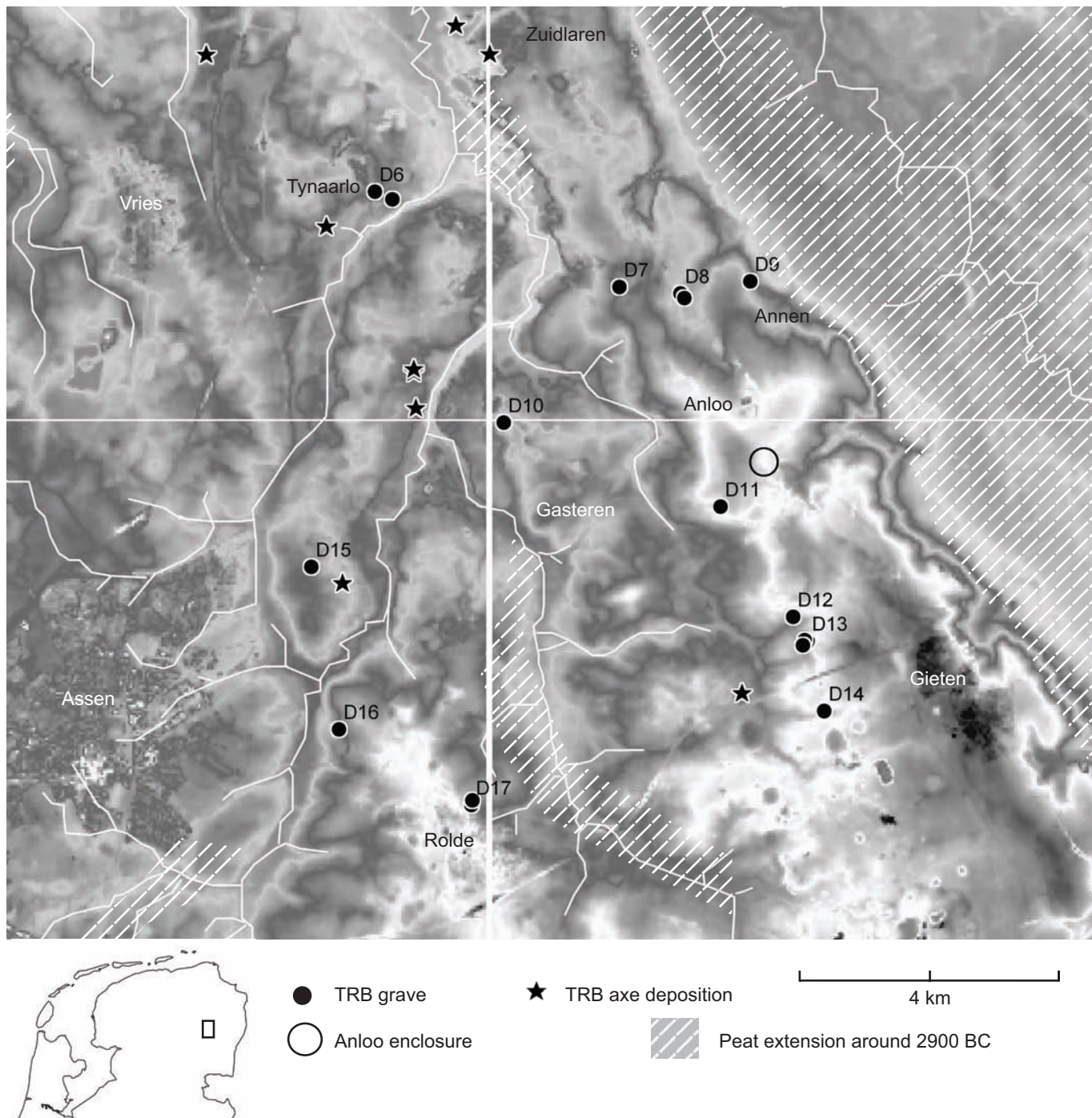


Figure 6.2 Spatial distribution of TRB graves and depositions in the region east of Assen, note that only the large peat extensions are indicated, most stream valleys would also have been filled in with peat.

spatial separation between the two as both situations cannot coexist at the same place. At the same time people selected those places probably from one central point, the settlement, from where such appropriate places were selected. This leads to the fact that although depositions and tombs have a similar spatial distribution, they are also found separated from each other. Each is located in its own distinct “habitat”, probably in the direct vicinity of where people lived.

Although the objects deposited are of a non-local origin the practice of depositing thus is very much a local affair. Appropriate places where depositions took place were selected in close range of places of burial and habitation. Habitation and tomb-construction primarily took place on the higher grounds of the Drenthe Plateau. The places selected for deposition at the transition from marshes to the higher, dry grounds are therefore of a liminal nature. On the one hand these stream valleys would have been perceived as natural boundaries between social groups as well as boundaries between people and supernatural entities (Fontijn 2002, 265). On the other hand, the higher grounds were densely

forested. The many stream valleys would therefore have played an important role in (water) transport, thus connecting social groups. Also for Denmark it is postulated that water would have been of vital importance when it comes to contact and transport. Tilley (1996, 269) claims that ‘the major channel of communication in the Neolithic would undoubtedly have been waterborne, along the coasts and rivers.’ Also Davidsen (1978, 15) argues that ‘the strong association of settlements and water seems first and foremost to reflect the need for trade and commerce, which at this time can be assumed to have taken place along the coast and waterways.’ Although ‘trade’ and ‘commerce’ are not terms we would use today to describe the Neolithic, it is likely that these streams were not solely visited for depositional practices. They formed important networks through the landscape, which were used for contact, transport and exchange. On a physical level these places can therefore be perceived as clear-cut divisions between the higher habitable grounds and the natural waterlogged stream valleys. On a social level these places can both be perceived as boundaries separating social groups, but at the same time also as places binding social groups.

7.1 Introduction

The aim for the first part of this thesis was to find out whether or not patterns could be found and if so, how the practice of deposition was structured. Through looking at different aspects of deposition, such as the physical characteristics of the axes themselves, their use-lives and the places of deposition, several patterns were indeed found, indicating that the practice of deposition was highly structured.

7.2 Physical properties of deposited axes

It was presented in chapter 4 that the axes found in waterlogged locations, either single or as part of multiple object depositions had different physical properties from the axes found in graves. The deposited axes were on average significantly larger than the axes found in the megalithic tombs. They were often of such lengths that they would be unsuitable for functional tasks. The fact that these axes were often unpolished, or partially polished with the exception of the cutting edge further emphasized their non-functional status. The length of these objects indicated that they could not have been locally produced, as good quality flint is not present in the northern Netherlands. They must have been produced in northern Germany, Schleswig-Holstein, or even Denmark.

The fact that these objects were often physically unsuitable for functional tasks indicates that they must have been produced for non-functional purposes. It was argued that the axes found deposited in the bogs were specially produced for ceremonial activities, which involved the exchange of these objects over vast distances and ultimately the depositing of these axes in waterlogged places. As such they contrasted greatly with the axes found in the megalithic tombs, which often appeared to have been locally produced, were rather small and usually looked worn. The appearance of the axes from graves indicated a functional use-life as tools, while the axes from bogs appeared to have had a non-functional use-life as ceremonial objects.

The axes from wet contexts often displayed the exceptional skills of the craftsmen that produced these objects. They were of extreme lengths and often very regularly knapped indicating that the flintknapper would have had years of experience in producing such objects. It was moreover proposed that the skill of the craftsman was considered an important quality of these axes. The axes contained small clues, which indicated

the skills of the craftsman that produced them. Although it appeared that the craftsmen had an exceptional eye for detail, they often left a small bit of cortex on the butt of these axes. As the cortex could have been easily removed the presence of this cortex must reflect a deliberate choice. It was argued that by leaving a small bit of cortex on the butt of the axe, the axe maker indicated that the axe could not have been any larger. The selected nodules were optimally worked. The limiting factor dictating the length of the axe had been the size of the nodule and not the skills of the craftsman. It was therefore posited that craftsmanship was one of the qualities important in the significance of the axes found in depositions.

7.3 Functional analysis

A selection of objects was subjected to functional analysis by means of high power microscopy. The selection contained both axes found in wet contexts and axes retrieved from megalithic tombs. It was presented in chapter 5 that the analysis confirmed the hypotheses presented above with respect to the use-lives of these objects. The axes from graves did indeed appear to have been used for functional tasks and were moreover often resharpened before they were placed in the tombs. The axes from wet contexts did not display any traces of functional use, as was expected based on their physical properties. A number of other features were discovered however.

A recurrent element found on the axes from wet contexts was the presence of red ochre. The red ochre was observed predominantly on the cutting edge of the axes. As the axes did not show any traces indicating contact with unprocessed haematite, it was argued that the ochre must have been applied as a pigment paste. It could not be determined at which stage in the lives of the axes the ochre was applied, it was however repeatedly observed on axes from wet contexts.

The deposited axes did not show any traces of functional use, however, they did show traces indicating another activity. The majority of the axes found in depositions showed micro-wear traces caused by friction with a rather soft material, possibly bark or some vegetable material. The distribution of the polish, being located on all protruding points over the entire body of the axe, indicated that the axes had been wrapped in a certain material. Experiments showed that similar use-traces only developed through the action of wrapping and unwrapping these axes. It was argued that the

ceremonial axes must have been wrapped and unwrapped hundreds, if not thousands of times. The fact that the polish observed on all these axes was identical indicated that a highly specific material had been used for wrapping these axes. Although experiments were conducted with several wrapping materials as of yet no match has been found for the archaeologically observed traces.

7.4 Spatial analysis

Besides the observed patterns that could be related to the production and use-life of the deposited axes, the spatial analysis, presented in chapter 6, indicated that deposition was structured too. Although some of the largest raised bogs of Europe were located in the province of Drenthe these locations were hardly used for the deposition of axes. The axes were predominantly deposited in the bogs located in the stream valleys of small brooks intersecting the Drenthe Plateau. The primary location used for deposition was the boundary between the upland sands and the lowland bogs.

The distribution patterns of the depositions overlaps with the distribution maps of the megalithic tombs. This was taken to indicate that the Drenthe Plateau was inhabited by groups of TRB people who in the direct vicinity of their settlement had both places to bury the dead and to deposit axes. Although the axes themselves were of a non-local origin their deposition was very much a local affair. When the need arose for these axes to be deposited, appropriate locations were selected in the vicinity of both settlements and megalithic tombs. However, through placing these objects at the transition from sand to bog the axes were placed at the boundaries of the domain used for habitation, food production and burial. Such places may have been perceived as boundaries between social groups of people, as well as boundaries between people and supernatural entities.

7.5 Conclusion

Flint axes played an important role in TRB cosmology/ideology. The axes that were found in depositions were probably used in rituals or ceremonies. They were kept apart from functional tools at all stages of their lives. They were specially produced and were exchanged over vast distances. These axes would often have been visually set apart from other axes by their size or by being unpolished. This separation was further emphasized by red pigments (ochre), located near the cutting-edge of the axe. It is unfortunately impossible to tell the exact role these axes played during ceremonies and rituals. We can, however, infer from the wear-traces that during their lives they were repeatedly wrapped and unwrapped in a highly specific material. Their life-histories ended when they were deposited near the edge of the peat in one of the numerous stream valleys present on the Drenthe Plateau. Although these places were located near the places of burial and habitation, each occurred in an exclusive zone in the landscape. By doing so it was clearly emphasized again and again, that these objects had to be placed apart from profane, functional objects.

Taken together, these patterns indicate the existence of a well-defined ritual. These depositions occur over the entire Drenthe Plateau, indicating that this ritual was widely adopted and performed by the TRB people. We are thus dealing with a highly structured phenomenon. The fact that people repeatedly performed these depositions in such a way indicates that the act of deposition, as well as the axes themselves, were considered important and meaningful. In the second part of this thesis the character of this meaning will be explored. Using sociological theory and ethnographic evidence an interpretation will be presented based on the empirically observed patterns.

PART II

INTERPRETING PATTERNS: THE MEANING AND SIGNIFICANCE OF NEOLITHIC DEPOSITIONS

8.1 Introduction

Using different methods and techniques, several patterned characteristics of TRB depositional practices have been explored. This chapter will provide a theoretical framework for interpreting these patterns. The theoretical topics presented in this chapter are structured successively to include those connected to production, exchange and deposition.

8.2 Craftsmanship

In the preceding chapters it has been shown that the axes found in depositions were specially produced for ceremonial activities. A great deal of time and energy was invested in the production of these axes. Moreover small clues were left, for example in the form of cortex that indicated the skills of the craftsman. It was therefore argued that crafting skills themselves were considered important qualities (see section 4.4). But what exactly is craftsmanship? How is craftsmanship structured and what role does it play within a society?

8.2.1 Knowledge and know-how

Traditionally craftsmanship is often divided in theoretical knowledge and practical knowledge, or know-how. The main difference between the two, according to Pelegrin (1990, 118), is that theoretical knowledge is communicative; it can be shared between two actors (teacher and pupil), whereas know-how cannot. Know-how is based on practical experience that each actor has to develop on his own. It is connected with bodily movements and has to be learned by repetition rather than by instruction. Although instruction will help an actor to master particular skills, the source of know-how is primarily intuitive rather than communicative.

Although knowledge and know-how cannot be completely separated from each other a distinction can be made between technologies that require higher or lower degrees of knowledge or know-how. With respect to this Apel makes the following observation:

A technology with a low degree of know-how can be spread over large areas during short spaces of time simply through communication or imitation. On the other hand, a technology which demands a deeper level of know-how will be restricted to areas and circumstances in which the raw material and the time needed to apply

the practical know-how involved in the production and to maintain and develop the technology are available.'
(Apel 2001, 29)

Apel further argues that as far as complex technologies, such as Late-Neolithic flint daggers, Maya eccentrics or TRB square-axes are concerned, these require a relatively high level of both knowledge as well as know-how. Know-how in particular takes time to develop. This means that 'no artefacts will be produced until the flint-knapper has learned to control the repertoire of gestures involved in the production. [...] In order to make remarkable objects, it is not sufficient to have access to the recipe for action; one must also take part in the teaching framework' (Apel 2001, 29-30). In the case of TRB axes one thus has to start by learning the theoretical knowledge and subsequently master the know-how required for production before one can start producing actual axes.

Madsen (1984) suggested that axe making is a craft that most people would be able to quickly master. It is, however, self-evident that most people are potentially able to master any craft, the question, however, is how such a process was structured. Ethnographic evidence suggests that although in some situations particular crafts are freely practised (see Stout 2002, 702), others are highly regulated and restricted. Stout (2002) for example provides us with a detailed description of how adze making is structured among the Langda in the New Guinea Highlands. Adzes can only be manufactured under supervision of the head adze maker, and only particular individuals are allowed to learn the craft. The apprenticeship can last five years or more, but the skills needed to produce the largest adzes can take over ten years to develop. Although most people would indeed have been physically able to master the craft of adze making, only a few people actually produced adzes. The practicing of this craft is structured and controlled by the head-adze maker. The observation that most people would have been able to master such a craft does therefore not mean that the craft was freely practiced as Madsen (1984) suggested. In order to come to a well-based interpretation on the role of craftsmanship in our study, we thus have to explore its potential complexity.

8.2.2 Cosmological knowledge

Semantics

We have seen that craftsmanship involves knowledge; theoretical and practical knowledge required for the actual production of objects. However it often involves also “cosmological knowledge”. Before exploring how this sort of knowledge can be connected with craftsmanship, first the term “cosmological knowledge” needs to be defined. The term “cosmological knowledge” as used in this thesis, entails all sorts of knowledge connected with a group’s cosmology. It refers to all elements connected with myths, ancestors, spirits, and all other things that lie beyond the everyday world. That includes such categories as ritual, religious, secret-sacred and esoteric knowledge. The problem with the terms ritual and religious is their definition. Virtually all researchers have their own definition of the meaning of these words. As long as there is no general consensus as to how these terms should be defined, their application will be problematical. The latter two terms, however, are problematic because neither are comprehensive or neutral. They either refer only to a particular aspect of a group’s cosmology, or they imply a certain manner of organisation and accessibility of that knowledge. The term “secret-sacred” for example is generally used in literature on Aboriginal Australia. It is used to designate religious knowledge, objects and activities. However it also implies that this sort of knowledge is not publicly available but is kept secret by a particular group of people (Charlesworth *et al.* 2005, 261). The term “esoteric knowledge” is also used in a similar way. Helms (1988, 13) defines this kind of knowledge as ‘knowledge of the unusual, the exceptional, the extraordinary; knowledge of things that in some way or another lie beyond the familiar everyday world.’ However, “esoteric knowledge” also implicitly means that it is controlled by an elite or a group of specialists.

A distinction should be made between the sorts of knowledge involved and the manner in which control of knowledge is structured. Especially with regard to archaeology, both elements form different research questions which should be addressed separately. Although “cosmological knowledge” can involve secrecy or exclusive control by specialists, this is not automatically implied. By making this distinction we can first explore what kind of knowledge was present, and at a second stage, how access to this knowledge was structured.

Cosmological knowledge and distance

The most important thing about cosmological knowledge is that it concerns things that ‘lie beyond the familiar everyday world’. Pintupi Aboriginals for example conceive of cosmological knowledge as originating outside human society. It originates from The Dreaming and is ‘passed on from “all the old men” to “all the boys”, from “older” to “younger”, from “before” to “after”, endlessly through the generations’ (Myers 1986, 241). It is a general phenomenon that cosmological knowledge is perceived to originate outside human society. This is generally indicated by the inclusion of elements either from geographically distant places or from the mythical past. With respect to space and time Helms posits the following:

‘As a corollary I argue that in traditional societies horizontal space and distance may be perceived in sacred or supernatural cosmological terms in much the same way that vertical space and distance from a given sacred centre is often perceived in supernatural dimensions and accorded varying degrees of cosmological significance, perhaps being seen as ascending (or descending) and increasingly mystical levels of the universe, perhaps identified as the home of gods, of ancestors, or of good or evil spirits or powers.’ (Helms 1988, 4)

She argues that time and space are linked; far away places and times are ultimately the same. Both lie well beyond the everyday domain of people and exist only in abstract notions such as myths and stories. Spatial and temporal distance can therefore become entangled as both represent distant places, whether horizontally in space or vertically in time. As can be observed in ethnographies world-wide, such distant domains are ‘imbued with sacred, supernatural, or at least “otherworldly” significance by virtue of their association with temporally distant eras, or culture hero-ancestors’ (Helms 1988, 49). She continues to explain that paradigms and schemata of distant places carry various moral connotations that assist members of society, living in the here and now, to understand their place and significance within a wider cosmic setting. Cosmological knowledge containing elements of distant times and places is used to contextualize the here and now, to bring order to chaos.

8.2.3 Cosmological knowledge and craftsmanship

For Westerners it may seem strange to connect craftsmanship, which is usually regarded as something purely practical, with cosmological knowledge. In our society knowledge about sacred, supernatural or “otherworldly” domains is usually controlled by specialists and is generally detached from practical professions, which require craftsmanship. However,

when considering ethnographic data, we find that actually there is a well-established link between the two among many societies other than our own.

The connection between cosmological knowledge and craftsmanship can be introduced through the previously mentioned example of the Langda adze makers (Stout 2002). Besides practical knowledge and know-how, a great deal of cosmological knowledge is required for adze makers to produce adzes. During the knapping process the craftsmen praise *Aim-Ey*, which refers to the mythical figure Alim Yongnum, who is revered as the provider of the tool-stone found in the Ey River. This mythical woman is said “to give birth” to these stones and thus controls their availability. The stones themselves are seen as living entities. If stones fall or do not break as planned, the knappers will speak of the stones being angry. They soothe the stones by calling out to them using their “secret names” as they search for them at the quarry sites along the river. After “birth” the boulders are moreover believed to grow and age as people do, thus, old-stone, being darker and stronger than “young-stone”. Throughout the production process the stones are treated as living entities. There are particular rules as to how to place the stones on the ground in a proper orientation (they should lie parallel, with the cutting-edge facing away from the craftsmen). By observing these rules the craftsmen avoid angering the stones. Although cosmological knowledge may seem trivial to Western researchers it is considered highly important to the Langda adze makers. Information of this kind is considered just as, or even more, important than direct knowledge and know-how required for the physical adze making.

Interesting as a specific case study like this may be, it does not provide us with reliable information that can be directly used for the interpretation of TRB axe depositions. We should therefore focus on the more general themes that can be recognised in ethnographic case-studies world-wide. There are two recurrent elements of craftsmanship that can be linked to cosmological knowledge. One has to do with the actual performance of a particular craft, the other with the origin of the craft itself.

Cosmological knowledge and craft performance

The ability to perform a certain craft that is not controlled by other individuals in a group is often considered to be a form of magic. Magical powers are believed to be required to perform a certain technique, consequently the successful practising of a craft is taken to indicate the craftsman's possession of magical powers (Helms 1988, 111). As was posited above, cosmological knowledge moreover concerned elements that

lie beyond the world of everyday life. Both the retrieval of raw materials as well as the manufacturing of products often took place beyond the boundaries of a social group's daily domestic sphere. Craftsmen ventured out to see unfamiliar places and meet strange people (Helms 1988, 112). According to Helms (1988, 114) craftsmen are intimately involved in the acquisition or preparation of foreign goods. Both these places, the raw material involved and the objects produced can represent cosmologically charged elements that are retrieved from the uncontrolled, chaotic outside world. There thus appears to be a link between the actual actions of craftsmen and the nature of cosmological knowledge. Both seem to involve places outside the everyday domain. Moreover the origins of both cosmological knowledge, as well as crafting skills are often connected with otherworldly domains such as magic.

Cosmological knowledge and the origins of craftsmanship

‘The abilities recognized as crafting skills are frequently accorded special significance not only because they are acquired or exhibited by relatively few persons or because they may identify a given individual's particular area of expertise and perhaps personal identity, but also because crafting skill indicates a special gift or a special power.’ (Helms 1988, 115)

The most common link between craftsmanship and cosmological knowledge can be found in the attribution of the origin of the craft itself as well as the objects produced. We see that both the knowledge involved in production as well as the objects produced are considered gifts from mythical ancestors or spirits. This can be illustrated by various ethnographic examples:

‘In Australia, localities where various objects are made are those where spirit ancestors introduced them or their method of manufacture’ (Helms 1988, 116). The production of Kimberly points in Australia has already been mentioned. Some of these points were too big for use and were solely produced for exchange purposes (Akerman *et al.* 2002). The manufacturing of these points is associated with mythical ancestors who invented the craft.

‘Wodoi made the first stone-tipped spears – light reed-shafted darts that could be propelled great distances with the new spear-thrower. The first stone spearheads were simple pointed flakes and blades with coarse toothed or steep edges. Tips were often thick and heavy. Even so, the new weaponry was far superior to the old, hand-thrown spears. Wodoi and Tjungkun bequeathed

the art of making such weapons to the ancestors of the Wororra, Wunambal and Ngarimjin people of the north Kimberley.' (Akerman et al. 2002, 16)

The Leirira stone blades from northern Australia are also specially produced for exchange (Paton 1994). The production of these blades was strongly associated with ancestral beings that first exploited the stone quarries used for the blade production. Each blade received a name associated with its quarry and blades of different quarries were not to be mixed. The blades could be used to cure illnesses and were moreover wrapped in a sheath of paperbark and were not to be carried around openly nor left lying around.

As was mentioned above, adze production among the Langda is closely related to spirits and ancestors (Stout 2002). A vast corpus of terminology and cosmological knowledge is involved in the adze making process and there is a strong connection with the ancestors who invented the craft.

'The first thing, entirely unsolicited, that adze makers generally wanted to relate during interviews was a list of their ancestors who had handed down the craft through the years. For the dominant Balyo clan, the list begins with Menminy Malyoman Balyo, who is said to have originated the technology. Another important figure, as we have seen, is the mythical woman Alim Yongnum, who "gives birth" to the stones in the Ey River and controls their availability.' (Stout 2002, 704)

A similar connection between spirits and a specific craft can be found among the Baruya of New Guinea (Godelier 1990, 144; 1999, 113). The Baruya use a musical instrument called a bull-roarer. These instruments are played on during ceremonies and are made from black-palm to which a bark string is attached. As they are whirled around they make a strange sound, which is said to be the voice of the spirits. According to Godelier (1999, 113, my emphasis), 'the bull-roarers are manufactured by the men and passed on as treasures to their sons. But *in the beginning*, the Baruya say, they were *given* to the men by the *yimaka*, the forest spirits.' These instruments belong to the most sacred of all sacred objects called *kwaimatnie*. Each lineage has a set of *kwaimatnie*, which are sacred objects associated with that lineage. The bull-roarers, however, do not belong to any lineage in particular. They are the source of the men's fighting powers, their powers of death and destruction.

Craftsmanship is thus often connected with supernatural entities such as spirits or ancestors. They were the entities from which the craft originated, they either gave mankind the objects directly or the knowledge required for their production. Helms (1988, 116) argues that the 'association of

crafting skills with extraordinary power [...] [can] be found either directly stated or implied in ethnographies worldwide.' Also Gell (1992, 59; 1998, 23) argues with respect to art objects that they are not attributed to human "artists" but are often thought to be of divine origin, were manufactured by using magic or to have mysteriously made themselves. Practicing a craft cannot solely be seen as a practical, functional enterprise. It often involves interaction with supernatural entities or magic. According to Helms (1988, 115), 'the artisan is a connoisseur of secrets, a magician; thus all crafts include some kind of initiation and are handed down by an occult tradition'. The sorts of cosmological knowledge involved often refer to mythical ancestors or spirits. Thus, 'crafting skills in particular may represent human intelligence and understanding which, in traditional societies [...] ultimately refers to understanding of the meaning and operation of the cosmos and its dynamic and animating powers' (Helms 1988, 116).

8.3 Gift exchange

8.3.1 Introduction

By far the most influential work ever written about gift exchange is Mauss's "*Essay sur le don*" first published in 1924 and translated into English in 1950. Mauss describes how gift giving is one of the major structuring elements of society. Gift exchange is what Mauss refers to as a '*total social phenomenon*'. By this he means that the phenomenon of gift exchange influences all social institutions at the same time. Gift exchange is simultaneously religious, juridical, moral, political, economical and even aesthetic and morphological (Mauss 2002, 3, 90, 100). Lévi-Strauss even goes so far to state that exchange was the first fact of social life, a society according to him, is first of all an exchange network (Lévi-Strauss 1963, in Deliège 2004, 22). According to Godelier (1999, 36) it was Aristotle who remarked in "*Etics*" that if there was no exchange, there would be no social life.

Bloch & Parry (1989, 9) introduce the principles of gift exchange by stating that 'from a Marxian tradition we consider gift exchange as non-exploitative, innocent, our view is constructed in antithesis to market exchange. However non-market societies will see gift exchange completely differently. Here it is very serious business creating bonds and obligations!' Although gifts are in theory voluntary, 'in reality they are given and reciprocated obligatorily' (Mauss 2002, 3). In fact there are, according to Mauss, three fundamental obligations; the obligation to give, to receive and to give in return (Mauss 2002, 16-17). After a gift is given the recipient feels obligated, and is expected to return a gift, to reciprocate.

To refuse to reciprocate, according to Mauss (2002, 17), is 'tantamount to declaring war; it is to reject the bond of alliance and commonality.' This is the underlying principle that Mauss repeatedly refers to. Although gifts or presents appear to be voluntary, they are in fact compulsory, on pain of war. Mauss adopts a Hobbesian point of view by stating that man's natural state, is a state of war. Only by exchange can this state of war be overcome.

'To trade, the first condition was to be able to lay aside the spear. From then onwards they succeeded in exchanging goods and persons, no longer only between clans, but between tribes and nations, and, above all, between individuals. Only then did people learn how to create mutual interests, giving mutual satisfaction, and, in the end, to defend them without having to resort to arms.' (Mauss 2002, 105)

The exchange of gifts must thus primarily be seen as a social act. In this it contrasts with the exchange of commodities that are generally held to only represent an economic value. Gift exchange often however does not provide any economical benefit and on such occasions is solely a social act. There is apparently something else that motivates people to exchange gifts rather than commodities.

'Goods are not only economic commodities, but vehicles and instruments for realities of another order, such as power, influence, sympathy, status and emotion; and the skilful game of exchange (in which there is often no more real transfer than in a game of chess, in which the players do not give each other the pieces they alternately move forward on the chessboard but merely seek to provoke a counter-move), consists in a complex totality of conscious or unconscious manoeuvres in order to gain security and to guard oneself against risk brought about by alliances and rivalries.' (Lévi-Strauss 1969, 54)

8.3.2 Commensurability and reciprocity

The entanglement of giver and receiver

By giving gifts a spiritual bond is created between the giver and the recipient. To make a gift to someone is also to make a present of some part of oneself. The gift, according to Mauss (2002, 16), possesses part of the soul of the giver. The gift is commensurable with the giver and through the gift the giver and recipient become intertwined. In this sense a present gives concrete form to a social relation; it makes the bond between people tangible. It defines their relationship and at the same time reinforces that relationship.

Inherent to the principles of gift exchange, however, such a bond is never neutral. As the recipient is obligated to return a gift after receiving one, giving a gift creates an obligation. About the creation of this obligation Godelier states the following:

'The act of giving seems to create simultaneously a two-fold relationship between giver and receiver. A relationship of solidarity because the giver shares what he has, or what he is, with the receiver; and a relationship of superiority because the one who receives the gift and accepts it places himself in the debt of the one who has given it, thereby becoming indebted to the giver and to a certain extent becoming his "dependant", at least for as long as he has not "given back" what he was given. [...] By its very nature, gift-giving is an ambivalent practice which brings together or is capable of bringing together opposing emotions and forces.' (Godelier 1999, 12)

A gift does not only define a social relationship, it also manipulates the relationship. Each time a gift is given, the social relationship between giver and recipient is redefined and ranks are changed. By giving a gift, the giver, who was under the obligation to give, transfers this obligation to the receiver, placing the recipient in his debt. This principle can lead to systems of competitive gift-giving such as can be seen in the Kwakiutl potlatch.

'[A chief] can only preserve his authority over his tribe and village, and even over his family, he can only maintain his rank among chiefs – both nationally and internationally – if he can prove he is haunted and favoured both by the spirits and by good fortune, that he is possessed, and also possesses it. And he can only prove this good fortune by spending it and sharing it out, humiliating others by placing them "in the shadow of his name".' (Mauss 2002, 50)

By giving gifts, obligations are created to which other chiefs have to live up to. If one cannot repay the gifts that one received one violates etiquette and can lose one's rank. 'In accepting a gift', according to Godelier (1999, 44), 'one accepts more than a thing, one accepts the fact that the giver has rights over the receiver.' Receiving a gift thus becomes potentially dangerous as the obligation it accompanies can damage the recipient's social position. This is where Mauss's central question comes into play. Why do people feel this need to reciprocate?

'What rule of legality and self-interest, in societies of a backward or archaic type, compels the gift that has been received to be obligatorily reciprocated? What power

resides in the object given that causes its recipient to pay it back?' (Mauss 2002, 4)

Although this is the element of gift exchange that fascinated Mauss the most, his solution to this problem is ironically the element of his work that has received most criticism.

The principles of reciprocity

According to Mauss the principle of reciprocity lay in the object itself. The object according to him was not inactive but was invested with life and sought to return to its place of origin after it had been given away (Mauss 2002, 16). Mauss based this explanation on an account of the Maori notion of *hau*. The *hau*, according to Mauss, was a spirit that resided in the object and was connected to the place where the object originated. It was ultimately the *hau* that desired to return to its place of origin, thus explaining reciprocity. The main point of critique was posed by Lévi-Strauss (1950, 38-40) who maintained that the notion of *hau* was merely the Maori point of view, which could not be extrapolated to a universal explanation for the principles of reciprocity. As this critique was generally accepted the question remained how to explain reciprocity.

This presents us with somewhat of a problem. According to Lévi-Strauss every social act is ultimately structured by the principles of exchange. Mauss maintained that reciprocity is the ultimate structuring principle of exchange. It could therefore be argued that reciprocity is, if not the ultimate, at least one of the fundamental structuring elements of human society. Interestingly, however, no one has presented a satisfying and generally accepted explanation for reciprocity; why do people feel obliged to make a gift in return after receiving one?

Some interesting remarks about this topic have recently been published in a book by Boyd & Richerson (2005) about gene-culture co-evolution. Their theory maintains that both genetic and cultural traits are subject to the principles of evolution.

'Culture affects the success and survival of individuals and groups; as a result, some cultural variants spread and others diminish, leading to evolutionary processes that are every bit as real and important as those that shape genetic variation. These culturally evolved environments then affect which genes are favoured by natural selection.' (Boyd & Richerson 2005, 4)

It would seem logical that if a particular principle, such as reciprocity, can be found among humans world-wide and moreover seems to play a structuring role in social organization, such a principle needs to be explained in evolutionary

terms. One can image a scenario in which reciprocators and their offspring have better chances of evolutionary success than individuals that do not reciprocate.

'Suppose that animals live in social groups and the same pair of individuals interacts over an extended period of time. Often, one member of the pair has the opportunity to help the other, at some cost to itself. Suppose that there are two types: defectors who do not help, and reciprocators who use the strategy "Help on the first opportunity. After that, help your partner as long as she keeps helping you, but if she doesn't help, don't help her any more." Initially, partners are chosen at random, so that at the first opportunity, reciprocators are no more likely to be helped than defectors. However, after the first interaction, only reciprocators receive any help, and if interactions continue long enough, the high fitness of reciprocators in such pairings will be enough to cause the average fitness of reciprocators to exceed that of defectors.' (Boyd & Richerson 2005, 199)

This however does not explain why reciprocity is basically only encountered among humans. If there is a simple evolutionary benefit for reciprocating individuals, why then are humans the only species that portray complex reciprocal behaviour? In such a scenario it would be logical to assume that reciprocity is a phenomenon that is far more commonly encountered in the animal world than it is. Although there is some evidence of reciprocity among animals (e.g. primates or vampire bats), this evidence is scanty to say the least. According to Boyd & Richerson (2005, 199) reciprocity, as described in the situation above, only works in small groups, but not in larger ones. Theoretical models predict that among larger groups it will be the defectors rather than the reciprocators that are better off.

'For example, the helping behaviour could be an alarm cry that warns group members of an approaching predator, but makes the callers conspicuous and thereby increases their risk of being eaten. Suppose there is a defector in the group who never calls. If reciprocators use the rule, only cooperate if all others cooperate, this defector induces other reciprocators to stop cooperating. These defections induce still more defections. Innocent cooperators suffer as much as guilty defectors when the only resource to defection is to stop cooperating. On the other hand, if reciprocators tolerate defectors, then defectors can benefit in the long run.' (Boyd & Richerson 2005, 199)

It thus seems that neither anthropologists nor biologists are able to explain reciprocity. According to Boyd & Richerson, 'the ultimate explanation for cultural phenomena lies in un-

derstanding the genetic *and* cultural evolutionary processes that generate them. Genetic evolution is important because culture is deeply intertwined with other parts of human biology. The ways we think, the ways we learn, and the ways we feel shape culture, affecting which cultural variants are learned, remembered, and taught, and thus which variants persist and spread.' Gordon Childe (1952, 23) remarked, almost prophetically in this respect, that human beings do not adapt to the real world but to the world as their society imagines it to be. Human society creates a reality of its own as it were. In human society defectors, as described in the above scenario, can for example be punished, either physically or through social negligence. By doing so their evolutionary success can be drastically limited. Human society thus has the power to adjust the criteria of "natural selection".

'Evolutionary theory and the lack of large-scale cooperation in other primates suggest that selection directly on genes is unlikely to produce such predispositions. So, why did they evolve? We think cultural evolutionary processes constructed a social environment that caused individual natural selection to favour empathetic altruism.' (Boyd & Richerson 2005, 238)

There is still not a generally accepted explanation as to why reciprocity works. Although there are some forms of reciprocity among animals, none portray reciprocity of the scale and complexity that can be found among humans. I agree with Boyd & Richerson, who suggested that an explanation should be sought in the ways culture and genes influence each other on an evolutionary scale. Only the interplay between culture and genes can explain the strangeness of the human kind.

'The human species is a spectacular evolutionary anomaly, so we ought to expect that the evolutionary system behind it is pretty anomalous as well.' (Boyd & Richerson 2005, 15)

8.3.3 Inalienable possessions

The objects that circulate in gift exchange are not merely material things. They are material representatives of social relations between people. They are commensurable with previous owners and thus inalienable. These objects are connected with both their history as well as the relationships they currently mediate (Fowler 2004, 65). The term "inalienability", however, does not have a fixed definition. Several authors use the term in quite different ways. This has to do with the fact that there are different levels of inalienability. All gifts are to a degree inalienable, as they will always be commen-

surable with their previous owner(s). However some objects are so deeply embedded in the identity of a person or group that this results in a restricted exchange potential. Although some objects can be exchanged as gifts, others are inalienable to such a high degree that they cannot enter the domain of exchange. They are kept as sacred possessions of a specific person, family or group. Others may circulate only under certain circumstances, such as on loan, as copies, or in return for another object of the same kind (Weiner 1985, 212).

Inalienability does not only refer to the events and persons the object was involved with in the past, it also forms a constitutive element for social positions in the present.

'The primary value of inalienability, however, is expressed through the power these objects have to define who one is in an historical sense. The objects act as a vehicle for bringing past time into the present, so that the histories of ancestors, titles, or mythological events become an intimate part of a person's present identity. To lose this claim to the past is to lose part of who one is in the present.' (Weiner 1985, 210)

Objects that circulate in gift exchanges thus not only serve to represent a certain economic value or as a material reference to a social relationship. These objects can also help define a person's identity, social status and rank. These objects can be used to attach ancestral connections to the identity of a person or group.

'An individual's role in social life is fragmentary unless attached to something of permanence. The history of the past, equally fragmentary, is concentrated in an object that, in its material substance, defies destruction. Thus, keeping an object defined as inalienable adds to the value of one's past, making the past a powerful resource for the present and the future. The dynamics surrounding keeping-while-giving are attempts to give the fragmentary aspect of social life a wholeness that ultimately achieves the semblance of immortality, thereby adding new force to each generation.' (Weiner 1985, 224)

In prehistoric societies in particular, inalienable objects form powerful material links with elements only known from oral traditions. History, lineages as well as social relationships are, important as they may be, in the end only immaterial, abstract notions. Inalienable possessions make such notions tangible, make them real. They are used to define who people are in relation to others.

'With inalienable wealth, we also find "visual substitutes" for history, ancestors, and the immortality of human life.' (Weiner 1985, 224)

8.3.4 Knowledge as an inalienable possession

It is not only material objects which can be inalienable. Besides the objects that serve as “visual substitutes” of history or ancestors, elements such as “history” or “ancestors” can also be highly inalienable in themselves. This can be illustrated on basis of The Dreaming of the Australian Aboriginals. Besides sacred objects, The Dreaming largely consist of such things as myths, names, songs and ceremonies. All these elements are inherited from one generation to the next.

In this way, The Dreaming itself encompasses vast inalienable possessions that are authenticated by the very cosmology under which they are produced. (Weiner 1992, 101)

The most treasured elements of The Dreaming are not material objects but knowledge about Aboriginal cosmology. It has been posited that inalienable objects define the social position of people with respect to ancestors, lineages. They place people within a wider cosmic setting. The same is true, however, for cosmological knowledge itself. This knowledge connects people with mythical times, places, events and actors; it defines a group's identity. Such knowledge itself is highly treasured and can thus be seen as highly inalienable. The magical-religious formulas used in the men's initiation rites among the Baruya for example are closely guarded by the men who inherited this knowledge from their ancestors. These ancestors in turn received this knowledge directly from Sun and Moon (Godelier 1990, 79). Besides cosmological knowledge, practical knowledge can also be an inalienable possession. As was discussed above, theoretical and practical knowledge concerned with craftsmanship is often deeply entangled with cosmological knowledge; practical knowledge and crafting skills themselves are often seen as gifts from spirits or ancestors. Both knowledge concerning cosmology as well as craftsmanship can thus be part of a group's inalienable possessions.

As is the case with all inalienable possessions, access to these sorts of knowledge is highly regulated and often restricted. It is either controlled by a group of ritual specialists or by an age and/or gender group. Theoretical and cosmological knowledge can be kept secret, while practical knowledge, or know-how, can be controlled through exclusive apprenticeship systems. In both scenarios secrecy is the key element. According to Helms (1988, 13-14) secrecy can be used for the production of mystique. It is used to effect “distance” or separation of one sort or another. As is the case with individuals who control inalienable objects, also the control of cosmological knowledge can be used as a major means of effecting political and ideological “distancing” in society. Secrecy can thus be used to keep both information

and the expression of power and authority hidden from the uninitiated (Helms 1988, 13).

‘Pintupi men exchange their names or the esoteric knowledge of sacred sites and ceremonies with each other. In this way, they establish ego-centered links with Pintupi who live in distant places, creating shared social identities drawing dispersed people together as members of “one country”. Pintupi elders “look after” other men by gradually divesting themselves of this sacred, secret knowledge and in these practices, they control the circulating parts of The Dreaming, as they alone decide who receives the knowledge and what parts they will teach. Through their prior access to The Dreaming, elders garner and invoke authority over others created not only because The Dreaming is inalienable, but because they control the succession of its circulation [...].’ (Weiner 1992, 105-106)

Both objects and knowledge can thus be exchanged, controlled and manipulated. Both can be highly inalienable and are used to connect people with distant places, mythical persons and events, they place people within a wider cosmic setting. The material objects serve as visual substitutes of the elements described and explained in the corpus of knowledge that constitutes a group's identity. In this respect inalienable objects and cosmological knowledge are intimately intertwined; they are elements of the same cosmological continuum. One cannot exist without the other, they are not only intertwined, they are dependent upon each other, they define each other.

8.4 Sacred objects and gifts to the gods

8.4.1 Introduction

Inalienable objects are embedded within a group's identity or cosmology. For example the Baruya *kwaimatnie*, which have been discussed above, are gifts from the forest spirits. These objects are associated with supernatural powers and are highly treasured. We are prone to label such objects as being “symbolic”. The problem with this is that although they seem symbolic to us, they are not symbolic for the Baruya. The Baruya see these objects not as symbols of supernatural entities but as actual spirits (Godelier 1999, 122). Spirits dwell inside these objects and their powers are very real. To the Baruya these objects are sacred.

According to Godelier (1999, 179) ‘the sacred is a relationship humans entertain with origins, with the origins of themselves as well as everything around them.’ Although the symbolic makes the social system visible, or “communicates”

it, as Godelier puts it, it is not its ultimate source nor its basis. The Baruya *kwaimatnie* do not refer to mythical times, they were the actual objects that played a role in these mythical times.

'The kwaimatnie are presents given by the Sun to the ancestors of the different Baruya clans at a time when humans were not as humans are now, at the beginning of time when things were just being set in place, at the time of the wandjinia, beings from the Dreamtime. Today's men and women therefore owe a lasting debt to the Sun and the Moon, just as they are indebted to their ancestors who received these gifts from the Sun and passed them on. These sacred objects and the knowledge that goes with them cannot be alienated. The Baruya are obliged to keep them. It is these objects which give them an identity and root this identity in the Beginning, in time of the (imaginary) order of things, the time when the cosmic and social order was first established.' (Godelier 1999, 121)

According to Godelier (1999, 109) the strength of these objects lies in their capacity to 'materialize the invisible, to represent the unrepresentable. And it is the sacred object which most completely fulfils this function.' As was discussed above there are different levels of inalienability. Following Godelier it is the sacred object that is the most inalienable of all inalienable possessions.

8.4.2 What makes sacred objects sacred?

The most important element of inalienable objects, whether they are considered to be sacred or not, is their source of authentication. The object itself is but an object, it is ultimately the connotations connected to this object that make an object inalienable or even sacred. One of the most important elements of this authentication is that it must lie in a domain outside the present (Weiner 1992, 101). The power of sacred objects can only be legitimated by entities that are held to be fundamental to a society's world-view. As for the Baruya, 'they do not think of themselves as being the authors of this order, because they believe that beings more powerful than themselves invented it and handed it down to their ancestors, who were different from present-day-humans' (Godelier 1999, 123).

[Sacred objects] can be presented as having been made either directly by gods or spirits, or by men following instructions provided by the former, but in any case, the powers present in these objects were not made by man. These objects are gifts from the gods or the ancestors, gifts

of powers henceforth residing in the object.' (Godelier 1999, 137)

According to Godelier (1999, 124) this is a universal phenomenon that can be found in all human societies. He argues that 'in order to be reproduced by all members of a society, social realities must appear, if not to everyone at least to the majority, as legitimate, as the only ones possible, and this certainty is not wholly self-evident unless the origin of these relations seems to lie outside the human world, in some sacred, changeless order, and changeless because it is sacred.'

Because the authentication of such an object's sacred powers lies in a sacred, changeless order, it follows that shifting ownership of a sacred object does not reduce the object's power 'as long as beliefs in its sacred authentication continue' (Weiner 1992, 100). According to Weiner only the destruction of the possession's sacred authentication will cause it to lose its formidable power. Exchanging such an object will not destroy, but merely transfer its power.

As was discussed above, however, it is exactly these objects which are often kept and are not exchanged at all. The Baruya *kwaimatnie* for example cannot be exchanged as gifts among men, because they were gifts from the spirits. It is however not always the case that sacred objects are not exchanged. On some occasions it was not the object itself that was given to man but rather the knowledge required for its production. In such a scenario it is often found that this knowledge itself is considered a sacred and inalienable possession that is kept while the objects produced with it can be exchanged. In such societies it is customary to make copies of sacred objects and to multiply these copies. 'The archetype of these objects, which is at the same time the prototype is carefully preserved somewhere, if only in people's minds' (Godelier 1999, 138).

8.4.3 What kind of objects are sacred objects?

Not all kinds of objects are readily attributed a sacred origin. Certain characteristics are recurrent in most objects considered sacred or highly inalienable. According to Lévi-Strauss (1969, 55) it is mostly non-utilitarian objects which are especially appropriate for exchange. Godelier posited several functions and characteristics that according to him apply to objects that are used to materialize wealth and power. These elements however also apply to sacred objects. Godelier (1999, 162) posits it as a rule that these objects must first of all be of no practical use. They should be unusable in daily activities, and although some may appear to be weapons or tools they are never used as such. Through their abstract character these sacred objects are disconnected from everyday life. This abstraction is a prerequisite, according to

Godelier, 'for their being able to "embody" social relations and thought systems and then re-present them, to present them back to the social actors in a form which is material, abstract and symbolic.'

Such objects must also be beautiful according to Godelier. Beautiful as defined by the cultural and symbolic universe of the societies that use and make these objects.

[...] beauty can be the vehicle for two functions. It can valorize, enhance, and glorify the object's owner [...]. But the beauty of an object is also a source of emotions which create a kind of intimacy between the object and its owner, and contribute to a feeling of identification between the individual and the thing he exposes to the gaze of all.' (Godelier 1999, 162)

Godelier posited three functions that objects of wealth and power must fulfil. The first two in particular apply to sacred objects as well, the third only to some degree.

1. They must be substitutes for real persons.
2. They must attest the presence within themselves of powers emanating from imaginary beings (deities, nature spirits, ancestors) believed to be endowed with powers of life and death over persons and things.
3. They must lend themselves to comparison with each other so that, by their qualities and/or their quantities, they provide their owners with the means of measuring themselves against others or raising themselves above the rest.

The most valued, sacred, objects are indivisible; they become autonomous entities often with their own names and life-histories. As such they become, and get treated as, social persons. The authentication of the powers of such an object must emanate outside the human sphere. The last function these objects must fulfil according to Godelier is particularly important when it comes to exchanges. Godelier, however, focuses here on the potentially competitive aspects of such exchanges, such as in the potlatch. Although sacred objects, such as the Kwakiutl coppers, can be subjected to competitive exchange, this does not always have to be the case. We have already seen that the most inalienable of objects are often not exchanged but are kept; others however can only be exchanged for other sacred objects with comparable powers. In the latter case it is important that the objects and their ascribed powers can be compared, however in such a case this is not done with the intent to outdo the other but to make the exchange equal.

8.4.4 The fourth obligation

Mauss presented the three fundamental obligations with respect to gift exchange; the obligation to give, to receive and to give in return. However, he also mentioned a fourth obligation; the obligation to give to the gods. People do not only exchange gifts among each other, they also present gifts to beings they regard as superior; divinities, spirits or ancestors. Mauss (2002, 21) argues that both gifts to humans and gifts to gods 'serve the purpose of buying peace between them both. In this way evil spirits and, more generally, bad influences, even not personalized, are got rid of.'

In a way sacrifice, which a gift to the gods ultimately is (see Gregory 1980, 644), can be seen as a form of reciprocity. According to Mauss the gods and spirits are the true owners of everything in this world. By presenting gifts to the gods people reciprocate the gifts that they received on a prior occasion and try to make the gods reciprocate them, for example in the form of good weather for crops. Offerings to the gods can however also be given to 'praise, please or placate divine power' (Bell 1997, 108).

The making of a sacrifice thus involves the surrender of a possession and the transfer of ownership. This transfer can be performed in a variety of ways. It can involve the killing of animals or humans or the destruction of artefacts. Food can be offered to the gods, which after the gods have eaten, can be consumed by humans in the form of a communal meal (Bell 1997, 108). However as Mauss (2002, 18-20) points out it can also involve the transaction of objects between two humans, performed in the sight of the gods. During such performances one of the exchange partners acts as a representative, or incarnation, of a spirit, god or ancestor. Gregory (1980, 644) adds that in such a scenario the person acting on behalf of the divinity is not placed in a gift-debt relationship.

Supernatural entities however take a very exceptional position within an exchange network, which Godelier typifies as follows:

'One is forced to conclude that, in the case of the "great powers" - gods, goddesses, all manner of supernatural beings - humankind finds itself confronted with beings with whom no equivalent exchange is possible and there are at least three reasons for this. Because these powers originally gave men what they wished to give without the latter having asked. Because what the powers gave - the world, life, death - is such that men have no equivalent to give in return. And last, because the gods give even when they receive. They are "gracious" enough, "good" enough to accept. But just as they were not obliged to give, so the gods are not obliged to accept, or to give in return. The gods are not bound by the three obligations

which are bound up together in the human world and which bind men.' (Godelier 1999, 186)

Since supernatural beings are not obligated to reciprocate, according to Godelier, it follows that sacrifice does not compel the gods to make a gift in return. Sacrifices are thus no more than "requests", attempts to make the gods give something in return, at no point however the outcome is certain. Moreover, since all objects are ultimately gifts from the gods, they give far more than is offered to them by humans (Mauss 2002, 22; Godelier 1999, 29). This principle also touches upon the character of competitive gift-giving. 'If a person gives more than a recipient can ever give back the giver assumes a dominant, even god-like role' (Godelier 1999, 29). As humans can never reciprocate the gods for all they have given, humans are eternally in debt to the gods, fully subjected to their mercy.

8.5 The significance of landscapes

8.5.1 The inalienability of landscapes

The landscape people inhabit is not merely a container for human action. The landscape is a place that is highly entangled with human action. As Helms (1988, 20) puts it, 'left to itself, the physical landscape "has no form". Replete though it may seem to be with mountains and valleys, rivers and forests, islands, oceans, and continental expanses, a landscape has no meaningful shape and significance until it is accorded place and identity in the social and cognitive worlds of human experience.' It is human experience that transforms the natural environment in a socially and culturally significant and meaningful landscape.

'The landscape is redolent with past actions, it plays a major role in constituting a sense of history and the past, it is peopled by ancestral and spiritual entities, forms part and parcel of mythological systems, is used in defining social groups and their relationship to resources. Histories, discourses and ideologies are created and re-created through reference to the special affinity people have with an area of land, its topography, waters, rocks, locales, paths and boundaries.' (Tilley 1994, 67)

As is the case with objects and knowledge, places can also belong to a group's inalienable possessions. Places in the landscape can become 'captured in social discourses and act as mnemonics for the historical actions of individuals and groups' (Tilley 1994, 18). As was the case with inalienable objects, places in the landscape can act as visual reminders of past actions, of history and myth. Through visiting these

places the attributed significance of such a place becomes more real, becomes tangible.

The landscape, however, is not a static place only commensurable with events that took place in times long ago. The landscape is continually being en-cultured, new connotations of events or persons are continually added. The landscape is a social entity that is continually re-created. Landscapes have a life-history of their own, each place, location or feature with its own biography.

8.5.2 Monuments as inalienable places

The most likely of places to become inalienable are those places that are actively constructed as such. Megalithic monuments, barrows, henges, causewayed enclosures are all places in the landscape that are associated with history. Places with history of construction, of burial events, of rituals and ceremonies performed there. Barrows and tombs are not merely places to bury the dead. In prehistoric societies in particular such monuments form the only permanent humanly constructed elements in the landscape. In such a capacity they form anchors for social memory, they connect the past only known from stories and myths with the present. They form the material embodiment of the social system they are part of and are thus highly inalienable.

What is particularly interesting is that monuments are not only regarded as special places by the people that constructed and used these places. In later times also people re-interpreted these places and attached special significance to them. This is particularly well described for Bronze and Iron Age activities taking places at much older monuments. Bronze Age barrows for example tend to cluster around already present Neolithic barrows (Bourgeois 2005; in prep.). Iron Age enclosures are also usually found associated with much older Bronze Age barrows (Fontijn 1999). With regards to the TRB tombs it is often found that besides material from the TRB culture, the contents of the tombs usually also contain finds from the Late Neolithic and Bronze Age (see Drenth & Hogestijn 1999, 146-149). Although such places may have been subjected to re-interpretation they remained of a special significance. Later groups recognised these places as meaningful elements in the landscapes and incorporated them in their own social system.

8.5.3 The significance of boundaries

Particular zones in the landscape can be attributed a specific symbolic significance. In particular boundaries or transformational thresholds between spatial zones, rather than those zones themselves, may represent sharper symbolic contrasts

(Helms 1988, 28). These places emphasize a more exclusive sense of “us” versus “not us”. They form the places where two or more conceptual zones touch upon each other and exclude each other. At the same time as defining what is outside, boundaries also define what is inside.

‘Boundaries can make the edge as important as the center. [...] Boundaries keep (or try to keep) the “good” inside and the “evil” outside. Boundaries keep all eyes turned back, inward toward the center, or, for those who must venture forth, mark the point where ritual protection must begin to safeguard travellers and where purification must take place on their return before they may safely re-enter society.’ (Helms 1988, 28)

Places and boundaries can also define and restrict particular realities. The all-inclusive, global cosmos held by members of Western societies today, is probably radically different from the way traditional societies recognized their political-religious cosmos (Helms 1988, 30). The latter usually were

geographically limited. Boundaries can demarcate the transition between environmental zones, political territories but also between religious realities. The powers of gods, spirits or ancestors may be confined to geographically limited areas. Australian Aboriginals for example see certain boundaries in the landscape also as barriers of supernatural powers. Beyond those boundaries myths could not be told, songs sung nor a series of ceremonies be performed (Tilley 1994, 39).

Boundaries thus help to define inside and outside. It is at these places that all sorts of contrasting elements are combined. They can simultaneously form the boundary of political territories, places with a different symbolism or places with different religious realities. They define everything that is inside and at the same time represent everything that is outside. As we have argued above, the origin of cosmological knowledge is typically located in distant locations, which can ultimately be the same as long gone times. The boundaries of the everyday world therefore also connect the world with both spatially and temporally distant domains.

9.1 Introduction

The axes found deposited in the Dutch bogs were not merely tools or pieces of stone. The fact that they had been specially produced, given the same treatment during their “lives” and were selectively deposited in particular places indicates that these objects were imbued with a special meaning (see Fontijn 2002, 216). We have seen in the previous chapter that there are several ways in which objects can become more than mere commodities. This implied that such objects were considered inalienable to varying degrees. They could for example be associated with previous owners through their role in exchange or they could even be considered sacred due to their mythical origins. The patterning in the archaeological data indicates that these axes were indeed seen as inalienable objects. The aim of this chapter is to define the nature and origin of this inalienability more accurately.

In order to do so the different stages in the life of these axes will be described in a biographical manner. The structure of this chapter, however, will not conform to the conventional structure of a biography. The reason for this lies in the fact that these objects did not enter the bogs because of their accumulated life histories. These objects were specially produced for ceremonial purposes, which indicates that already during production a special significance was attributed to these axes. It is ultimately this significance, already present during production that pre-determined the subsequent life-histories of these objects, resulting eventually in the placement of these axes in waterlogged places.

The origin of the meaning of these objects thus lies at their production. However, all data indicative of their use and treatment is extracted from deposited objects. In order to understand and explain the potential significance that was attributed to these axes during production, we are required to start our exploration at the end of their life-histories at deposition. It is this life-stage, deposition, from where we derive our archaeological data. We will explore the patterns in this data and work our way back through time. What do these patterns imply for the role these axes played prior to deposition, what sort of use-life did these objects have, and ultimately what does this imply for their production? Only by working our way back through time can we approximate the significance that was attributed to these objects during production. This is necessary because it is ultimately the significance that was attributed to these objects during production that can explain why these axes were subsequently

deposited. This strategy implies that this chapter will start out with a rather *etic* approach, the data will be presented and put in context. After doing so the patterns can be used to come to a more *emic* explanation and interpretation of the practice of deposition.

9.2 Composition of depositions

We will start our exploration at the composition of the depositions. Although many single axes were found deposited in the peat, a number of multiple object depositions also occur. What sort of objects were found associated in multiple object depositions? What is the relationship between these objects?

Some of these depositions, such as the one of Eenerveld 1940 mentioned in section 3.5.1, contained objects that clearly came from different sources. This deposition contained a fully polished axe, a partially polished axe, an axe rough-out and four flint nodules. Apart from the fully polished axe these objects were of a type of flint only occurring on the island of Helgoland, the fully polished axe is of an unknown origin. This is what I would like to call an assembled deposition. Although these objects did not start their biographies together, they did end it together. At some point during the process of exchange these axes, and sometimes flint nodules, were assembled and deposited as a group. It is not clear when and where the arrangement took place. Apparently such objects could be linked together with a similar purpose to be deposited during a single event.

Other multiple object depositions however seem to imply a completely different scenario. When we take a look at the deposition of Valthe III, we find that it consists of three almost identical flint axes. The axes are manufactured of the same kind of raw material and their physical properties are extremely alike. They form a distinct set of axes that seem to have been produced by the same flintknapper. None of the other Dutch finds resembles these axes to such a degree as they resemble each other, which leads me to conclude that this particular hoard of axes travelled together as a group, rather than as separate axes. What prevented people from separating this group and exchange the axes as separate objects? Apparently it was important for this group of axes to be kept together. This seems to indicate that these axes were not seen as three autonomous objects, rather it appears that there was a sort of “relationship” between them that could not be broken. It could thus be argued that the main point

of interest was not the individual physical axes but rather the bond between those axes.

An element occurring in several multiple object depositions are flint nodules. Of only two Dutch TRB multiple object depositions these nodules have been preserved, in at least two other instances their presence was mentioned. In the latter case, however, only the nicely crafted axes were collected, while the nodules or rough-outs were not considered to be of importance and were thus left in the field. The multiple object deposition of Eenerveld 1940 contains three axes and four nodules and the multiple object deposition of Valtherveen probably contained two axes and one flint nodule. A third axe generally attributed to the Valtherveen deposition was found on an earlier occasion and is of a different type, it is therefore likely that these finds represent separate depositions. All five nodules that have been preserved are now in the collection of the Drents Museum.

It has been argued that craftsmanship must have played a pivotal role in the significance that was attributed to the axes found in depositions. They were of such a size that they could not be used as functional tools and moreover the craftsmen appeared to have left “clues” in the properties of the axes (e.g. in the form of cortex on the butt) that indicated their crafting skills (see section 4.4). But how does this relate to these nodules? These were not subjected to any form of craftsmanship, so how did these objects become part of these depositions?

Unfortunately the nodules themselves were unavailable for research, they could therefore not be subjected to micro-wear or residue analysis. Nonetheless, there is one obvious element that relates these nodules to the skilfully crafted axes; they represent complete opposites of each other. Whereas the axes are shaped, worked, transformed, the nodules are natural and not modified. The most interesting characteristic of these nodules, however, is that according to Beuker (pers. comm. 2006), they are completely unsuitable for axe production. Beuker, who is an excellent flintknapper himself, claims that what all these nodules have in common is their unsuitability to become axes.

In order to interpret the role of these nodules we will have to relate them to the role of the axes. We will therefore come back to this problem in section 9.7 after having fully explored the meaning of the axes.

9.3 Deposition

9.3.1 Introduction

The biography of the Dutch TRB ceremonial axes ended when they were deposited at the transitional point between upland and wetland along streams cutting through the Drenthe Plateau. Why were these axes at some point in their “lives” deposited? A clear-cut answer to this question cannot be presented. We can however explore some of the principles that may have structured deposition.

9.3.2 When did deposition take place?

There are some observations that can be used to infer when these objects were deposited. Since these axes were specially produced for ceremonial purposes and were all found in depositions we may assume that already during manufacture it was known that at some point these objects would be placed in waterlogged areas. Depositions moreover occurred in Denmark, Germany and the Netherlands. The fact that these depositions took place both near the production areas as well as down the line, indicates that it was probably not the individual life-history of the axe itself that defined whether or not it should be deposited. Rather it must have been the social context or events the axe was involved in, that made deposition necessary. There must have been situations in the lives of the persons or groups who controlled the axes that created the need for them to be deposited. This could perhaps be during periods of famine, after the death of a specific person (e.g. leader, ritual specialist), at times of war or perhaps with the rise or fall of alliances. Whatever the scenario, it must have been such events that created a situation during which these axes were deposited.

9.3.3 Where did deposition take place?

The spatial pattern indicates that deposition did not take place at a particular location but rather in a particular zone. The rather dispersed spatial pattern of these depositions indicates that people probably selected such locations in the vicinity of settlements or graves. It seems that there were no particular, fixed, locations that were of special importance. Rather there was a *concept* of a particular zone in the landscape that qualified. If the need arose for objects to be deposited, the physical location that fitted best with this preconceived notion was selected. The minimal clustering in specific locations should therefore be interpreted in terms of their physical characteristics, rather than their ascribed history. Local topographical variation causes some parts in the landscape to show a more dramatic difference between upland and wetland. Such

locations appealed to the mental concepts more than others and were thus more likely to be selected again and again (see for example the Kamperriet south of Valthe, figure 3.5). In time such places may have developed their own biography, their own historical significance. The origin of this significance, however, must be sought in the relation between their physical characteristics and this conceptual scheme.

There were thus no particular fixed locations in the landscape that were of special historical importance, although some may have developed in the course of time. Depositions rather took place at specific zones in the landscape that fitted in a certain conceptual scheme. The fact that the exact find locations of these axes are often unknown thus appears not to be a potential problem when it comes to the interpretation of those places. The primary point of importance was not the exact location of deposition but rather a set of characteristics to which such a place had to conform. However it has also been argued that it was the social context, events in society, that triggered the need for deposition. This implies that the location for deposition needs not to have been attributed any special significance at all. It might have been that the only specification was that the place of deposition was located outside the sphere of everyday domestic activity, and that the objects deposited were irretrievable. Although it is true that bogs are the only places in the northern Netherlands that qualify as places from which deposited objects would be irretrievable, it is a fact that only particular bogs were selected. Virtually all depositions were found in bogs surrounding streams with running water, whereas no depositions occurred in the extensive bog areas without those streams.

It would thus be safe to assume that places located at the transition from sand to bog, located along streams were attributed a special significance. This significance however had nothing to do with historical events taking place at these locations, they rather formed a materialised manifestation of a conceptualised location. The actual places of importance were located inside these people's minds. When the time arose for axes to be deposited, locations were selected that best fitted that conceptual landscape.

In chapter 6 some general notions were already presented that might have been attributed to these locations. These locations could be seen as liminal, the transition from dry, habitable land, to wet uninhabitable bog. Also such streams could be seen as borders between social groups whereas the streams themselves would have facilitated transport, thus connecting social groups. Moreover, as was described on a more theoretical level in section 8.5.3, boundaries are generally places that form a sharp contrast to all sorts of elements in society. They illustrate both what is, and what is not. They contrast the connotations people have with different environ-

mental zones. Boundaries can also demarcate and define both the inside and outside of political territories or religious realities. It is at those places that all sorts of contrasting elements are combined.

The exact reason why people chose to deposit axes at these locations may never be clear. Most importantly however, people did place these objects at particular places and must thus have had a motivation to do so. There must have been rules that not only described when these axes had to be abandoned, they also prescribed at which locations they should be deposited.

9.4 Ochre and the significance of wrapping

There are only a few indications that provide us with information about the physical treatment these objects received after production and before deposition. The most direct indications however are the presence of ochre and the traces of wrapping.

It cannot be determined if the ochre often encountered on the cutting edge of the axe, was there prior to deposition. It is possible that the ochre was added just before deposition, it could however also have been added directly after production. There is no way to determine during which stage in the life of the axe it was applied. The only parallels from the TRB so far encountered are possible ochre remains on flint tools from megalithic tombs (Van Gijn in prep.). If we were to associate ochre with burial customs it could be argued that the ochre was applied during the process of deposition. Although so far hardly any evidence has been found for ochre in other TRB contexts, it is known that ochre played a role in Mesolithic burials as well as in some SGC burials (see Bradley 1998, 24; Van Gijn, Wentink & Dik in prep.).

In the ethnographic record ochre is also well represented. The most relevant of these may be Petrequin and Petrequin's (1993, in Stout 2002, 700) observation that in the New Guinea Highlands red and white pigments were applied to the deeper, unpolished negatives of newly manufactured adzes. Informants reported that by doing so the adze was given life by putting "blood" in its wounds. This, however, does not help our interpretation as far as the TRB axes are concerned. Ochre, however, seems to play a role in ritual activity throughout prehistory and also world-wide for that matter.

When we want to learn about how these axes were employed during their lives there are basically two patterns that are of interest. First of all the fact that the axes were not physically altered nor used, and second that they were repeatedly wrapped and unwrapped. Only the traces of wrapping, however, provide us with information about what sort of ac-

tivities the axes were actively employed in during their lives. Although the exact contact material has until now not been determined it can be said that these axes must have been wrapped and unwrapped in a highly specific contact material (see section 5.4.1). As the traces that were present were very well developed, this wrapping and unwrapping must have occurred hundreds of times.

9.4.1 *Ethnographic examples of wrapping*

It has already been posited that ethnographic evidence suggests that the wrapping of a specific object often has to do with secrecy. The wrapped object is concealed so that no uninitiated persons will be able to see the contents of the wrapped package. These ethnographic cases will now be presented in detail after which it will be examined how the observed patterns in the ethnographic record can be related to the archaeological data.

The bull-roarers of the Baruya in New Guinea have already been mentioned. These sacred instruments that were gifts of the forest spirits are 'kept by the men of these clans, carefully wrapped in strips of bark and always carried on their person in a small net bag along with other magic objects'. Also another category of sacred objects that are called *kwaimatnie* are usually tightly wrapped in a strip of brown bark, which again is wrapped in an *ypmoulie* the ceremonial headband worn by men which is dyed red, the colour of the sun. Godelier was able to describe the contents of one of these packages, which contained a black stone, some long pointed bones, and several flat brown discs. The black stone was shaped like an adze blade, long and polished. These objects were said to have been gifts from the Sun, who gave them to their ancestors (Godelier 1999, 113-119). Godelier (1999, 164) also mentions the Lau on Malaita Island who keep among their most treasured inalienable possessions, large dolphin teeth. These are also used in exchanges and are carefully wrapped in pieces of very old bark cloth.

Among the Melpa of New Guinea, pearl shells, which originated from the Papuan coasts, circulate. However, among the Melpa the source of these objects was unknown. 'The Melpa thought of them as wild things which men in a sense hunted by their magic, and only big men were thought to have the necessary magic that would enable them to obtain these shells. This magical knowledge gave men who could control the shells' circulation greater power' (Weiner 1992, 118). Each of these shells was named and wrapped in a knotted rope, woven by the women. The knots in this rope indicated the number of times the shell had changed hands and thus represented its relative value.

Hampton (1999) gives a detailed account of sacred stones among the Dani in the New Guinea Highlands. Here the sacred objects, which belong to secret societies of men, are kept in so called *ganekhe* cabinets. The *ganekhe* are highly secret objects, wrapped with strands of grass and fiber string. The objects wrapped include among others axes, adzes and ancestral human bones. They are unwrapped solely on special occasions, only to be beheld by initiated men.

Both the Kimberley points and the Leirira blades from northern Australia have been mentioned earlier. The former are stored together in *melaleuca* bark wallets and cushioned with bird down (particularly from raptors) or bulrushes. The larger points were also protected by wrapping soft fibre about the tip and distal end (Akerman *et al.* 2002, 23). The Leirira blades were associated with, and named after, specific quarries first exploited by mythical ancestors. The blades are believed to cure certain illnesses as long as blades from different quarries are kept strictly separated. Each blade was wrapped in a sheath of paperbark. 'They were not to be carried around openly nor left lying about. When they were carried they were wrapped in bark and placed in string bags' (Paton 1994, 177).

Another category of artefact that is encountered in Aboriginal Australia is the *tjurunga*. These stone and wooden objects are believed to be the 'immortal bodies of ancestors who underwent this transfiguration when they finished their travels and, exhausted, turned to stone as they sank into the ground' (Weiner 1992, 106). One of the most important aspects of these objects is that 'every Aranda *tjurunga* is wrapped with hair strings covered in red ochre and only as the hair strings are unwound can the verses of the ancestral names be chanted; at that moment the *tjurunga* are thought to obtain their magical force' (Weiner 1992, 116).

9.4.2 *The significance of wrapping*

A variety of ethnographic cases has been presented, all sharing some distinct aspects. Without exception wrapping appears to be related to secrecy, insiders and outsiders. The wrapped objects have special powers and should be shielded from uninitiated persons. The Baruya *kwaimatnie* are not only wrapped in order to protect the objects from uninitiated persons; it also serves to protect the world against the powers of the objects that are wrapped. As the objects themselves were gifts from the Sun and Moon, a fragment of their powers is stored inside these objects making them besides powerful, also highly dangerous. When unwrapping these *kwaimatnie* these powers can escape and spread sickness and death around them (Godelier 1990, 82).

With respect to the TRB axes, we have seen that there are a number of recurrent features. The axes were all deposited in similar locations in the landscape, they had been treated with ochre and showed traces of wrapping. Moreover, none of the deposited axes showed traces of use, refloating or any other form of secondary modification. It appears that after production, a strict set of rules was applied in the treatment of these axes. These rules must have been part of a corpus of knowledge apparently shared by all people involved in handling these axes. The fact that these axes represent inalienable objects which could only be treated by persons with a specific corpus of knowledge makes it likely that they were kept away from people not possessing this knowledge. The traces of wrapping could very well indicate that these axes were indeed kept secret, shielded from uninitiated persons who did not possess the knowledge required to handle them.

Another very important observation with respect to the ceremonial TRB axes, is the potential significance of the wrapping-material itself. Often the wrappings are manufactured of highly specific materials. Especially among the Melpa where the rope used for wrapping is woven by the women and moreover used to record the life history of the object that was wrapped. Each knot in the rope represented an act of exchange, making the shell more valuable. It appears that although shells that circulated were more or less identical, their relative value based on the number of exchanges they were involved in, was recorded and signified by their wrappings. The wrapping material is thus not something that is solely used to protect or shield the object inside, the wrapping material itself can be very important. The fact that the wear-traces, caused by wrapping, on different deposited TRB axes are all identical, indicates that a specific material was used. One of the rules prescribing the treatment of these axes must thus have concerned this wrapping material. This implies that the material used for wrapping was important and charged with meaning.

It was not possible to determine which contact material was used to wrap the TRB axes. Hopefully future experiments will help solve this question. If we want to take this interpretation further and explore the meaning of the wrapping itself, we should first determine which material was used. For now, however, we can conclude with the interpretation that the ceremonial TRB axes could only be handled by persons who possessed a distinct corpus of knowledge. Through the wrapping of these axes the objects were carefully protected against uninitiated persons. The wrapping material itself probably had its own significance, which was part of the corpus of knowledge required for the handling of these axes.

9.5 A life of exchange

9.5.1 *Production; the start of a life of exchange*

It has been argued that the patterns of axe deposition observed all over the northern Netherlands indicate the existence of a strict set of rules that was carefully observed. This included the axe not being employed in any functional activity, nor being physically modified through refloating or grinding. The axes were moreover carefully wrapped in a highly specific material and the cutting edges were coloured with red ochre. Whether or not the ochre was applied purely for the deposition of these axes is not necessarily important in this respect. Since it was applied to deposited axes all over Drenthe it was apparently a prescribed action, as was the case with rules on the locations at which depositions could take place. There was thus a corpus of knowledge involved that prescribed how these objects needed to be handled.

It has also been posited that these axes were specially produced for ceremonial purposes. It can thus be assumed that one of the persons who possessed this set of knowledge was the craftsman him or herself. S/he would have had intimate knowledge not only about the production of these objects but also knowledge of a cosmological nature. This knowledge included the rules one had to observe while handling these axes, and most importantly the reason why these rules were to be observed in the first place. Thus the craftsman did not only possess theoretical knowledge and practical know-how, the latter especially would have taken several years to fully master. The craftsman also possessed cosmological knowledge related to the significance of these objects. It is therefore safe to conclude that the production of these axes was performed by skilled specialists who had intimate knowledge about both the practical aspects of axe production as well as the cosmological significance of these objects.

This mode of production has some implications. One of the elements that is of fundamental importance, when it comes to specialised production, is exchange. Whether in the form of gifts or commodities, the products of the craft must be distributed in order for the craft to exist. This can be explained very simply. If the axes were not distributed they would accumulate at the axe maker. In order for a craft to exist it needs to be practised, and in order for its products to be appreciated they should be distributed among non-craftsmen. By distributing their products the craftsmen legitimise their position in society and create a situation in which the craft needs to be practised. Specialized craftsmanship thus cannot exist without some form of exchange.

9.5.2 Exchange between knowledgeable agents

The fact that the archaeological evidence shows such a distinct patterning indicates that it was not only the craftsman that possessed the knowledge required for handling these axes. In fact the uniformity in the archaeological data suggests that alongside the exchange of the actual axes, there was also an exchange of knowledge. This knowledge included guidelines as to how these axes were to be treated. This has interesting consequences with respect to the exchange of these objects. If specific rules were to be upheld in the treatment of these axes, this means that these axes could only be exchanged if both exchange partners were familiar with these rules. The fact that we have uniform patterns in our data indicates that this was indeed the case. Exchange partners had to have a certain body of knowledge concerning these objects and their required treatment. Axes could only have been exchanged between people who were familiar with these rules.

This has some far reaching consequences when we think about what these rules represent. The rules we can find in our archaeological data in the form of patterning would only have been one aspect of the knowledge involved. The same corpus of knowledge would have described why these objects had to be treated so systematically. It would have included information about the origins and significance of these axes. The rules empirically observed are only one aspect of a corpus of cosmological knowledge describing how and why these rules had to be obeyed. The fact that we find this patterning over so vast an area therefore implies that this knowledge was shared throughout TRB society, indicating a widespread cosmology among the TRB north- and west-group.

Is it indeed possible that the same cosmological knowledge was shared over so vast an area by 3500 BC? Although there would undoubtedly be local myths, customs and beliefs, it is highly likely, based on the archaeological evidence, that there would also be some myths, customs and beliefs present throughout TRB territory as part of a shared cosmology. As we have seen around 3500 BC, a very homogeneous TRB culture emerges, which quickly spreads all over the north European Plain. Throughout this region we find highly characteristic pottery, the use of megalithic tombs, a specific agricultural technology etc. Holten (2000, 288) suggests that the mere number of megalithic tombs and the formalized ritual behaviour attached to these monuments clearly indicates a very '*controlled system*'. This patterning and uniformity is only based on those elements we, as archaeologists, can see. The practice of depositing pottery vessels and axes in waterlogged places is another such widespread phenomenon. Considering this evidence, it can be considered highly likely

that such material homogeneity would also have involved a corpus of knowledge containing information about TRB cosmology.

This however implies that such axes could not be exchanged with people that were not familiar with this knowledge, including non-TRB people. TRB ceremonial axes should therefore be lacking outside TRB territory. During the compilation of the database an extensive survey was performed to find such axes outside known TRB habitation clusters. Although not all Dutch museum collections could be inspected, the survey did include the National Museum of Antiquities, which has an extensive collection of finds from the southern Netherlands. Also all records containing information about TRB axes were investigated from the Dutch National Archaeological Database (Archis). Moreover the Nijmegen Archaeological Museum (Valkhof) was consulted for the presence of such axes, not to mention numerous published sources. None of these sources revealed the presence of any ceremonial TRB axe outside the northern Netherlands, with the exception of one unpolished axe found in a stream-valley on the Veluwe in the central Netherlands located only 1 km from a TRB settlement (Schut 1999). The Dutch data thus supports the hypothesis that although exchanged over vast areas, these ceremonial TRB axes were only exchanged among TRB people as part of an "endogamous" exchange network. Although the presence of southern, oval, axes in megaliths indicates that exchange relations existed with non-TRB groups, such exchanges apparently did not include the ceremonial axes. These were only exchanged between partners with a shared corpus of cosmological knowledge, a shared identity.

Ceremonial axes were thus only exchanged between parties that already had intimate knowledge about TRB cosmology. It is likely that such exchanges involved a certain level of secrecy. If we consider ethnographic evidence it is clear that not everyone in society possessed such knowledge. It was probably controlled by a group of initiated persons. Due to the rather egalitarian nature of TRB society this was probably not a fixed elite but rather a group of ritual specialists consisting of (a selection of) an age and/or gender group. As this knowledge was present over so vast an area, and applied during so long a time it can be stated that this knowledge itself was considered an inalienable possession. It was deeply embedded in TRB social practice, TRB cosmology and TRB identity.

9.6 Production

As has been described in the first part of the thesis the axes found in waterlogged places were specially produced for ritual or ceremonial practices. They were of such a size that they could not function as a practical tool. Many of the axes were never polished and also the functional-analysis revealed that none of the deposited axes showed any traces of usage. This means that as early as during the production stages of these axes, a sort of mental template existed as to what kind of role the axes were going to play in society. The axe maker made a conscious decision to manufacture a particular kind of axe that was not meant for practical purposes. It has been argued that both the craftsmen as well as the subsequent persons handling the axes shared a corpus of cosmological knowledge. The fact that these rules were so meticulously followed indicates that the axes were considered meaningful objects. This meaning however was not the result of a long exchange life through which the axes became associated with previous owners. The fact that these axes were specially produced indicates that during production the axes were already attributed a specific significance or meaning. It was this significance that was recognized and appreciated by people as the axes were exchanged and eventually deposited. By transforming nodules of flint into ceremonial axes the craftsman produced an object with a special meaning, with special powers.

9.6.1 Production sites

Based on the patterning in the archaeological data it has been argued that the TRB axe makers produced axes imbued with a special meaning. These craftsmen did not only possess theoretical knowledge and practical know-how required for axe production. They also possessed a corpus of cosmological knowledge. This corpus of knowledge, together with the fact that the know-how required to produce these large axes would have required years of experience, led to the conclusion that axe production was the work of specialists. These axes were moreover not to be handled by people who did not possess this cosmological knowledge.

In such a scenario it may thus be expected that the actual axe making would also involve a certain degree of secrecy. It can then be expected that axe making took place in isolated, specialised locations, rather than in the middle of a settlement for all to see. This hypothesis should be easily testable, unfortunately the data concerning axe production sites are very poor as only few sites are known where actual axe making took place.

Archaeological evidence

There is some TRB evidence from Sweden that may not conform to our hypothesis. At least two sites (Skumparberget and Skogsmossen) have been published from eastern central Sweden where production of stone axes took place at TRB settlements (Bradley 2005, 124-138; Sundström & Apel 1998). However, *stone* axes were produced at these sites, whereas we are interested in ceremonial *flint* axes. Also it should be noted that both sites lay beyond the distribution of most of the votive depositions we are dealing with. The sites also lay well beyond the northern limits of the megalithic monuments (Bradley 2005, 130-131). These sites are thus not likely to contain representative evidence for ceremonial flint axe production in northern Germany and Denmark.

Högberg (1999) describes a site, located in southern Sweden, where a flint assemblage related to the production of one flint axe was found. Although the site also contained settlement debris, dating from the Early Neolithic to the Early Bronze Age, he was not able to securely date the flint assemblage. It remains therefore uncertain whether or not there is a link between the production of the axe and the nearby settlement debris. Although this observation may have consequences for our hypothesis, we should keep in mind that it only concerns the production of a single axe that could not be positively associated with the settlement debris, nor dated to the TRB period. Moreover, even if it could be associated with the settlement it would not necessarily be a major problem for our interpretation. Our hypothesis concerned the production of *ceremonial* axes. It is feasible that besides the production of ceremonial axes there is also a production of functional axes. It is possible that the production of both types of object were strictly separated, one performed in seclusion, kept secret, the other in a more domestic context. There is, however, also evidence in Scandinavia for specialised axe workshops.

Hansen and Madsen (1983) published the axe production site of Hastrup Vænget, located in the east of Zealand, Denmark. This site was dated to between 3300-3200 BC and was interpreted as a specialised thin-butted axe production site. Besides vast quantities of the typical axe production flakes, only few other tools and sherds were found. The site consisted of a find cluster of 6 x 4 m where the astonishing total of 30.487 flakes, weighing 168 kg, was retrieved. No other traces of normal settlement were observed at the site, nor elsewhere in the vicinity. The raw material used for axe production was not locally available, but was brought to the site in the form of blanks. The separation between raw material exploitation sites and axe production sites is also posited with respect to the Danish TRB flint-mines. At the

mine sites of Alborg, Hov and Bjerre, on Jutland, flint was extracted through shafts. Although blank production did take place at these sites the actual axe production took place elsewhere (Tilley 1996, 250).

Svensson (2002) published a production site dated to the end of the TRB and the beginning of the Battle Axe culture. Although this site needs not be representative for the TRB, it does seem to conform to the characteristics observed at Hastrup Vænget. The site is located at the palisade enclosure of Dösjebro located in western Scania, Sweden. The enclosure itself is interpreted in much the same way as the TRB causewayed enclosures. Although several axe workshops were excavated, one was particularly well preserved. In an area of 3 x 2,3 m over a 100.000 flakes were retrieved weighing 118 kg. The type of axes produced here were of the thick-butted Valby type. The nearest known flint source used for the production were the coastal cliffs located about 10 km away. The site was situated in a prominent position in the landscape located 6 km from the coast at the confluence of two rivers. Moreover the site is flanked by two ridges, which according to Svensson (2002, 32) are the 'highest and most distinct "land marks" on the surrounding plain.' This region boasts many archaeological sites including a causewayed enclosure at Stävie, several megalithic monuments and barrows and numerous wetlands with votive depositions. Although there are also several Neolithic settlements excavated in the vicinity, there were no settlement remains associated with the axe workshop or the palisade enclosure. Svensson (2002, 35) thus concludes that 'this indicated that the production was undertaken outside the daily domestic sphere.'

The apparent seclusion of these sites is hardly an exception, as also elsewhere in Europe sites related to axe production are reported to have been found in isolated places. Bradley (2000) has presented us with numerous examples from both England and Sweden of isolated stone quarry sites. These quarries, where stone is extracted for axe production, are 'among the most remote archaeological monuments anywhere in England' (Bradley 2000, 86). He informs us that isolated, dangerous to reach, places were used for stone extraction even though identical stone could be found at easily accessible places. Bradley thus concludes that the primary element of concern, with respect to site location, is not the quality of stone available, but rather the fact that they formed isolated places located outside the sphere of everyday activity (Bradley 2000, 87).

Conclusion

The scarcity of evidence makes it impossible to come to any conclusive remarks. As far as the Danish data is concerned,

however, there is some evidence that suggests that axes were produced at isolated sites, outside the sphere of everyday life, which conforms to our hypothesis. These sites lay isolated in the landscape, away from settlements. Seclusion, often witnessed when secrecy has to be upheld, can also account for the overall lack of such sites in the archaeological record. Although the archaeological evidence from southern Scandinavia is often overwhelming, the evidence of axe production sites is generally lacking. This is easily explained as these sites are apparently small, less than 10 x 10 m, and are found isolated in the landscape. Hopefully future research will provide us with more data, enabling us to refine our interpretations.

9.6.2 The nature and origin of meaning

An attempt has been made to present the setting in which axe production took place. The origin of the meaning of these axes, however, has so far not been explained. In particular, it were the people who did not manufacture these axes but handled them, exchanged them and deposited them who attributed a special significance to them. What was the nature of this significance and how did it get associated with these axes? We have seen that these objects were specially produced. We are thus not dealing with objects that were considered meaningful solely because of their ascribed meaning, which became attached to them during their lives, but rather with a meaning that was incorporated during their production. Although it is possible that after production, associated rituals were conducted in order to "charge" these objects, we will probably never find archaeological evidence for such a process. What we do know is that the ceremonial axes are physically different from functional axes and that thus the decision to create a ceremonial axe, whether additional rituals were performed or not, was made prior to their production. Therefore it becomes irrelevant whether or not additional rituals were performed, since we have to explain how it is possible that objects that were actively produced by man subsequently were attributed a special meaning.

One possible explanation is that certain axes were attributed a special status and significance because they were produced by a famous craftsman. Although it is indeed likely that the axe maker would be held in high esteem, it is questionable whether such an individual would be celebrated throughout TRB society up to 400 km away. Moreover, if the origin of the special meaning of these axes could be ascribed to particular persons, it would not be likely that their subsequent role in society would be completely uniform. We should then expect that at least the axes from each axe maker were treated differently in order to distinguish them

from each other. Instead we find a highly structured pattern, revealed by the archaeological evidence. Based on this uniformity I would like to argue for a different interpretation.

In the previous chapter it was discussed that ‘in order for a phenomenon to be reproduced by all members of a society, social realities must appear, if not to everyone at least to the majority, as legitimate, as the only ones possible, and this certainty is not wholly self-evident unless the origin of these relations seems to lie outside the human world, in some sacred, changeless order, and changeless because it is sacred’ (Godelier 1999, 124). The patterning in the archaeological record indicates that the deposited TRB axes all had to a large degree an identical life-history. They were produced, treated and deposited according to a strict set of rules. Following Godelier this can only be explained if motivations to do so originated outside the human world (see section 8.4.2). Only when the authentication of these axes came from a domain outside the present could these objects circulate while keeping their special meaning. The element that made these axes special thus had to originate outside the human domain, in the sphere of myths, spirits or ancestors. Only if these objects had spiritual or ancestral connotations would the standardised treatment these axes received be perceived as legitimate, as the only ones possible.

But how is it possible that craftsmen actively produced objects that subsequently were associated with a mythical origin? We have already established in section 8.2.3 that a link can be found between crafting skills and the supernatural. The special character of a craft should not be attributed to the craftsman but rather to the origin of the craft itself. The corpus of knowledge associated with a particular craft is handed down by a group of (initiated) individuals. The source of the craft, however, is often attributed to some sort of mythical ancestor, spirit or culture-hero. This association between crafting skills and extraordinary power can be found in ethnographies world-wide (Helms 1988, 116). Numerous ethnographic examples have been presented that indicate this link.

The introduction of either a specific object or the knowledge required for its production are attributable to these supernatural entities in the form of spirits or ancestors. The craft can thus literally be seen as a gift from those entities, to the people. These objects are thus highly commensurable with these entities. We could however even go further. Mauss (2002, 16) argued that ‘to make a gift of something to someone is to make a present of some part of oneself.’ These objects could thus not only be considered commensurable with these entities but even to manifest part of that entity. In this respect Mauss’s (2002, 20) observation that ‘indeed, it is they [gods and spirits] who are the true owners of the things

and possessions of this world’, is particularly relevant. With respect to such sacred objects Godelier states the following:

[Sacred objects] *can be presented as having been made either directly by gods or spirits, or by men following instructions provided by the former, but in any case, the powers present in these objects were not made by man. These objects are gifts from the gods or the ancestors, gifts of powers henceforth residing in the object.*’ (Godelier 1999, 137)

The TRB axes as sacred objects

Could the TRB axes found in depositions be interpreted as sacred objects? We have seen that there are different levels of inalienability. It was the sacred object that represented a group’s most inalienable possession because it was completely entangled with a group’s cosmology and identity. In the preceding chapter the commonly occurring characteristics that apply to sacred objects were presented. In this section we will explore how these characteristics apply to the ceremonial TRB axes.

The most important element of sacred objects is that the source of their authentication lies outside the present, in a sacred, changeless order. It was argued that the patterning in the archaeological data indicated that the legitimisation of the TRB axes should indeed be sought outside the present, in the sphere of myths, spirits and ancestors. These axes were not only inalienable because they were commensurable with previous owners, their source of authentication came from a domain outside the present. Among farming communities in particular spiritual and ancestral powers are considered both powerful and dangerous according to Bird-David.

‘When the descendants make offerings and follow the customary code of behaviour, the ancestors bless them with success in their hunting and in cultivation. If the descendants fail to satisfy the ancestors, harvests and hunts fail.’ (Bird-David 1990, 190)

The ancestors have the option of not blessing living humans with success in their daily lives. If protocol was not meticulously followed one risked displeasing the ancestors and has to suffer the consequences. The patterning we see in the treatment of the axes thus not only indicates that these objects were considered powerful in a useful or salutary way, they were also treated this way because people had to do so. If not, one would have had to face the consequences; these axes were thus both powerful and dangerous at the same time.

In this respect they fulfil one of Godelier's (see section 8.4.3) three prime *functions* of sacred objects: 'They must attest the presence within themselves of powers emanating from imaginary beings (deities, nature spirits, ancestors) believed to be endowed with powers of life and death over persons and things.' As objects that were animated with supernatural powers these axes were seen and treated as living entities with a power to act and react. The forces within these objects did not only provide power, they could also cut off the flow of this power if not treated correctly. As such they also fulfil the second function Godelier attributed to sacred objects: 'They must be substitutes for real persons.' As there are no two identical TRB axes, the third function Godelier attributed to sacred objects also applies to the ceremonial TRB axes: 'They must lend themselves to comparison with each other so that, by their qualities and/or their quantities, they provide their owners with the means of measuring themselves against others of raising themselves above the rest.'

Godelier (1999, 162) additionally listed a number of *characteristics* that apply to sacred objects. They first of all have to be non-utilitarian, although they may look like tools or weapons they are never used as such. Through abstraction such objects are disconnected from daily life. They moreover have to be beautiful 'in such a way as is defined by the cultural and symbolic universe of the societies that use and make these objects.' It is clear from the preceding chapters that both these characteristics apply to the ceremonial TRB axes. Although they looked like axes they were often of a functionally prohibitive size. They were often unpolished, or only partially polished, with exception of the cutting-edge, to exemplify their non-utilitarian status. Functional analysis moreover revealed that indeed these objects had never been employed in functional tasks. The care and attention to detail with which these objects were manufactured (see section 4.4) indicates that these objects were considered beautiful. They were meant to portray outstanding crafting skills, straightforward perfection.

With respect to exchange, both Godelier and Weiner notice that the most inalienable of objects can often not be exchanged. They are so deeply embedded in a group's cosmology and identity that they cannot be given away. On some occasions however, it was not the object itself that was a gift from the spirits or ancestors, it was the knowledge required for its production. In such a scenario the archetype of these items is carefully preserved, if only in people's minds, while copies may circulate (Godelier 1999, 138). I would like to argue that such a principle also applied to the ceremonial TRB axes. The knowledge itself was regarded as an inalienable possession, which was considered to be a gift from spirits or mythical ancestors. This knowledge was con-

trolled by specialists who manufactured these axes. Through manufacture a link was created between the supernatural source of this knowledge and the object manufactured. In this way the axe became animated with supernatural powers, through the act of production. By producing and exchanging such objects, society was guaranteed with a continuing flow of supernatural powers.

Following Godelier's definition of a sacred object, the ceremonial TRB axes meet all of his criteria, both in terms of function and characteristics. I would therefore like to argue that the TRB ceremonial axes were considered highly inalienable, probably even sacred. They were not just axes, they were objects that were animated with some sort of supernatural power. In order to control this power the axes could only be handled by, and exchanged between, persons who possessed intimate knowledge about TRB cosmology. This knowledge itself was considered an inalienable possession as it constituted TRB world-view, TRB identity. The axes served as material references to this knowledge. Their ancestral origins legitimated the cosmological knowledge, which in turn authenticated these axes' formidable powers. The cosmological knowledge and the ceremonial axes were intimately intertwined, elements of the same continuum. They served to define each other and legitimise each other.

9.7 Why were flint nodules deposited?

In the above paragraphs I proposed that the ceremonial TRB axes were highly inalienable, if not sacred objects. Through the act of production they became animated with some sort of supernatural power, which as such largely defined their eventual life-histories. In section 9.2 however nodules of flint were mentioned as common elements in multiple objects depositions. The nodules not only contrasted with the ceremonial axes by the fact that they were unmodified, but also by the fact that it was impossible to make axes out of them. They thus seem to form exact opposites of everything the ceremonial axes are. How then should the presence of these nodules as part of the multiple object depositions be interpreted? The fact that they were deposited together indicates that there must have been a link between the axes and the nodules. Can the interpretation, as presented above, of the TRB ceremonial axes help in interpreting the role of these nodules?

What is particularly strange about these nodules is that they are imported objects. They could not be found locally and must thus have travelled vast distances, as was the case with the ceremonial axes. It has been posited that axe-production involved the work of specialists. In such a context it is likely that access to raw material sources was restricted

and controlled by these craftsmen. This would mean that the selection of impractical nodules was a deliberate choice. So apparently impractical nodules were chosen to accompany impractical axes. It has often been postulated that the objects found in these depositions seem to represent the different stages of the production process. This is clearly not the case. Instead I would like to argue that the flint nodules and the flint axes found in depositions actually represent opposite poles. Everything the axe is, the nodule is not, nor can ever be.

These opposing elements might be interpreted as elements of the same narrative. It was argued that the significance of the axes lay in the fact that they were produced with knowledge received from mythical entities such as spirits or ancestors. The opposition between these impractical nodules and skilfully crafted axes could be used to signify the supernatural

qualities that were needed for axe production. As it would be physically impossible to make axes out of these nodules some sort of magic or supernatural power would be required to do so. In this respect such a multiple object deposition might be seen as physical elements illustrating different parts of a narrative or myth; the myth of how, with the aid of spirits or ancestors, things can be created that would normally be impossible to manufacture. Weiner (1985, 224) suggests that 'with inalienable wealth, we also find "*visual substitutes*" for history, ancestors, and the immortality of human life.' Perhaps the combination of these nodules and these axes were used to legitimise their ancestral origin. They formed the material reference of knowledge only known in abstract form. By creating physical elements, the abstract notions, the contents of a myth, became more real, tangible and permanent. In this respect the axes and nodules actually do represent different

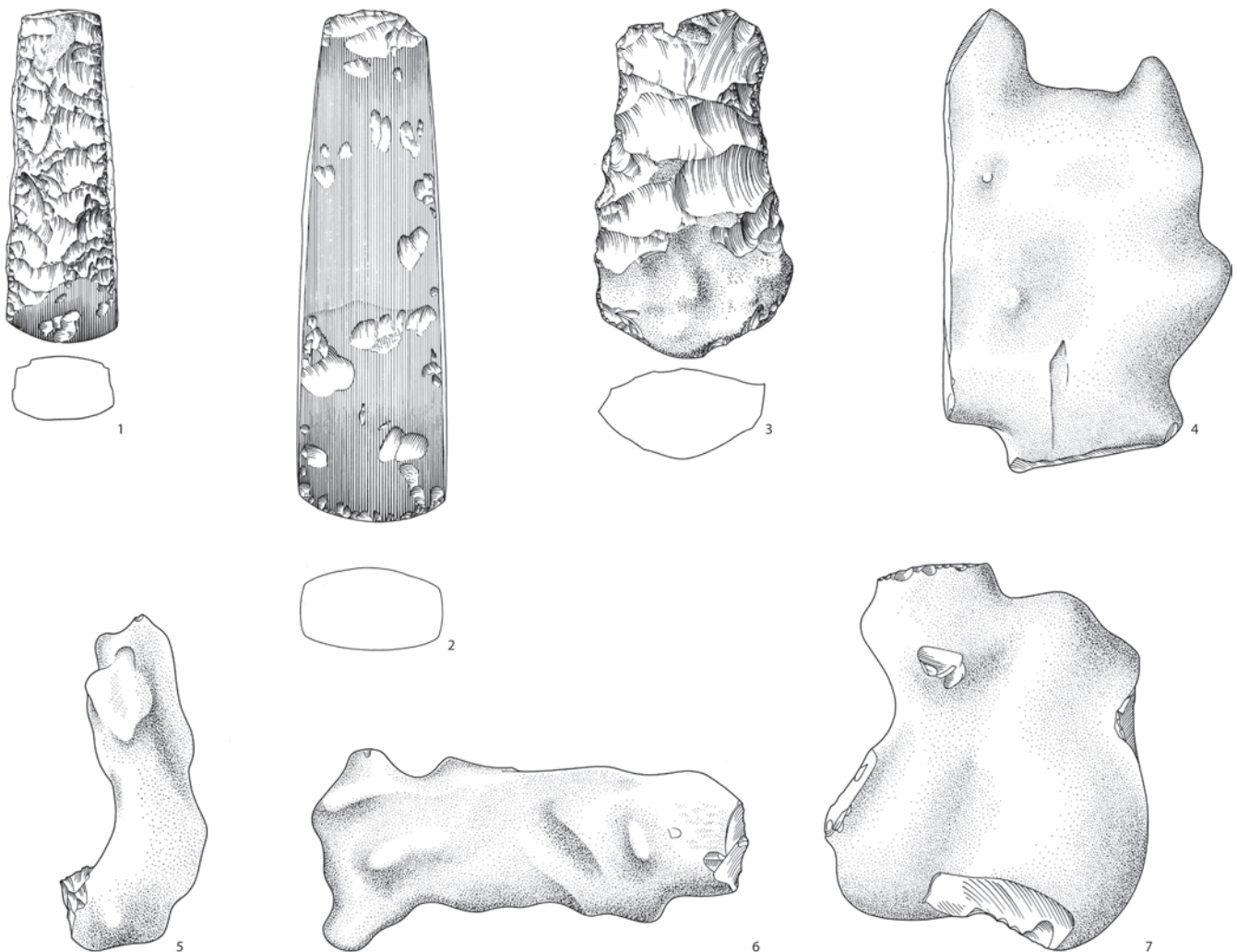


Figure 9.1 The multiple object deposition of Een 1940 containing (partially) polished flint axes (1-2), an axe rough-out made from the red Helgoland flint (3), and flint nodules unsuitable for axe production (4-7) scale 1:4 (Beuker 2005, 279).

stages in the manufacturing process. A process, however, that could not be controlled by man, a process that was dependent on supernatural intervention to shape the unshapable, to control the uncontrollable, to do the impossible.

We have already seen that the axes must have been embedded in a social context. A context of cosmological knowledge describing their role in society, the rules one should observe while handling them and most importantly, of course, their meaning, purpose and significance. The fact that this corpus of knowledge appears to have been present at least throughout the northern Netherlands, suggests that this knowledge was part of the cosmology of these people. It did not travel together with these axes as a sort of “manual”, instead this knowledge was part of the identity of these people, both over a large area and during a long time. The axes themselves thus served as material references, mnemonics, of this knowledge, cosmology, identity. They legitimised this knowledge, made it tangible, made it real.

‘The [inalienable] object acts as a vehicle for bringing past time into the present, so that the histories of ancestors, titles, or mythological events become an intimate part of a person’s present identity. To lose this claim to the past is to lose part of who one is in the present.’ (Weiner 1985, 210)

Physical objects are used to connect past and present, myth and reality. The past becomes incorporated in the present

and myth becomes reality. This is basically the same principle that has also been proposed with respect to the phenomenology of landscape. Tilley (1994, 33) posited that ‘it can be argued that stories acquire part of their mythic value and historical relevance if they are rooted in the concrete details of locales in the landscape, acquiring material reference points that can be visited, seen and touched.’ He continues that ‘specific locales in the landscape may be powerful visual reminders of myths and themselves become, through the passage of time, objects of knowledge, the accuracy of which may validate the myths’ (Tilley 1994, 59). Such principles, however, do not only apply to permanent features of the landscape, the arena where such myths took place. They also apply to mobile artefacts that played a role in these myths or whose origin was attributed to them.

According to Godelier (1999, 138) ‘to a greater degree even than sacred texts, sacred objects realize the synthesis of the real and the imaginary which make up man’s social being.’ In fact, in order for a myth or cosmology to be recognized over a large area, one requires such mobile “reminders” that are strongly associated or commensurable with these myths. A feature of the landscape, or a monument for that matter, is only seen and experienced by those people living in that region. Mobile objects however can be shared, can be exchanged, can have this same function irrespective of both space and time. Mobile objects provide people with “visual reminders” that can be used to share an identity, cosmology or mythical origin over large distances.

10.1 Introduction

The aim of the preceding chapter was to explore the nature and origin of the significance of the TRB ceremonial axes. It was argued that the ceremonial axes possessed a special power, which derived from outside the human sphere. Through the act of production the axes became animated with spiritual or ancestral power, which made them highly inalienable. The identical treatment these objects received indicated the presence of a TRB cosmology shared by all people handling these axes. In chapter 3 a whole range of practices was discussed, each having had its place in this cosmological framework. The aim of this chapter is to see how these axes can be related to the TRB culture as a whole. Unfortunately for many aspects of TRB social life there is not much data. Settlements for example are generally lacking from the archaeological record. As far as the Netherlands are concerned, the only other well-researched elements that have a place in TRB cosmology are the megalithic tombs. What is the relationship between tombs and wetland axe depositions? Can this relationship provide us with more information about the significance of these axes themselves?

10.2 Wetland depositions and megalithic tombs

In the preceding chapters I proposed that there is a distinct difference between the axes deposited in graves and the axes deposited in wet contexts. The axes from graves typically concerned small, used/worn pieces that were resharpened before they entered the tombs. They probably represented tools that people used during long periods of their lives. At least some of these objects concerned exchanged items, gifts, as is attested by the presence of imported axes (for example German lydite *Flachbeile* and Atlantic oval axes). Such objects became commensurable with their owners, previous owners as well as the activities in which they had been employed. The ceremonial axe by contrast was never used, nor could even have been used due to its physical properties. It was not so much connected to the life of an individual, as it was an animated object with a life of its own. At the end of the life of these ceremonial axes they were deposited in waterlogged places both away from the settlements and away from the tombs.

Both the ceremonial and the used axes as well as their contexts of deposition, being waterlogged places or tombs respectively, formed exclusive categories. The fact that both

elements are never found together indicates that they represented different spheres of TRB cosmology that could not be combined. In fact the practices taking place at tombs represent complete opposites when compared with ceremonial axes being deposited at waterlogged places. As was argued in section 3.6.4 the tombs were places that had been built to last, they formed *permanent locations* where human remains were accumulated and objects were deposited. These were places that could be visited again and again. During each visit objects and human remains could be added while the artefacts and human remains deposited on earlier occasions could be rearranged.

The more objects and human remains were added, the more ceremonies were performed at the tombs, the more commensurable they became with deceased people and past events. Through time they became the material reference of history, lineages, ancestors and past events. They became inscribed with the history of the community that built and used these tombs. As is the case with objects and knowledge, locations in the landscape such as monuments can also become inalienable possessions. Through each act that took place at these monuments they became more inalienable. This process might also be related to the fact that no more new tombs were built after 3200 BC. The period during which new tombs were erected only lasted 200 years after which no more megaliths were added. These were places that were associated with the histories of local communities whose use of the tombs led to a process of inalienation. The megaliths became meaningful not only as places to bury the dead, but as one of a community's most treasured inalienable possessions. If it was this acquired meaning and significance that became the primary defining element of its place in society, it follows that no new tombs could be built that were meaningful in a similar way. New tombs could not materialize history, lineages, past events or ancestors, something the old tombs could do after having been used for several generations.

In this respect the megaliths form a distinct contrast with the ceremonial axes. These objects were already highly inalienable when they were first acquired by a local community. They did not represent the historical past of the local community as the tombs did, they rather represented a mythical past described in myths of origin. The powers associated with these objects originated in long gone times and far away places. Their deposition was a single event that

took place at the boundary of the area used for habitation, food production and burial. These objects represented powers related to TRB cosmology that could not be permanently controlled by a small local group. Therefore such an object could not be placed in a tomb as a local community's permanent possession. Such an object should be placed outside the sphere of a group's everyday domestic activities, a place that symbolized a larger social universe. It is commonly observed that boundaries are associated with distant places both in space and time (Helms 1988, 42). By depositing these axes at the boundaries of a local community's sphere of every day activity the objects were placed in the context of a larger whole. Such a place potentially represented not only the local community but a larger social and cosmic universe, a TRB universe.

Instead of placing objects in a certain location through which that location itself became inalienable, as happened at the megaliths, it appears that quite the opposite was effected. Through depositing a highly inalienable object in a natural place, such an object became alienated. By sacrificing an inalienable object according to Gregory (1980, 644) one accomplishes the '*alienation of the inalienable*'. Through the act of deposition, the object, along with its powers, was placed outside the sphere of the local community; it was returned to the cosmic universe from which it derived.

The megaliths were places that were associated with the historical past, living people would have personally known persons who either were involved in constructing the tombs or whose remains were deposited in the tombs. Although in time such persons may have become *mythologized* and acts of deposition performed at the tombs ritualised, their primary source of meaning came from the history of persons and events of a local community. The ceremonial axes were associated with, or animated by, powers of a completely different order. They were neither local nor historical. They were cosmological, having a mythical origin shared by all TRB people. Such an object could not be placed in a tomb associated with the origins of a local community. As such, history and mythology form two separate spheres of realities, or in the words of Gosden & Lock:

'Myths view the structures of human society as a product of superhuman forces, natural powers or pre-social forces, which are different from human agency. History, by contrast, is an awareness that social relations are shaped by individual or collective action. History shows an openness to, and awareness of, contingency and of the power of human agency. History also operates in a time continuous with the present, even if change is acknowledged, whereas mythical structures refer back to a previous state of the

world, where human beings either did not exist, or had no power, and where processes of cause and effect manifest themselves differently.' (Gosden & Lock 1998, 4-5)

It must be stressed that history and mythology cannot be completely divided, they rather form the two extremes of the same continuum: the past. However whether mythologized or not, the history connected with tombs was exclusively associated with a local group. The ancestors buried there could not be shared with members of other groups. The ceremonial axes however represented entities that were shared among all TRB people. As such, the tombs and ceremonial axes, represented two different cultural realities that were incompatible. They both represented different orders of TRB cosmology; one related to local group's history that could not be shared, the other was related to distant mythology that needed to be shared among TRB society as a whole.

10.3 The significance of axes

10.3.1 The symbolic value of axes

Although the used axes placed in tombs were incompatible with ceremonial axes deposited in bogs, there is an inherent link between the two; they are both axes. If the ceremonial axe was never meant to be used as an axe, was never used as an axe and was kept separate from functional axes, why then did it look like an axe? In order to attempt to answer this question we first have to explore what axes actually are.

As explained by Fontijn (2002, 82) axes were the most vital tools for an agrarian community. These were the tools that were employed in reclaiming stretches of land, which were still densely forested in TRB times, creating new settlement grounds or building new houses. According to Fontijn such activities were performed on behalf of the collective.

'It might be ventured that in this period [referring to the Middle and Late Neolithic] the foundations were laid for a general conceptual link between the biography of an agricultural tool such as an axe, and the biography of the small group on whose behalf it was used.' (Fontijn 2002, 82)

Axes were thus not merely tools, they were items employed during, and associated with, important phases in the history of an agrarian community. These phases are all phases of construction; axes are used to clear land, to build houses, to transform the natural landscape into an agrarian landscape. Axes thus form the tools used for creating the conditions required for agriculture, as such axes can be seen important symbols of, or metaphors for, agrarian life.

Although the ceremonial axes are shaped like important agrarian tools, it was argued that they were connected with supernatural entities: spirits or ancestors. More importantly it was proposed that such entities are often found to be the providers of sacred objects or knowledge. If we accept that axes are potentially powerful symbols of agriculture it could very well be that the ceremonial axes not merely referred to axe production but more generally to agriculture. For an object to be appreciated over so vast an area it should be related to more general concerns, concerns with which everyone could relate and farming is such a concern. Is it possible that the spiritual/ancestral links and the corpus of knowledge involved were related to more general themes such as agriculture of which the axe became a primary symbol? In order to investigate this we will first define the role agriculture had in TRB identity after which its role in TRB cosmology will be explored.

10.3.2 Farming and TRB identity

Axes can be considered as potentially powerful symbols of agriculture. However, if agriculture was indeed something that had an important place in TRB identity and cosmology there must be more links that indicate this than merely the ceremonial axes.

The most obvious sources of information are the megalithic tombs. As has already been extensively discussed, a recurrent type of object found inside the chambers are used axes. These would have been the tools actually used for land clearance and house construction. The presence of these objects in graves indicates that they were either considered very important by the deceased or that the qualities attached to such objects were rendered important by the social group that placed them inside these tombs to accompany the remains of the deceased. Axes however are not the only objects of importance in the life of farmers that were placed in the tombs.

Sickle-blades used for the harvesting of cereals are an often-encountered category of tools retrieved from tombs (Van Gijn in prep; Van Woerdekom in prep.). Querns are also frequently encountered. In some of the tombs querns were used for the flooring of the chambers or the stone lining of flat-graves, more commonly however complete or fragmented querns were found as grave goods in both tombs and flat-graves. In tomb D26 a small quern was found which had been burnt after use and before it was placed in the tomb. Also at the heavily debated site of Anloo, which may represent a causewayed enclosure (see section 3.6.3), a complete quern, both the mano and metate, were found deposited in a pit.

Tombs however did not only contain tools related to farming. Besides vast quantities of pottery sherds, commonly present finds are flint flakes and waste, which appear to have been the result of flint knapping, also frequently found are strike-a-lights and transverse arrowheads (Van Gijn in prep; Van Woerdekom in prep.). Although bow and arrows may have been employed in warfare its most common application will have been in hunting. The faunal remains of an excavation in Sloodorp, province of Noord-Holland, consisted predominantly of wild animals, mainly mallard and red deer (Hogestijn & Drenth 2001, 51). This site was interpreted as a TRB hunting camp, which indicates that hunting was still an important resource for the TRB people. The tombs thus contain a variety of objects that were used in domestic life including the making of fire, knapping of flint, hunting and farming.

Although farming is not the only activity that is represented in the tombs, we must remember that the categories described above were probably not recognized by the TRB people. They would not necessarily have seen the making of fire, knapping of flint, farming or even hunting wild animals as separate categories of activities. These all were activities people were employed in on a day-to-day basis; they were all elements of everyday life. Nonetheless, the fact that axes, sickle-blades and querns were placed in the graves indicates that farming activities were an important aspect of that life. These tools are used for land clearance, harvest and cereal processing and thus form obvious symbols of the agricultural cycle. The fact that these objects were placed in graves indicates that such activities had a symbolic significance, they symbolised the activities TRB people were involved in on a daily basis. We should therefore not speak of a *farming-identity* but rather of a *TRB-identity*, as farming was only one element of every day life. Farming was entangled with all sorts of activities, and was thus seen as an important aspect of that life and was part of people's identity.

10.3.3 Agriculture as part of a cosmological system

Farming appears to have had a well-defined place within TRB identity, but how is this reflected in TRB cosmology? In order to define the role agriculture had within TRB cosmology we have to explore origins of that cosmology.

The TRB reached the Netherlands around 3400 BC as a well-defined cultural group (see section 3.2). People started clearing land, building tombs and houses and ceremonial axes were exchanged and deposited. The TRB cosmology reached the Netherlands as a fully developed package, but where did this cosmology originate? Both the origin of the ceremonial axes, the craft and thus the cosmological con-

notations they represented should be situated in southern Scandinavia. It was here too that the building of the TRB megaliths started. This is the region where the origin of the cosmological system that reached the Netherlands around 3400 BC must be sought. Interestingly the practice of building megalithic tombs, manufacturing flint axes and practising agriculture were all elements that simultaneously developed in southern Scandinavia only a few centuries earlier. It was in the period between 4100-3500 BC that people started building tombs, manufacturing flint axes and adopted the agrarian way of life.

The origin of TRB cosmology as encountered in the Netherlands would thus have developed in southern Scandinavia only a few centuries before 3400 BC. It originated during a time when people were abandoning their ways of life as hunter-gatherers and adopted agriculture. Although the Ertebølle people had been in contact with farmers and agricultural products for centuries, their culture, seen from an archaeological perspective, appeared to be stable. These contacts did not trigger the adoption of agriculture (see Klassen 2004). Only hundreds of years after coming into contact with the Neolithic farmers did the Ertebølle people fully adopt farming, and the TRB culture developed. Something changed in Ertebølle society between 4100-3500 BC that made it possible for agriculture to be adopted. This adoption seems to have gone hand in hand with the development of a cosmological system, in which the axe assumed a very important, if not central, role.

As the Ertebølle people had been in contact with Neolithic groups for centuries I would like to argue that the primary reason for a shift to agriculture was ideological. The TRB agricultural techniques involved shifting cultivation, which necessitated the continual clearance of land. The natural landscape, consisting of densely forested areas, had to be transformed into an agrarian landscape. Such a transformation however would also have had an impact on an ideological and cosmological scale. It is highly likely that the forest would have been an important element of Ertebølle cosmology, as it is for most hunter-gatherer societies. Forests are often not only seen as inhabited by animals but also by spirits or ancestors. Forests would have been places that were important and meaningful, which could not just be cleared and transformed into arable land. Bird-David (1990; 1992) provides us with several ethnographic examples including the Nayaka of southern India, the Mbuti in Zaire and the Batek of Melanesia. All these hunter-gatherer groups share a perception of the forest as animated and inhabited by spirits who provide food and resources. Moreover, they see themselves as children of the forest and the spirits that inhabit it. In Ertebølle society the forest would also have had its place

within the cosmological order of things. Clearing the forest in order to create arable land would not have been acceptable. In order for such changes to be effected the cosmological order of things had to be revised.

Likewise agriculture itself is not just a technical procedure. Fertility and agricultural success are also generally connected with spirits and ancestors. Such entities are means through which the farmers can control the agricultural process. The farmers can summon spirits, make offerings to ancestors or use magic spells in attempts to influence the growth of crops, the fertility of livestock and the yields of harvest. As is the case with the forest among hunter-gatherer societies, agriculture needs to have its place within the cosmology of farming societies. Only if agriculture has its place within a group's cosmology can it be understood and controlled.

The adoption of farming by Ertebølle society may thus have involved cosmological changes. Agricultural techniques and processes needed to be incorporated in Ertebølle cosmology. Forest clearance and the transformation of the landscape must have required legitimisation on a cosmological level. Moreover by incorporating these techniques in the cosmological order of things the outcome could be understood and influenced. People needed spirits, ancestors or magic spells through which they could control, manipulate and understand the agricultural process. The fact that from the Early Neolithic onwards the axe, one of the most important agricultural tools, is found in ritual contexts indicates that the practices associated with axes had become incorporated in such a cosmological order.

The cosmological incorporation of agricultural techniques made the adoption of farming acceptable. It provided a new order of things in which these new elements had their place and through which these processes could be understood and controlled. As such, the new techniques and cosmology formed a catalyst for the adoption of TRB identity. In only a short time span the TRB culture spread throughout northern Europe. The semi-agrarian groups that inhabited the northern Netherlands disappeared from the archaeological record to be replaced by the TRB. Although the preceding Swifterbant culture was already familiar with agricultural products, it was not until the start of the TRB around 3400 BC that the archaeological record shows clear evidence of both land-clearance and cereal cultivation.

Based on the cultural homogeneity visible in the archaeological record after 3400 BC, I am inclined to believe that there must have been some movement of people. However, as areas such as the northern Netherlands were not uninhabited, acculturation must also have occurred. The transition to TRB farmer thus not merely concerned the adoption of new techniques including new agricultural techniques, new

pottery styles, the building of megalithic monuments etc. It also, and even more importantly, involved the adoption of a new world-view, cosmology and identity. The TRB cosmology apparently had strong potential for transforming local world-views and identity into a TRB world-view along with a TRB identity. With regards to the rapid spread of the TRB culture this cosmology worked as a catalyst, it provided motivation and legitimisation for such a transition. It provided a cosmological framework in which the agricultural technologies became culturally acceptable and controllable.

The ceremonial axes are thus elements of a cosmological system that legitimised the adoption of TRB identity. As axes themselves can be considered potentially powerful symbols for agriculture it is likely that at least part of the connotations linked with the ceremonial axes had to do with the practice of agriculture and the clearance of land. Either they symbolized the practise of farming directly or perhaps the same (group of) spirits or ancestors were both related to the practice of axe production and the introduction of agriculture. In either case these axes indicate that the clearing of land and the practice of agriculture had indeed become incorporated into the cosmological order of things.

10.4 Conclusion

This chapter set out to explore how axes can be related to other TRB data. For the Netherlands the only dataset of comparable quality is that of the megalithic tombs. Tombs and wetland axe depositions appear to form exclusive categories that never overlapped. Tombs were places that through the performance of ceremonies and the deposition of objects and human remains, became associated with the history of a local community. Through time each action performed at the site would have added to the inalienable character of the tomb, eventually becoming one of a group's most inalienable possessions.

Whereas the authoritative power of tombs came from a local group's own history, the authoritative power of the ceremonial axes came from outside the human world. Tombs were related with the historical past of a local community, ceremonial axes were linked with the mythical past of the whole of TRB society. Both spheres represented realities that could not be combined. Ceremonial axes entered a local community as highly inalienable possessions. Their legitimisation came from outside the sphere of a local community, therefore such a community could never claim absolute ownership of such an object. As the ceremonial axes were part of TRB cosmology they belonged to a larger social universe. It was argued that for this reason they were placed outside the domain of everyday life. By placing them at the border of the peat they were placed outside the area a local group would have used for habitation, food production and burial. Through the act of deposition a group could "distance" itself from these objects, they could thus alienate the inalienable.

The ceremonial axes did not merely represent axes or the craft of axe making. They were part of a cosmology that provided a framework that made the clearing of land and the practice of agriculture acceptable. They were part of a cosmological order through which agriculture and the transformation of the natural landscape into an agrarian landscape became controllable. This order provided a framework through which such processes could be understood, controlled and manipulated. Although agriculture may already have been practised on a small scale by the preceding cultures of the north European plain, it was not until the TRB that agriculture assumed a dominant role in the lives of people. TRB cosmology, of which the ceremonial axes were an important part, legitimised the active transformation of the landscape by man. The importance of agriculture within TRB cosmology is not only attested by these ceremonial axes, grave goods also frequently included axes, sickle-blades and querns, which are all elemental and potentially symbolic tools in the agricultural cycle. The ceremonial axes thus symbolise and signify the importance of agriculture in TRB identity.

11.1 Introduction

So far this thesis has exclusively dealt with the depositional practices related to the TRB, however besides TRB axes, some SGC axes were also examined. These however have not been examined as systematically as the TRB axes. The results however can be used for comparison with the TRB data. In this chapter these results will be presented and compared with the TRB data. The primary question is whether the SGC depositions appear to be a continuation of the TRB depositional practices or whether changes occurred in this practice? If so, what are these changes and how should these be understood? As only a few SGC axes have been studied it is not the aim for this section to present a profound interpretation of SGC depositional practices. The observations presented here should be seen as a pilot study of SGC depositions, posing more questions than answers. Questions that can hopefully be answered through future research.

11.2 SGC depositional practices

11.2.1 Introduction

Although SGC sites and objects were not systematically recorded in the database compiled for this thesis, it does include all published multiple object depositions attributed to the SGC (as published in Achterop 1960; Ter Wal 1996). Also a number of museum objects that could be attributed to the SGC (including objects from multiple object depositions) were selected for functional analysis for comparative reasons. Moreover Van Gijn already performed functional analysis on a number of objects in the light of her research project concerning the social significance of flint for Neolithic and Bronze Age societies (Van Gijn in prep.). Her results were gratefully incorporated in the present study.

At present the database contains records of 45 SGC sites including multiple object depositions, various sorts of single finds (wet and dry contexts) and some barrows containing axes. Together these 45 sites boasted 56 axes, eight blades, three chisels, one dagger and one scraper. Functional analysis was performed on 32 of these objects, 22 of which were flint axes. After functional and contextual analysis it was decided that twelve of the recorded SGC sites represented intentional depositions in wet context. Nine of these were multiple object depositions and three are single object depositions. This includes one multiple object deposition that has not so far

been published. This deposition found at Klijdijk, Drenthe, at the edge of the peat is currently in private ownership. It consists of two medium large axes that both show minor traces of burning. Besides flint tools, these sites also include ten disc-wheels and one cattle-horn that have been deposited in the peat and which could be dated to the SGC.

11.2.2 SGC & TRB axe depositions

When comparing the TRB and SGC depositions there seems to be a continuation of the same practice. In both periods, groups of axes, as well as single axes were deposited in wet contexts. The places selected for deposition still appear to have been located near running water, however, most of the SGC depositions are only found on the southern half of the Drenthe Plateau. Although numerous TRB depositions have been found on the northern half of the Plateau only one SGC axe has been recorded here. It is unclear how this should be explained.

The composition of the SGC multiple object depositions changes slightly. The TRB depositions contained chisels, nodules of flint and axes in different stages of production. Although the SGC depositions also contain chisels and axes from different production stages, they do not contain flint nodules. On two occasions however, flint blades were deposited alongside one or more axes and on one occasion a flint scraper was also included. It appears that the SGC depositions could also include other types of flint tools.

The axes themselves in SGC depositions also differ from the axes of TRB depositions. The extremely long axes that are often found in TRB depositions (250-325 mm) are not encountered in SGC depositional context. The largest axe found in a SGC wet context deposition was only 242 mm long. It was argued in chapter 4 that the largest axe with traces of use was 218 mm long and that this length would have represented a functional cut-off point. Many of the TRB ceremonial axes are longer than 218 mm indicating that they could not have been used for functional purposes, moreover many of the axes smaller than 218 mm are unpolished seemingly indicating their non-utilitarian character. The SGC axes found in depositions however, show a completely different pattern in size distribution as can be seen in figure 11.1. The SGC axe of 242 mm mentioned above is the only one that is larger than 218 mm, suggesting that it probably could not have served a functional purpose. All the other axes derived

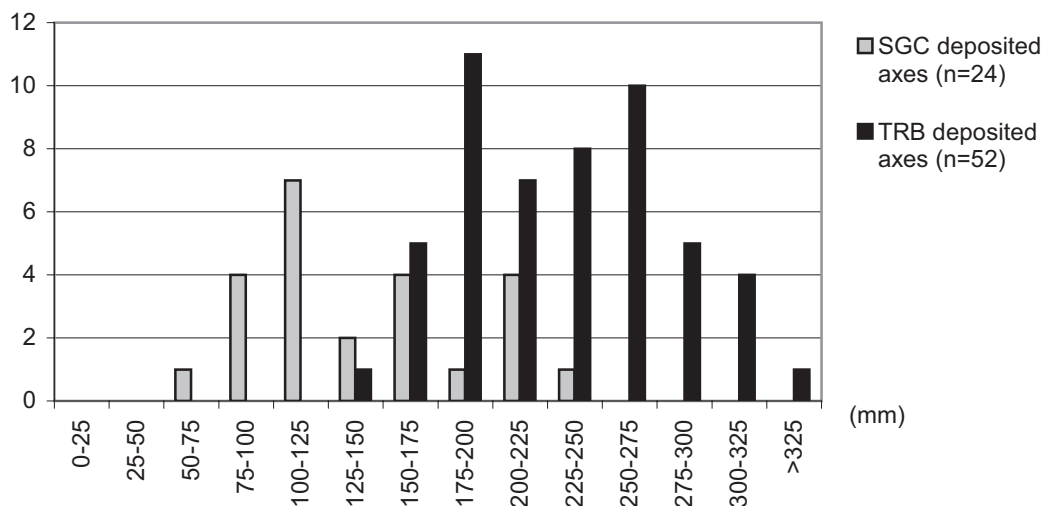


Figure 11.1 Distribution of deposited TRB and SGC flint axes per length group.

from wet-context depositions are smaller than 218 mm varying in size from 56 to 215 mm, which places them in a size group that could potentially have served a functional purpose.

This reduction in size can be related to the life-history of these axes, which changed drastically compared to the TRB ceremonial axes. In the TRB culture we only find unused axes specially produced for ceremonial purposes in wet contexts. Functional analysis of the SGC wet context finds, however, indicated that at least 50% of the examined axes had been used in a functional manner. They show clear traces of use including polish, rounding, edge damage and traces of hafting, all indicating a history of functional activities. Neither are the characteristic traces of wrapping encountered on SGC axes. Some of the unused SGC axes however, do show some minor wear-traces that could have developed through handling or during transport.

There thus appears to be a clear break with the TRB traditions, as the primary significance of the TRB axes appeared to have been their non-utilitarian nature as inalienable objects. Interestingly, however, there also appears to be a certain continuity. On five of the examined SGC axes, for example, clear traces of red ochre were encountered. As was the case with TRB axes, ochre was also applied to SGC deposited axes. The use-life of the axes however, was not at all the same.

11.2.3 SGC & TRB graves

We have seen that in the SGC relatively small, used axes are included in multiple object depositions. In TRB contexts, objects with such use-lives were exclusively deposited in graves. Axes can also be found in SGC barrows, the majority

of which appear to be small used axes as was the case during the TRB period (Van Gijn in prep.). However, another category of axe also ended up in SGC barrows. The largest known SGC axe for example was 270 mm long and did not appear to have been used. During the TRB such an object would have been deposited in bogs and would never have entered a grave. This 270 mm long SGC axe however was found in a barrow near Vaassen (tumulus I), associated with the burial of a single individual.

For the TRB it was argued that the ceremonial axes represented entities of a mythical origin. They were highly inalienable and were part of TRB cosmology. They were placed outside the sphere of a local community because local communities could not claim absolute ownership of such objects. Their authentication came from a mythical order that could never be appropriated by a local community. The fact that such an unused, impractical axe was found in the barrow of Vaassen indicates either a drastic change in the significance of these axes or a change in the significance of burial monuments. It is probable however, that both changed significantly. The use-life of axes found in wet context depositions seems to indicate completely different qualities from the axes deposited by the TRB. The nature and function of “communal” tombs in which human remains and objects were added and rearranged would also have been completely different compared with a barrow erected over the grave of a single individual.

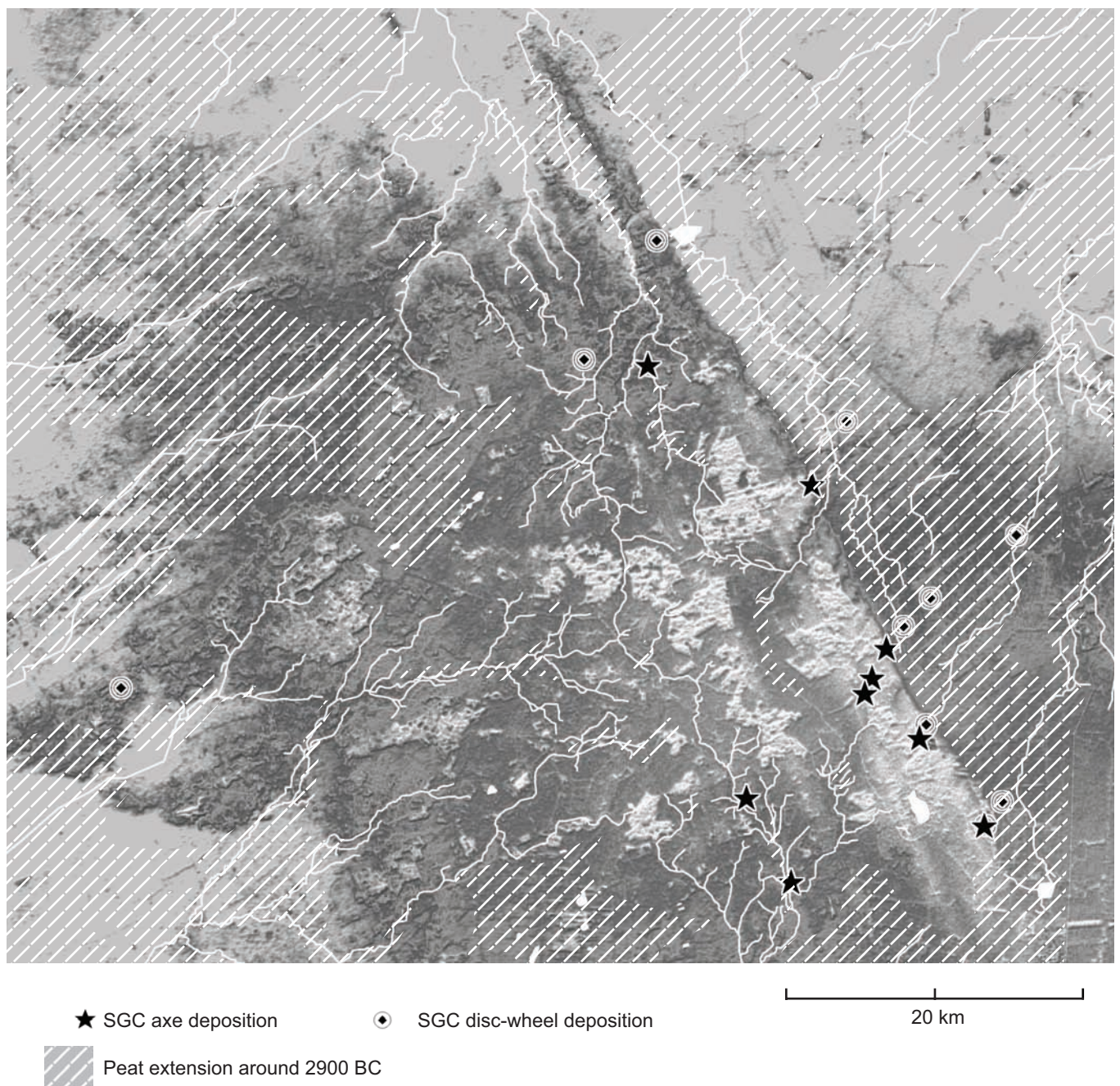


Figure 11.2 Distribution map of SGC axe depositions and disc-wheel depositions within the research area (Digital Elevation Model provided by Archol).

11.3 Changing categories

It appears that the exclusive categories of the TRB no longer apply in the SGC. In TRB context the extremely long, unused axes are solely found in wet context depositions and never in graves. TRB graves only contain small, worn axes with an extensive use-life as functional tools. These exclusive categories however, became mixed up during the SGC period. Small worn axes, previously only placed in graves also appear in wet context multiple object depositions. The large unused axes, previously only known from wet contexts, appear in SGC barrows associated with single graves. Although the practice of depositing axes both in wet contexts and in graves remains in existence, the definition of both categories changed radically. Both practices “survived” the transition from TRB to SGC, however the significance, their authentication, changed completely.

This provides us with two main questions. How should the patterns of the SGC depositions be interpreted? What was the place of depositions in SGC cosmology, how were they meaningful and which qualities did they symbolize or signify? In order to answer this question a systematic study should be dedicated to the SGC depositions in a similar way as this study dealt with the TRB. The second question is how such changes should be interpreted. Why did particular elements of the cosmology of people change? The fact that the TRB axes were specially produced, treated and deposited over such a vast area and during such a long time indicates that this practice must have been considered highly meaningful and important. What sort of processes entail such change in practice? This must have been related with a change in cosmology and identity during the SGC. Although the actual practices remained, the way in which they were meaningful changed completely. Hopefully future research can provide answers to these questions.

12.1 Introduction

This thesis set out to answer three questions. The first question was whether or not permanent deposition took place in the TRB culture. This question was already positively answered by past research performed by other researchers. The large imported axes in particular, appeared to come almost exclusively from waterlogged places where they had been deposited either as single objects or as part of multiple object depositions.

The second question concerned the structuring of the practice of deposition. With the aid of metrical, functional and spatial analysis a number of patterns were recognized (see chapters 4, 5 and 6 respectively). The axes retrieved from waterlogged places appeared to be much larger than average. Especially when compared to axes from graves two distinct groups could be recognised; axes from graves being small and worn in appearance, whereas axes from wet contexts were much larger and seemed to be in mint condition with no macroscopical signs of wear. The axes found in wet contexts were often of a length that would have made them completely impractical. Others moreover were unpolished or only partially polished with the exception of the cutting-edge. The fact that many of these wet context finds concerned axes that were unpolished and/or of such a size that they could never have been put to functional use was taken to indicate that these axes had been specially produced for non-functional activities.

This dichotomy was corroborated by the functional analysis. Using high-power microscopy, several groups of axes were examined for the presence of use-wear and residue. The analysis contained stray finds, axes from tombs and axes from waterlogged places. The small axes found in graves had been used as tools and were often resharpened before entering the tombs. The axes found in wet contexts, however, appeared not to have been put to use. Instead, micro-wear was encountered which could be interpreted as traces of wrapping. The axes appeared to have been wrapped again and again in a specific material. Although several experiments were carried out, so far no match has been found that helped determine the exact contact material. The results of the experiments however did indicate that the axes were probably wrapped and unwrapped hundreds if not thousands of times. The fact that the traces found on different axes were identical indicated that a highly specific material was used. Besides traces of wrapping, the axes from wet contexts appeared to show

traces of red ochre, especially on the cutting edge. It could not be determined during which stage in the life of these axes the ochre was applied. Together these observations indicated that the group of axes found in wet contexts were objects which received a special treatment during their lives and which were moreover specially produced for non-functional purposes.

Deposition of these ceremonial axes took place at specific locations in the landscape. The majority of depositions were found at the transition from the bog to the sand and were associated with running water. In particular, the bog areas running parallel to the small streams intersecting the Drenthe Plateau formed places where depositions took place. It was therefore concluded that it was not only the production and use-lives of these ceremonial axes that was structured, also deposition was highly structured.

The third question dealt with the interpretation of these patterns. How should the patterning observed in selective deposition be explained? As it appeared that these axes were specially produced for ceremonial purposes, were treated during their lives in a specific way and were selectively deposited at particular places in the landscape, this question could only be answered after reviewing each of these phases.

12.2 The authentication of meaning

The axes found in wet context depositions were not locally produced. They originated from southern Scandinavia or northern Germany where they had been specially produced for ceremonial purposes. The fact that there is such uniformity in the patterning of the archaeological data indicates that these axes were all treated in an identical manner even though they travelled hundreds of kilometres. This patterning not only suggests that these objects were imbued with a special meaning, it also suggests that this meaning was recognised and respected throughout the area in which they circulated. The patterning further indicates that there was a corpus of knowledge that prescribed how these axes should be treated. This knowledge would not only have involved information about how these objects had to be handled, it would also have contained information about why these rules had to be obeyed. In this respect the knowledge involved can be classified as “cosmological knowledge”, as it would have described why these axes were of a special significance. It would have described the nature and origin of their meaning,

their place in TRB cosmology and how these objects should be treated.

It was argued in chapters 8 and 9 that in order for such a meaning to be recognised and respected throughout the TRB north- and west-group, the origin of that meaning should have been considered legitimate. In order for social realities to be considered by the majority of society as legitimate, the origin of such realities must lie outside the human sphere, in a sacred, changeless order (Godelier 1999, 124). Only when the authentication of these axes came from a domain beyond the everyday world could these objects circulate while keeping their special meaning (see Weiner 1992, 101-103). The special meaning of these axes thus had to originate in the sphere of myths, spirits and ancestors. Only if these objects had spiritual or ancestral connotations would the standardised treatment these axes received be perceived as legitimate, as the only way possible, by the whole of TRB society.

12.3 The production of meaning

The axes found in waterlogged places had been specially produced for ceremonial purposes. This means that as early as during production a special significance was attributed that pre-determined their eventual use-lives. Thus, the axe makers must not only have possessed knowledge about the practical aspects of axe making but also about the special nature of these axes, about their meaning and about the role these objects were going to play in society. Axe-making did not only involve practical knowledge and know-how, it also involved cosmological knowledge.

By transforming nodules of flint into ceremonial axes, the TRB axe makers were able to produce objects with a special meaning that was recognised and respected throughout the TRB north- and west-group. This special meaning moreover appeared to originate outside the human sphere and was associated with myths, spirits or ancestors. It was argued in chapter 8 that in ethnographies world-wide, craftsmanship is connected with supernatural powers (Helms 1988, 116). In such scenarios the origin of the objects produced or the knowledge involved in their production is seen as a gift from supernatural beings. Through production therefore a link was established between the sacred changeless order of spirits and ancestors, part of whose powers became incorporated in the objects produced. These axes thus not only became commensurable with these entities, they became animated by these entities.

As objects animated by supernatural entities, such as spirits or ancestors these axes would have been considered highly inalienable. A phenomenon often encountered in the ethnographic record is that a group's most inalienable posses-

sions cannot be exchanged, as they are completely intertwined with that group's cosmology and identity. However, both Godelier (1999, 138) and Weiner (1985, 212) describe situations in which copies are made of a group's inalienable possessions. In such societies copies are made of sacred objects that may circulate while the 'archetype of these objects, which is at the same time the prototype, is carefully preserved somewhere, if only in people's minds' (Godelier 1999, 138). The origin of either this prototype or the knowledge required for production are considered gifts from the spirits or ancestors and are thus highly inalienable.

12.4 TRB cosmology and knowledgeable exchange partners

Because the special meaning attributed to the ceremonial axes originated in the domain of myths, spirits or ancestors, these objects were deeply entangled with TRB cosmology. The knowledge involved that prescribed how these objects should be handled would also have contained information about this cosmology. The patterning in the archaeological data moreover indicates that this knowledge was shared by all people actually handling these axes. This implies that a certain corpus of cosmological knowledge was available throughout the TRB north- and west-group. In order for the patterns to arise the ceremonial axes moreover could only have been exchanged between exchange partners that were equally familiar with this knowledge. Besides the empirically observed patterns, this could be corroborated by the fact that no ceremonial axes were found outside known TRB habitation clusters, such as the Drenthe Plateau or the Veluwe. Apparently non-TRB people, who would not have been familiar with TRB cosmology, did not have access to these axes. It was therefore argued in chapter 9 that the ceremonial TRB axes were solely exchanged within an "endogamous" exchange network between knowledgeable exchange partners.

Such exchanges would have involved a certain level of secrecy, as not everyone in society would have possessed the knowledge required for handling these axes. Such knowledge would have been controlled by a group of ritual specialists, probably consisting of (a selection of) a certain age and/or gender group. The traces of wrapping found on these axes can be interpreted as evidence of this secrecy. Ethnographic studies revealed that objects of special importance or with special powers are often wrapped in order to protect them from uninitiated persons as well as to protect uninitiated persons from such an object's formidable powers. As such, we can consider this corpus of cosmological knowledge that prescribed how, and explained why, these axes had to be treated in a specific manner, as an inalienable possession itself. This

knowledge was deeply entangled with TRB cosmology and identity, as such it was highly treasured and considered inalienable. The cosmological knowledge and the ceremonial axes were both part of the same continuum. The knowledge was used to legitimise the powers of the ceremonial axes, whereas the axes themselves served as material references of that knowledge. They served to legitimise and authenticate each other.

12.5 Deposition in natural places

At the end of their use-lives the ceremonial axes were placed at the transition between upland and wetland along running water. Although the small used axes were deposited inside the chambers of megalithic tombs, the ceremonial axes were never placed inside tombs. In chapter 10 it was therefore posited that tombs and wetland depositions appear to have represented two exclusive spheres of deposition. It was argued that through the use of tombs, the adding of human remains and the performance of rituals and depositions, the tombs became commensurable with the history of a local community. The tombs were inalienable possessions that became inscribed with a group's history through repeated acts of deposition and ritual at the same location. Through time such a place would have become more and more inalienable as their histories grew.

Ceremonial axes however entered local societies as already highly inalienable objects. Moreover, they were not commensurable with a local group's history, but were inscribed with TRB cosmology. Their source of authentication could not be controlled by a single TRB group and neither could these axes. Such an object could therefore not be placed in a tomb as a local community's permanent possession. Through

depositing these objects at the transition from sand to peat, the axes were placed at the boundary of the domain of food production, habitation, burial, everyday life. These axes were placed outside the domain of a local community because a local community could not claim permanent ownership of such objects. By placing them in natural places they could alienate the inalienable (Gregory 1980, 644). Through depositing these ceremonial axes outside the sphere of everyday life such an object along with its powers was returned to a larger social and cosmic universe.

12.6 Depositions as a widespread phenomenon

The patterns observed in the archaeological data indicate the presence of a corpus of cosmological knowledge which was both enduring and widespread. In chapter 11 the possibilities were already explored with regards to future research concerning the change of depositional practices through time. However as far as TRB depositional practices are concerned the present study only contained empirical data collected in the Netherlands. The data indicate that the depositional practices, as recorded in the Netherlands, are part of a much wider adopted practice. The only manner in which this can be substantiated, however, is by broadening the scope of the empirical research. The contemporary spatial relations of this practice can only be examined when the German and Danish evidence is also subjected to detailed spatial and contextual analysis using a GIS and most importantly functional and residue analysis using high power microscopy. By doing so, comparable data can be collected which can be used to explore both the homogeneity as well as the local nuances of this ritual.

References

- Achterop, S.H. 1960: Een depot van vuurstenen bijlen bij Reest, *Nieuwe Drentse Volksalmanak*, 179-189.
- Akerman, K., R. Fullagar & A. van Gijn 2002: Weapons and *wunan*: production, function and exchange of Kimberley points, *Australian Aboriginal Studies* 1, 13-42.
- Albrethsen, S. E. & E. B. Petersen 1976: Excavation of a mesolithic cemetery at Vedbaek, Denmark, *Acta Archaeologica* 47, 1-28.
- Andersen, N.H., 1997: *Sarup vol.1 The Sarup Enclosures. The Funnel Beaker Culture of the Sarup site including two causewayed camps compared to the contemporary settlement in the area and other European enclosures*, Moesgård (Aarhus University Press)(Jutland Archaeological Society Publications XXXIII: 1).
- Apel, J. 2001: *Daggers, Knowledge & Power. The Social Aspects of Flint-Dagger Technology in Scandinavia 2350-1500 cal BC*, PhD thesis, Uppsala.
- Apel, J., Y. Bäckström, F. Hallgren, K. Knutsson, P. Lekberg, E. Olsson, M. Steineke & L. Sundström 1995: Fågelbacken och trattbägarsamhället: Samhällsorganisation och rituella samlingsplatser vid övergången till en bofast tillvaro i östra Mellansverige, *Tor* 27; 1, 47-132.
- Bakels, C. & J. Zeiler 2005: De vruchten van het land. De neolithische voedselvoorziening, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 311-335.
- Bakker, J.A. 1959: Veenvondsten van de Trechterbeker-cultuur, in: J.E. Bogaers & J.M.L.Th. Cals (eds.), *Honderd Eeuwen Nederland*, 's-Gravenhage, 93-99.
- Bakker, J.A. 1979a: *The TRB West Group – Studies in the Chronology and Geography of the Makers of Hunebeds and Tiefsch Pottery*, PhD Thesis, Amsterdam (UvA).
- Bakker, J.A. 1979b: On the Possibility of Reconstructing Roads from the TRB Period, *Berichten van de ROB* 26, 63-91.
- Bakker, J.A. 1982: TRB Settlement Patterns on the Dutch Sandy Soils, *Analecta Praehistorica Leidensia* 15, 87-124.
- Bakker J.A. 1983: Het hunebed G1 te Noordlaren, *Groningse Volksalmanak*, 115-199.
- Bakker, J.A. 1994: Eine Dolmenflasche und ein Dolmen aus Groningen, *Beiträge zur frühneolithischen Trichterbecherkultur im westlichen Ostseegebiet. I. Internationales Trichterbeckersymposium in Schleswig von 4. bis 7. März 1985*, Neumünster (Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein 1), 71-78.
- Bakker, J.A. & W.A.B van der Sanden 1995: Trechterbekaardewerk uit natte context: de situatie in Drenthe, *Nieuwe Drentse Volksalmanak* 112, 132-148.
- Bakker, R. 2003: *The emergence of agriculture on the Drenthe Plateau - A palaeobotanical study supported by high-resolution 14C dating*, PhD thesis, Groningen (Archäologische Berichte 16).
- Barrett, J.C. & K.J. Fewster 2000: Intimacy and Structural Transformation: Giddens and Archaeology, in: C. Holtorf & H. Karlsson (eds.), *Philosophy and Archaeological Practice. Perspectives for the 21st Century*, Göteborg (Bricoleur Press), 25-38.
- Becker, C.J. 1957: Den tyknakkede flintøkse. Sudier over tragtbægerkulturens svære retøksker i mellem-neolitisk tid, *Aarbøger*, 1-37.
- Becker, C.J. 1973: Studien zu neolithischen Flintbeilen, *Acta Archaeologica* 44, 125-186.
- Bell, C. 1997: *Ritual. Perspectives and Dimensions*, New York (Oxford University Press).
- Bennike, P. 1985: *Palaeopathology of Danish Skeletons. A Comparative Study of Demography, Disease and Injury*, Copenhagen (Akademisk Forlag).
- Bennike, P. 1999: The Early Neolithic Danish bog finds: a strange group of people!, in: B. Coles, J. Coles & M. S. Jørgensen (eds.), *Bog Bodies, sacred Sites and Wetland Archaeology*, Exeter (Warp Occasional Paper 12), 27-32.

- Bentley, R.A., T.D. Price, J. Lüning, D. Gronenborn & J. Wahl 2001: Prehistoric human migration in the Linearbandkeramik of Central Europe, *Antiquity* 75, 593-603.
- Bentley, R.A., T.D. Price, J. Lüning, D. Gronenborn, J. Wahl & P.D. Fullagar 2002: Prehistoric Migration in Europe: Strontium Isotope Analysis of Early Neolithic Skeletons, *Current Anthropology* 43; 5, 799-804.
- Bergen, C., M.J.L.Th Niekus & V.T. van Vilsteren (eds.) 2002: *Schatten uit het Veen*, Zwolle (Waanders Uitgevers).
- Beuker, J.R. 1986: De import van Helgoland-vuursteen in Drenthe, *Nieuwe Drentse Volksalmanak* 103, 111-135.
- Beuker, J. 2005: Aanvoer uit alle windstreken - Stenen bijlen in Noord-Nederland, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 277-280.
- Bird-David, N. 1990: The Giving Environment: Another Perspective on the Economic System of Gatherer-Hunters, *Current Anthropology* 31; 2, 189-196.
- Bird-David, N. 1992: Beyond "The Original Affluent Society": A Culturalist Reformulation, *Current Anthropology* 33;1, 25-47.
- Blinkenberg, C. 1911: *The Thunderweapon in Religion and Folklore. A study in comparative archaeology*, Cambridge (Cambridge University Press).
- Bloch, M. & J. Parry 1989: Introduction: Money and the morality of exchange, in: M. Bloch & J. Parry (eds.), *Money and the morality of exchange*, Cambridge (Cambridge University Press), 1-32.
- Bottema, S., R. Cappers & A. Kloosterman 2004: The Pollen Signal of Early Neolithic Farming along a Habitation Gradient in Northern Drenthe, *Palaeohistoria* 45/46, 37-57.
- Bourgeois, Q. 2005: De vorming van prehistorische landschappen. Een onderzoek naar de tijdsdiepte van grafheuvelcomplexen, in: M. Kerkhof, R. van Oosten, F. Thomas & C. van Woerdekom (eds.), *SOJA Bundel 2005*, Leiden (Symposium voor Onderzoek door Jonge Archeologen), 91-95.
- Bourgeois, Q. in prep. *The chronology of the Bronze Age grave ritual in the Netherlands*, Research Masters Thesis, Leiden University.
- Boyd, R. & P.J. Richerson 2005: *Not by Genes Alone. How Culture Transformed Human Evolution*, Chicago (The University of Chicago Press).
- Bradley, R. 1990: *The Passage of Arms. An archaeological analysis of prehistoric hoard and votive deposits*, Cambridge (Cambridge University Press).
- Bradley, R. 1998: *The Significance of Monuments. On the shaping of human experience in Neolithic and Bronze Age Europe*, London (Routledge).
- Bradley, R. 2000: *An Archaeology of Natural Places*, London (Routledge).
- Bradley, R. 2005: *Ritual and Domestic Life in Prehistoric Europe*, London (Routledge).
- Bradley, R. & M. Edmonds (eds.) 1993: *Interpreting the axe trade. Production and exchange in Neolithic Britain*, Cambridge (Cambridge University Press).
- Brandt, K.H. 1967: *Studien über steinerne Äxte und Beile der jüngere Steinzeit und der Stein-Kupferzeit Nordwestdeutschlands*, Hildesheim (Münstersche Beiträge zur Vorgeschichtsforschung).
- Brindley, A.L. 1986a: Hunebed G2: excavation and finds, *Palaeohistoria* 28, 27-92.
- Brindley, A.L. 1986b: The typochronology of TRB West Group pottery, *Palaeohistoria* 28, 93-132.
- Brindley, A.L. & J.N. Lanting 1992: A re-assessment of the Hunebedden O1, D30, and D40: Structures and Finds, *Palaeohistoria* 33/24, 97-140.
- Brindley, A.L., J.N. Lanting & A.D. Neves Espinha 2002: *Hunebed D6a near Tinaarlo*, *Palaeohistoria* 43/44, 43-85.
- Brindley, A.L. & J.N. Lanting 2004: The Destroyed *Hunebed* O2 and the adjacent TRB Flat Cemetery at Mander (*Gem. Tubbergen*, Province Overijssel), *Palaeohistoria* 45/46, 59-94.
- Brounen, F.T.S. 1999: Enkele Limburgse depotvondsten van halffabrikaten van vuurstenen bijlen, *Archeologie* 9, 36-52.

- Brück, J. 1999: Ritual and rationality: some problems of interpretation in European Archaeology, *European Journal of Archaeology* 2, 313-344.
- Brück, J. 2001: Body metaphors and technologies of transformation in the English Middle and Late Bronze Age, in: J. Brück (red.), *Bronze Age Landscapes: Tradition and Transformation*, 149-60. Oxford (Oxbow).
- Casparie, W.A. 1987: Bog Trackways in the Netherlands, *Palaeohistoria* 29, 35-65.
- Casparie, W.A. 2005: Het hoogveen ontsloten. Houten wegen en paden in de Drentse venen, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 401-405.
- Charlesworth, M., F. Dussart & H. Morphy (eds.) 2005: *Aboriginal Religions In Australia: An Anthology of Recent Writings*, Aldershot (Ashgate Publishing).
- Childe, V.G. 1952 (1949): Social Worlds of Knowledge, in: G. Cumberlege (ed.), *Hobhouse Memorial Lectures 1941-1950*, London (Oxford University Press).
- Christensen, J. 2004: Warfare in the European Neolithic, *Acta Archaeologica* 75, 129-156.
- Cooney, G. 2000: *Landscapes of Neolithic Ireland*, London (Routledge).
- Davidson, K. 1978: *The Final TRB Culture in Denmark. A Settlement Study*, Copenhagen (Akademisk Forlag).
- De Grooth, M. & P. van de Velde 2005: Kolonisten op de Löss?, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 219-242.
- Deinse, J.J. 1925: *Uit het Land van Katoen en Heide – Oudheidkundige en Folkloristische schetsen uit Twente*, Enschede (Van der Loeff).
- Deliège, R. 2004: *Lévi-Strauss Today. An Introduction to Structural Anthropology*, Oxford (Berg).
- Drenth, E. & W.J. Hogestijn 1999: De Klokbekecultuur in Nederland: De stand van onderzoek anno 1999, *Archeologie* 9, 99-149.
- Ebbesen, K. 1982: Yngre stenalders depotfund som bebyggelseshistorisk kildemateriale, in: H. Thrane (ed.), *Om Yngre Stenalders Bebyggelseshistorie*, Odense, 60-79.
- Ebbesen, K. 1993: Sacrifices to the powers of nature, in: S. Hvass & B. Storgaard (eds.), *Digging into the past. 25 Years of Archaeology in Denmark*, Copenhagen (The Royal Society of Northern Antiquaries), 122-126.
- Fokkens, H. 1991: *Verdrinkend landschap; archeologisch onderzoek van het westelijk Fries-Drents Plateau 4400 BC tot 500 AD*, PhD thesis, Groningen.
- Fontijn, D.R. 1999: Het ontstaan van rechthoekige 'cultusplaatsen', in: R. Jansen & H. Fokkens (eds.), *2000 jaar bewoningsdynamiek. Brons- en ijzertijdbewoning in het Maas-Demer- Scheldegebied*, Leiden (Faculteit der Archeologie, Universiteit Leiden), 149-172.
- Fontijn, D.R. 2002: *Sacrificial Landscapes Cultural biographies of persons, objects and 'natural' places in the Bronze Age of the Southern Netherlands, C. 2300-600 BC*, PhD Thesis, Leiden (Analecta Praehistorica Leidensia 33/34).
- Fowler, C. 2004: *The Archaeology of Personhood. An anthropological approach*, London (Routledge).
- Gell, A. 1992: The Technology of Enchantment and the Enchantment of Technology, in: J. Coote & A. Shelton (eds.), *Anthropology, Art and Aesthetics*, Oxford (Clarendon Press), 40-63.
- Gell, A. 1998: *Art and Agency. An Anthropological Theory*, Oxford (Clarendon Press).
- Giddens, A. 1979: *Central Problems in Social Theory*, London (Macmillan).
- Giddens, A. 1984: *The Constitution of Society*, Cambridge (Polity).
- Gillings, M. & D. Wheatley 2002: *Spatial Technology and Archaeology. The Archaeological Applications of GIS*, London (Tayler & Francis).
- Glasbergen, W. & A.E. van Giffen 1964: De vroegste fase van de TRB-cultuur in Nederland, *Helinium* 4, 40-48.
- Godelier, M. 1990 (1986): *The Making of Great Men. Male domination and power among the New Guinea Baruya*, Cambridge (Cambridge University Press).
- Godelier, M. 1999: *The Enigma of the Gift*, Chicago (University of Chicago Press).
- Gosden, C. & G. Lock 1998: Prehistoric Histories, *World Archaeology* 30; 1, 2-12.

- Gregory, C.A. 1980: Gifts to Men and Gifts to God: Gift Exchange and Capital Accumulation in Contemporary Papua, *Man* 15, 626-652.
- Groenendijk, H.A. 2003: New archaeological issues in the former Bourtanger Moor (The Netherlands), in: A. Bauerochse & H. Haßmann (eds.), *Peatlands. Archaeological sites - archives of nature - nature conservation - wise use*, Hannover (Proceedings of the Peatland Conference 2002), 36-47.
- Hampton, O.W. 1999: *Culture of Stone - Sacred and Profane Uses of Stone among the Dani*, Texas (Texas A&M University anthropology series; no. 2).
- Hansen, P.V. & B. Madsen 1983: Flint Axe Manufacture in the Neolithic. An Experimental Investigation of a Flint Axe Manufacture Site at Hastrup Vænget, East Zealand, *Journal of Danish Archaeology* 2, 43-59.
- Helms, M.W. 1988: *Ulysses' Sail. An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*, Princeton (Princeton University Press).
- Högberg, A. 1999: Child and Adult At a Knapping Area. A technological Flake Analysis of the Manufacture of a Neolithic Square Sectioned Axe and a Child's Flintknapping Activities on an Assemblage excavated as Part of the Öresund Fixed Link Project, *Acta Archaeologica* 70, 79-106.
- Hogestijn, J.W. 1990: From Swifterbant to TRB in the IJssel-Vecht Basin, in: D. Jankowska (ed.), *Die Trichterbecherkultur, Neue Forschungen und Hypothesen, Teil I, Poznan (Material des Internationalen Symposiums Dymaczewo 20-24 September 1988)*, Poznan (Instytut Prahistorii Uniwersytetu im. Adama Mickiewicza), 163-80.
- Hogestijn, J.W.H. & E. Drenth 2001: In Sloodorp stond een Trechterbeker-huis? Over Midden- en Laat-Neolithische huisplattegronden uit Nederland, *Archeologie* 10, 42-79.
- Hogestijn, J.W.H. & J.H.M. Peeters (eds.) 2001. *De mesolithische en vroeg-neolithische vindplaats Hoge Vaart-A27 (Flevoland) – Deel 20 Op de grens van land en water: jagers-visser-verzamelaars in een verdrinkend landschap*, Amersfoort (ROB Rapportage Archeologische Monumentenzorg 79).
- Holten, L. 2000: Death, Danger, Destruction and Unintended Megaliths: An Essay on Human Classification and its Material and Social Consequences in the Neolithic of South Scandinavia, in: Ritchie, A. (ed.), *Neolithic Orkney in its European context*, Cambridge (McDonald Institute for Archaeological Research), 287-298.
- Holtorf, C.J. 1998: The Life-Histories of Megaliths in Mecklenburg-Vorpommern (Germany), *World Archaeology* 30; 1, 23-38.
- Jager, S. 1985: A Prehistoric Route and Ancient Cart-Tracks in the *Gemeente* of Anloo (Province of Drenthe), *Palaeohistoria* 27, 185-202.
- Jarman, M.R. 1972: European Deer Economies and the Advent of the Neolithic, in: E.S. Higgs (ed.), *Papers in Economic Prehistory. Studies by Members and Associates of the British Academy Major Research Project in the Early History of Agriculture*, Cambridge (Cambridge University Press), 125-140.
- Jennbert, K. 1997: Mentality and the social world: the Mesolithic-Neolithic transition in Southern Scandinavia, in: A. van Gijn & M. Zvelebil (eds.), *Ideology and social structure of stone age communities in Europe*, *Analecta Praehistorica Leidensia* 29, 51-56.
- Jensen, H.J. & T. Madsen 1982: Settlement and Land Use in Early Neolithic Denmark, *Analecta Praehistorica Leidensia* 15, 63-86.
- Johansson, P. 2003: *The Lure of Origins. An inquiry into Human-Environmental Relations, Focused on the "Neolithization" of Sweden*, PhD thesis Lund (Human Ecology Division Lund University).
- Karsten, P. 1994: Att kasta yxan i sjön: En studie över rituell förändring utifrån skånska neolitiska offerfynd, *Acta Lund* 8; 23.
- Klassen, L. 2004: *Jade und Kupfer. Untersuchungen zum Neolithisierungsprozess im westlichen Ostseeraum unter besonderer Berücksichtigung der Kulturentwicklung Europas 5500-3500 BC*, Moesgård (Jutland Archaeological Society, Moesgård Museum, Aarhus University Press).
- Koch, E. 1998: *Neolithic Bog Pots from Zealand, Møn, Lolland and Falster*, Copenhagen (Nordiske Fortidsminder Serie B, vol. 16).

- Koch, E. 1999: Neolithic Offerings from the Wetlands of Eastern Denmark, in: B. Coles, J. Coles & M. S. Jørgensen (eds.), *Bog Bodies, sacred Sites and Wetland Archaeology*, Exeter (Warp Occasional Paper 12), 125-131.
- Kuijjer, P.C. 1991: *Toelichting bij kaartblad 12 West Assen, Bodemkaart van Nederland 1:50 000*, Wageningen (Stiboka).
- Lanting, A.E. 1983: Van heinde of ver?: Een opmerkelijke pot uit hunebed D21 te Bronneger, gem. Borger, *Nieuwe Drentse Volksalmanak* 100, 139-146.
- Lanting, J.N. 1975: De hunebedden op de Glimmer Es (gem. Haren), *Groningse Volksalmanak*, 167-180.
- Lanting, J.N. & A.D. Verlinde 1996: Her-opgraving hunebed Mander, 38 jaar later, *'t Inschrien* 28, 42-47.
- Lanting, J.N. & J. van der Plicht 2000: De 14C-Chronologie van de Nederlandse Pre- en Protohistorie III: Neolithicum, *Palaeohistoria* 41/42, 1-110.
- Larsson, L. 1984: The Skateholm Project. A late Mesolithic settlement and cemetery complex at a South Swedish Bay, *Meddelanden fran Lunds Universitets Historiska Museum 1983-1984*, 5-38.
- Laux, F. 1990: Die Trichterbechergruppen zwischen Elbe und Ems (Niedersachsen), in: D. Jankowska (ed.), *Die Trichterbecherkultur, Neue Forschungen und Hypothesen, Teil I, Poznan (Material des Internationalen Symposiums Dymaczewo 20-24 September 1988)*, Poznan (Instytut Prahistorii Uniwersytetu im. Adama Mickiewicza), 181-195.
- Lévi-Strauss, C. 1950: Introduction à l'Oeuvre de Marcel Mauss, in: M. Mauss, *Sociologie et Anthropologie*, Paris (Presses Universitaires de France), 9-52.
- Lévi-Strauss, C. 1963 (1958): *Structural Anthropology*, New York (Basic Books).
- Lévi-Strauss, C. 1969 (1949): *The Elementary Structures of Kinship*, London (Eyre & Spottiswoode).
- Lienhardt, G. 1985: Self, Public, Private: Some African Representations, in: Carrithers, M., S. Collins & S. Lukes (eds.), *The Category of the Person: Anthropology, Philosophy, History*, Cambridge (Cambridge University Press), 141-155.
- Louwe Kooijmans, L.P. 1987: Neolithic Settlement and subsistence in the Wetlands of the Rhine/Meuse Delta of the Netherlands, in: J.M. Coles & A.J. Lawson (eds.), *European Wetlands in Prehistory*, Oxford (Clarendon Press) 227-251.
- Louwe Kooijmans, L.P. 1993: Wetland exploitation and upland relations of prehistoric communities in the Netherlands, *East Anglian Archaeology* 50, 71-116.
- Louwe Kooijmans, L.P. 1998: Understanding the Mesolithic/Neolithic Frontier in the Lower Rhine Basin 5300-4300 cal BC, in: M. Edmonds & C. Richards (eds.), *Social Life and Social Change: the Neolithic of Northwestern Europe*, Glasgow (Cruithne Press), 407-427.
- Louwe Kooijmans, L.P. 2000: Living in the Neolithic: Habitation and Landscape, in: A. Ritchie (ed.), *Neolithic Orkney in its European context*, Cambridge (McDonald Institute for Archaeological Research), 323-331.
- Louwe Kooijmans, L.P. (ed.) 2001. *Archeologie in de Betuweroute: Hardinxveld-Giessendam De Bruin. Een kampplaats uit het Laat-Mesolithicum en het begin van de Swifterbant-cultuur (5500-4450 v. Chr)*, Amersfoort (ROB Rapportage Archeologische Monumentenzorg 88).
- Louwe Kooijmans, L.P. 2005: Ook de jagers worden boer. Vroeg-neolithicum B en midden-neolithicum A, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 249-272.
- Madsen, B. 1984: Flint Axe Manufacture in the Neolithic: Experiments with Grinding and Polishing of Thin-Butted Flint Axes, *Journal of Danish Archaeology* 3, 47-62.
- Malinowski B. 1961(1922): *Argonauts of the Western Pacific, an account of native enterprise and adventure in the archipelagoes of Melanesian New Guinea*, London (Routledge).
- Malmer, M.P. 2002: *The Neolithic of South Sweden. TRB, GRK and STR*, Stockholm (The Royal Swedish Academy of Letters History and Antiquities).

- Mauss, M. 1985 (1938): A category of the human mind: the notion of person; the notion of self, in: Carrithers, M., S. Collins & S. Lukes (eds.), *The Category of the Person: Anthropology, Philosophy, History*, Cambridge (Cambridge University Press), 1-25.
- Mauss, M. 2002 (1924): *The Gift. The form and reason for exchange in archaic societies*, London (Routledge).
- Midgley, M. 1985: *The Origin and Function of the Earthen Long Barrows of Northern Europe*, Oxford (British Archaeological Reports, International Series 259).
- Midgley, M.S. 1992: *TRB Culture. The First Farmers of the North European Plain*, Edinburgh (Edinburgh University Press).
- Modderman, P.J.R. 1955: Oudheidkundige verschijnselen, in: W.J. van Liere & G.G.L. Steur (eds.), *Een bodemkartering van de gemeente Epe en een bodemkundige verkenning van een deel van de gemeente Heerde*, Den Haag (Staatsdrukkerij), 58-63.
- Modjeska, N. & J.P. White 1978a: Acquirers, Users, Finders, Losers: The Use Axe Blades Make of the Duna, *Mankind* 11, 276-287.
- Modjeska, N. & J.P. White 1978b: Where do all the stone tools go? Some examples and problems in their social and spatial distribution in the Papua New Guinea Highlands, in: I. Hodder (ed.), *The spatial Organization of Culture*, London (Duckworth), 25-38.
- Müller, S. 1886: Votivfund fra sten- og bronzaldern, *Aarbøger for Nordisk Oldkyndighed og Historie*, 216-250.
- Myers, F.R. 1986: *Pintupi Country, Pintupi Self. Sentiment, Place, and Politics among Western Desert Aborigines*, Washington (Smithsonian Institution Press).
- Newell, R.R. 1970: *The mesolithic affinities and typological relations of the Dutch Bandkeramik flint industry*, PhD thesis, London.
- Nielsen, P.O. 1977: Die Flintbeile der frühen Trichterbecherkultur in Dänemark, *Acta Archaeologica* 48, 61-138.
- Nielsen, P.O. 1979: De tyknakkende flintøkser kronologi, *Aarbøger*, 5-71.
- Olausson, D.S. 1983: *Flint and Groundstone Axes in the Scandinavian Neolithic. An Evaluation of Raw Materials Based on Experiment*, Scripta Minora (Regiae Societatis Humaniorum Litterarum Lundensis).
- Paton, R. 1994: Speaking through stones: a study from northern Australia, *World Archaeology* 26:2, 172-183.
- Pelegrin, J. 1990: Prehistoric Lithic Technology: Some Aspects of Research, *Archaeological Review from Cambridge* 9; 1, 116-125.
- Persson, P. 1999: *Undersökningar kring jordbrukets introduktion i Nordeuropa*, PhD thesis Göteborg/Uppsala.
- Petrequin, P. & A. Petrequin 1993: *Ecologie d'un outil: La hache de pierre en Irian Jaya (Indonesie)*, Paris (CNRS Editions).
- Pleyte, W. 1882: *Nederlandsche oudheden van de vroegste tijden tot op Karel den Groote - Drenthe*, Leiden (E.J. Brill).
- Prummel, W., & W.A.B. van der Sanden 1995: Runderhoorns uit de Drentse venen, *Nieuwe Drentse Volksalmanak* 112, 84-131.
- Raemaekers, D.C.M. 1999: *The Articulation of a 'New Neolithic'. The meaning of the Swifterbant Culture for the process of neolithisation in the western part of the North European Plain (4900-3400 BC)*, PhD Thesis, Leiden (Archaeological Studies Leiden University 3).
- Rech, M. 1979: *Studien zu Depotfunden der Trichterbecher- und Einzelgrabkultur des Nordens*, Neumünster (Karl Wachholtz Verlag - Offa-Bücher Band 39).
- Rudebeck, E. 1998: Flint Extraction, Axe Offering, and the Value of Cortex, in: M. Edmonds & C. Richards (eds.), *Understanding the Neolithic of North-Western Europe*, Glasgow (Cruithne Press), 312-327.
- Schuhmacher K. 1914: Neolithische Depotfunde im westlichen Deutschland, *Prahistorische Zeitschrift* 6: 29-56.
- Schut, P. 1999: Een halffabrikaat van een bijl van de Trechterbeker-cultuur uit Elspeet (Gl.), *Archeologie* 9; 150-153.

- Sherratt, A. 1990: The genesis of megaliths: monumentality, ethnicity and social complexity in Neolithic north-west Europe, *World Archaeology* 22; 2, 147-167.
- Sjögren, K.G. 2004: Megalithic Tombs, Ideology, and Society in Sweden, in: H. Knutsson (ed.), *Coast to Coast - Arrival. Results and Reflections*, Uppsala (Proceedings of the Final Coast to Coast Conference 1-5 October 2002 in Falköping, Sweden), 157-182.
- Skaarup, J. 1990: Burials, Votive Offerings and Social Structure in Early Neolithic Farmer Society of Denmark, in: D. Jankowska (ed.), *Die Trichterbecherkultur, Neue Forschungen und Hypothesen, Teil I, Poznan (Material des Internationalen Symposiums Dymaczewo 20-24 September 1988)*, 73-93.
- Spek T. 2004: *Het Drentse esdorpen-landschap. Een historisch-geografische studie*, Utrecht (Matrijs).
- Stout, D. 2002: Skill and Cognition in Stone Tool Production - An Ethnographic Case Study from Irian Jaya, *Current Anthropology* 43/5, 693-722.
- Sundström, L. & J. Apel 1998: An Early Neolithic Axe Production and Distribution System within a Semi-Sedentary Farming Society in Eastern Central Sweden, c. 3500 BC, in: L. Holm & K. Knutsson (eds.), *Proceedings from the Third Flint Alternatives Conference at Uppsala, Sweden, October 18-20, 1996*, Uppsala (Occasional Papers in Archaeology 16) 155-191.
- Svensson, M. 2002: Palisade Enclosures - The Second Generation of Enclosed Sites in the Neolithic of Northern Europe, in: A. Gibson (ed.), *Behind Wooden Walls: Neolithic Palisaded Enclosures in Europe*, BAR International Series 1013, 28-58.
- Taayke, E. 1985: Drie vernielde hunebedden in de gemeente Odoorn, *Nieuwe Drentse Volksalmanak* 102, 125-144.
- Ter Wal, A. 1996: Een onderzoek naar de depositie van vuurstenen bijlen, *Palaeohistoria* 37/38, 127-158.
- Tilley, C. 1994: *A Phenomenology of Landscape. Places, Paths and Monuments*, Oxford (Berg Publishers).
- Tilley, C. 1996: *An ethnography of the Neolithic. Early prehistoric societies in southern Scandinavia*, Cambridge (Cambridge University Press).
- Trigger, B.G. 1998: Archaeology and Epistemology: Dialoguing across the Darwinian Chasm, *American Journal of Archaeology* 102, 1-34.
- Van der Lijn, P. 1958: *Het Keienboek. Mineralen, gesteenten en fossielen in Nederland*, Zutphen (N.V. W.J. Thieme & Cie).
- Van der Sanden, W. A. B. 2002: Veenwegen in Drenthe: enkele nieuwe dateringen, *Nieuwe Drentse Volksalmanak*, 101-112.
- Van der Waals, J.D. 1964: *Prehistoric Disc Wheels in the Netherlands*, PhD thesis Groningen.
- Van Giffen, A.E. 1927: *De hunebedden in Nederland*, Utrecht (Oosthoek).
- Van Giffen, A.E. 1962: Restauratie en na-onderzoek van het langgraf (D43) te Emmen (Dr.), *Helinium* 2, 104-114.
- Van Gijn, A.L. 1990: *The Wear and Tear of Flint: Principles of Functional Analysis to Dutch Neolithic Assemblages*, PhD thesis Leiden (Analecta Praehistorica Leidensia 22).
- Van Gijn, A.L. in prep: *The Flourish and Demise of an Old Technology. The Meaning of Flint for Neolithic and Bronze Age Societies in the Netherlands*.
- Van Gijn, A. & J.A. Bakker 2005: Hunebedbouwers en steurvisser - Midden-neolithicum B: Trechterbekercultuur en Vlaardingen-groep, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, 281-306, Amsterdam (Bert Bakker).
- Van Gijn, A., K. Wentink & J. Dik in prep: The use and meaning of ochre for prehistoric societies in the Netherlands.
- Van Ginkel, E., S. Jager & W. van der Sanden 1999: *Hunebedden - Monumenten van een Steentijdcultuur*, Abcoude (Uniepers, ROB).
- Van Woerdekom, P.C. in prep: *Flint Assemblages of the Dutch Hunebedden*, MA Thesis, Leiden University.
- Verhart, L.B.M. 2000: *Times fade away. The neolithisation of the southern Netherlands in an anthropological and geographical perspective*, PhD thesis Leiden, (ASLU 6).

- Verlinde, A. 2005: Mesolithicum langs de Overijsselse Vecht. Kampplaatsen en grafkuilen bij Mariënberg, in: L.P. Louwe Kooijmans, P.W. van den Broeke, H. Fokkens & A. van Gijn (eds.), *Nederland in de Prehistorie*, Amsterdam (Bert Bakker), 179-182.
- Voss, J. A. 1982: A Study of Western TRB Social Organization, *Berichten van de ROB* 32, 9-102.
- Wansleeben, M. 1987: Spatial analysis of late mesolithic and neolithic surface scatters, a test case of the Roerstreek (Middle Limburg), *Analecta Praehistorica Leidensia* 20, 11-27.
- Waterbolk, H.T. 1958: Neolithische vlakgraven in Drenthe, *Nieuwe Drentse Volksalmanak*, 3-17.
- Waterbolk, H.T. 1960: Preliminary report on the excavations at Anloo in 1957 and 1958, *Palaeohistoria* 8, 59-101.
- Weiner, A.B. 1985: Inalienable Wealth, *American Ethnologist* 12; 2, 210-227.
- Weiner, A.B. 1992: *Inalienable Possessions. The Paradox of Keeping-While-Giving*, Berkeley (University of California Press).
- Wentink, K. & A. van Gijn in press: Neolithic Depositions in the Northern Netherlands, in: T. Cowie, C. Hamon & B. Benedicte (eds.), *Hoards from the Neolithic to the Metal Ages in Europe: technical and codified practices, Acts of the session of XIth EAA congress, 5-11 september 2005, Cork (Ireland)*, Oxford (BAR International series).
- Whittaker, J.C. 1993: *Flintknapping. Making & Understanding Stone Tools*, Austin (University of Texas Press).
- Worsaae, J.J.A. 1866: Om nogle mosefund fra bronzetiden, *Aarbøger for Nordisk Oldkyndighed og Historie*, 313-326.

APPENDICES

Appendix 1: The Database

The database compiled for this thesis contains the following information:

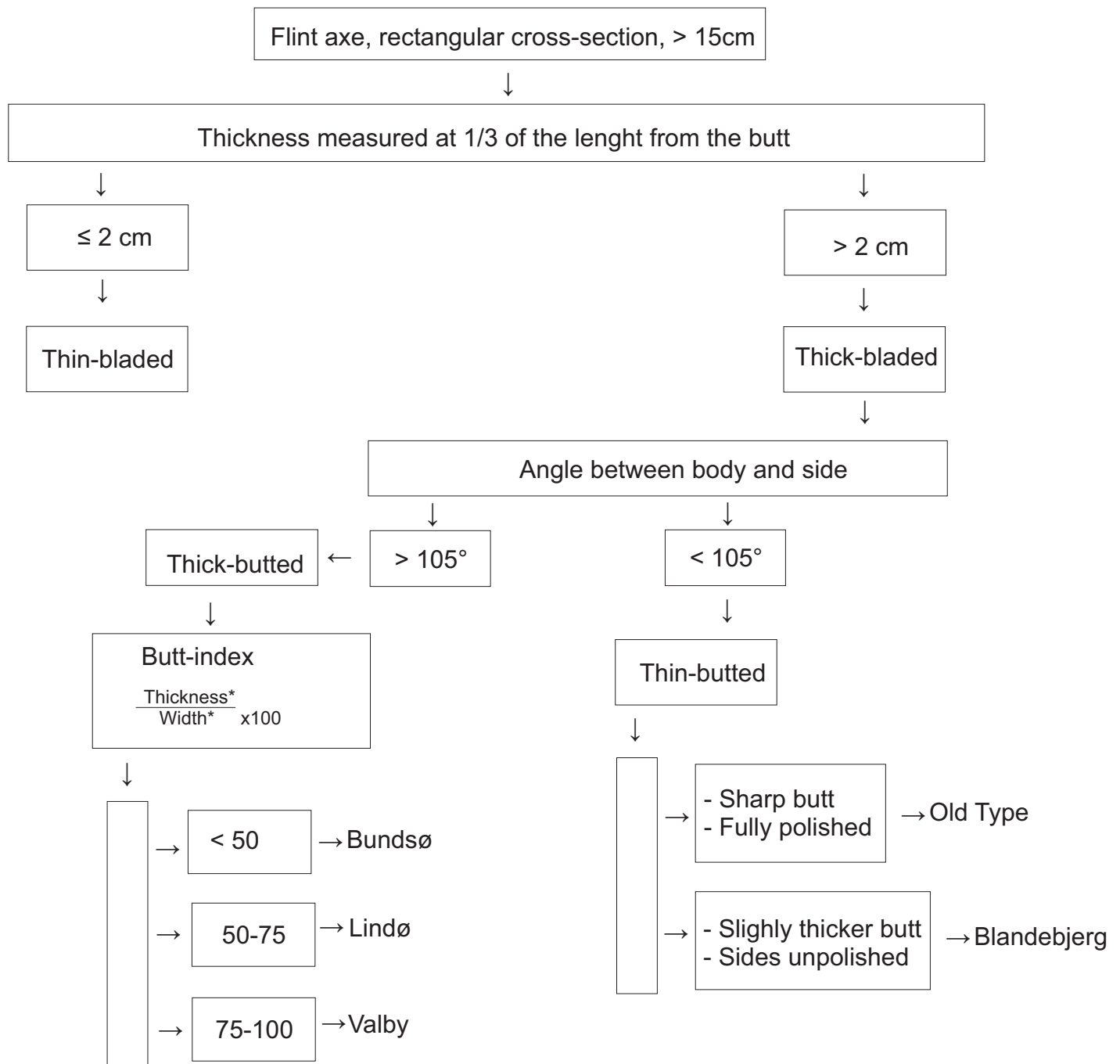
- All Neolithic axes from the Fries Museum in Leeuwarden as recorded by H. Fokkens (unpublished) (n=161).
- All Neolithic axes from the Groninger Museum in Groningen (n=55).
- All Neolithic axes from the Drents Museum in Assen (n=437).
- All TRB flint axes from the National Museum of Antiquities in Leiden (n=48).
- Various objects mentioned in literature including, TRB pottery depositions (n=6), TRB cattle horn depositions (n=3), SGC disc-wheel depositions (n=10) and numerous axes in private ownership.
- Sites recorded in various publications including all known megalithic monuments (n=76), stone cists (n=8), TRB flat-graves (n=27), and excavated settlements (n=11).
- The Dutch National Archaeological Database (Archis) was used and all records containing information on Neolithic stone and flint axes from the three northernmost provinces of Friesland, Groningen and Drenthe were incorporated. Subsequently all TRB sites (including single finds) from the whole of the Netherlands were incorporated.

The various sources of information were of different qualities. It has been attempted to include as much information as possible, including descriptions of sites and objects, references to relevant literature, contextual information, metrical information and the results of the functional analysis.

A copy of the database (MS Access) is available upon request for scientific purposes.

Appendix 2: Axe Typology

Axe type determination diagram



* measured at 2 cm from the butt.

Appendix 3: Residue Analysis

By Joris Dik (Delft University of technology)

Methods and techniques

After visual inspection microscopic samples were taken from the red surface of the object under a stereomicroscope. The samples were examined using a Leitz Dialux EB 20 polarized light microscope (PLM). Dispersion of the sample was examined in transmitted light using magnifications up to 400X. Mounting medium for microscope slides was Aroclor meltmount ($N_D = 1,662$).

X-ray powder diffraction (XRPD) was performed using a Bruker D8 GADDS microdiffractometer with a 2d detector. Measurement was performed directly on object using a videoscope for positioning of a 300 micrometer sized beam. XRPD was therefore carried out without sampling. Exposure to Cu K-alpha-1 radiation (0.1540562 nm) took place at 45kV and 25mA during approximately 15 min. See the illustration for the XRPD setup.

Results

Examination with PLM showed the presence of identical particles in all samples. We observed opaque, blackish particles with a refractive index substantially higher than the imbedding medium (1.662). Under crossed polars the particles showed a strong red colour with no significant extinction effects. Based on these optical characteristics the red particles could be identified as haematite (i.e. red ochre or iron oxide). In addition, we established the presence of associated minerals such as quartz and calcite.

The identification of haematite was later on confirmed by XRPD. A TRB axe of the multiple object deposition of Een 1898 (RMO c98-I-6) was examined by focusing the XRPD microbeam at small red spots on the object. The XRPD diffractogram gave a perfect match with the JCPDF files for haematite, while also showing large amounts of the associated mineral quartz and calcite (see diffractogram attached below). The strong presence of the latter two phases, however, must also be attributed to the coating substrate, i.e. the Neolithic flint object itself.

Acknowledgements

We would like to acknowledge Mr. Leo Woning and Dr. Diederik Ellerbroek of Bruker-AXS (Delft, the Netherlands) for their kind support of the XRPD analyses.

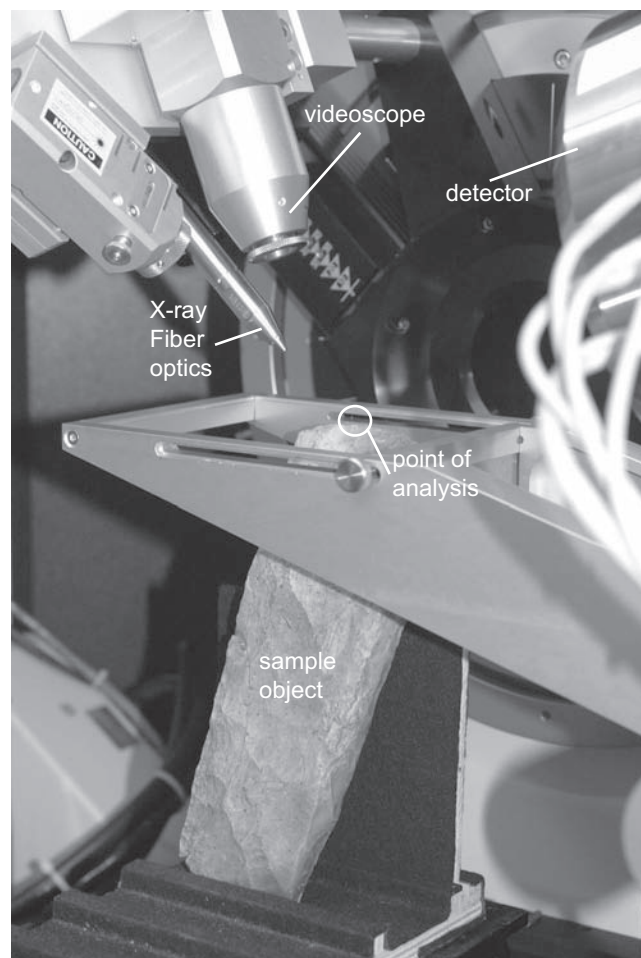
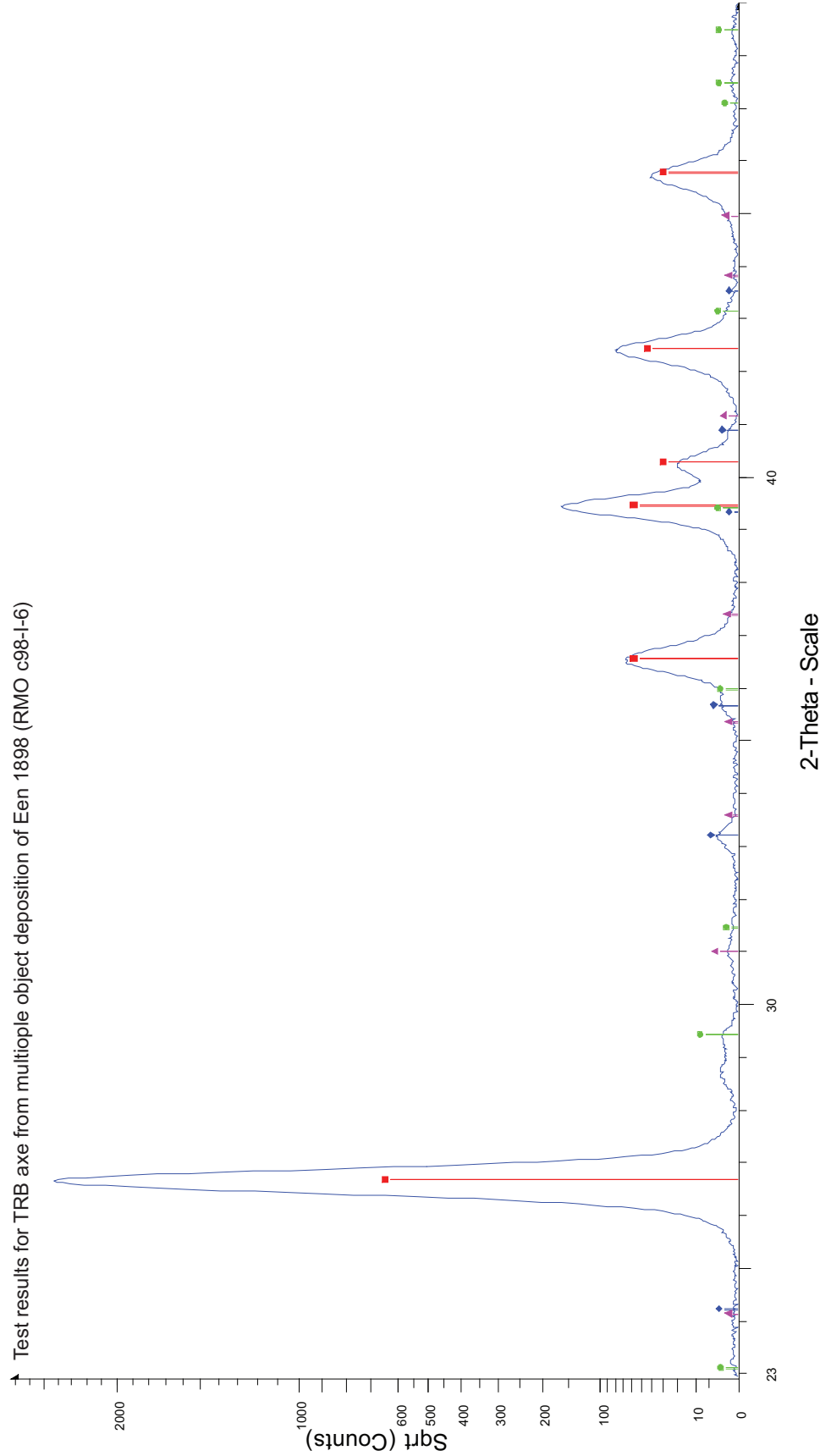


Figure: XRPD setup, the object sampled is an axe from the multiple object deposition of Een 1898 (RMO c98-I-6) (photograph by J. Dik).



Appendix 4: Microscope Photographs

Additional figures chapter 5

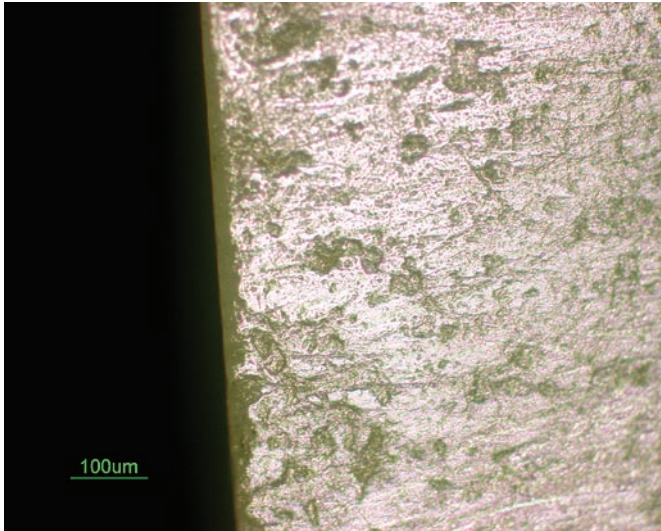


Figure 5.3 Axe from tomb D19 (RMO c1912-XII-10), used edge, visible is the use polish, rounding and edge damage.

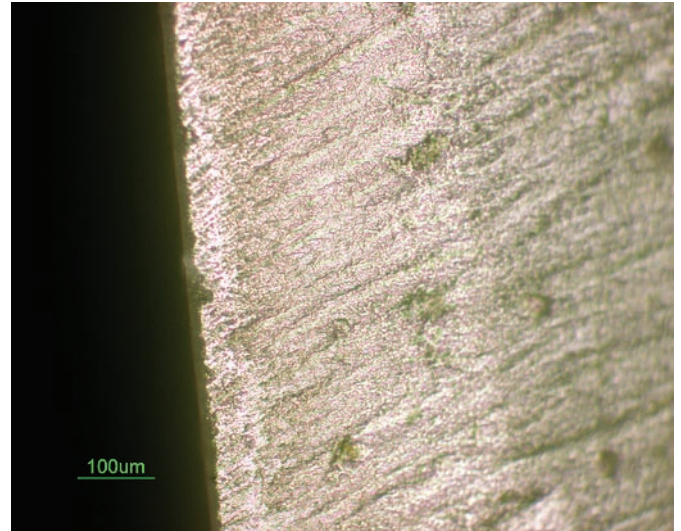


Figure 5.4 Axe from tomb D19 (RMO c1912-XII-9), resharpened edge, band of polish still visible.

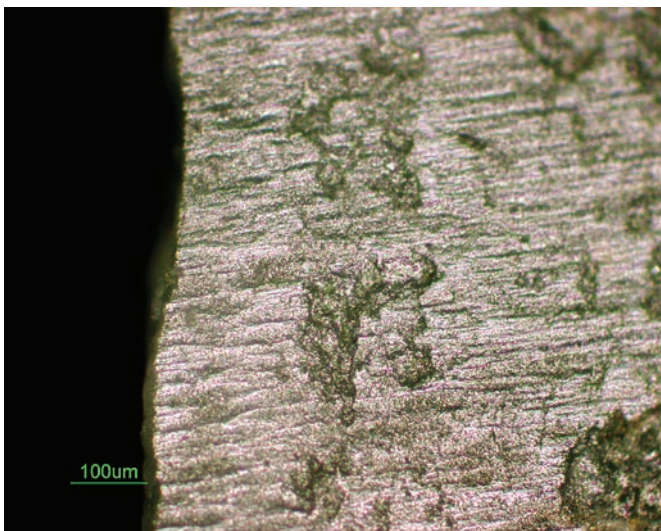


Figure 5.5 Axe from tomb D19 (RMO c1912-XII-6), resharpened edge.

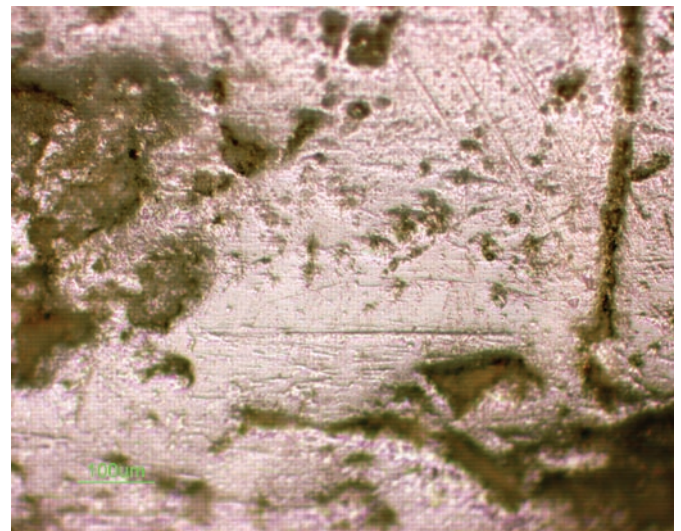


Figure 5.6 Axe from tomb D19 (RMO c1912-XII-14), the flat, striated polish is friction gloss related to hafting.

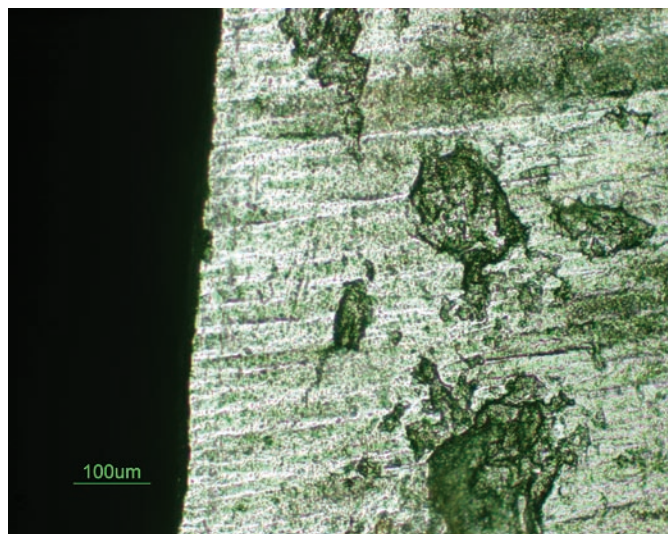


Figure 5.7 Axe from deposition of Veenhuizen (GM 1966-II-1), edge without traces of use or traces of resharpening.

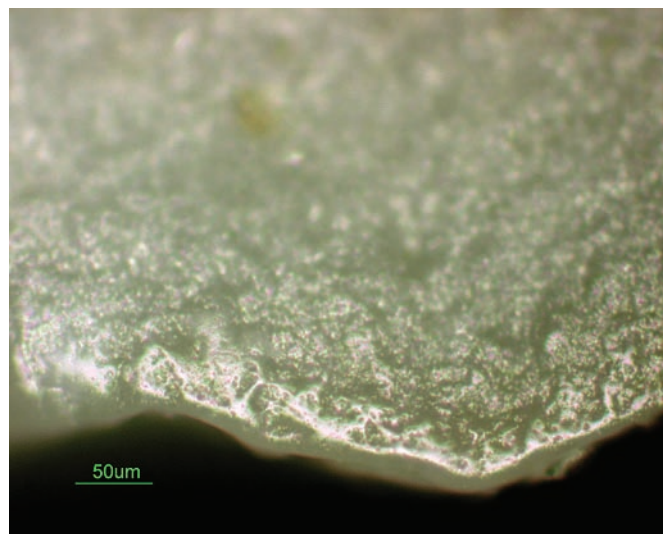


Figure 5.8 Axe from single axe deposition of Zuidbargoort (DMA 1962-II-143), visible are the rounding and bright polish attributed to wrapping.

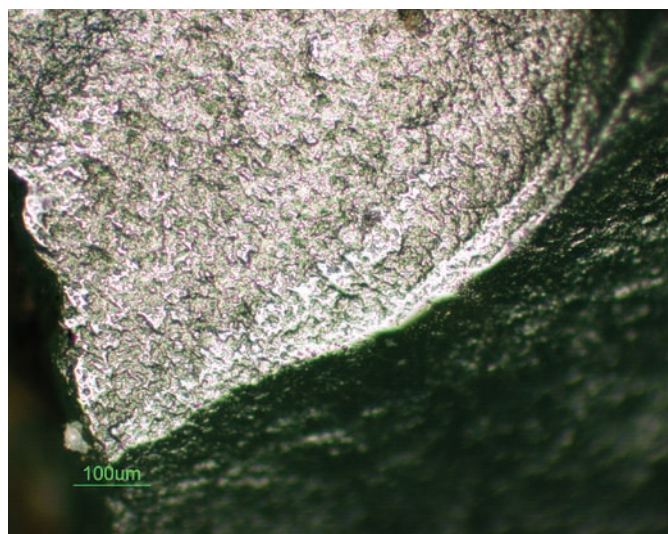


Figure 5.9 Axe from single axe deposition of Oudemolen (DMA 1889-VII-4), visible are the rounding and bright polish attributed to wrapping.



Figure 5.10 Axe from deposition of Een 1898 (RMO c98-I-8), red ochre residue along the cutting-edge (magnification 10x).

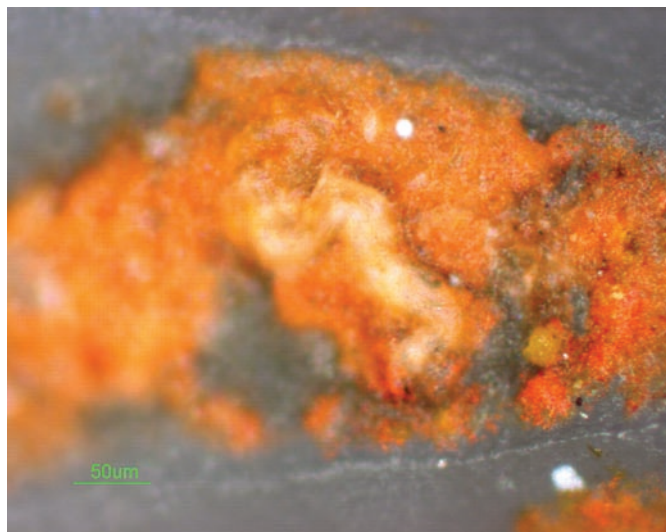


Figure 5.11 Axe from deposition of Een 1898 (RMO c98-I-8), red ochre residue (polarized light).

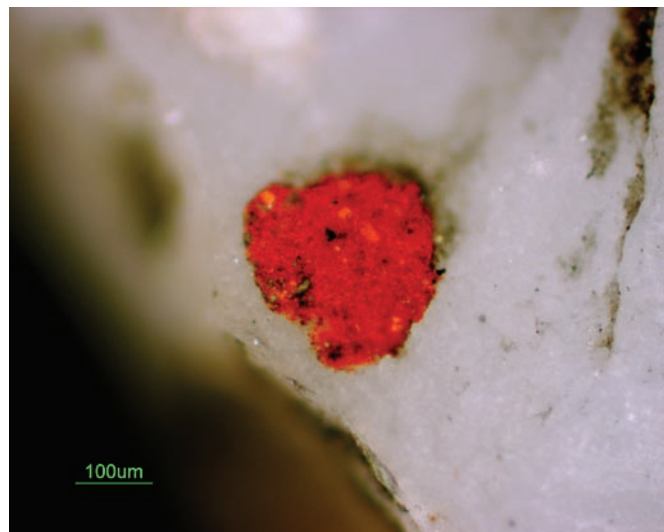


Figure 5.12 Axe from deposition of Een 1898 (RMO c98-I-4), red ochre residue (polarized light).

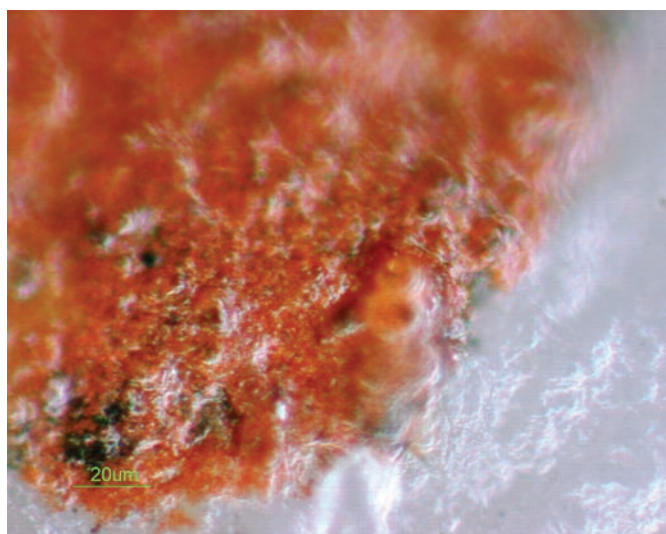


Figure 5.13 Axe from deposition of Een 1898 (RMO c98-I-4), red ochre residue (polarized light).

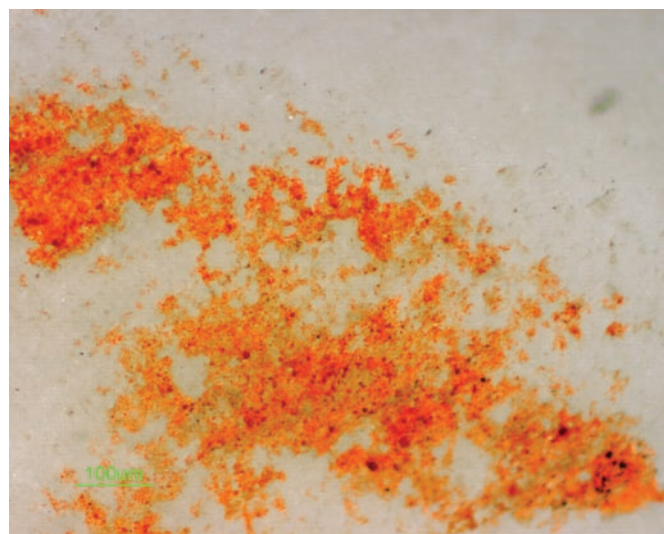


Figure 5.14 Axe from single axe deposition of Oudemolen (DMA 1889-VII-4), red ochre residue (polarized light).

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Annemieke Verbaas contributed to this thesis by performing experiments, which included the carrying around of pieces of flint in her bag for a five-week period, for this I am very grateful.

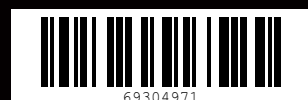
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Finally I would like to thank my friends and family whom I have not seen much during the writing process of this thesis, something I would like to compensate in the near future.



As early as the 19th century discoveries of groups of large axes puzzled those confronted with them. The fact that most were found in waterlogged places in particular formed the basis of speculation as to the nature of these objects. In this Research Master thesis, the character and significance of TRB flint axe depositions are explored. The first part of this thesis is mainly concerned with the question how selective deposition was structured. By means of metrical, spatial and functional analysis, patterns are explored that can shed light on the actions performed by people in the past.

The second part of this thesis deals with the meaning and significance of TRB flint axe depositions. Why did people in the past do the things they did, how were these actions meaningful and important? Using sociological theory and ethnographic evidence an interpretation is presented based on the empirically observed patterns.



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