Approaching High-Flux Interaction

Pottery, identity and overseas contacts in the later Early and Middle Bronze Age (2000-1000 cal BC) of North West Europe

Jos Kleijne BA

S0442011

RMA Thesis

Approaching High-Flux Interaction

Pottery, identity and overseas contacts in the later Early and Middle Bronze Age (2000-1000 cal BC) of North West Europe

By J.P. Kleijne

Leiden University - Faculty of Archaeology
Prehistoric Farming Communities
RMA Thesis
Supervisor: Professor Dr. Harry Fokkens
January 2010

Preface

Preface

My interest in the North Sea, and how people perceive, use and define it, is explicable. As a small boy, aged 5 or 6, I used to visit the seaside of my hometown, together with my grandfather, in the child's seat of his bike. During these trips, of which I can't remember much, he (a pilot and steersman on merchants and passengers vessels for many years) successfully showed me the beauty of the sea and the coast. Always when I'm at sea, whether it is on an excursion to the Orkney's or the ferry to Velsen, I think of this.

In September 2006 a small group of students, lecturers and a single professor, all from Leiden University, undertook another boat journey across the English Channel to visit a conference at Dover, Kent. The present author, then only a BA student, was privileged to be one of the members of this fellowship. At this conference, cultural contact between Britain and the Continent in the later Early and Middle Bronze Age was discussed around the discovery of the Dover boat and exposition of the Ringlemere Cup. Proceedings of this magnificent conference have only recently been published (Clark 2009). Interestingly though many accounts certainly were, only a few scholars addressed topics that relate to the problem of overseas interaction and stimulated the present study. The papers by David Fontijn (Fontijn 2009) and Stuart Needham (Needham 2009) were certainly the most inspiring, back then. A particular aspect I furthermore noted, was the lack of attention paid to the study of pottery evidence from Continental and British sites dating to this period. Most studies focused on bronzes, boats, precious goods such as the Ringlemere Cup and their influence in society. Pottery was only addressed in the papers by Liesbeth Theunissen and Marc Talon. These papers were both thorough, but nonetheless lacking the social aspect; ´the people behind the pot´. This, I recognised sometime later, was what my MPhil thesis was going to be about.

A few months later I stumbled upon the work of Olivier Gosselain and I became interested in the social aspects of technology and its possibility of establishing the link between people and their pottery, through practice. Practice, for me, has become the bridge between material culture and society. In order to be more acquainted with British prehistory and the study of pottery technology, I undertook an Erasmus-exchange to Sheffield. In relation to this, I talked at the Sheffield Bronze Age Forum 2008 about my thesis subject, after which I received positive feedback and was pushed further into the direction of the potter in society. A lecture I gave at Manchester in 2009 further fuelled my interest in particular possibilities of overseas mobility, seafaring and the necessity for implementing this aspect in my studies (see also Kleijne *in prep*).

Chapter 1 – Problem Definition and Research Objectives

1.1 *Introduction*

Recently, a new interest in past peoples, and in questions related to mobility, origins and similarities and differences in material culture, has risen among scholars working in prehistoric Europe.

An important aspect in this development is concerned with specific scientific advances and their implementation and use in archaeology. The study of DNA (*e.g.* Richards 2003; Oppenheimer 2006) and stable isotopes (*e.g.* Needham 2007; Parker Pearson *et al.* 2006) both reveal a prehistoric past in which people were more mobile than previously imagined. Combined with continuing interest of some archaeologists in linguistics and the accepted view of pottery equating people (*e.g.* Kristiansen 2005; Anthony 2007), these studies give rise to a particular popular thought which reminisces of early 20th century culture historical approaches (*cf.* Childe 1929). Some authors even pay tribute to this particular paradigm, and argue for the need of a 'new culture history' (Kristiansen/Larsson 2005). As said, the return to this 'new culture history' is particularly founded on the re-emerging belief that 'pottery equates people'. This belief, the attribution of pottery styles to distinct 'cultures' and peoples, has been an attractive feature of early culture history in looking at migration and diffusion as the basis for the evolution of societies (*e.g.* Kossina 1911; Childe 1929). This particular way of thinking has been present in the background ever since. Recently, several scholars have again equated pottery, and mainly its decoration, to distinct peoples and their migrations in a more compelling argument (*e.g.* Sheridan 2008; Needham 2006; Cunliffe 2001). However, these studies are uncritical about many recent theoretical advances. It is my suggestion that this paradigm needs to be approached constructively, and has to be transformed using theoretical concepts from ceramics studies into a more reliable understanding of how pottery relates to people and their movements. The way I see it, the destructive critiques on the concept of culture and culture historical approaches, addressed from the 1960s onwards (*e.g.* Clark 1966; Shennan 1978) and further substantiated by post-processual work on practice theory and the construction of different forms of identity (*e.g.* Jones 1997) still stands. Defining cultures and patterns of migration on the basis of differences and similarities in pottery styles avoids questions of meaning, while these questions are crucial in understanding the value of these approaches. It is therefore the task of present day archaeology to redefine the relationships between material culture and past peoples if we are to sufficiently answer the culture historical questions posed.

The need for raising and answering questions of culture history in present day archaeological narratives is clear. This can be seen in the emergence of archaeology as 'popular science', where questions as "who are our own ancestors?" and "where do we come from?" are more and more addressed by the public (see popular books like Oppenheimer 2006 for the British Isles). These questions are valid, but have their dangers. Answers can be used for the benefit of nationalism, as history has shown us in the Second World War. My analysis aims to transform the developments of 'new culture history', by improving the understanding of the relationship between past people and material culture (specifically pottery) through focusing on the social aspects behind the production of this specific type of material culture, across national borders. The social aspect of technology is a theme which has been emphasized many times by many anthropologists and archaeological theorists (*e.g.* Lemonnier 1993; Dobres/Hoffman 1994), but until now has not been integrated in this particular context.

1.2 *A problem in archaeology: migrations, mobility and relativity*

In order to move the paradigm of culture history in a new direction, it is first necessary to get a better understanding of the basic underlying principles of this paradigm in archaeology. The best way to do that is by looking at the concept of migration, as an explanation for changes within society, in greater detail.

Archaeologists from within the culture historical paradigm have in many instances approached changes within certain societies, by looking at external factors, such as large scale migrations of peoples and the diffusion of ideas. However, such a presentation of reality is based to a large degree on present day experience with changes in modern Western society. Ideas of migration in culture history are for a large degree based on present day immigration problems and changes taking place in our own society and our experience with refugees in third world countries (Chapman 1997). These ideas on migrations, their specific value and their impact are to a large extent based on modern Western notions of sedentism, territoriality and nationalism. Thus, presenting these modern concepts and ideas as interpretive context, is an act of anachronism which affects the specific nature of prehistory in itself and the present discussion. Thus, new ways of integrating past peoples and ideas about migration are necessary. I propose here to start looking at prehistoric communities from a 'dwelling' perspective (*cf.* Ingold 2000), taking hunter-gatherers as a starting point. It has become apparent in recent years that mobility is one of the key issues in the prehistory of North West Europe, both in terms of hunter-gatherers and the (early) farming communities (Brück 1999; Whittle 1997; Arnoldussen/Fontijn 2006). Evidence from isotope studies is also pointing in that direction (*e.g.* Bickle/Hofmann 2007; Vander Linden 2007). Thus in order to understand the dynamics of change in prehistoric society, and in order to be able to start working on a more constructive culture history, we have to abandon the perspective based on modern Western notions such as sedentism and nationalism. Instead we should look at mobility and interaction at a more relative scale. While this does not solve anything yet, it does present us a better framework for the study of material culture and linking this material culture, and pottery specifically, to past peoples and their actions. In pottery studies, several scholars have recently interpreted the change towards specific pottery styles as the incoming migration of potters (Sheridan 2008 on supposedly 'Dutch Beaker potters in Scotland'). Taking the above into consideration, pictures like this will change drastically.

1.3 *Aims and Research Questions*

It is because of these issues that my aim is to present a constructive way forward to culture history, with a more realistic view towards the 'pottery equates people' paradigm and an assessment of prehistoric mobility and interaction. I will do this by analysing similarities and differences in the production process and the cultural biography of pottery, as pottery has been one of the main arguments in culture historical studies (*e.g.* Childe 1929; Anthony 2007; Sheridan 2008). A better understanding of the complexities involved in the production, use and deposition of pottery is needed, in order to come to terms with the problems of present day culture history.

In this study, I will focus on the later Early and Middle Bronze Age (2000-1000 cal BC) of North West Europe in general, and the region around the North Sea in particular. This period and region is chosen because of the prolonged, and still continuing, debate concerning migrations and the diffusion of ideas from and towards the Continent (see Theunissen 1999 for an overview). Concentrating on overseas interaction and mobility, one would expect similar techniques in pottery production on both sides of the Channel and North Sea. The first research question therefore addresses the similarities and differences in the production process of pottery in the later Early and Middle Bronze Age (2000-1000 cal BC) of the Channel/North

Sea area. The production of pottery and transmission of knowledge between communities about potting traditions is linked in many ways to the overarching significance of pottery for these societies and similarities and differences in the way pottery was used and deposited. With regard to the significance of pottery within Bronze Age communities, it is why the second research question addresses issues of use and depositional context. Thirdly, relating prehistoric pottery and past peoples is more difficult than culture historical archaeology has hitherto acknowledged. In order to gain an understanding of the specific mechanics of this relationship, an understanding must be found for the nature of the potter in society. Therefore, the third research question will focus on this relationship and explore the social context of producing pottery in the North West European Bronze Age. After determining who the potter is, and assessing the relationship between the potter and his craft, it becomes necessary to place these people in an environment with which they can engage. Concluding, the last question aims to improve the newest model for the period and region under study, the 'maritory', by addressing the issues of pottery production and mobility. Put in order:

- What are the similarities and differences in the production of pottery on both sides of the Channel and North Sea in the later Early and Middle Bronze Age (2000-1000 cal BC)?
- What is the cultural significance of later Early and Middle Bronze Age pottery for communities on both sides of the Channel and North Sea, when looking at evidence for use and deposition?
- What is the social context of pottery production in the later Early and Middle Bronze Age in the study area?
- What are the environmental and historical context for overseas interaction between the Continent and the British Isles in the later Early Bronze Age (2000-1500 cal BC) and Middle Bronze Age (1500-1000 cal BC)?
- What will the 'maritory' model, the latest model on the later Early and Middle Bronze Age, as put forward by Needham (2009), look like when dealing with pottery, environment and Bronze Age society as dealt with in the aforementioned questions?

How am I going to answer these questions? What, in more strict terms, is my methodology?

1.4 *Methodology*

By studying the pottery from several Bronze Age sites of North West Europe, I will answer these questions. However, studying pottery of the North West European Bronze Age presents some problems. As said, many archaeologists still see pottery from a traditional, culture historic, view. Using the theoretical advances on the social aspects of pottery production *(e.g.* Dobres/Hoffman 1994; Gosselain 2000), a better context for Bronze Age pottery will be provided in this thesis. Some basic points will be made here, but in chapter three a more detailed analysis of the theory and methods derived from the theory will be given.
The recently emerging methodology which will be used here is based on a theoretical framework derived from a number of different sources. Within anthropology Lemonnier posed the idea that technology, and the production of material culture, is structured by social parameters in as much as by physical and economical. The different facets in technological processes are operated in different social contexts (Lemonnier 1986). Within archaeological material culture studies, a similar development is taking place in the 1980s, when Sackett argues for 'isochrestism'. In this view, all variability in material culture is guided by the choice of the artisan, whatever his motivations. These choices have their own particular social contexts and must be understood as such (Sackett 1986, 1990). In pottery studies, the concept

of choices was already commonly accepted. Here the choices potters made were mainly seen in light of an evolutionary development towards higher performance characteristics (*e.g.* Braun 1983). When Woods (1986) showed that such an evolutionary trajectory was non-existent for British prehistoric pottery, the first breach appeared in this system. Combining Woods' ideas with Sackett's isochrestism and theories from other fields of study, Van der Leeuw (1993) argued for a more social interpretation of pottery. Particularly, he looked at potters' choices and their social contexts in ethnography and archaeology. Derived from this influential study, is the work of Gosselain and others in the Ceramics and Society Project (Gosselain/Livingstone Smith 1997). They conducted specific ethno-archaeological research on pottery production technology and society in southern Cameroon, and they are concerned with the problems this thesis is concerned with as well, the relationship between people and pottery, taking social aspects of technology as a starting point.

A further step towards interpreting the prehistoric pottery and specifically its significance is related to the second research question. Throughout use and at the moment of deposition, objects acquire meaning in relation to their users. The first to acknowledge this was Kopytoff (1986), who investigated the specific process of commodification in its anthropological context, using the concept of a biography for objects. He states that "...[w]hat would make a biography cultural is not what it deals with, but how and from what perspective. A culturally informed (...) biography of an object would look at it as a culturally constructed entity, endowed with culturally constituted categories..." (*idem*, 68) This 'cultural biography' concept proved very useful for the study of long-term development of attitudes towards the landscape (*e.g.* Roymans 1995; Fontijn 1996), the diverse meanings and changing significances of objects such as bronze (*e.g.* Fontijn 2002), ideas of multiple authorship (*e.g.* Finlay 2003) and the continuing relationship between objects and persons. In the present study, the cultural biography will focus on general, diachronic, patterns in use and deposition of pottery. This will inform us on the cultural significance of pottery and similarities and differences in which both pottery and the community were perceived.

1.5 *Spatial and Temporal Frameworks*

The above described methodology will be applied to the pottery from a very specific time and place, namely the later Early and Middle Bronze Age of North West Europe. While many culture historical approaches have centred on the material culture from countries and the tracing of peoples into or from these modern countries, this, in my perspective, presents an anachronism based on nationalism. In order to overcome this nationalism it is necessary to analyse geographical areas as a whole. Therefore, the area on which this study is focused has been defined by a single entity: the water of the southern North Sea and English Channel. This research focuses on both the sea and the lands immediately adjacent to it. This comprises archaeological sites from north-western part of France, Belgium, the Southern and Western parts of the Netherlands and Southern Britain (fig. 1.1).

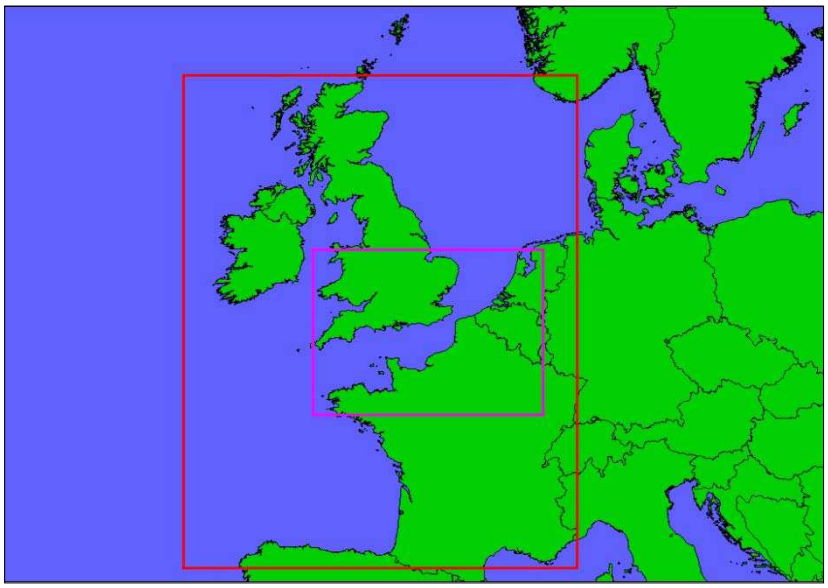

Fig. 1.1 Research Area (in the purple box: the specific area of focus for this study, the southern North Sea and English Channel region; in the red box: the wider area of North West Europe).

This particular region has a long history of research from the culture historical perspective. Scholars from Britain have on notable occasions argued for a migration of peoples from the Continent into Britain, to explain social changes (*e.g.* Abercromby 1912; Tomalin 1995; Sheridan 2008), while scholars from the Continent have similarly argued for the influx of peoples from Britain to the Continent (*e.g.* Glasbergen 1954; Needham 2009). The international character of this research leads to the acknowledgement of several independent research histories of different countries. Associated with those histories, are specific temporal frameworks and ways of classifying both the Neolithic and Bronze Age periods (see fig. 1.2). As this study is oriented towards an English speaking audience, I will use the British terminology of later Early Bronze Age (2000-1500 cal BC) and Middle Bronze Age (1500-1000 cal BC). With regard to the dating of pottery, I confine myself to the use of absolute dating by means of radiocarbon dating (C-14). A problem here is the improving knowledge on calibrating C-14 dates. Older excavations and reports have less reliable calibrated C-14 dates. By looking at the uncalibrated radiocarbon dates as they come from the radiocarbon laboratory (BP=Before Present) and calibrating them with OxCal 4.1 (Bronk Ramsey 2001) using the calibration curve IntCal04 (Reimer *et al.* 2004), a more even picture is to be gained.

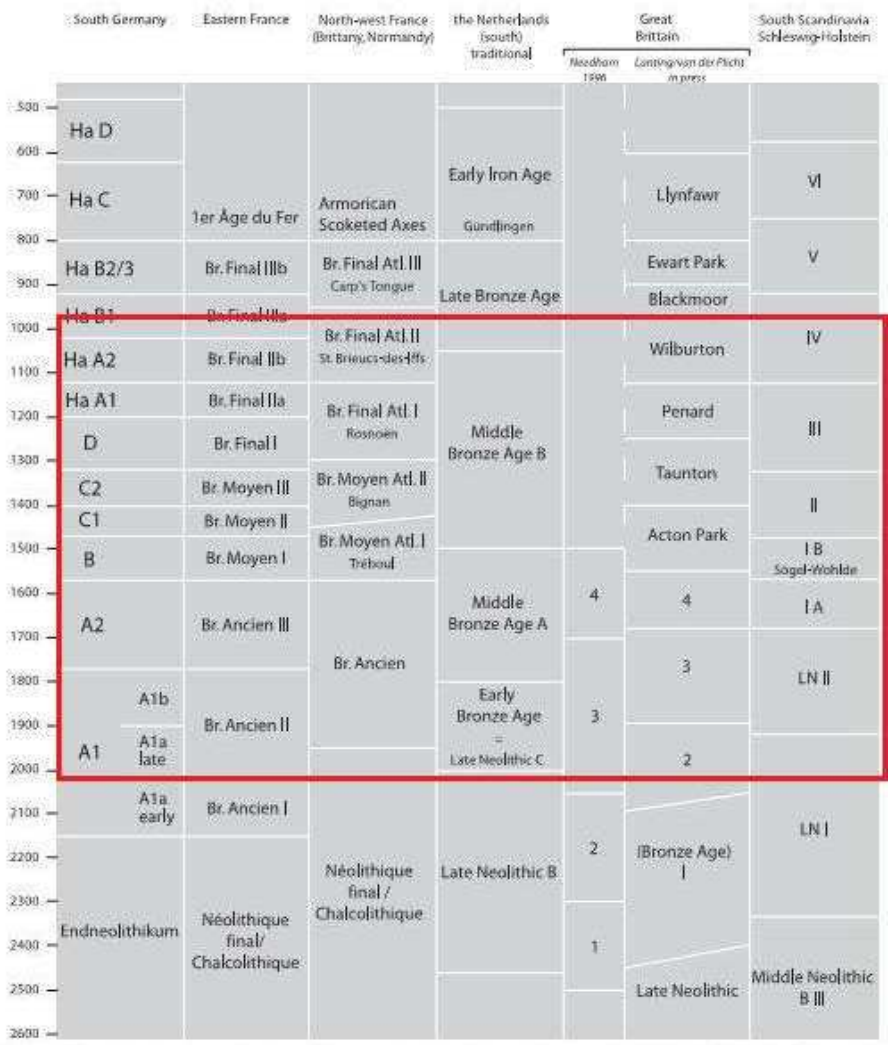

Fig. 1.2 Comparative chronological scheme for the later Neolithic and Bronze Age in Europe (after Fontijn 2002, fig. 1.4).

Finally, all data is compiled in two separate databases. These two databases have been constructed in respectively MS Access 2007 and MS Excel 2007. Data concerning the detailed forming and decorating aspects I looked at is presented in the Access database, while data concerning pottery decoration and C-14 dates was compiled in several Excel spreadsheets. All metadata and raw data will be made available through the e-depot of Dutch Archaeology (http://edna.dans.knaw.nl).

Chapter 2 – Culture History: an overview on the past and present paradigm

2.1 *Introduction*

In the previous chapter, the recent renewed interest in the study of migrations and in studying ideas of culture history, relating material culture directly to peoples again, was presented. It already became clear that this development in archaeological thinking is not without problems. In this chapter I will first highlight the basic ideas of this 'new culture history', as defined by scholars like Kristiansen and Larsson (2005). I will focus on the specific conceptual and pre-conceptual understandings of this paradigm. Following these arguments back through time, I will compare this approach with early 20th century ideas on culture history. Consequently, an assessment of the problems of such an approach and the problems with regard to its specific role in the particular area of research of this thesis will be presented. After this, chapter 3 will move the new culture history into more constructive realms.

2.2 *New culture history and its foundations*

The paradigm of 'new culture history' was first defined by Kristiansen and Larsson (2005, 369-372). They propose the "... return to a truly holistic cultural historical framework. Moving forward towards archaeology as history demands a return to Culture History and a contextualised search for historical and evolutionary regularities in the formation of particular histories..." (*idem*, 372)

Kristiansen and Larsson aim at finding social institutions, by looking at a wide range of artefact types, their distribution and the 'general themes' they point out. As they argue, these general themes occur in different contexts and across different material categories. One of their conclusions is the emergence of a pan-European cosmology in the Bronze Age, represented by the omnipresent institution of the warrior. Important here is the focus on this 'warrior institution' as an elite group, and the social position they are attributed by their interpretative framework. Taking a top-down approach, their interpretation is based in the social anthropological paradigm of neo-Marxism. Neo-Marxist models are based on the presence of constraints and power structures in the relationship between the forces of production, social relations of production and what Marx called the 'superstructure' (*i.e.* ideology). Thus dominance and control over production and social relations, on an ideological basis, is the basis for elites within all societies. Changes in the relation between these variables are underpinning and leading interpretations for the observed changes in the archaeological record. This model, based on the anthropology of Friedman (1975) and Rowlands (Friedman/Rowlands 1978), was an example of a more systemic model accounting for the long-term changes in society. This fitted in the emergence of the New Archaeology defined by scholars such as Renfrew as the study of 'culture process' (Renfrew 1969). As the most influential model for considering these changes, neo-Marxism was adopted in a wide variety of studies and it has remained at the foreground of archaeological interpretation until the present day.

In a more rudimentary form, the Marxist paradigm was also one of the basic principles of Childe and his culture history. Differences exist, as Childe's early Marxism was mainly one of revolutions through the diffusion of ideas and people, noted under the term 'culture', in more general terms (Childe 1929). The introduction of bronze metallurgy by means of migrating peoples with their specific social organisation, material culture and traditions of burial is one such example (*idem*, 223-258). The critique on this by Binford (*e.g.* 1965) and others merely changed the early diffusion based Marxism towards the more systemic ideas of neo-Marxism. Childe's ideas themselves had by then already changed towards a more systemic interpretation, as later work demonstrated (*cf.* Orser/Patterson 2004). His later studies emphasise the social aspects and changes within societies in the emergence of the

European Bronze Age. This interpretational framework thus finds its way through the 20th century, into much of the work of Kristiansen and others. Specifically, in Kristiansen's and Larsson's terms, elites are created and maintained through networks of exchange of metalwork and exotic goods, as demonstrated by the distribution of bronzes and golden objects. The use of ritual and religion is guided by ritual specialists in the maintenance of their power relations[1] and a further element is the undertaking of long distance journeys by specific members of society. This last point is motivated by the recent emerging isotopic evidence, which shows that in many instances people travelled. Combining this with the tenuous evidence for exchange of ideas over extreme long distances (see fig. 2.1), they portray a society in which travel was prestigious, special, centred on elites and beneficiary for the reproduction of these elites. They take this argument from the anthropological work of Helms (1988, 1998). She interprets certain travelling enterprises as specific journeys for the acquisition of specialised knowledge by young members of society. These individuals, future leaders of the community, needed this knowledge to obtain their elite position in society. Thus, these journeys can be seen as specific rites of passage. This particular model, taken from comparative anthropology on a very specific (but nonetheless ill-understood) theme, suits the neo-Marxist agenda well.

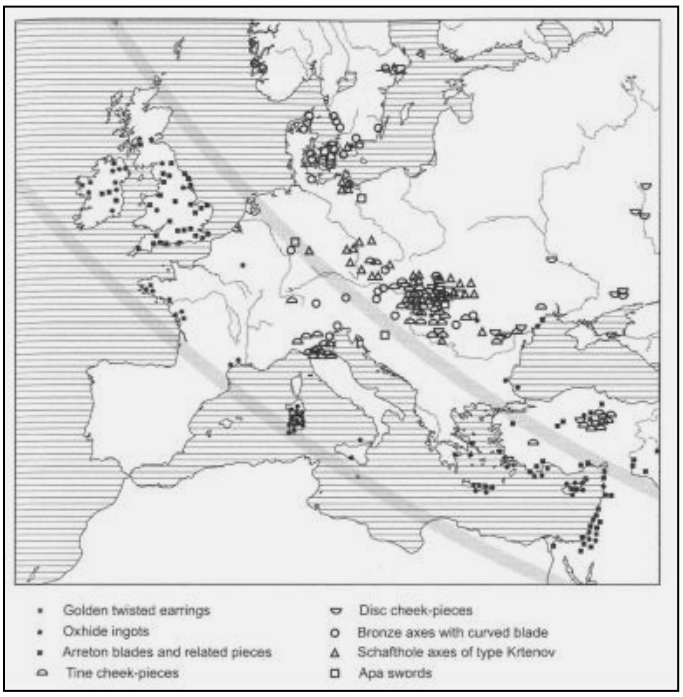

Fig. 2.1 An example of extreme long-distance exchange of objects and ideas, as envisaged by Kristiansen and Larsson (2005, fig. 96).

2.3 *Critique*

After dealing with the underlying mechanics of their model, it becomes evident that the model of Kristiansen and Larsson (2005) is not 'holistic' at all. The neo-Marxist paradigm in itself is based on elites and social hierarchy for the system of social reproduction to function properly. Thus elites and their supposed actions are not so much an outcome of their study, as they present it, but even more, elites are inherent to their model of society and pre-conceptual framework of interpretation. The neo-Marxist model of society is a model in which values, such as 'elite', 'prestige' and 'status', are inherent. The attribution of these values to the

[1] Note a quote from Karl Marx himself: *"Die Religion ist das Opium des Volkes"* ("Religion is the opiate of the people", Marx 1844)

archaeological record is not without problems and primarily based on modern Western ideas about value, about migration and about individualism. The correlation of this model to prehistory might work for some periods (see for example Frankenstein/Rowlands 1977) but not for the Bronze Age (*contra* Kristiansen 1994). This as ideas of personhood, value and mobility cannot be reproduced onto the Bronze Age one-to-one and must be assessed in their specific historical situation, as has become clear through the work of many anthropologists (*e.g.* Celtel 2005 on personhood; Ingold 2000 on mobility).

Besides the neo-Marxist model, other, more specific interpretations are made by Kristiansen and Larsson (2005) which require attention here. Their concern is primarily with metal objects, grave goods and so-called 'exotic goods'. Almost no reference has been made to pottery styles, houses or subsistence strategies. Methodologically this bias towards metalwork and other exchanged objects seems to re-enforce their interpretation even more. Pottery is generally seen as a local product of household craft and low complexity (Gibson 2002). In contrast, the study of metalwork is pre-eminently surrounded by ideas about the ritual significance of production, specialist metalworkers and elite based exchanges (Budd/Taylor 1995). This bias in the study of material culture inevitably leads to a model in which elites, having special knowledge on the production of metal objects and the 'power' to exchange these objects, are necessary to both produce and exchange metal with each other. As Kuijpers (2008) recently has shown, many interpretations towards metalwork, its production, exchange, use and deposition are all in a far too stringent way centred on elites. When looking at metalwork from a production point of view, considering the archaeological evidence for this production, and the general social aspects of technology, a more realistic picture emerges on the fundamental nature of metal and metalworking within society. This change of perception is essential for understanding distribution patterns and acknowledging the full scale complexities involved.

Another interpretational constraining factor in the model by Kristiansen and Larsson is the focus on long distance journeys. The work of Helms (1988, 1998) they cite as main reference for their argument is based on a very particular situation. A first point in Helms' model is that knowledge of the destination of the journey is absent within the community. This leads to an unbalance in knowledge and the differential status position within society. Specifically, this leads to the high status of individuals who conducted these journeys and created and maintained myths about the outer world. Secondly, the communities Helms discusses are all specific in their own right. The anthropological examples are sedentary societies, with a centralised world-view, in which mobility and migration were exceptional to a large degree. The outer-world was a solid concept within these societies, as opposed to the, known, inner-world. Consequently, when applying this anthropological model to the European Bronze Age, it creates a generalisation of such journeying activities without taking into account other types of (perhaps more common) movements. In the end then, movement itself is seen as prestigious (see fig. 2.2) and in a way that elites are created and maintained in the same neo-Marxist way as Kristiansen's and Larsson's other arguments.

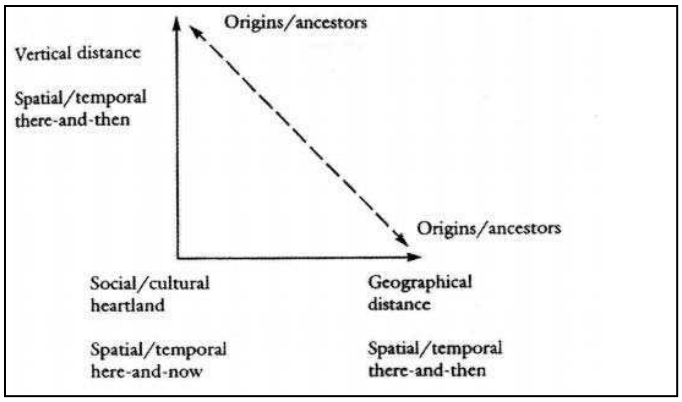

Fig. 2.2 The relationship between geographical distance and status, as envisaged by Kristiansen and Larsson (2005, fig. 16), taken from the work of Helms (1998).

A further point which is becoming evident when reading the work of Helms is the nature of the sea in the perception of the communities undertaking these journeys. On many occasions the sea is seen as a boundary, which has been there ever since and needs to be crossed in order to achieve special powers or acquire sacred and esoteric knowledge about distant lands. However, such an approach towards the sea is all but uniform across the anthropological literature. Anthropologists such as Gosden and Pavlides (1994), Pálsson (1994), Ingold (2000) and others have highlighted the contextual nature of attitudes towards the sea, seascapes and seafaring practice. Thus before it is possible to use Helms' work in the North West European Bronze Age, we should define the nature of the English Channel and North Sea in prehistory and get grip of past perceptions towards it.

2.4 *Specifying the problem*

In what are the above statements related to the problems addressed in particular by this thesis, namely the overseas interaction in the later Early and Middle Bronze Age of North West Europe?

Next to Kristiansen and Larsson (2005), more authors use the pre-conceptual framework of neo-Marxism in interpreting Bronze Age society, interaction and culture. Specifically for the study of North West Europe in the Early and Middle Bronze Age, Needham has, in a series of papers, argued several things in this respect (Needham 2000, 2005, 2006, 2007, 2009). This is not strange, as neo-Marxism is still favoured in archaeological interpretation, nor is the concept of neo-Marxism necessarily wrong. It is however, scientifically less correct than when applying a model without taking the Western idea of individualism, modern day value systems, ideas of sedentism and modern concepts of migration for granted.

Needham's studies are concerned with the overseas contacts taking place between communities from the British Isles and the Continent in the period between 2500 and 1000 cal BC. Most exemplary of his work is the treatment of the later Early Bronze Age (Needham *et al.* 2006). For this period (2000-1500 cal BC), he maps the distribution of 'precious cups', such as the Ringlemere Cup, and combining that with metalwork evidence, seafaring evidence, ideas about difficulties in crossing the North Sea and the Channel, and evidence of exotic grave goods, he argues for a specific elite exchange network across these waters. This he calls a 'maritory' (see fig. 2.3).

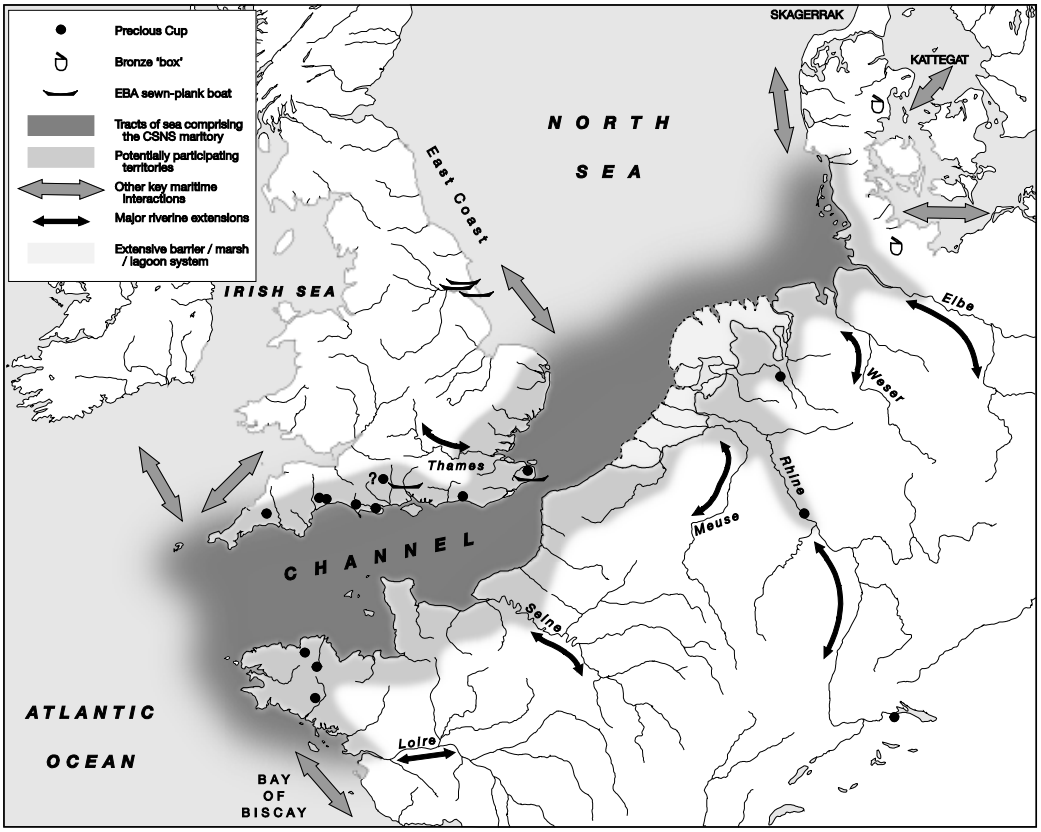

Fig. 2.3 The later Early Bronze Age (2000-1500 cal BC) 'maritory', defined by Needham (2009, fig. 2.5).

This maritory changed with the onset of the Middle Bronze Age into a 'Channel Bronze Age', when more metalwork was exchanged from different sources, when settlements started to appear on both sides of the North Sea and when pottery decoration became more general. Theoretically, these accounts present similar problems as Kristiansen and Larsson (2005). Being only concerned with metalwork, exotic goods (amber, jet and gold) and coming from a theoretical paradigm in which elites are inherent in the system, his argument contains similar problems.

A further aspect needs to be considered here, as Needham (2009) does present an argument related to pottery evidence, although not as elaborate as the others. Skimming the pottery evidence, he sees linkages forged in similarities in decoration types and vessel shapes, but as he says: "...[c]eramic inter-comparisons throughout the maritory will (...) require very close scrutiny..." (2009, 30) His handling of the ceramic evidence, however, as the model requires, is destined to be in terms of information exchanges. This also comes forward in general overviews on pottery in this period and region, such as by Gibson (2002). These works do acknowledge the existence of links in the ceramic repertoire, but not the complexities and their significance. Similarly, Tomalin (1983[2], 1988) has tried to relate pottery and people in the Southern British Early Bronze Age, from a perspective of diffusion through the exchange of ideas and movement of people. A recent continental contribution that relates to this is Marcigny *et al.* (2007). These researchers are primarily concerned with pottery chronology and similarities in pottery decoration motifs from a culture historical, diffusionist, perspective in which 'pottery equates people', seeing pottery styles as representing the migration of people from and into Britain. While Needham does not state it as such, his maritory model is partly based on these culture historical interpretations of pottery evidence. Why using this culture historical approach towards pottery should be avoided will be outlined below.

[2] This valuable work was however not consulted, as acquiring it turned out to be impossible.

In order to better comprehend the reasons for avoiding this, first an outline on the origins and the development of this particular part of culture history in the research area should be given.

2.5 *'Pottery equates people': its origin and reception*

The origins of the relationship between material culture and people in archaeological discourse cannot be ascribed to a single scholar. Where many archaeologists state Kossinna (1911) as the earliest proponent, it was Abercromby (1902) who already presented an early example of this way of thinking with regard to Beaker pottery and overseas interaction. Fact remains that from the early 20th century archaeologists start correlating material remains and the peoples to which these were ascribed. A quote from Childe (1929, v-vi) is the best way to describe the formal method "...certain types of remains – pots, implements, ornaments, burial rites, house forms – constantly recurring together..." From this quote, we understand that not only pottery, but the entire pallet of material remains constitutes a culture. Reading the next paragraph makes clear that Childe thinks himself justified when assuming a 'movement of people' when confronted with "...the total and bodily transference of a complete culture from one place to another..." (*idem*) From this it follows that these early scholars see material remains as specifically representing past peoples. This is exemplified by the discussions on migratory movements into the British Isles, which are not infrequent among British scholars in this period (*e.g.* Abercromby 1912; Clark 1931; Clay 1926; Crawford 1922; Hawkes 1942). On the Continent, far less attention was paid to this particular way of thinking. Glasbergen (1954) shocked the British scholars by stating that immigrants had come from Britain in the Early Bronze Age instead of the other way round (see also Piggott 1955). But generally, since the 1950s and 1960s interest in the questions relating pottery directly to people diminished in favour of the social and systemic approaches of neo-Marxism (see above, and also Clarke 1966) and interpretations linking pottery to the trade and exchange of metalwork. The latter interpretations, focusing heavily on metalwork, follow Renfrew (1969) in studying culture processes by means of external influences, relationships between cultural systems and interaction between 'polities' (*e.g.* Briard 1981; Kristiansen 1987; Tomalin 1988).
For these approaches to work, material culture was seen from purely functional terms. Meant by this is that style was seen as an attribute to the function of objects, through the use of certain motifs in politics and the exchange of information between communities (Wobst 1977). This proposition created a dichotomy between function and style of objects. In contrast to style, the function of an object was seen in a general social evolutionary framework denoting a trend towards improving the adaptation to the environment. Thus the study of material culture became functional and evolutionary in an overall sense, and stylistic in particularly those respects related to interaction and information exchange (*e.g.* Voss 1980, 43-45; or the 'tyranny of decoration' as Sackett (1990) has called it). The narrowing down of pottery styles to the constraints of exchange studies (whether exchange of ideas linked to the exchange of metalwork or true exchange of pottery), is according to me a too simple explanation for the similarities and differences observed in pottery styles. More helpful is the critique on the culture concept by Shennan (1978). Shennan silenced the debate on the direct relationship between pottery and people for a large degree. But on the other hand, his study does illustrate the reasons to avoid this direct relationship on the basis of mere stylistic, decorative, traits. In a quantitative analysis of Bell Beaker pottery from Central Europe he states that 'cultures' as single entities have no meaning, as the reality is far more complex with regard to both single artefact and multiple artefact distributions. This critique, in my opinion, still stands and thus ceramic variability cannot be understood in any case by the grouping of 'pottery styles' in single entities related to decoration patterns and the labelling of cultures.

Chapter 3 – Theoretical Framework

3.1 *Introduction*

How then are we to solve the problems and critiques raised in chapter 2? Can a theoretical framework be set up which moves us forward, beyond these critiques? I think that this is possible, and this chapter will present the theoretical baseline of the forthcoming chapters and of possible future research into the historical interpretations of past peoples; a new and improved culture history.

3.2 *Foundations: from information exchange to social technology*

The first aspect that needs to be addressed when comparing material culture from different regions or different periods is related to the choice of reference. A critique in the previous chapter on the methodology employed by recent archaeologists looking at overseas connections, presents the start of asking how to proceed from here. Scholars studying overseas connections in the North West European Bronze Age generally look at material culture from an exchange perspective. More specifically, pottery similarities are nowadays interpreted as the outcome of exchange of ideas, linked to the tangible exchange of metalwork (Gibson 2002, 101). This theory is rooted in the common understanding among archaeologists, only to look at pottery from a processual and functional perspective, considering the function of decorative motifs in the exchange of ideas. It is so common to interpret pottery in this way, that in many cases no reference to any theoretical background is given. It is clear that the foundation for such an approach must be sought in the early days of processual archaeology. On a general level, this perspective was first employed in a much cited article by Wobst (1977). He showed that the traditional type of headdress worn by women in South East European communities has specific characteristics, distinctive of where the women come from. The variability in headdress is related to the message content, message visibility, the social contexts to which artefacts are exposed, and the cultural matrix in which the communication takes place (*idem*, 355-356). More generally, Wobst sees the exchange of information taking place through specific variation in material culture according to message content and visibility, the social context of this specific type of material culture and the 'cultural matrix' of communication (so all people know what the material culture signifies). Thus style is seen as all formal variation in material culture that transmits information about personal and social identity within a given cultural matrix. After some early comments and adjustments (*e.g.* by Voss 1980), the study of prehistoric pottery accepted this idea of information exchange until the present day. Nowadays it still is the basis in linking pottery to the exchange of metalwork today, the constructive critiques on Wobst's theory that followed his paper were not so easily adopted in pottery studies.

Critiques of Wobst (1977) have centred on a single aspect of the theory of information exchange, being the one-sidedness of his approach and his use of the term 'style'. In the 1980s a debate developed between Wiessner (1983, 1985) and Sackett (1985, 1986, 1990) on this particular theme. Wiessner, approaching the problem of style within her analysis of Kalahari San projectile points, discerns two aspects of style. The aspect she calls emblemic, related to conscious affiliation or group identity, and the assertive aspect of style, being formal variation in material culture related to personal identity specifically. She further states that style is only present in specific types of material culture. These items should contain variation in form over time and space, and a specific percentage of additional decoration.

It is precisely this narrow perspective that is countered by Sackett, terming it 'the tyranny of decoration' (1986). Arguing for a different approach towards style, Sackett uses the perspective of technology, aided by the work of anthropologists Lemonnier (*e.g.* 1986) and Pfaffenberger (*e.g.* 1988), in interpreting formal variation. He considers style as being more

than functional, whether emblemic or assertive, as Wiessner argued. According to Sackett, also unintentional choices make up the variation in objects and possible unintended meanings. He states that in every aspect of technology, in every choice the artisan makes, style is involved, he calls this 'isochrestism' (Greek for "equivalent in use"). Style, according to Sackett (1986, 268) "…at least potentially resides in all formal variation (...) Thus the manufacturing of a cooking pot involves choosing among a considerable variety of shapes, and techniques of construction and firing, some or possibly even all of which can be just as ethnically – and hence stylistically – significant as the decoration that may be applied to its surface..." Sackett's notion of isochrestism links style to the study of technology. This makes it necessary to look at the specific social context of the technology involved in producing material culture and variations in these.
The study of technology in archaeology has for long been the focus of evolutionary oriented scholars, seeing technology related to function specifically. Pottery technology in particular was thus seen from a functionalist perspective, as a means of adaptation to the environment (*e.g.* Binford 1962; O'Brien *et al.* 1994). Exemplary is the study of Braun (1983, 108) who related the manufacturing technique, vessel morphology and paste composition to the pot's effectiveness for performing particular tasks and he calls these relationships 'mechanical performance characteristics'. These characteristics include heat conductivity, thermal shock resistance, impermeability and the relationship between toughness and strength. The study is founded on evolutionary ways of thinking, saying that potters are always striving for functional better products up to the high tech ceramics they nowadays make. Woods (1986) however, testing parts of this hypothesis, looked at prehistoric, Roman and Anglo-Saxon cooking vessels from Britain and their mechanical performance characteristics. She comes to the conclusion that this evidence contradicts most of these evolutionary theories, as no evolution in production technology is visible (Woods 1986, 170). After that particular paper, more studies appeared into contextualising pottery technology and style (*e.g.* David *et al.* 1988; Gosselain 1992; Van der Leeuw 1993), some of these taking Sackett's ideas on isochrestism on board. Eventually, these archaeologists and ethno-archaeologists even argued for the abandonment of evolutionary perspectives in pottery technology altogether (*e.g.* Gosselain/Livingstone Smith 1997).

3.3 *A constructive view: the* chaîne opératoire *and further...*

If pottery does not relate to people in functional and evolutionary terms, how can we then relate pottery to their producers? The answer to this problem comes from Van der Leeuw (1993). He is the first to combine the critiques on evolutionary approaches towards pottery studies, the isochrestic view on style, anthropological work on the social aspects of technology and the *chaîne opératoire* model.
These last two items originate in a particular school of thought that needs some clarification here. The work of the French anthropologists Mauss (1934) and Leroi-Gourhan started looking at technology from a more contextual perspective in anthropology (Audouze 2002). Leroi-Gourhan's work deals with (among other things) technology and its relationship to society. As a concept, the *chaîne opératoire* (operatory chain) was based on Mauss' work on gestures and techniques of the body (1934). It was first used practically in analysing the technological process of experimental flint knapping. This process, the reduction of a flint nodule, he considered as "...a meaningful sequence of operations and actions..." (*idem*, 287) related to specific choices the flint knapper makes, involving specific learned gestures and traditions. According to these scholars, the choices an artisan makes when producing pottery, are in essence social phenomena. Thus combining this methodology with the study of pottery production, it becomes necessary to look at the *chaîne opératoire* of pottery contextually and

socially. In this *chaîne opératoire*, decoration is only one of the many aspects in which variation can be found.
Van der Leeuw (1993) tries to relate his many case studies to changes in cognitive contexts and general human conceptualisations (Van der Leeuw 1993, 283). What is interesting for us, however, is not the cognitive part of this enterprise, but the relationship between the *chaîne opératoire* of pottery and the society itself. So, remaining contextual, instead of generalising, looking at the mechanics by means of the *chaîne opératoire* in the relationship between pottery and the artisan, the Ceramics and Society project, executed by Gosselain and many others, did precisely this (Gosselain/Livingstone Smith 1997). Based on the specific ethnographic context of Southern Cameroon, their study has created a more general way of thinking and theoretical background to the study of pottery production and its relation to society (*idem*) and the mechanics involved in the production of pottery, which will be discussed in detail below.

3.4 *Pottery and the* chaîne opératoire*: a general outline*

Before we can describe the basic ideas behind the methodology of this thesis, linking stages in the production of pottery to aspects of identity, it is necessary first to review some basic concepts with regard to the operatory chain of pottery in general. In the above the need for such an approach is stressed. The outcome of the research into pottery *chaînes opératoires* of this particular study will be assessed against the general outline put forward in this paragraph. In figure 3.1 a schematic representation of this outline is given. This model will be further enhanced in the course of this chapter.

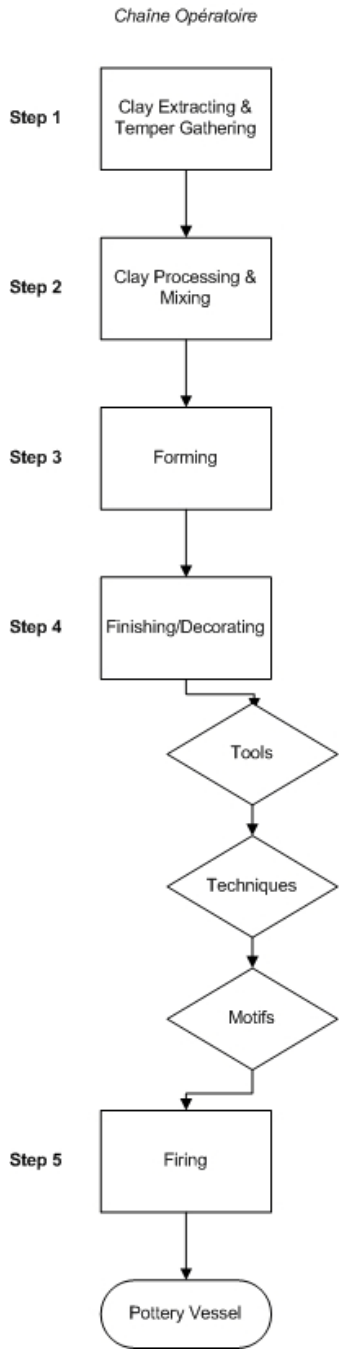

Fig. 3.1 A general *chaîne opératoire.*

3.4.1 Clay extracting and temper gathering

Any review of the *chaîne opératoire* of pottery (adapted from Rye 1981; Rice 1987) should start with the collecting of the two main raw materials, clay and a tempering agent. Choosing the right type of clay is dependent of a number of factors (see fig. 3.1, step 1). Clay is a natural material, plastic when hydrated, hard when dried and ceramic when baked. Different types of clay are used at different firing temperatures, which then make different types of ceramic material (pottery, stoneware and porcelain at increasing temperature).
Considering the provenance of clay, we can distinguish between primary formed and secondary formed clays.
Primary clays are deposited at the place of genesis; generally of low plasticity, not highly contaminated, white of colour, course grained, and only suited for high temperature firing.
Secondary clays are clays that have been transported from their place of origin, by wind, water (mainly rivers) or ice, these clays are generally fine grained, plastic, to a large degree contaminated and only suited for low firing.

3.4.2 Processing and mixing of raw materials

In order to make the clay suit the needs of the potter best, he prepares the clay to make it either less, or more plastic (see fig. 3.1, step 2). Increasing the plasticity of clay can be

achieved by means of mixing with other clays, letting the clay rot for a certain amount of time, letting it soak in water, by letting the clay levigate or by adding fibrous materials. The plasticity of the clay can be decreased through mixing the clay with other, less plastic, clays or by adding non-plastic materials (temper). A large variation in types of temper exists: organic, mineral, bio-mineral and man-made.
Between this stage and the next stage, that of forming a pot, a large degree of variability exists, that can only be identified to a sufficient degree in ethnographic contexts. The combination of clay and temper is being processed and transformed until the perfect workable substance emerges. This is done through rotting, levigating or by other means and practically invisible on the finished product.

3.4.3 Primary forming

The following step comprises the creation of a vessel out of this clay body (see fig. 3.1, step 3). On a relatively course scale, it is possible to discern between 5 techniques, which can be used in combination to each other (Rye 1981):

Pinching

Pinching is done when pressing the thumbs in a ball of clay and squeezing the walls out. This results in low profile vessels and round bases. Thumb impressions can be visible on the inside of the vessel.

Moulding

Moulding is the technique of pressing the clay into or over a mould. The pressing of clay can take many forms. The clay is in most cases combined with the use of a parting agent, in order to divide the mould and the vessel after the process. The mould itself can be decorated with incised lines or relief. Moulding is generally practiced on complex vessel shapes, and the moulding may be part of a longer shaping process.

Slab building

The slab building technique is mainly executed for large vessels. Slabs are formed by pressing clay on a flat surface or by flattening it by hand. Slabs are joined by pressing onto each other and the smearing of clay.

Coiling or ring building

Rolls of clay, of uniform thickness, are produced and applied onto one-another. Diameters of these coils or rings and the thickness of the wall are generally related to the distance between thumb and pointing finger. This produced vessels whose surface is ridged and grooved, which can then be further modified by scraping or smoothing. Coils tend to stay visible on the inside of the pot and in section.

Throwing

The forming of a vessel by means of throwing is executed on a fast rotating potters' wheel. The rotation, between 50 and 150 turns per minute, is inversely proportional to the diameter of the vessel; 150 rpm is used for the neck of a bottle, while 50 rpm might be enough for the walls of a large bowl. Many different techniques with regard to throwing pottery exist. Characteristic of thrown pottery in general are the spiral grooves on the wall and base of a vessel.

3.4.4 Secondary forming

After the vessel has been formed primarily, many vessels go through a secondary forming stage (see fig. 3.1, step 3). This stage is not easy to understand, as the techniques that are employed, are not easily visible on the surface of a pot (for the untrained eye). This distinguishes these techniques from decorating techniques, which leave clearly visible traces on the vessel. In the secondary forming stage of pottery production, the outer wall of the vessel is beaten, scraped, trimmed, shaved, turned or smoothed. These techniques relate to

forming in a more distant way, but determine to a large extent the shape of the vessel. Beating is done with a paddle and anvil, in order to execute pressure on the clay which makes it expand in a natural and globular way.
Scraping, trimming, shaving and turning are all techniques which cut away redundant clay from the vessel, when the vessel is leather-hard. These practices are mostly executed around the bases of vessels.
The smoothing of the outer walls of a vessel is done with the potter's nail plates or by using small pebbles. This technique is only visible under certain conditions (related to lighting and the workability of the clay when executed) and beneficiary for a vessel's impermeability.

3.4.5 Finishing and decorating the vessel

The stage of decorating a vessel (see fig. 3.1, step 4) is the most variable stage as many different techniques with regard to decorating pottery exist. These techniques can be grouped under the heading of four types.

- Impression
- Incision
- Application
- Pulling out

All these techniques are in some way related to the creation of relief. Impression and incision lead to valleys, while application and the pulling out of clay lead to ridges. Sometimes these ridges are inlaid with bone, ochre or other materials. Discerning between these two is done on the basis of gesture. Impression is a predominantly vertical transmission of the creating of these valleys, while incision is more related to motion and horizontal displacement. Application of certain ridges can be done by using the same or a different type of clay, creating optical effects. This is done primarily on the wall of a vessel without taking the vessel shape itself into consideration. The technique of pulling out is, on the other hand, involving both the vessel its shape and the initial clay used.
These four categories alone are not enough when making sense of distribution patterns of pottery decoration. In order to further discriminate these four course categories, one should look at two other aspects which are relevant for studying the relation between pottery and people. These two aspects are the tools by which the decorating techniques are employed and the final motifs of decoration which are visible on the end product (see fig. 3.1, step 4).

3.4.6 Firing

In most cases, the final step in the production process of pottery is the baking of the vessel (see fig. 3.1, step 5). This can be done in many different ways. The purpose of baking clay is to get rid of the water in the clay. When this happens, through a chemical process, clay has become ceramic. In the baking of clay, different stages can be discerned, relative to the clay type being used and the ceramic type being produced. Two important aspects of baking clay and producing ceramics are the baking atmosphere and the baking temperature. The atmosphere is defined by the amount of oxygen present inside the kiln when firing, oxidised or reduced, leading to different ways of baking (the amount of burning of the clay and the colour of the subsequent ceramics). A second important aspect is the baking temperature, which is determinate for the hardness and porosity of the ceramics; the higher the temperature, the lower the porosity and the harder the vessel. Different ways of baking can be discerned. Bonfires have the clay bodies and the fuel in the same space, while in kilns the fuel and the clay bodies are separated. In kilns, generally, heat and temperature are better regulated and higher temperatures can be achieved. However, kilns and other possible structural

evidence with regard to pottery production and especially the firing of vessels, is notably absent in many instances.

3.5 *Constraints on the* chaîne opératoire *for pottery*

Up to now, the operational sequence of pottery has been approached from an 'everything goes' perspective. However, as many authors have already demonstrated, not everything goes. Specific constraints exist in the choices artisans have between the options outlined above. While early processual archaeologists tend to look at mechanical, environmental and technical constraints (*e.g.* Braun 1983; Howard 1980), post-processualism has tended to view more social aspects of this particular enterprise however not denying the relevance of environmental and technical constraints to some degree (*e.g.* Gosselain 2000; Gosselain/Livingstone Smith 2005). The various constraints in the choices of potters have been summarized in figure 3.2.

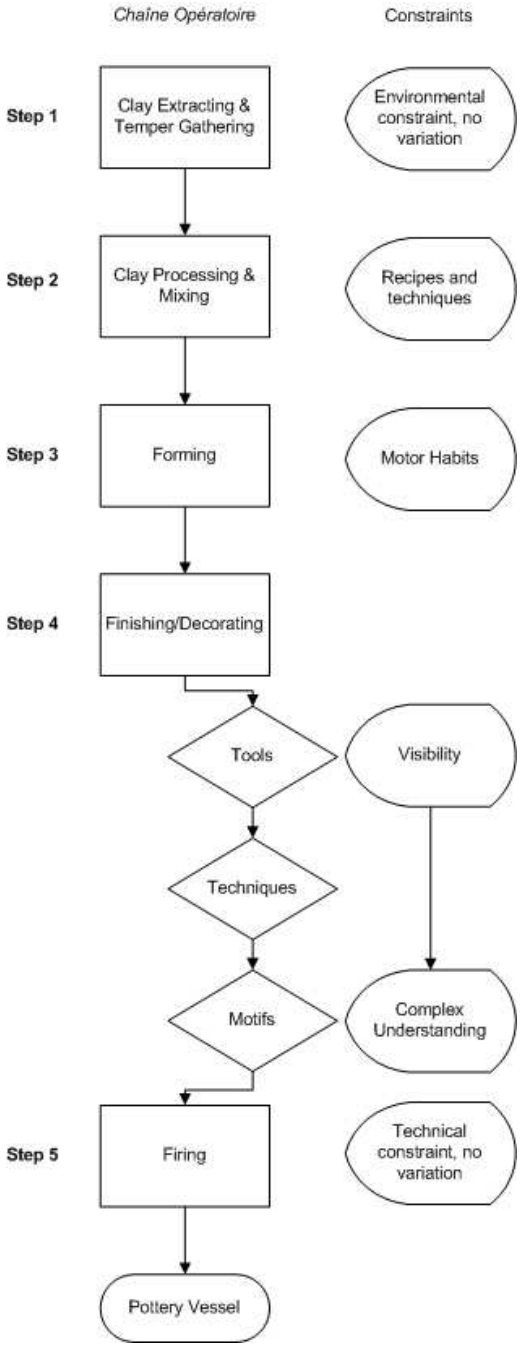

Fig. 3.2 A general *chaîne opératoire* and its constraints.

3.5.1 Clay extracting and temper gathering

The first step in the production sequence of pottery is the practice of both clay extraction and temper collection (see fig. 3.2, step 1). Choices in clay type are predominantly related to the local geology and the potters' knowledge of that geology. It has been noted by several authors that, in many sedentary societies, potters collect their clay within a 3 km radius and on many occasions nearest to the place where the pottery is made (Arnold 1985; Gosselain/Livingstone Smith 2005). The choice for a specific clay type is not constrained by the wider society, as different types of clay can produce the same pottery. The choice of temper is to a large degree a matter which is similarly related to environmental knowledge of rock types, river pebbles or where to find suitable organic material. Next to that, however, another aspect needs to be considered. Temper types vary to a large degree between organic and inorganic temper. Organic tempers are, on most occasions, burned out the vessel during firing and thus invisible to the wider community, when the vessel is finished and being used. Inorganic, predominantly stone, tempers are durable and thus visible to outsiders. As Gosselain (2000) notes, on these occasions, tempering choice is a salient stage and the outside community can influence the potter in his choices.

3.5.2 Processing and mixing of raw materials

The mixing and processing of clay and temper (see fig. 3.1, step 2) is a practice which is heavily dependent on the specific knowledge of the potter and his technical skills. It is a not easily changed practice, due to the complexities involved in creating the right paste. To quote Livingstone Smith "... clay preparation techniques are essential a question of habit..." (Livingstone Smith 2000, 38) Also, Hurcombe (2000, 96) stresses the need for experience in this particular stage of the process. However, this experience is primarily based on local (environmental) knowledge of raw materials. Next to that, different mixing techniques can easily lead to similar pottery vessels. Thus, the mixing of clay in order to achieve a particular paste is not related to any particular understanding of wider social interactions.

3.5.3 Primary and secondary forming

The forming stages in the *chaîne opératoire* of pottery (see fig. 3.2, step 3) have been a more debated issue. Authors like Gibson (2002) have noted the ease of forming techniques and their malleability, while others, using more substantiated ethnographic research, have shown otherwise (*e.g.* Gosselain 2000; Arnold 1985, 225-237; Wallaert-Pêtre 1999). Most notably, the motor habits involved in the construction of pottery are learned by young, future, potters at an early age. These motor habits need to be repeatedly practiced, as they require specific gestures, connected to rituals, mythology and imbued with meaning (see Mauss 1934). As Gosselain notes, choices in the forming of pottery are salient but not frequent, as similar pots can be made using different techniques. Therefore, techniques of potting are to a large degree resistant to influences from wider society. The necessary learning of pottery forming techniques at an early age, combined with this low tendency towards innovation and fashion, leads to the specific choices in pottery forming techniques, made by the potter, that relate to this potter his own, deep-rooted, social identity which is transmitted from generation to generation. These choices are isochrestic, thus they happen; whether the potter is aware of them or not.

3.5.4 Decorating the vessel

The next stage in the production of pottery is the decorating of the vessel by means of impressing, incising, applying or pulling out (see fig. 3.2, step 4). The techniques in this particular stage are notable for their visibility, their variation and the ease in which changes can be made. Because of these characteristics, it can be influenced by many people around the potter. Aesthetics play an important part in the decorating of pottery and decorative schemes can change rapidly with newly emerging contacts and ideas. Therefore, Gosselain (2000) states, it is this part of the *chaîne opératoire* which relates to the more superficial aspects of social identity.

Confusion can arise when relating techniques to the specific decoration motifs. Decoration motifs are different to the decorating technique in the fact that the former are culturally valued and embedded in local symbolic systems, as anthropological work has demonstrated at large (*e.g.* David *et al.* 1988). Techniques and tools are merely the ways in which potters create these different motifs. As Gosselain (2000, 200) notes on this dilemma "...from a strictly typological point of view (...) [the techniques and] tools allow mostly for the identification of social networks of individuals whose interactions are only occasional and superficial, dependent upon geographical propinquity..." Thus without looking at decoration motifs and their significance, his model looks at decorating from a practice point of view. He divides the typological aspect of decoration from the symbolic aspect. This presents limitations to his argument and to the applicability of his work in studying archaeological material with regard to overseas interaction and relations between pottery and people. I would argue that one can however not interpret the distribution of decoration techniques solely from this typological perspective. The analysis of motifs is necessary, at a deep rooted level, in order to understand

both techniques and the choices potters make.[3] In this study, therefore an early distinction of different motifs will be made, based on several different tools and motifs. Such an enterprise does induce interpretations related to the exchange of information by means of decoration motifs and their significance for specific groups of people. In retrospect, it is thus in this light that we must see the work on patterns in decoration motifs by Wobst (1977) and others (such as David *et al.* 1988, 365).

3.5.5 Firing

Following the decorating stage, pottery is generally dried until it has achieved a leather-hard state. This phase can be combined with the preceding phase, as some decorating is done when the clay vessel is already hardening out.

When the vessel is leather-hard, it can be fired and transformed into a ceramic object (see fig. 3.2, step 5). Firing pottery can be done in many different ways. The purpose of this practice is to get rid of the water in the clay. Both the chemically bound water and the added water need to be removed. When this happens, through a chemical process, clay has become ceramic. Two important aspects of this stage in the production of ceramics are the baking atmosphere and the baking temperature. The atmosphere is defined by the amount of oxygen present inside the kiln when firing, oxidised or reduced, leading to different ways of baking (the amount of burning of the clay and the colour of the subsequent ceramic vessels). A second important aspect is the baking temperature, which is determinate for the hardness and porosity of the pottery; the higher the temperature, the lower the porosity and the harder the vessel. Different firing techniques can be discerned. In bonfires, the clay bodies and the fuel occupy the same space, while in kilns the fuel and the clay bodies are separated. In kilns, generally, heat and temperature are better regulated and higher temperatures can be achieved. Overall, it can be said that in firing pottery, complex processes are taking place. As the room for error is small, a high degree of continuity and tradition can be assumed. Just like the clay processing techniques, this part of the operatory chain is heavily based on the potter's knowledge and experience. Therefore, when finding evidence for changes in this particular stage, these are likely to have been related to the exchange of knowledge among potters and changes therein. However, due to the technical and physical character of this process, variation is expected to be small. [4]

Concluding, we have here assessed the relationship between pottery production and social identity. This is summarized in figure 3.3.

[3] Not much work has been done, in general, on decoration motifs from a *chaîne opératoire* perspective (see however Hurcombe 2008). Future studies should concentrate on these aspects, regarding the complexity of design in relation to the ease of post-learning transmission, ease of visibility and possibilities of imitation.

[4] For the later Early and Middle Bronze Age pottery from Britain, France and the Low Countries, one can ask the question whether kilns, or other evidence related to the production of pottery, have been found. Wardle (1992) has found no evidence for pottery production in Britain. French evidence is not known to me and absent from the available literature. Structural evidence for the production of pottery in the Low Countries is also absent, from both literature and the Dutch national archaeological database ARCHIS.

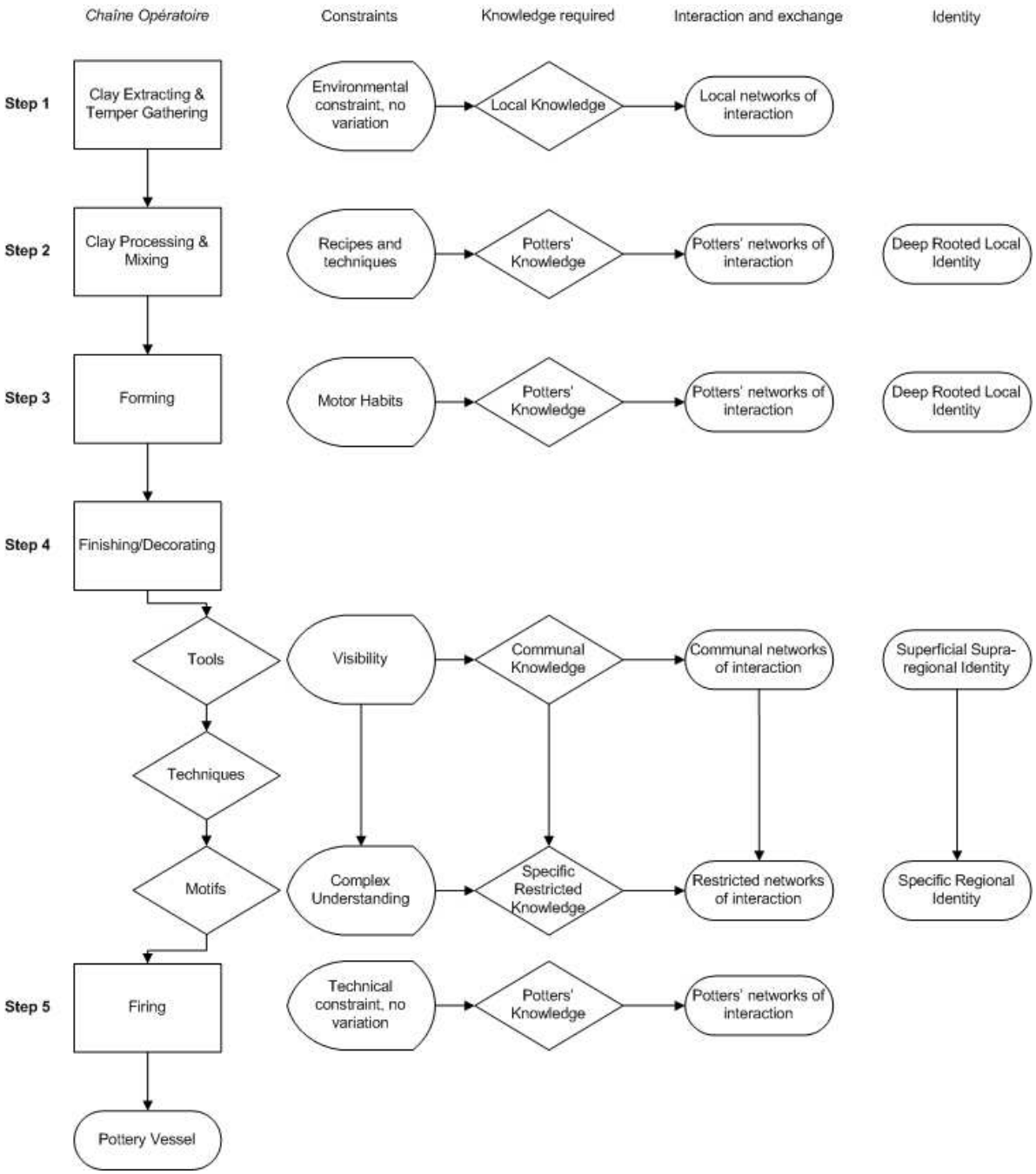

Fig. 3.3 A general *chaîne opératoire* and its constraints and relation to bodies of knowledge, interaction networks and aspects of identity, based on the model of Gosselain (2000).

Two questions remain. Firstly, how do we relate this relationship between pottery production and social identity to the problems of particular relevance for this thesis? And secondly, how should we understand this rather vague notion of 'social identity'?
The second of these questions will be dealt with in chapter 6. The first question however can be summarized here. For this study, the Bronze Age pottery evidence from the area around the North Sea will be assessed, considering the aspects of production outlined above. Until now, as we have seen in chapter 2, much research onto the Bronze Age pottery has remained theoretically undeveloped. In order to contextualise this type of evidence in light of new culture historical ideas, looking directly at the relationship between pottery and people, I proposed a production point of view. From the above it has become clear that some aspects of pottery production directly link pottery and people. Most notably, the practices of forming and

techniques of decorating pottery are linked to the construction of social identity of respectively potters and the communities in which they reside. In order to get grip of the social identities involved in the production of pottery, chapter 4 will specifically address the issues of forming and decoration techniques in pottery of the North West European Bronze Age.

3.6 *Cultural Biography: one step further*

3.6.1 Practice creates meaning

This outline of identity from a production point of view presents only one side of the coin. Going one step further, and taking a biographical approach to material culture, other values and aspects of identity can be found. The approach termed 'cultural biography' was first developed by Kopytoff (1986). He argued that a cultural biography of objects specifically "...would look at it [*i.e.* the object] as a culturally constructed entity, endowed with culturally specific meanings..." (*idem*, 68) As the endowment of meaning to objects is created through culturally specific practices, a cultural biography should consider practice at the heart of its model. As Gosden and Marshall (1999, 170) note "...[m]eaning emerges from social action and the purpose of an artefact biography is to illuminate that process..." In general several contexts in the creation of meaning have been discerned. Studies focusing on the accumulation and transformation of meaning have in many instances looked at the difference between commodities and gifts. Commodities are generally seen in the light of "...ownership of the means of production and the objects so produced..." (Gosden/Marshall 1999, 173) Gifts, on the other hand, are generally seen in the light of the production of links between persons. Specifically, in gift exchange, both object and person acquire cumulative meaning and become intertwined and related to complex extents (Hoskins 1998; Thomas 1991). As Appadurai (1986) noted, the distinction between commodity and gift is one of context. In a certain context objects are considered gifts while under other circumstances these objects are seen as commodities. A single object category can therefore be both gift and commodity, dependent on the situation. Taking a contextual approach to practice and looking at the archaeological evidence of this practice will inform us about the nature and meaning of pottery in specific prehistoric contexts. An understanding of this aspect is essential for understanding the role of pottery, in relation to (for example) metalwork, in overseas interaction.

3.6.2 Practice creates identity

More importantly, social actions not only give meaning to objects, but also to people. In this way they govern the processes headed under the name of identity, as several other scholars have pointed out (*e.g.* Jones 1997; Sørensen 1997). Gosselain (2000) accepts this notion and uses it with regard to the construction of identity on the basis of pottery production specifically, as we have seen. This notion, based on social theory, shows "...the interactive, heterogeneous, and dynamic nature of the processes through which a "We" is constructed by opposition to a significant "They" (...) and look[s] for the materialisation of such processes in archaeological assemblages..." (Gosselain 2000, 188) Practice theory and the creation of identity can similarly be applied to studies of pottery use and deposition. Thus, practices leading to the construction of identity, combined with an analysis of the general cultural biography of later Early and Middle Bronze Age pottery (its use life and deposition), brings us back to the 'pottery equates people' paradigm for the second time (see fig. 3.4).

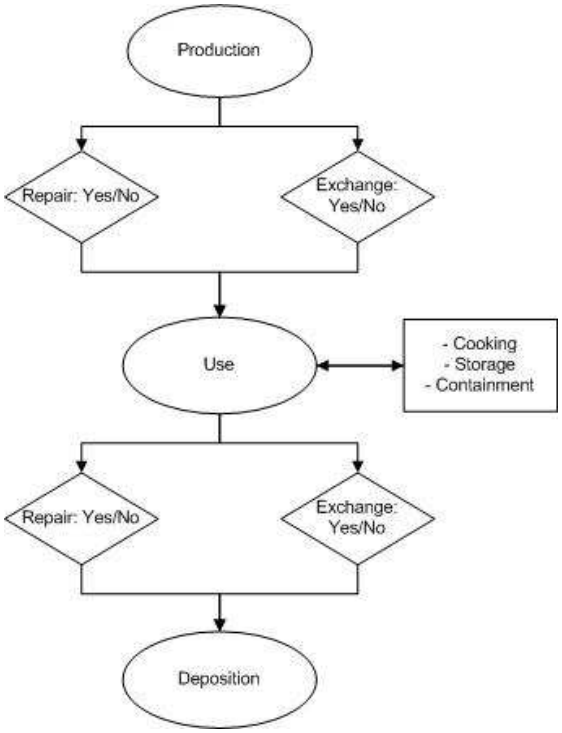

Fig. 3.4 A general cultural biography for the study of pottery.

Chapter 4 – Bronze Age pottery in North West Europe

4.1 *Introduction*

In this chapter the production of later Early and Middle Bronze Age pottery of North West Europe will be presented. Data will be analysed using the methodology described in chapter 3. First a detailed overview of the current status of research into later Early and Middle Bronze Age pottery, and the particularities with regard to this kind of pottery, as well as current problems in its understanding are given. After this introductory paragraph, the results of the analysis of two distinct parts of the *chaîne opératoire* of later Early and Middle Bronze Age pottery, specifically the techniques related to forming and decorating, shall be given. This will be concluded with direct implications and a new perspective on the production of pottery between 2000 and 1000 cal BC in North West Europe.

4.1.1 *Later Early and Middle Bronze Age pottery in North West Europe: an outline*

This thesis focuses on the pottery produced, used and deposited from 2000 cal BC onwards, starting with the developments following the Beaker phenomenon. The latest chronological revision of the Beaker phenomenon has been put forward by Needham (2005). He focuses mainly on associations, absolute dates and changes in vessel shape in the period 2500-2000 cal BC. To him, around 2000 cal BC, the Beaker style vessel develops into so called 'weak-carinated', 'globular', 'mid bellied' and 'long necked' vessels. A special place among these vessel types is reserved for beakers having a specific type of decoration, the barbed wire stamp. This Barbed Wire Beaker pottery, having generally S-shaped profiles, occurs in Britain as well as on the Continent. It was first identified as dating to the Early Bronze Age in the 1950s by Smith (1955) and Modderman (1955). The Barbed Wire Beaker pottery is generally characterised by these slightly S-shaped profiles sometimes accommodated with holes under the rim and a type of decoration called 'cordoned rim' or 'false rim'. The pottery is generally seen as evolving from the Pot Beaker, a vessel type contemporaneous with Bell Beakers (Lehmann 1965; Lanting 1973; Fokkens 2001, see fig. 4.1) and even Protruding Foot Beakers in some cases (Becker 1955). Most notable feature of the Barbed Wire Beakers, which distinguishes it from earlier vessel forms, is its decoration in patterns of so-called 'barbed wire-impressions'. Confusion around the nature of the impressed object is notable when assessing the literature, which considers terms like 'pseudo-barbed wire' and '*Stacheldradornament*' (Struve 1955, 51; Lanting 1973). A better understanding of the nature of the specific impression technique is necessary for a full appreciation of this type of pottery and its specific character. In general however, Barbed Wire Beaker pottery is seen as devolution from the standardised and fine Beaker pottery. This is generally interpreted in terms of reduced interaction between communities (Needham 2005). Needham sees this interaction between Britain and the Continent re-emerging in the subsequent period of the Wessex culture (Needham 2000) and the 'maritory' system of exchange by elites (Needham 2009).

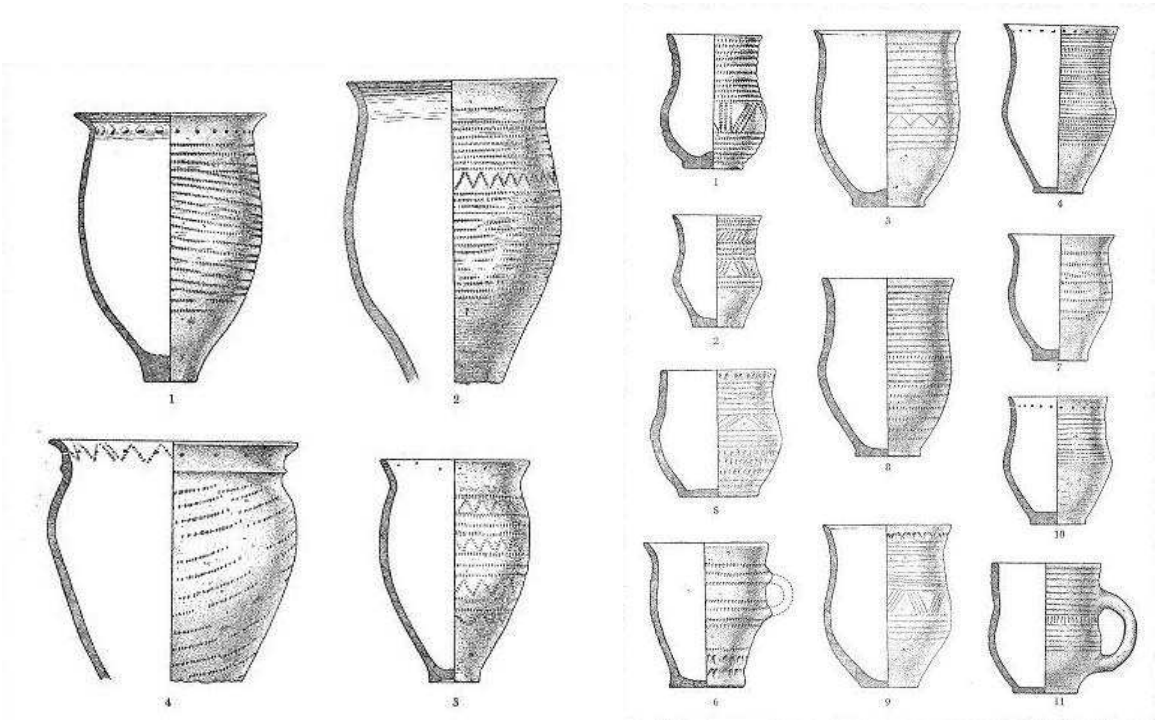

Fig. 4.1 Vessels from the Netherlands, decorated with Barbed Wire Impressions (taken from Modderman 1955, figs. 1 and 4, vessels are depicted at different scales). Lowest left vessel is also decorated with a false rim.

Next to the development in Beaker pottery, in the period of 2000-1800 cal BC, Needham (2005) sees the continuing (biconical) potting tradition from the Late Neolithic Grooved Ware period (3000-2500 cal BC). According to Needham (2005), based primarily on the work of Tomalin (1983), this is exemplified by the re-emergence of biconically shaped pottery (see fig. 4.2).

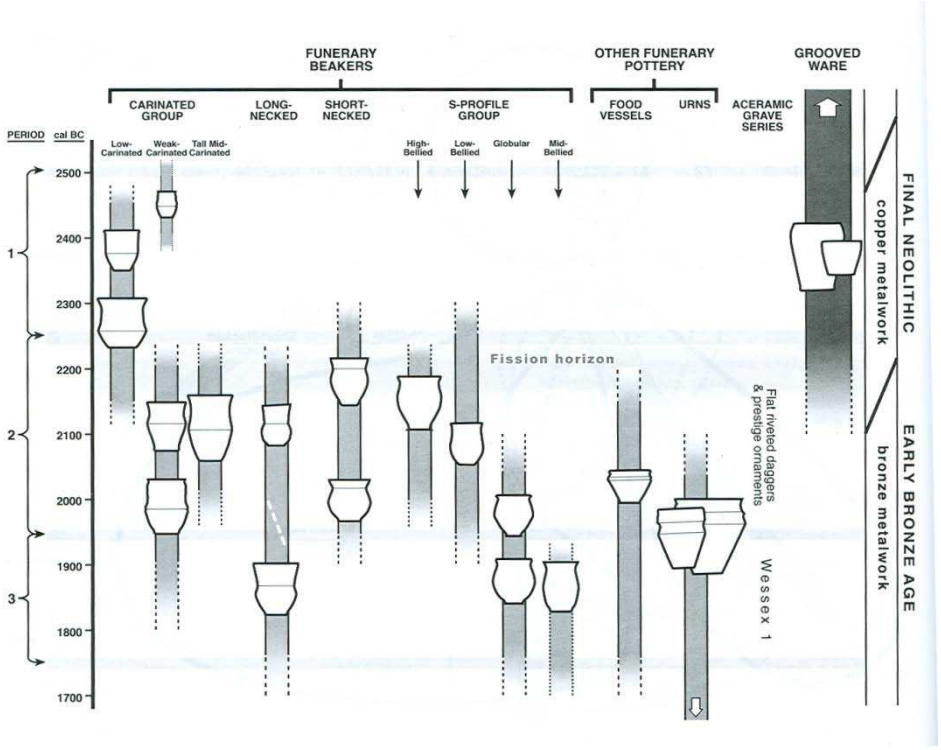

Fig. 4.2 Chronological development of vessel shapes in the Beaker and partly the later Early Bronze Age (2500-1700 cal BC), taken from Needham (2005, fig. 13).

This type of pottery, typical for the later Early Bronze Age in Britain and the near Continent is known under a variety of terms. Food Vessels and Collared Urns are the earliest examples on the British Isles, dating roughly between 2100 and 1500 cal BC (Needham 1996; Law 2008, 69-71). Law has recently reviewed the distinction between Food Vessels and Collared Urns in his PhD thesis (Law 2008). He highlighted the special significance of the collar in the production of the Collared Urns. In his argument Collared Urns originate from the earliest Food Vessels. Modifying the latter by adding a specific collar, more emphasis on the mouth of a vessel was created (Law 2008, 103).
Other pottery types, partially overlapping in chronology, are Cordoned Urns in Northern Britain and Ireland (Waddell 1995; Law 2008: 1950-1400 cal BC), Trevisker Ware in South-western Britain (Parker Pearson 1990) and Biconical Urns in Southern Britain (Butler/Smith 1956; Smith 1961; ApSimon 1972), dating to around 1800-1500 cal BC. These distinct pottery types are generally seen as derivatives from the Collared Urn traditions. Collars are in these types replaced by specific bands with decorative elements, separated from each other by cordons. These pottery types are both closely related to Continental Hilversum Urns from the Low Countries (Glasbergen 1954) and Éramecourt-style pottery from France (Blanchet 1984).
It is for this period that culture historical models have been constructed in relation to the emergence of metallurgy and changes in the burial rite towards a predominance of cremation. Until the 1950s British scholars attributed the emergence of several of these (then still contemporaneous) Urn types to the immigration of peoples from the Continent (Abercromby 1912; Crawford 1922; Hawkes 1942). The Dutch scholar Glasbergen (1954) argued otherwise, already basing himself more on absolute chronology. In the characteristic pottery, the advent of bronze working and specific types of burial mounds (so-called '*ringwalheuvels*'), he saw an immigration of peoples from Britain to the Low Countries, the 'Hilversum culture' (Theunissen 1999). The relationship between different pottery types became chronologically even more appreciated when Tomalin (1983) returned to the early culture historical work, arguing for an influx of peoples to Britain from the Continent, and most notably from France, on the basis of several early radiocarbon dates for Éramecourt style pottery.

What then does this pottery look like, when such a matter of debate has already revolved around it? Vessels from this period are thick walled, generally course tempered and badly fired, biconically shaped with flat bottoms and in many cases decorated with cord impressions, cordons and so-called 'horseshoe handles' (see fig. 4.3).

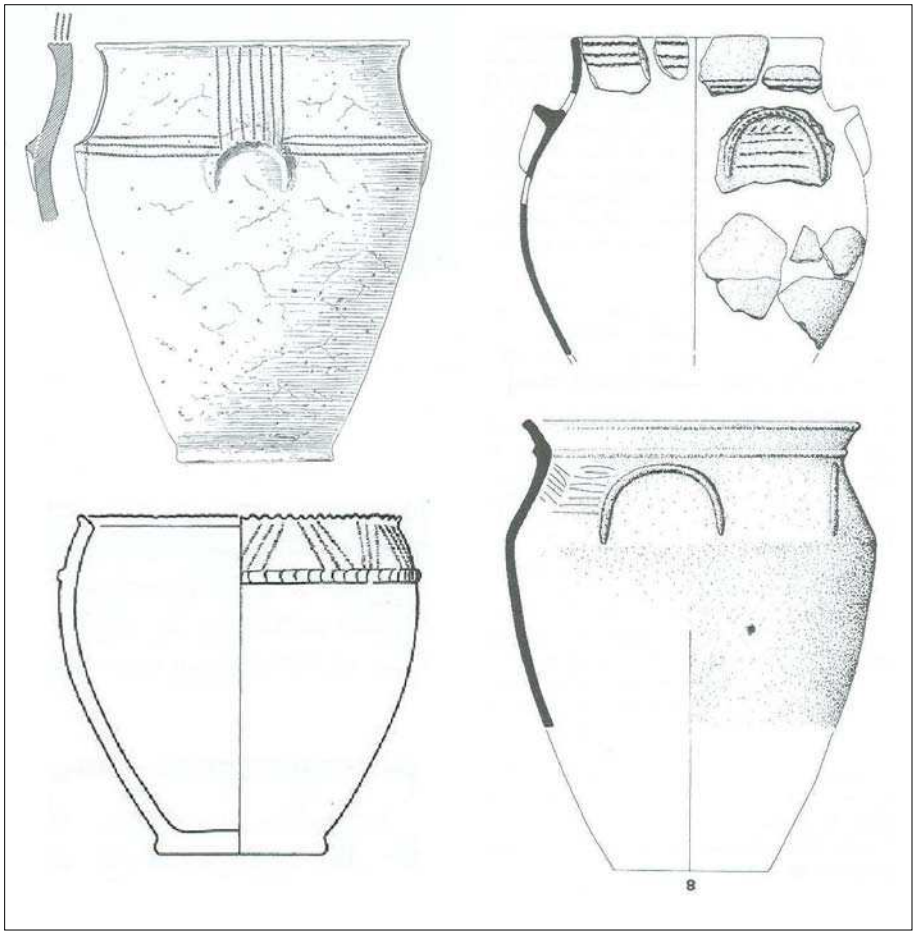

Fig. 4.3 Various styles of later Early Bronze Age biconical urns from the Continent (various scales; upper left (Hilversum urn): taken from Fokkens 2003, fig. 6; lower left (Hilversum urn): taken from Fokkens 2001, fig. 4; upper and lower right (Éramecourt style vessels): taken from Blanchet 1985, fig. 44.3 and 44.8).

More specifically, the Hilversum pottery chronology and typology has been revised recently (Theunissen 1999; Fokkens 2003; Arnoldussen 2008). Arnoldussen proposed a new division based on C-14 dates and decoration types, which is a clear return to Glasbergen's division. The characteristic Hilversum pottery, which resembles Biconical Urns and Éramecourt pottery, is dated to 1880-1660 cal BC, while the Drakenstein and Laren pottery are of partially overlapping and later dates (1780-1390 cal BC), and are thus mainly dated to the Middle Bronze Age. The Trevisker Ware pottery from South-western Britain, mainly the counties of Cornwall and Devon, is treated separately by many scholars because of the less biconical shape, the presence of lugs and handles on many occasions and the abundant cord impressed decoration. The distribution of this type of pottery and its provenance in South-western Britain suggests longer distance exchange networks between these communities and communities living on the eastern shores of Britain and the westernmost parts of the Continent (Gibson *et al.* 1997). Also in this period belongs the *Vases à Anses* from Armorica and Wessex. These vessels are globular in shape, finely produced with handles and incised line decoration (Tomalin 1988).

Between 1500 and 1000 cal BC new changes in the pottery styles emerge. For Southern Britain, several regional styles have been discerned by Ellison (1975) on the basis of decoration motifs and patterning, differences in temper and regional exchange networks related to metalwork exchange (see also Ellison 1980). Generally these different pottery styles are headed under Deverel-Rimbury type pottery. Other types of pottery, the Green Knowe style in Northern Britain (Burgess 1995), the East Anglian Ardleigh group (Brown 1995), and later Trevisker Ware in Southwest Britain (Parker Pearson 1995), are similarly discerned on the basis of differences in, and absence of, specific decoration motifs. On the Continent, a similar regionalisation in the characterisation of pottery styles was argued for. The Hoogkarspel-Oud, Elp and Drakenstein/Laren styles of pottery (resp. Brandt 1988; Van Beek 2001; Theunissen 1999; see also Fokkens 2003) are divided on the basis of differences in decoration motifs and spatial patterning. Decoration is absent on Hoogkarspel-Oud pottery, near absent on Elp pottery (only scarce fingernail impressions have been found) and occurs only infrequent on Drakenstein/Laren pottery (applied cordons, incised lines and nail impressions). Spatially, Hoogkarspel-Oud pottery is limited to the West Frisian area, Elp pottery to the Eastern and Northern area and Drakenstein/Laren to the rest of the Low Countries (Fokkens 2003; see also fig. 4.4).

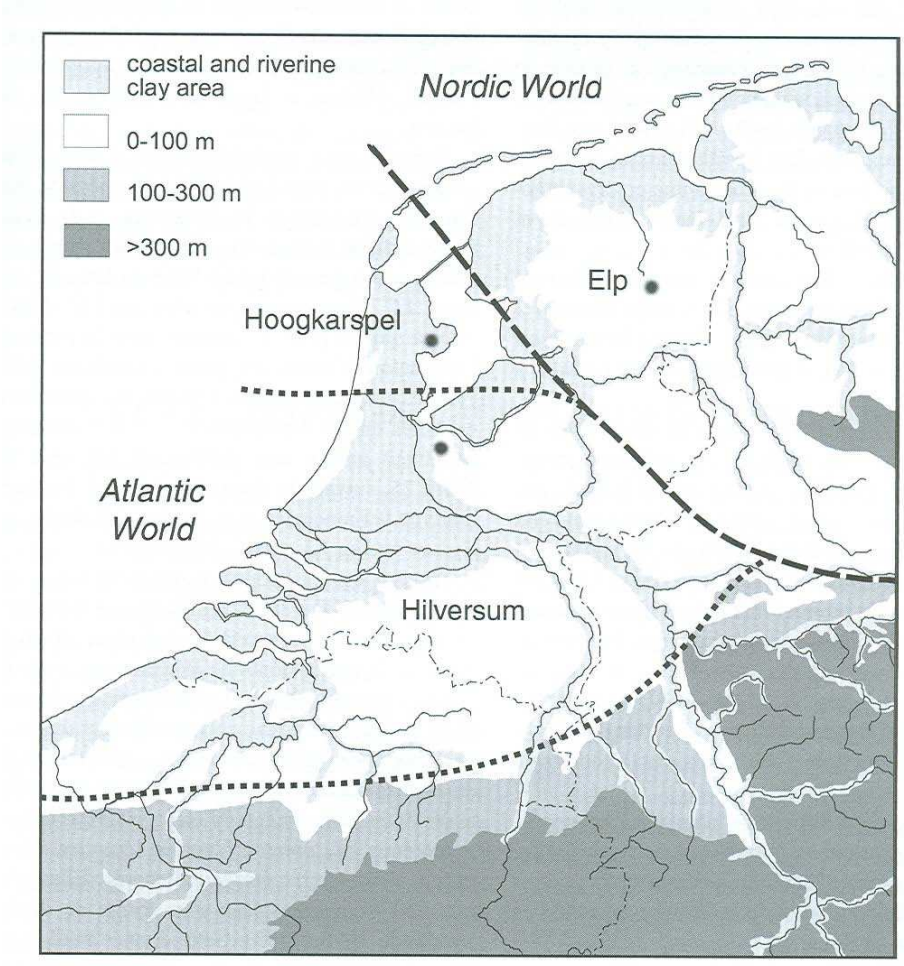

Fig. 4.4 Overview of the different Middle Bronze Age (1500-1000 cal BC) pottery styles in the Low Countries. "Hilversum" denotes the evidence of Drakenstein/Laren pottery in the southern parts of the Netherlands (taken from Fokkens, 2001, fig. 1).

French pottery from this period is decorated similarly to Drakenstein/Laren pottery, with cordons and nail impressions, as overviews have shown (Île Tatihou, Marcigny *et al.* 2007). It

is these similarities, between Drakenstein/Laren style, Île Tatihou style and the British Deverel-Rimbury pottery which led Needham (2009) to the term of *Channel Bronze Age*. In retrospect, we can say that pottery types dating to the period 1500-1000 cal BC are mainly distinguished on the basis of vessel shapes, decoration motifs and current national borders. An overview of this is presented in fig. 4.5, where pottery types and their chronological relationships are set out.

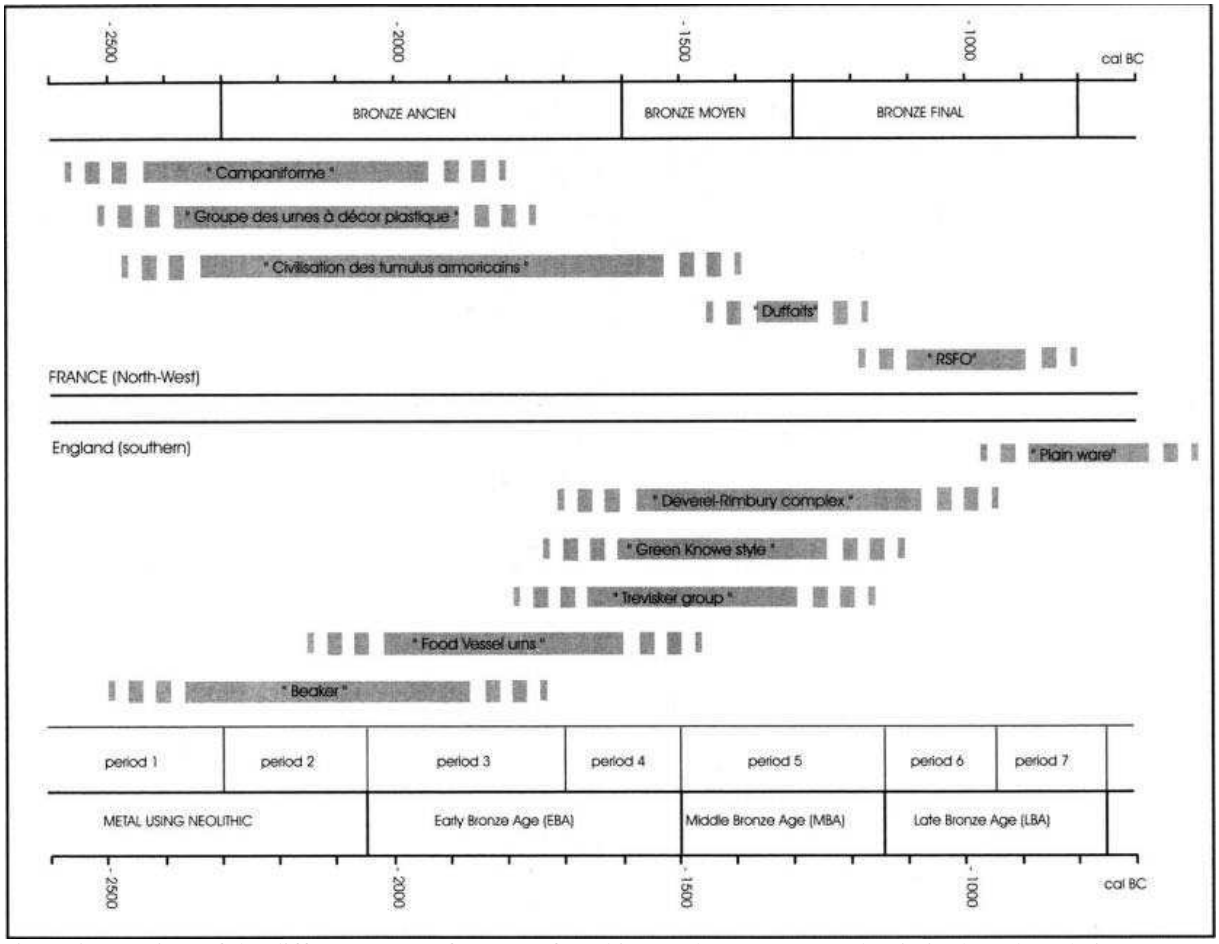

Fig. 4.5 Overview of the different types of pottery, found in Northern France and Britain, based on their chronological and spatial relationships (taken from Marcigny *et al.* 2007, fig. 23.2).

After this first overview on Bronze Age pottery in North West Europe, the focus will now be concentrated on two specific aspects of the *chaîne opératoire*, as already explained in chapter 3, and the ways archaeologists have dealt with them in the past, in order to contextualise the approach presently adopted. As said before, these specific parts of the operatory chain, the techniques of forming and decorating, are distinct features which can tell us something about the relationship between pottery and people in the later Early and Middle Bronze Age.

4.2. *A focus on forming*

4.2.1 *Past research and present methods*

The techniques of forming have been investigated for over a long period. However, much research has concentrated on the identification primarily, without addressing further comparison or issues concerning the social aspects of technology. A notable author in this research is Stevenson (1953) who identified separate coils of which some particular examples of prehistoric pottery from Britain was built up. This is also what Gibson (2002) points out.

He considers this stage in the manufacturing of a pot as "...a skill that can easily be learned through practice..." (*idem*, 39) Gibson his argumentation for this view is based on the absence of an experimental phase of ceramic production in the beginning of the Neolithic. Looking more closely, however, this absence of experimental pottery production in the Neolithic can be explained by other means as well, it could as easily have its origins in basketry (*e.g.* Ingold 2000; Hurcombe 2000). Gibson's ideas on forming contrast with the (ethnographically substantiated) view of Gosselain and many others, which I discussed at length in chapter 3. These scholars state that the forming of pottery is only learned through the learning of specific gestures, 'motor habits' (Gosselain 2000, 192; see also Arnold 1985, 235-237). According to Gibson, thus, the forming of pottery in the prehistory of NW Europe is generally regarded as coil built or ring built (Gibson 2002, 41).[5] However, until recently, no detailed systematic examination on Bronze Age pottery has ever taken place.
The exception to this comes from France, where Manem has recently analysed the *chaîne opératoire* for several, recently excavated, Middle Bronze Age settlement sites in Normandy (Mondeville, Nonant and Île Tatihou; Manem 2008, 298-359). His results, albeit different in methodology, will form an interesting comparison to the analysis executed here. The North French Middle Bronze Age pottery presents a distinct homogeneity when compared to the Southern French Duffaits culture (*idem*, 350). In Normandy, the observed *chaînes opératoires* make clear that the coiling technique, combined with moulding (in one instance) and batting (on four vessels), prevailed. A large number of vessels from the four sites Manem analysed, also showed evidence of smoothing of the outside (*chaîne opératoire* Ta1.1 & 1.3) and in some instances even the inside of vessels (*chaîne opératoire* Ta1.2; *idem*, 349). Manem, however, only uses the generally course scale of investigating forming in prehistoric pottery. Based on the definitions by Rye (1981), his primary methodological objective was to distinguish between moulding and coiling as forming techniques. This course grained division between different forming techniques is the first variable to be analysed in this thesis.

Secondly, in order to really look at the motor habits of pottery forming which determine aspects of identity among potters and the wider society, as I have highlighted in chapter 3, this course grained division needs to be taken one step further. Not a single finer grained study into pottery forming techniques and motor habits is known to me. How then should we proceed, as no detailed archaeological investigation of motor habits and pottery forming has ever been executed? Coiling as a practice has seen some research, essentially in debates concerning the neolithisation of the Lower Rhine Basin (Raemaekers 1999). In these debates pottery technology was used to understand the earliest developments of indigenous Neolithic life by hunter-gatherer communities. In an early study of these developments, Louwe Kooijmans (1976) already used the concept of coiled pottery. But it was Raemaekers (1999), who distinguished N, Z, and H coils, and developed a more detailed study of the coiling technique in Neolithic pottery. This detailed analysis could also be of use for the study of forming methods in Bronze Age pottery. Therefore, in determining the motor habits of prehistoric potters, the coil finishing and attachment will be analysed as the second variable (see fig. 4.6).

[5] As Rye (1981) noted, the term 'ring built' should not be used in exchange with 'coil built'. Rings, in fact, are large coils. This makes a division arbitrarily and unnecessary.

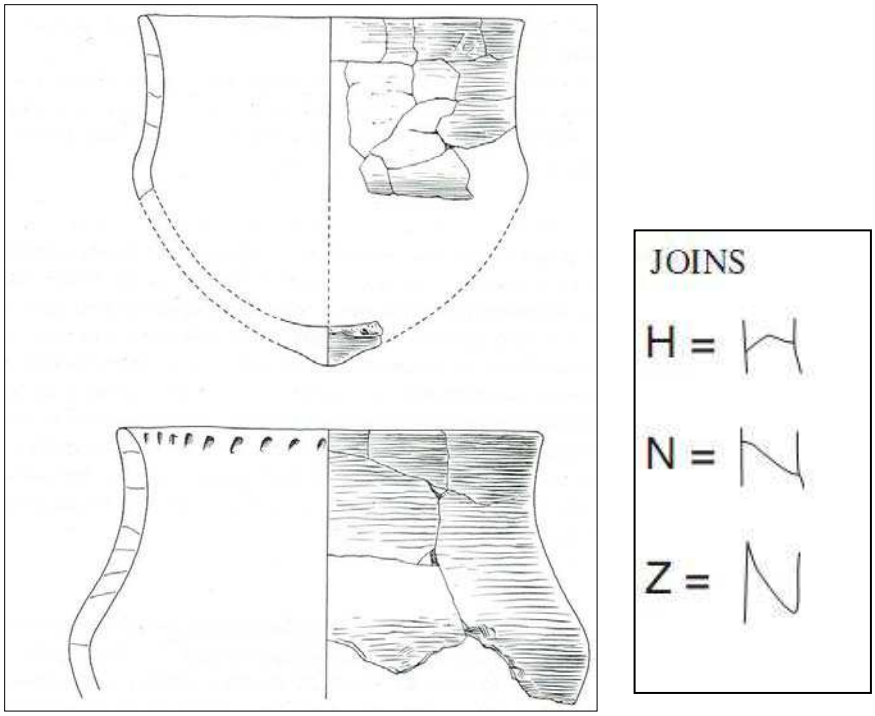

Fig. 4.6 Right: example of coiling in Dutch Early Neolithic pottery (taken from Louwe Kooijmans 1976, fig. 9). Left: three different types of coiling and the attachment of coils onto one another (taken from Raemaekers 1999, 195).

Thirdly, another body of research which might be of interest here is the vessel shape or final form. This particular variable is in itself the outcome of the specific forming techniques used by the potter. The process of achieving a certain vessel type, can relate to different ways of manufacturing a vessel. This is seen most clearly in the primary forming phase. Thus whether different forming techniques were employed to achieve different vessel types will be a question worth asking. Distinguishing between two different typologies, their relative value, in relation to forming techniques, will be assessed. The British later Early and Middle Bronze Age pottery typology is primarily based on the shape of vessels. In the present day scholars distinguish between s-shaped beakers, biconical vessels and globular, bucket and barrel shaped vessels (*e.g.* Needham 2005; Smith 1961; Ellison 1975; see fig. 4.7).

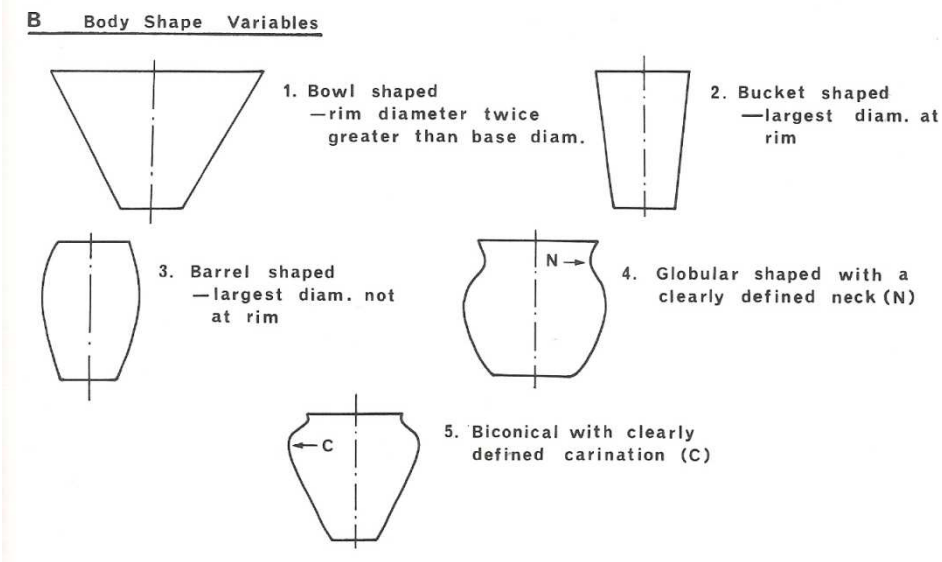

Fig. 4.7 Explanation of the differences in the British later Early and Middle Bronze Age pottery typology (taken from White *et al.* 1985, fig. 18).

In the Low Countries and France, no strict typology is used for defining pottery vessel shapes (although recent work is adopting the British typology, see Arnoldussen 2008, 178; Marcigny *et al.* 2007). Work on the Late Bronze Age and Iron Age pottery in the Western Netherlands has produced a distinctive typology (Van Heeringen/Van Trierum 1987). The division between single, double and triple profiled pottery (see fig. 4.8) is the standard typology for later prehistoric pottery in the Netherlands, but it can as easily be used for later Early and Middle Bronze Age pottery. Therefore both these typologies will be used as variables in relation to the forming techniques.

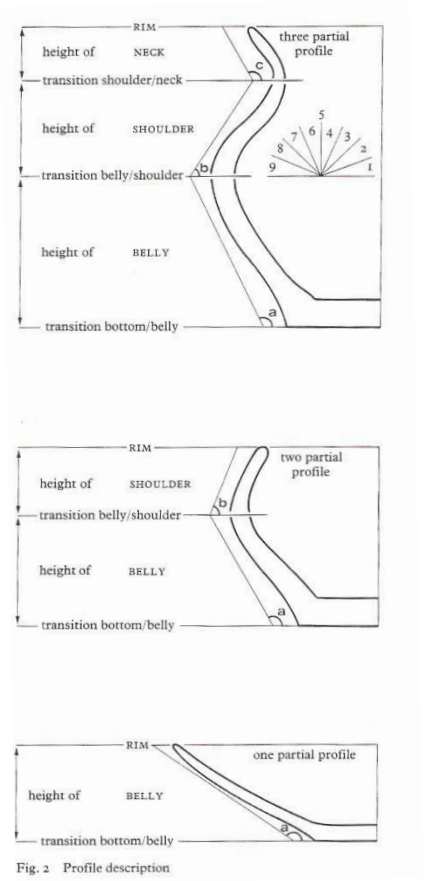

Fig. 2 Profile description

Fig. 4.8 the Dutch typological system of late Bronze Age and Iron Age pottery as defined by Van Heeringen and Van Trierum (taken from Van Heeringen/Van Trierum 1987, fig 2).

Next to the primary forming of the vessel, other techniques, called the secondary forming techniques, produce the final shape of the vessel. Beating, scraping, trimming, shaving, turning and smoothing are the techniques employed in this stage. For the Bronze Age of North West Europe, studies focusing on these techniques are absent. The evidence for smoothing has been noted by some (*e.g.* Ten Anscher 1990, 54), but detailed and systematic investigations have been lacking for pottery in the Low Countries and the British Isles. For northern France, Manem (2008) has recently shown that the smoothing of pottery occurred. In a systematically executed study, he found evidence for smoothing and polishing in almost all *chaînes opératoires*. Evidence for batting with a paddle and anvil were limited to the settlement at Île Tatihou (*chaîne opératoire* Ta1.2). The evidence for secondary forming techniques presents us with another variable. In addition to this, evidence for the smoothing of pottery will also be addressed in the wider set-up literature study on decoration techniques (see paragraph 4.3.2). This exercise will function in reviewing and the bringing together of the knowledge on this particular secondary forming method.
Whatever forming method was used, the wall of the vessel always had to pass through the hands of the potter. It can thus be said that motor habits, related to how to position the hands in relation to the wall, govern the thickness of the wall. Thus, the wall thickness might be a variable which can be measured for the analysis of forming methods (see fig. 4.9).

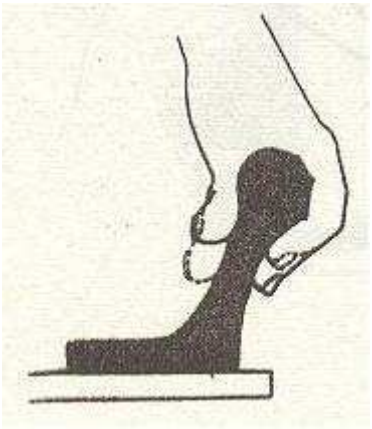

Fig. 4.9 Indication of the forming of a vessel by means of applying strips of clay. This indicates the use of the variable 'wall thickness' in studying pottery forming (taken from Van der Leeuw 1976, fig 3.1).

4.2.2 *Forming: introducing the case studies*[6]

For the study of forming in Bronze Age ceramics, I looked at four different habitation sites from the period 2000 cal BC – 1000 cal BC (see appendix 2 (for the raw data). In addition to that, to contextualise the small fragments of pottery generally recovered from such sites, I analysed several complete, or nearly complete burial urns dating to the same period. The sites in Britain I looked at are Shearplace Hill, Sydling, St. Nicholas, Dorset (Rahtz/ApSimon 1962; Avery/Close-Brooks 1969) and Poundbury Camp, Dorset (Green *et al.* 1987) at Dorchester Museum, Dorset. The burial urns I looked at, for reference, also form part of the collection of the Dorchester Museum (see appendix 1, compiled by Dr. A. Woodward, for a list of the urns and their reference). The Dutch sites I looked at are Noordzeekanaal, Velsen (Clason 1974; Vons 1970, 1975) and Waterland, Velsen (Vons 1971, for both sites see fig. 4.10) of which the material was stored at both the Provincial Depot for Archaeology of North Holland and the depot of the Velsen amateur archaeologists community (see table 4.1 for an overview).

Sites/Case Studies	**No Sherds**	**Location**
Velsen * Noordzeekanaal/Stationsweg (PDBNH-0997)	95	PDBNH
Velsen * Waterland (PDBNH-8095)	102	PDBNH & AWN Velsen
Dorchester * Poundbury (DORCM 1994.5.4/AB143/PC70C)	60	DCM
Sydling St. Nicholas * Shearplace Hill (DORCM 1963.3.1-127/AB1-5/SH31)	63	DCM

Table 4.1 Overview of the pottery analysed on aspects of forming (abbreviations: PDBNH = Provincial Depot of Finds North-Holland in Wormer (The Netherlands); AWN Velsen = Amateur archaeological society in Velsen; DCM = Dorset County Museum in Dorchester (Dorset, UK)).

[6] While analysing these sites, I experienced a lot of (practical) help from several people: Most notably Dr. Ann Woodward & Drs. Peter Woodward (Dorchester Museum, Dorset), Drs. Jean Roefstra & Martin Veen (both PDBNH) and Piet Vons & Hilde Vermast (both AWN-Velsen).

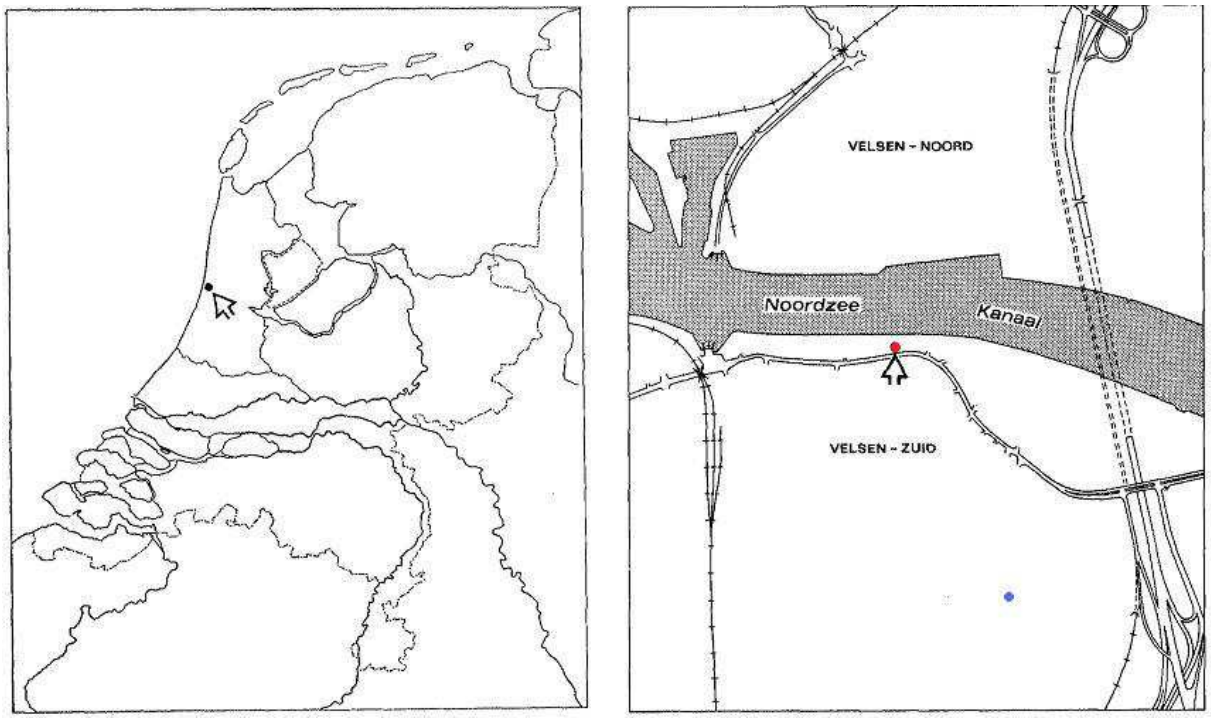

Fig. 4.10 The two case studies located in the Netherlands. The red dot indicates Velsen * Noordzeekanaal/Stationsweg; blue dot indicates Velsen * Waterland (adapted from Clason 1974, fig. 1).

The site Shearplace Hill was excavated in 1958 by Rahtz, who identified several earthworks. The site consists of several enclosures and lynchets in which roundhouses were found. Only the main enclosure was excavated, consisting of ditches and two terraces on both of which a roundhouse was situated (see fig. 4.11 on the next page). Chronologically, six periods of use and habitation were discerned by Rahtz. Most phases were based on circumstantial and stratigraphical evidence solely. The single radiocarbon date produced by the site (3130 +/- 180 BP; NPL 19) comes from combined charcoal samples from different parts of the settlement predating phase 3. The two roundhouses found, house A and B, are both roughly circular and similar in outline. House A seems to have been modified frequently, its use life being extended over a longer period. House B, however, is not well-defined in plan and large scale replacements of posts is lacking. Avery and Close-Brooks (1969) re-interpret house A as having two distinct phases, A_1 and A_2, both being covered by the radiocarbon dated charcoal sample. Pottery dating to the later Early Bronze Age form an earlier occupation phase is represented by a few sherds. The largest amount of sherds comes from the Middle Bronze Age occupation at houses A and B.

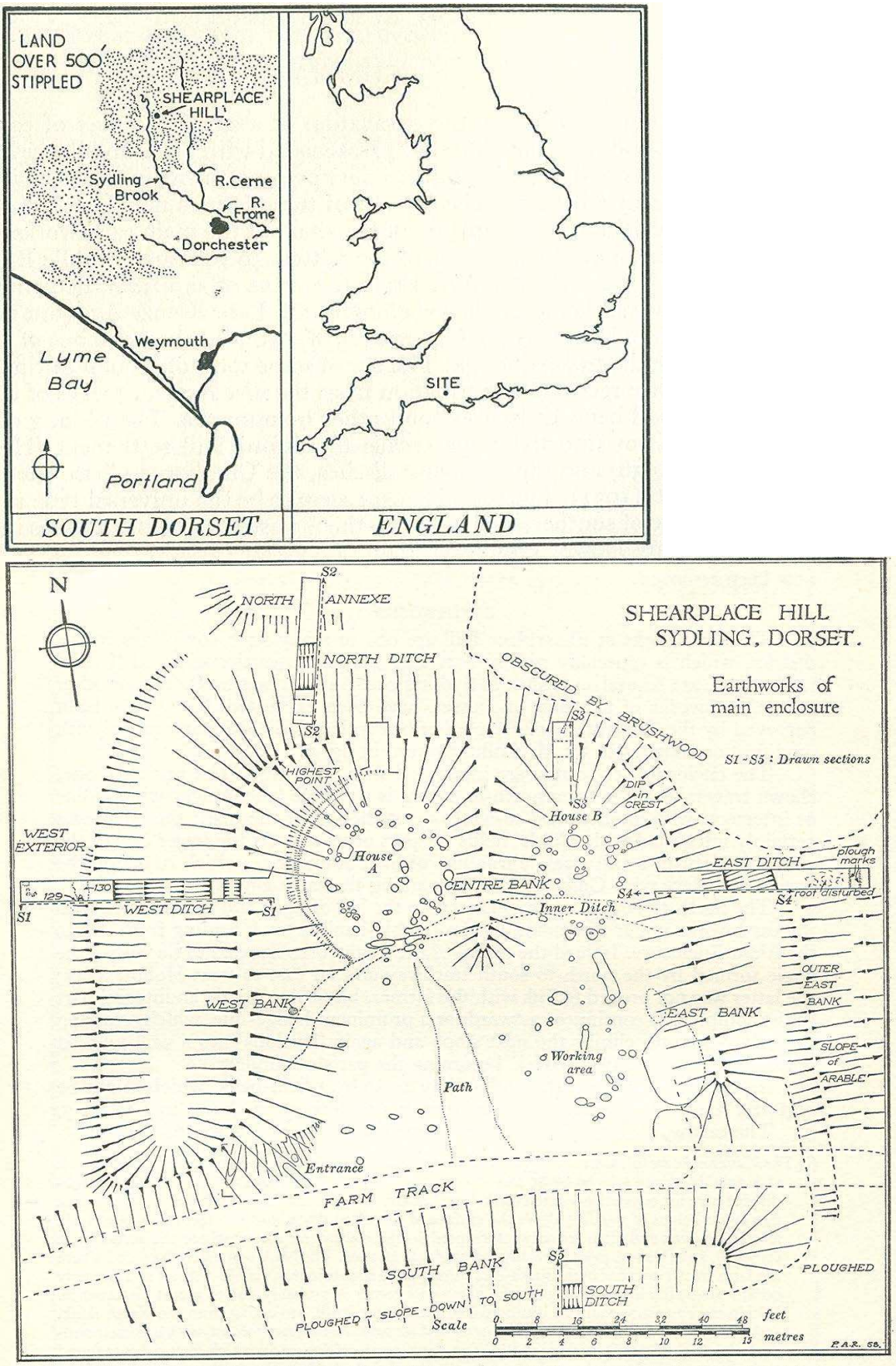

Fig. 4.11 Top: Location of the site Shearplace Hill; Bottom: Overview of the site Shearplace Hill with in the centre Middle Bronze Age houses A (left) and B (right) (taken from Rahtz/ApSimon 1962, figs. 1 (top) and 4 (bottom)).

The site Poundbury, situated only a few miles from Shearplace Hill, was excavated in the advance of construction work. Certain constraints were thus inevitable in the investigation of the site. The main period of use was in the Roman period, when a cemetery and a small scale settlement developed next to the military fort of Poundbury. Use in the post-Roman period was restricted to settlement and agricultural activities. Before the Roman occupation started, a native settlement, with features dateable to the Neolithic, Bronze Age and Iron Age, was present. Late Neolithic features (phase 1A) are restricted to shallow flint quarries and pits, containing Grooved Ware pottery and cereal grains and hazelnuts. No structural evidence of any sort dating to this period was found. Bronze Age occupation (phase 1B-1D) consists of several pits, clusters of pits and ditches (fig. 4.12) A possible enclosure dates to phase 1B, while two unusual rectangular structures date to phases 1C and 1D. Rectangular structure BA2 is successive to BA1 and both consist of a series of posts in shallow ditches. Most of the pottery material is derived from this two phased structure of Middle Bronze Age date (C-14 dated to 3380 +/- 70 BP; HAR-993).

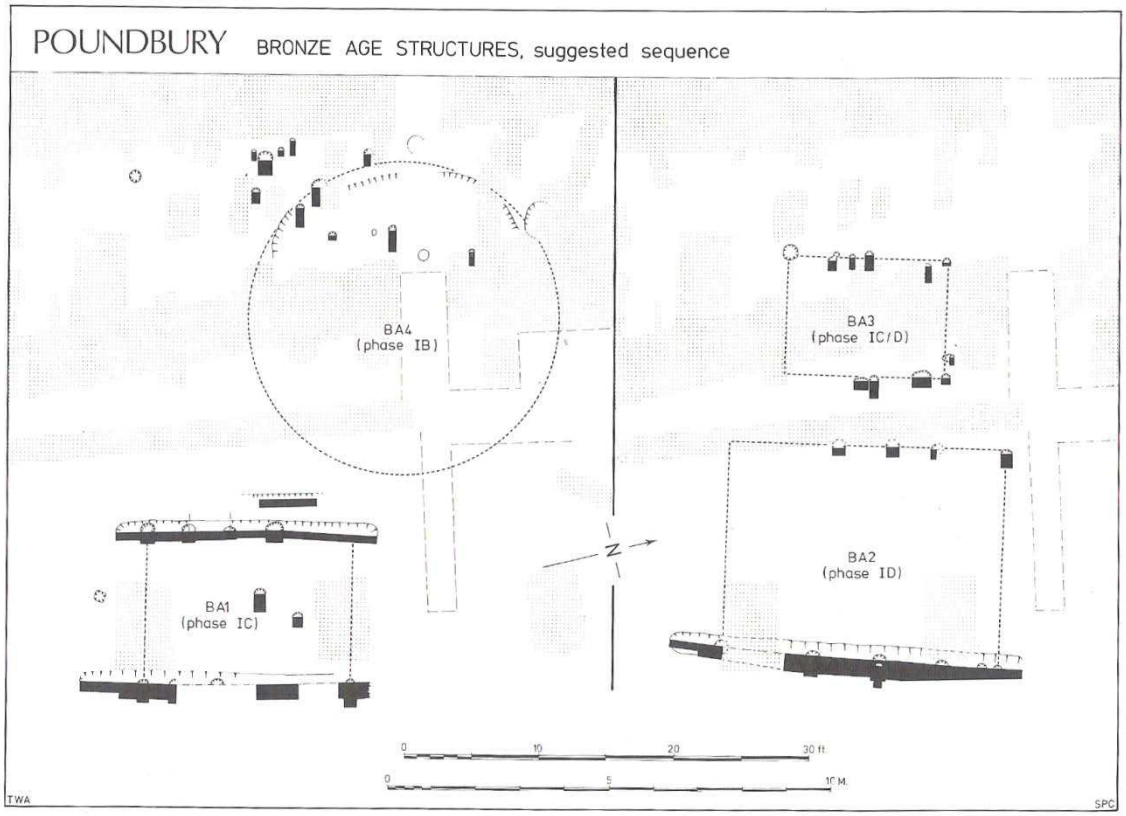

Fig. 4.12 An overview of the reconstructed settlement evidence found at the site Poundbury, Dorchester dating to the Bronze Age (taken from Green *et al.* 1987, fig. 18).

When the North Sea Channel needed to be expanded, due to the growth of the IJmuiden and Amsterdam harbours, a findspot came to light. This site, known by both *Noordzeekanaal*, after the North Sea Channel on which fringe it lies, and *Stationsweg* after the road on which it was found, was excavated by the local amateur archaeologist community, under direction of the ROB (Archaeological State Service).

Fig. 4.13 The excavation of Velsen * Noordzeekanaal taking place. The Middle Bronze Age layer of occupation, between two layers of dune sand, is well visible (photo by Piet Vons, under courtesy of AWN Velsen).

Under harsh circumstances (fig. 4.13) excavations revealed habitation layers of occupational debris and agricultural activities separated from each other by windblown sand. The habitation layers at this site consist of several soils, many of which were tilted by the ard and in some instances possibly manured (Bakels 1997) and used for agricultural purposes. Below these soils, in the dune sand, postholes and pits were found in several layers. From these features and the cultivated soils on top, many archaeological remains were found; worked bone fragments (Clason 1974), flint fragments, fragments of amber and amber manufacture (Vons 1970) and pottery remains. Radiocarbon dating has led to the appreciation of the chronology of the site (fig. 4.14). In general, the habitation layers show a continuous development in the Early and Middle Bronze Age, in several distinct phases of occupation.

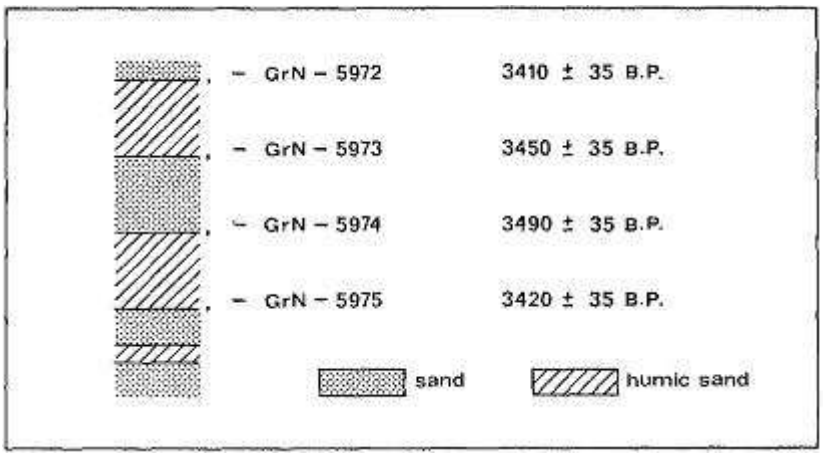

Fig. 4.14 The chronological development of occupation at the site Velsen * Noordzeekanaal/Stationsweg (taken from Clason 1974, fig 2).

Another Bronze Age habitation site was excavated in Velsen, when a gas pipe was laid out. The site Waterland, Velsen site was also excavated by the local amateur archaeological community. This particular site, not far from the *Stationsweg* site, provided evidence for occupation of the same character, dating from the Late Neolithic until the Middle Bronze Age (Vons 1971). Without C-14 dates, the dating of this find spot rests on stratigraphy and identification of Beaker sherds in a lower layer and a bronze pin and flint Scandinavian dagger tip in the here described ("Hilversum-culture") layer. These finds make a later Early Bronze Age and Middle Bronze Age date for these sherds most likely.

4.2.3 *Forming: data and analysis of the case studies*
Variables I analysed on the pottery from the four sites for the study of forming have been explained in paragraph 4.2.1.

4.2.3.1 Primary forming technique
In total 331 sherds, from four sites, were studied from four different sites. On 246 out of 331 sherds (74.3%), the method of forming was not visible. For the remaining 25.7%, 85 sherds, there were traces of the way the vessel had been formed. This is divided in 27 sherds from Shearplace Hill, 9 sherds from Poundbury, 17 sherds from Stationsweg and 32 sherds from Waterland (see table 4.2a). All of these sherds, 100%, showed evidence for forming by means of coils or rings (see table 4.2b).

Visibility of the Forming Method	n (=331)
Visible	85 (25,7%)
at Poundbury	9
Shearplace Hill	27
Stationsweg	17
Waterland	32
Not visible	246 (74,4%)

Table 4.2a

Methods of forming	n (=85)
Coil/Ring	85 (100%)
Other	0 (0%)

Table 4.2b

4.2.3.2 Primary forming technique: joining coils
The joining of the coils was visible on only 59 sherds (76,1%) out of the 85. Of these, 15 sherds come from Shearplace Hill, 7 sherds from Poundbury, 11 sherds from Stationsweg and 26 sherds from Waterland (see table 4.3a).

Visibility of the joning of coils	n (=85)
Visible	59 (76,1%)
at Poundbury	7
Shearplace Hill	15
Stationsweg	11
Waterland	26
Not visible	26 (23,9%)

Table 4.3a

The traces of forming are sometimes visible as horizontal breakages of the sherds (see fig. 4.15) but in most cases only in relief, as shallow bands, on the inner surface of the sherds, where the outer surface had been smoothed.

Fig. 4.15 A sherd from Velsen * Waterland, showing the typical characteristic N-type of coil attachment (photo by the author).

The details with regard to the joining of coils are almost evenly distributed in both H and N joint type (32 sherds (54%) for H and 27 sherds (46%) for N). Z type joints have not been found at all. Where the two British sites, Poundbury and Shearplace Hill show a 100% preference for the H type of joining coils, the Dutch sites show a more varied distribution (Waterland: 54% N/46% H; Stationsweg: 81% N/19% H, see table 4.3b). It proved unable to statistically test the significance of this difference, as the sample size is too low.

The attachment of coils on the four sites	n (=59)
Coil attachments	
at Poundbury	7
H type	7 (100%)
N type	0 (0%)
Shearplace Hill	15
H type	15 (100%)
N type	0 (0%)
Stationsweg	26
H type	5 (19%)
N type	21 (81%)
Waterland	11
H type	5 (46%)
N type	6 (54%)

Table 4.3b

4.2.3.3 Secondary forming techniques

Evidence of secondary forming is restricted to the recognition of smoothing. This smoothing is not as clear-cut visible in the dataset (only 34 out of 331 sherds have clear smoothing evidence, which is 10.3%, see table 4.4).[7] Evidence for other practices related to secondary forming, such as batting or trimming, has not been found.

Evidence for smoothing	n (=331)
Visible	34 (10,3%)
Not visible	297 (89,7%)

Table 4.4

4.2.3.4 Typological comparison

Looking typologically at the pottery, not all sherds could be ascribed to a certain type. Only 84 sherds could be ascribed to the British typology (25.4%). Of these 84, most vessels come from bucket shaped (56 sherds) and globular shaped (20 sherds) vessels. While a few sherds can be ascribed to Biconical shaped (5 sherds) and barrel shaped (2 sherds) pottery (see table 4.5).

British typology	n (=331)
Visible	84 (25,4%)
Bucket shaped	56
Globular shaped	20
Biconical shaped	5
Barrel shaped	2
Not visible	247 (74,6%)

Table 4.5

[7] Smoothing was only visible on larger sherds and the burial urns which were analysed as comparison (see below).

Using the Dutch typology, a predominance of sherds consists of 1 and 2-partial profiles for vessels from both British and Dutch sites. Of the 84 sherds with visible profiles, 1-partial profiles make up a total of 19 sherds (22.6%), while 64 sherds are assigned to 2-partial profiles (76.2%). Only one sherd could be attributed to a 3-partial profile (see table 4.6). No significant differences between sites or between typological schemes or relating these two aspects could be observed.

Dutch typology	n (=331)
visible	84 (25,4%)
1-partial	19
2-partial	64
3-partial	1
not visible	247 (74,6%)

Table 4.6

A further aspect of this analysis is looking at correlations between forming technology and the typological schemes that have been put up. Statistical testing proved of little value, as the sample size is too small. Thus no relationships between coiling, the type of coil attachments and typological schemes have been found in this particular data-set.

4.2.3.5 Wall thickness

Wall thickness of the analysed pottery vessels was analysed on frequencies. A frequency distribution shows that there is no clear difference in wall thickness of the sherds between the four sites. At Poundbury the sherds seem thinner to some degree, but no significant degree in any respect (see fig 4.16).

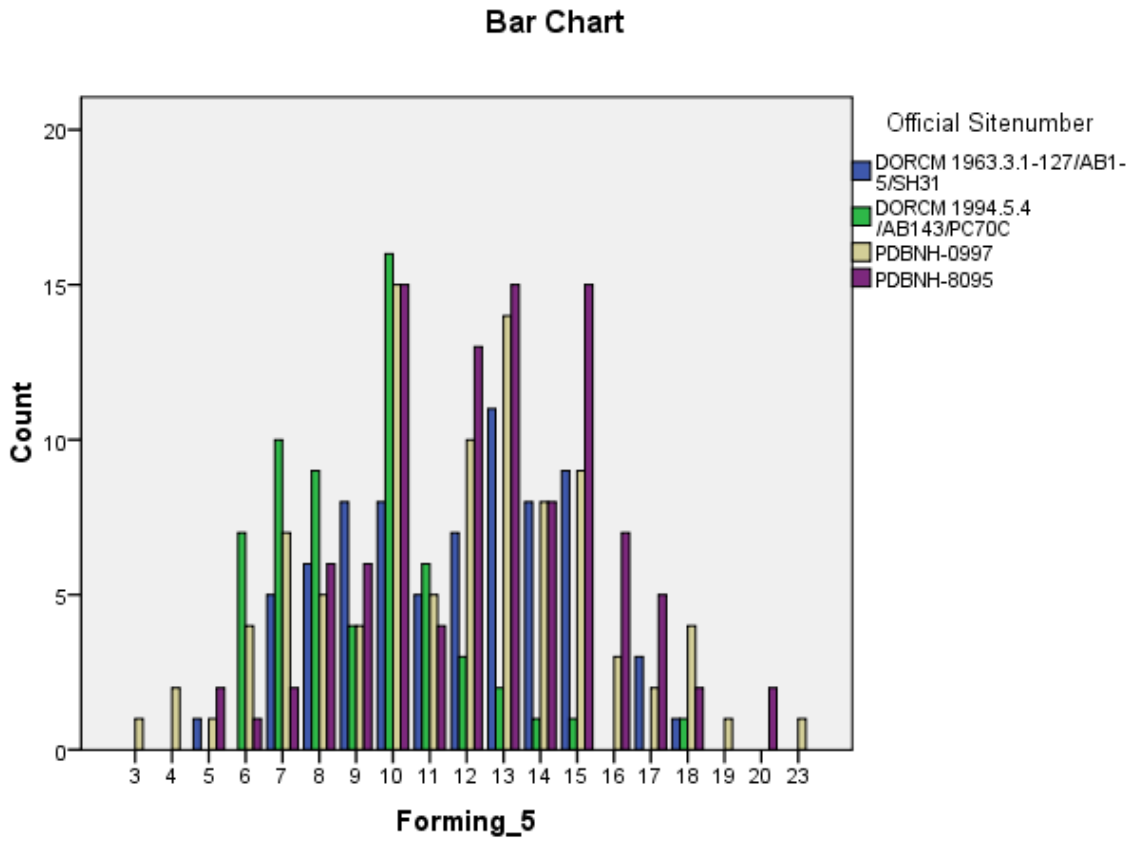

Fig. 4.16 Bar chart showing the relationship between wall thickness and site.

Overall, differences in wall thickness are normal distributed over the four sites (see fig. 4.17).

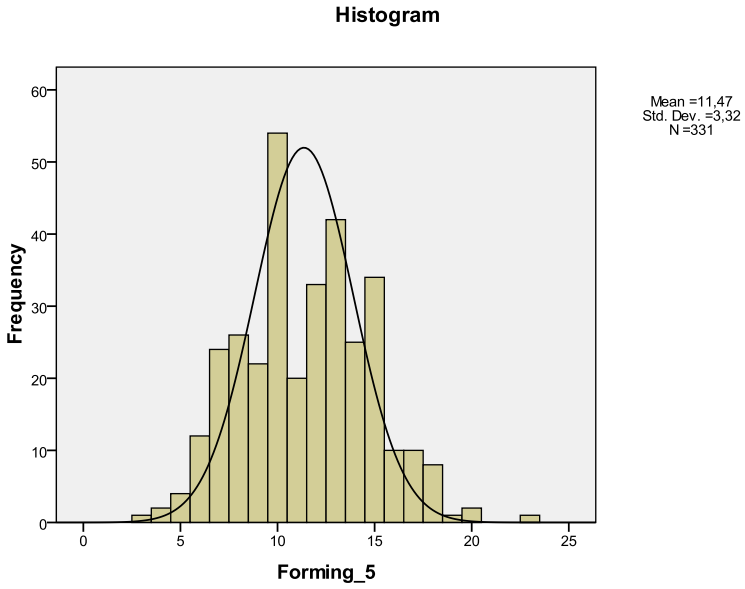

Figure 4.17 Histogram showing the frequency of different thicknesses in vessel walls.

In order to investigate possible relationships between wall thickness, forming method, and types of coil attachment, these were set out against each other. The relationship between wall

thickness and forming method is not significant as only one type of forming method was found, being coiling. Looking at the way in which the coils were attached however shows some difference. N built vessels seem thicker than H built vessels (see fig. 4.17). Statistical testing of this difference proved useless as the sample size was again too small.

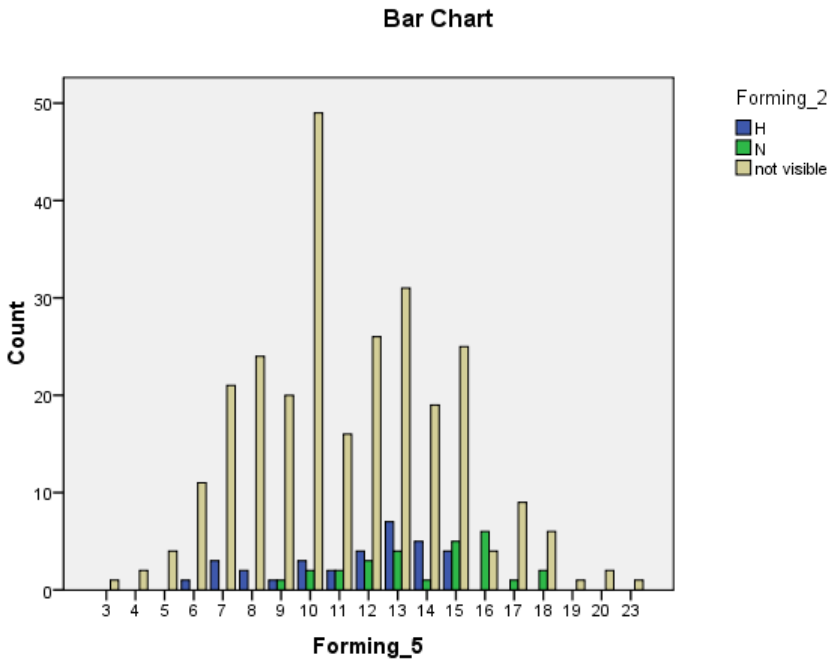

Fig. 4.17 Bar Chart showing the relationship between coil attachment and wall thickness.

4.2.4 *Forming: a brief summary*

Recapitulating the above, several primary observations should be made. Coiling of the clay in order to produce pottery vessels was done as primary forming technique. No difference in types of attachments between coils from vessels from different sites could be observed. Nor can wall thickness be used in differentiating between sites or potters. No relation exists between typologies and a technological approach. And finally, smoothing is the only secondary forming technique employed on the vessels from the different sites observed in the research area. Evidence for this last technique is not ubiquitous, however.
The analysis of the burial urns (see appendix 1) confirms the above statements. Coiling was visible mostly on the inside of the urns, while the outside was smoothened in all instances. Clearly visible were the long stripes of fingers, small pebbles and nail plates, which would have been invisible on small sherds. Thus the lack of smoothing on many vessels from the case studies is mainly a result of the small size of many of the sherds. Therefore, the amount of smoothing occurring on Bronze Age pottery is therefore underrepresented, and a much higher percentage should be envisaged than is visible in the dataset.

4.3 *Decorating pottery*

4.3.1 *Decorating in detail*

After a vessel has been formed, it can be decorated in a multitude of ways. Generally four distinctive techniques of decorating pottery can be discerned (see chapter 3). When these four techniques are sought in later Early and Middle Bronze Age pottery form North West Europe several specific trends can be notified. Impression is by far the most common decorative

technique. Pottery vessels were impressed by means of barbed wires, cords, fingertips and fingernails.
Research into cord impressed technique of decorating pottery has concentrated on the possible links with basketry and other forms of skeuomorphism (see Manby 1995; Hurcombe 2008). Incision took place by means of cutting clay away in both linear and wavy line motifs. Studies of these decoration techniques have concentrated on patterning and the recognition of certain motifs. The third technique which was used widely between 2000 and 1000 cal BC, is application. Bands of clay were applied in the distinct shape of horseshoe handles (see fig. 4.3) and in linear configurations; so-called cordons (see fig. 4.18).

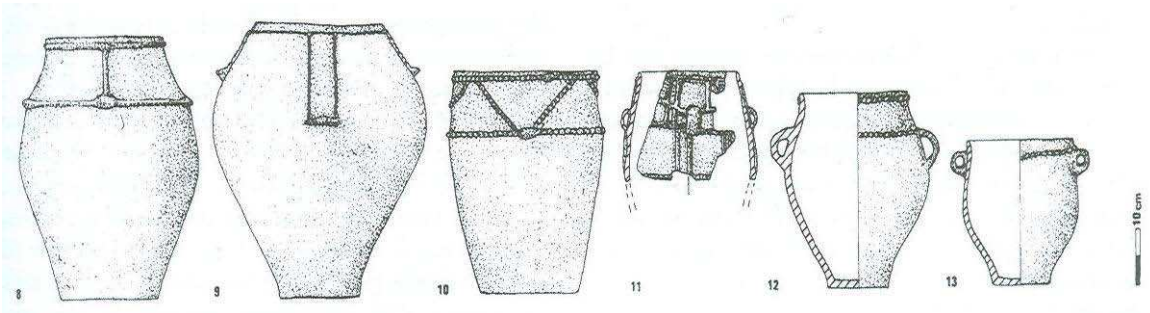

Fig. 4.18 Several examples of applied cordon motifs (taken from Fokkens 2003, fig. 12).

These bands of clay were sometimes impressed with fingernails or fingertips. Another application technique involved the application of collars onto Collared Urn vessels (Law 2008). The origin of many application techniques are thought to come from this last decorative technique. The pulling out of the wall of a vessel creates shallow bumps and ridges which appear similar to certain applied cordons. With regard to the different motifs of decoration, only the application of specific horseshoe handles stand out as a distinct group and are thus discriminated. More research into motifs, particularly related to the impressing of cord and barbed wire, is necessary before a further refinement of the methods can be employed.

Many decorative elements are restricted to a specific region or period of time, which has led to the aforementioned culture historical approaches towards Bronze Age pottery. However, much research has concentrated on the decorative elements of pottery from a specific national perspective, with national chronologies and typologies as a main starting point. This historical situation has created much confusion and debate with regard to dating pottery, their typology and chronology, and combining pottery with other strands of evidence (Needham 1996; Lanting/Van der Plicht 2001; Fokkens 2003). In order to better apprehend the chronological and spatial relationship between different decoration motifs, a comparison between C-14 dates and decorative elements outlined above is undertaken. This will result in a better understanding of the similarities and differences over space and time in this specific aspect of the production process of pottery.
Broadening the scope of research, evidence from Ireland (Brindley 2007), the whole of Britain (various sources; own observation), France (various sources), Belgium (various sources) and the Netherlands (Theunissen 1999; Arnoldussen 2008; own observation) is taken together. All findspots, for which ordinary pottery records were available and of which C-14 dates were known, were selected. The dates were calibrated, making no distinctions possible on the use of different calibration curves in the course of earlier analyses. The program used in this calibration was OxCal 4.1 (Bronk Ramsey 2001) in combination with the INTCAL04 calibration curve (Reimer *et al.* 2004). This compilation is not exhaustive, but nonetheless provides valuable information.

In discerning the techniques that were used in the practice of decorating pottery, I subdivided the three general techniques described in chapter 3 (application, impression and incision). While some decoration techniques are obvious, other subdivisions need a further explanation. The techniques of barbed wire and cord impression are clear. Barbed wire is generally impressed in strokes and lines, while cord impression is applied both in strokes and in complex motifs. Paired nail impressions are specific impressions where both the nail of the thumb and the nail of the pointing finger are impressed in the wet clay, creating a pinched impression (see fig. 4.19).

Fig. 4.19 Impressed pairs of fingernails on a pottery fragment from Velsen * Waterland (photo by Martin Veen, courtesy PDBNH).

The decorating by means of a false rim is sometimes applied and sometimes pulled out of the vessel wall after which another final coil is added. This is a process resembling the development of collared vessels (Law 2008). However as many collars are applied, while false rims are generally not, British collared vessels are characterised under the decoration by means of an applied cordon/collar. Applied collars also point to the application of a band of clay on the shoulder or the widest width of a vessel. These bands can be impressed with nail or other impressions, which would also characterise these vessels in a different decorative treat. It is hypothesised here that pulled out cordons are a variant chronologically distinct from the applied cordons. It can be envisaged that pulling out was replaced by application at a given moment in time. Nail impressions and punch impressions need no further explanation. Interesting, however, is the local East Anglian Ardleigh group, where impressions have been the standard rigorous decorating technique in this period (Brown 1995). Incised lines are generally made with a twig, a comb or other pointy object. Incising is clearly a different practice than impressing. Handles which have been discerned are the characteristic horseshoe handles, applied handles which are sometimes argued as non-functional decorative traits, and the thick banded handles. Lastly, a rim pulled out or in, is discerned on the basis of chronological developments towards 3-profiled pottery in the late Bronze Age (Arnoldussen/Ball 2007) or perhaps related to functionality.
The resulting list of variables corresponds to earlier work by Theunissen (1999) and Arnoldussen (2008) in their analysis of some of the Dutch material. After compiling all the data with regard to the different techniques of decorating pottery in spreadsheets, the findspots were ordered chronologically on the basis of the calibrated radiocarbon dates.

Subsequently, the data was plotted on several maps, in order to present the distribution of decoration techniques through time and space. From these distribution maps, several results were drawn.

4.3.2 *Decorating: results*

In total 161 sites in North West Europe provided absolute dates on Bronze Age pottery and associated aspects of decorating. An overview of the characteristics and references to the individual sites mentioned is given in appendix 3. The sites were ordered chronologically in five distinct periods, period 0 until 5. First an overview on the total number of sites per period will be given. Next to that, the different decorating techniques will be assessed spatially. Closing this paragraph, significant patterns that have emerged both spatially and chronologically, will be highlighted.

4.3.2.1 Overview sites spatial and chronological

The comparison of decoration techniques on pottery is based on a literature study of 161 sites. These sites are not equally distributed in time and space. This is something to be aware of when interpreting the distributions in following paragraphs. Studies on radiocarbon dating of cremated human remains, associated with Bronze Age pottery in Ireland (Brindley 2007) and Scotland (Sheridan 2007) are valuable enterprises on themselves. However such studies have not been equally employed in other parts of Britain or on the Continent. The result of this makes Ireland and Scotland two of the best studied regions with regard to Bronze Age pottery chronology. Another recent development we should consider, is the developer-stimulated archaeological research which has led to important Bronze Age finds in the Dutch Riverine area (Arnoldussen 2008) and in northern France (Marcigny *et al.* 2005). Another aspect which needs clearing here is the calibration curve. Irregularities in this curve lead to the grouping of C-14 dates in particular archaeological periods. Finally, in the earliest and latest period of this analysis (period 0 and period 5) other developments are taking place which fall outside the scope of this thesis (the Beaker phenomenon and part of the Late Bronze Age respectively). These preconditions lead to the following picture (see fig. 4.20).

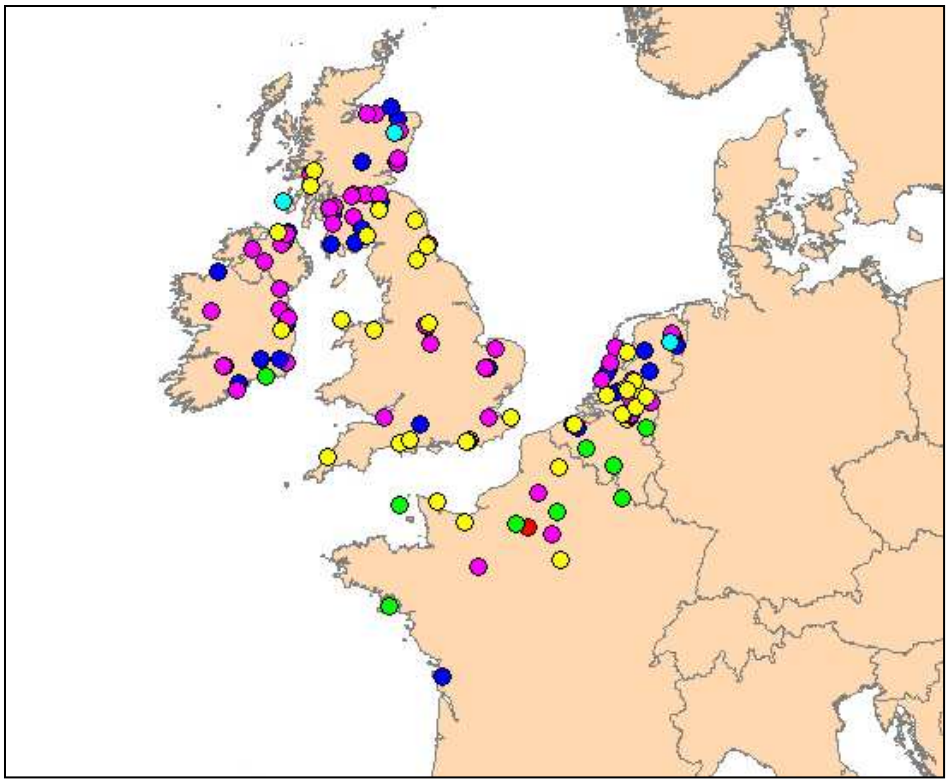

Fig. 4.20 Overview of all C-14 dated sites and their designation to a specific period (0: red; 1: green; 2: blue; 3: purple; 4: yellow; 5: light blue).

It is evident that most sites where pottery decoration has been dated, date to periods 2, 3 and 4 (2000-1200 cal BC), which thus also forms the focus of this analysis and represent a chronologically balanced picture. Spatially, French and Belgian sites are underrepresented, which is mostly caused by the lack of a detailed radiocarbon based chronology for the French and Belgian Bronze Age.

4.3.2.2 Overview decorating techniques spatial

Before adopting a chronological perspective, the spatial patterning of the different types of decoration should be made clear. Doing this helps to contextualise the dated pottery finds. In this paragraph the different decoration types will be mapped *without* looking at the detailed later Early and Middle Bronze Age radiocarbon chronology.

Beginning with barbed wire impressed decoration. According to earlier scholars (Theunissen 1999; Clarke 1970, 130-145) this type of decoration occurs frequently in Britain and on the Continent. It is assumed by scholars that the barbed wire decoration is a phenomenon related to the Scandinavian and German Early Bronze Age. While examples of barbed wire pottery have been found as far as Schleswig-Holstein (Germany), Luxembourg and Denmark, C-14 dated examples are restricted to the Netherlands and Belgium (see fig. 4.21).

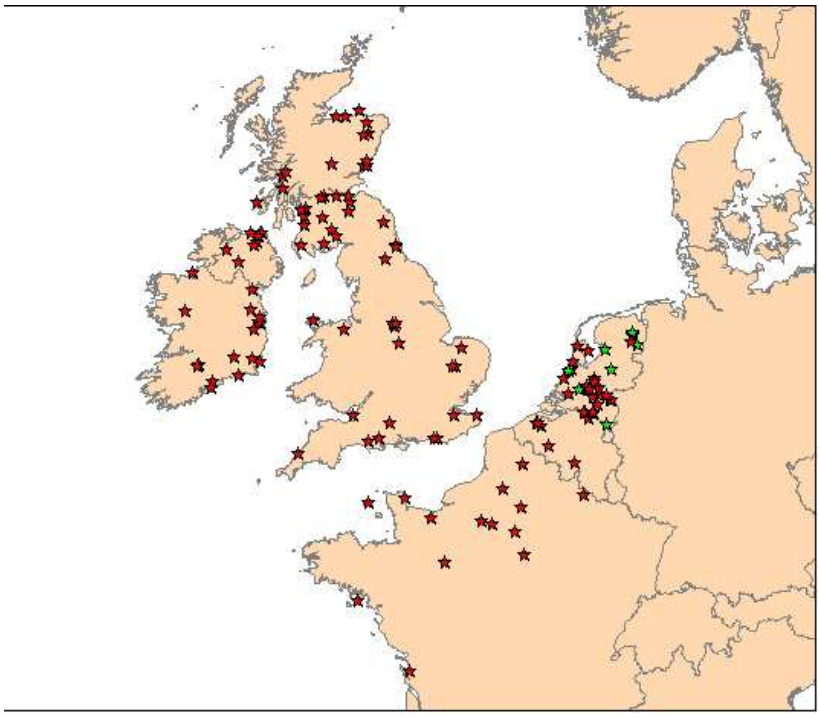

Fig. 4.21 Distribution of dated sites with barbed wire impressed decoration (green: present; red: absent).

Cord impressed decoration is known from sites in Ireland (Brindley 2007), Britain (*e.g.* Longworth 1984; Tomalin 1995), the western and southern parts of the Netherlands (*e.g.* Ten Anscher 1990; Theunissen 1999), Belgium (*e.g.* Warmenbol 2004) and northern France (*e.g.* Briard 1981). Sites that have produced radiocarbon dates are also found in these areas (see fig. 4.22).

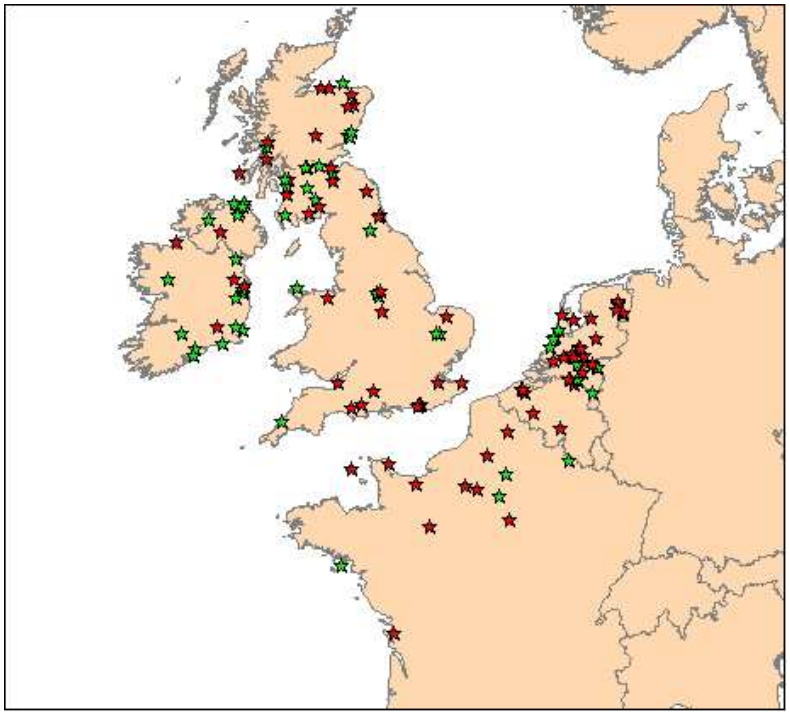

Fig. 4.22 Distribution of dated sites with cord impressed decoration (green: present; red: absent).

Paired nail impressions have a less pronounced distribution. Sites in Britain and on the Continent are known to some extent, but not many. Dates have only been obtained from 7 continental sites (see fig. 4.23).

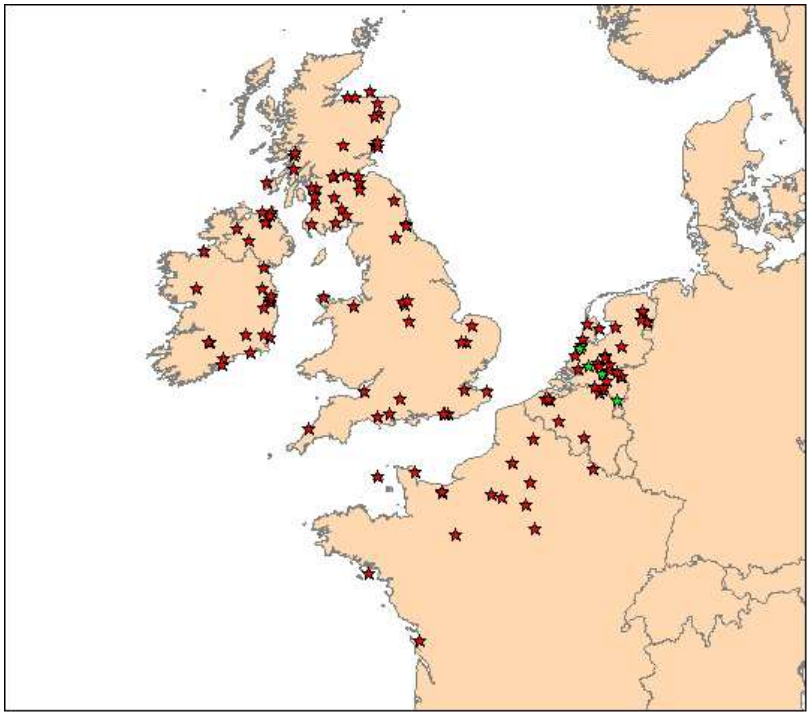

Fig. 4.23 Distribution of dated sites with paired nail impression decoration (green: present; red: absent).

The presence of false rims on pottery is a purely continental development and should be related to the presence of collars on British later Early Bronze Age pottery (see fig. 4.24). The only example from Britain, at Green Knowe, can be explained differently as it is technologically and chronologically completely unrelated to the other examples.

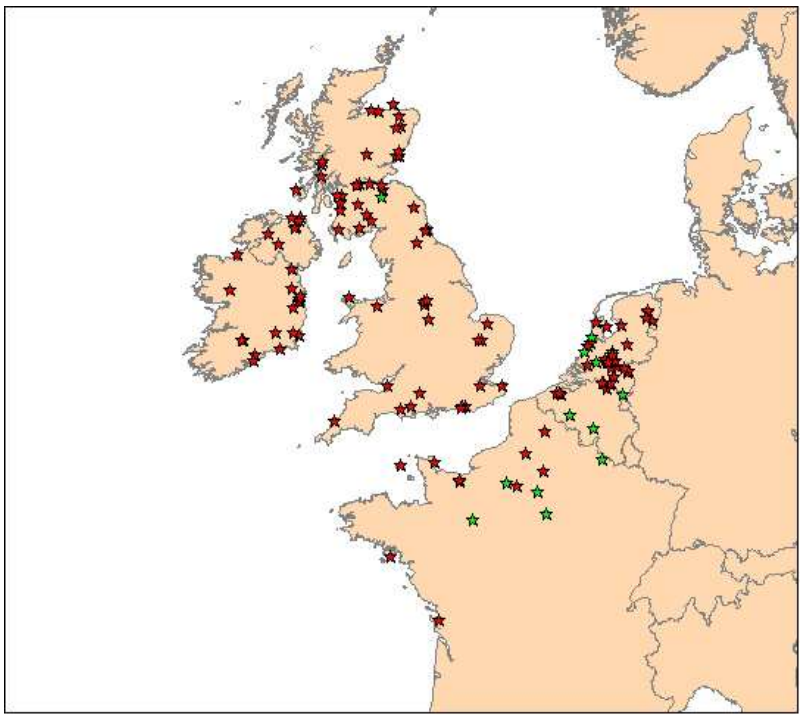

Fig. 4.24 Distribution of dated sites with false rim decoration (green: present; red: absent).

Applied cordons have been found in almost the entire research area (with the exception of the northern Netherlands). The absence of applied cordons in central Britain can only be explained by the absence of any C-14 dated finds, as applied cordons have been found here (*e.g.* Longworth 1984, see fig. 4.25).

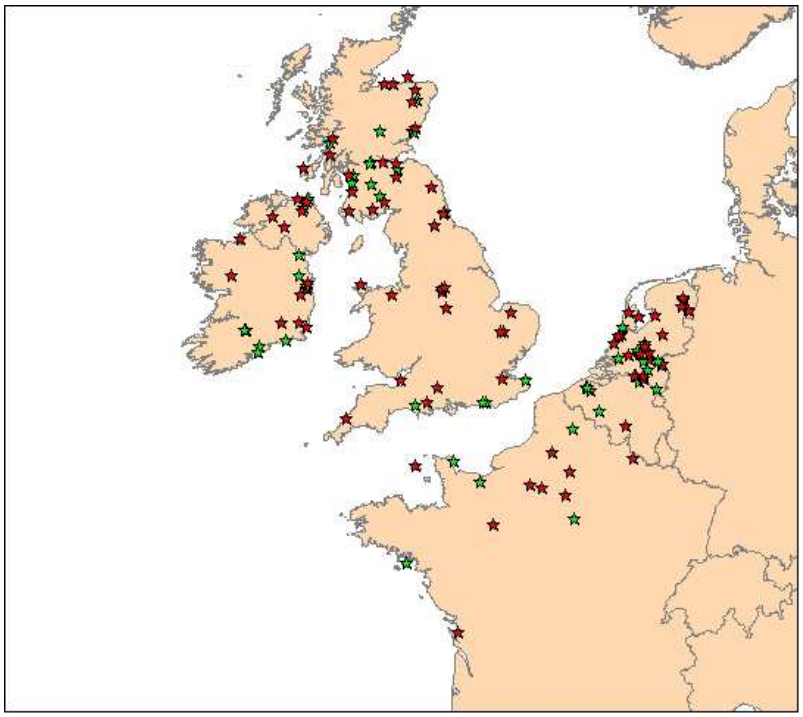

Fig. 4.25 Distribution of dated sites with applied cordon decoration (green: present; red: absent).

The decorating of pottery by means of pulling cordons out is characterised by a similar geographical pattern. This type of decoration, closely resembling applied cordons but employed in a different technique, is known from Britain, Northern France and the Low Countries (see fig. 4.26).

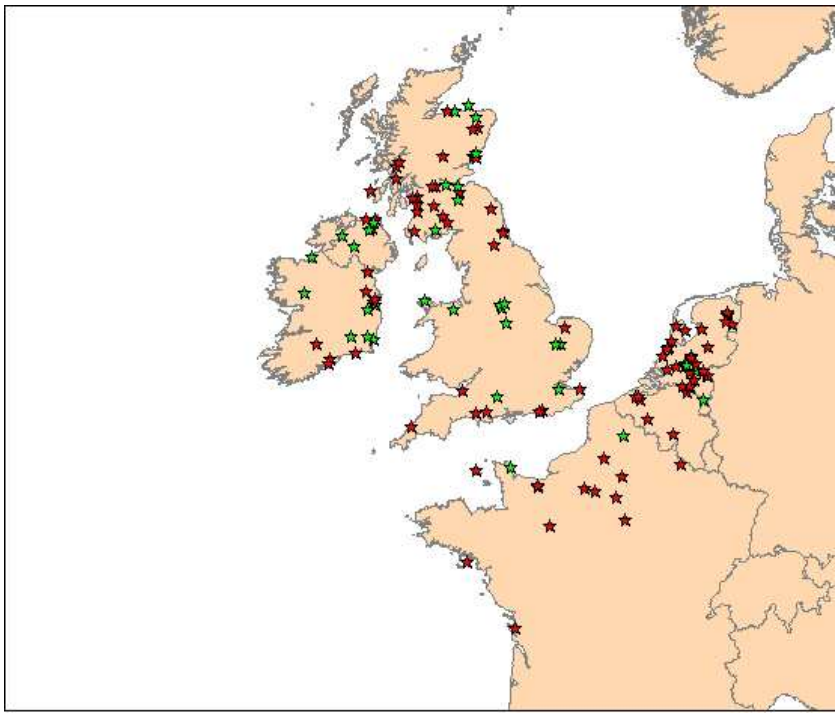

Fig. 4.26 Distribution of dated sites with pulled out cordon decoration (green: present; red: absent).

Both nail and punch impressions have been found in both the British Isles and on the Continent as well. The latter however, not in Belgium or France, which might suggest a more northward distribution (see figs. 4.27-4.28).

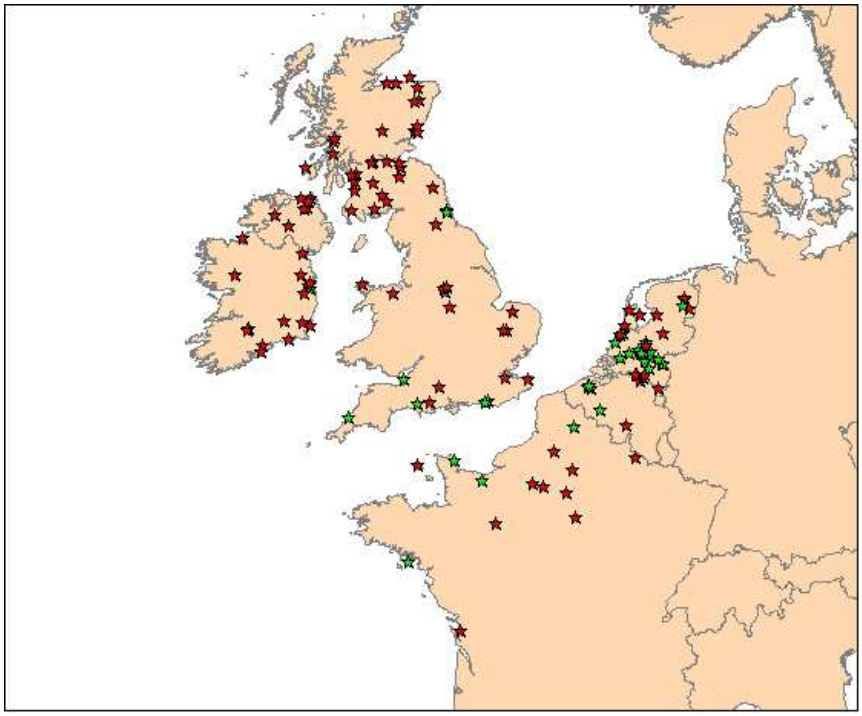

Fig. 4.27 Distribution of dated sites with nail impressed decoration (green: present; red: absent).

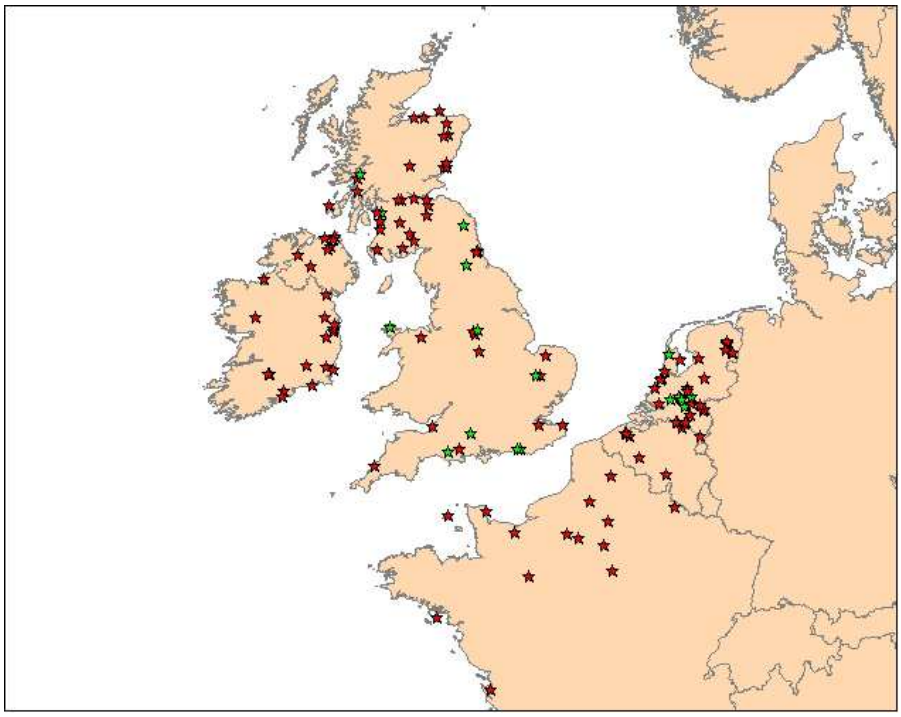

Fig. 4.28 Distribution of dated sites with punch impressed decoration (green: present; red: absent).

A more general distribution, probably extending beyond the research area, is achieved by the incised line decoration (see fig. 4.29).

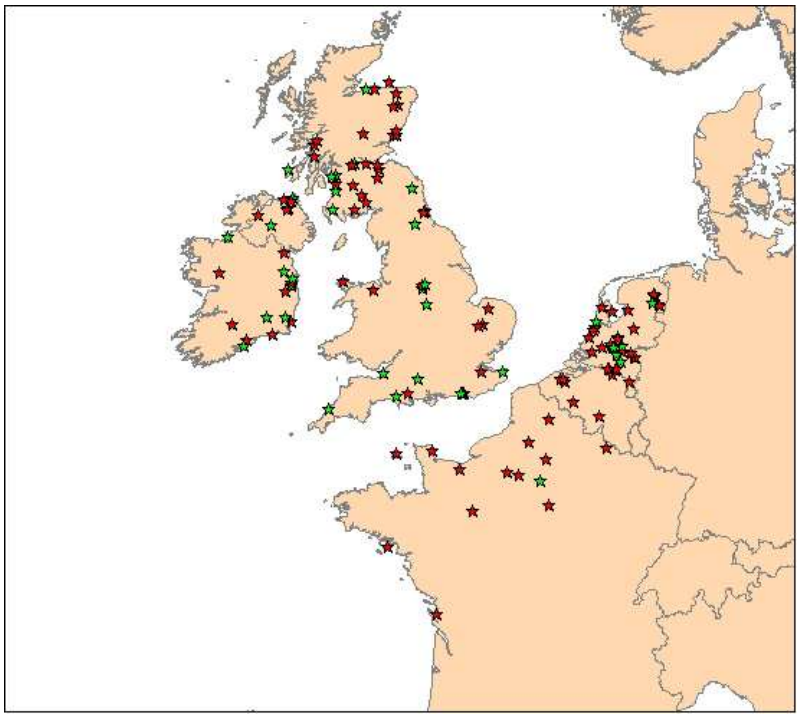

Fig. 4.29 Distribution of dated sites with incised line decoration (green: present; red: absent).

Handles, the tick banded type, have an interestingly small distribution. Only the well known vessels of Trevisker pottery (*e.g.* Parker Pearson 1990) and some French examples are known (with the exception of a single Belgian find). It at least points to a more southern distribution of this specific trait (see fig. 4.30).

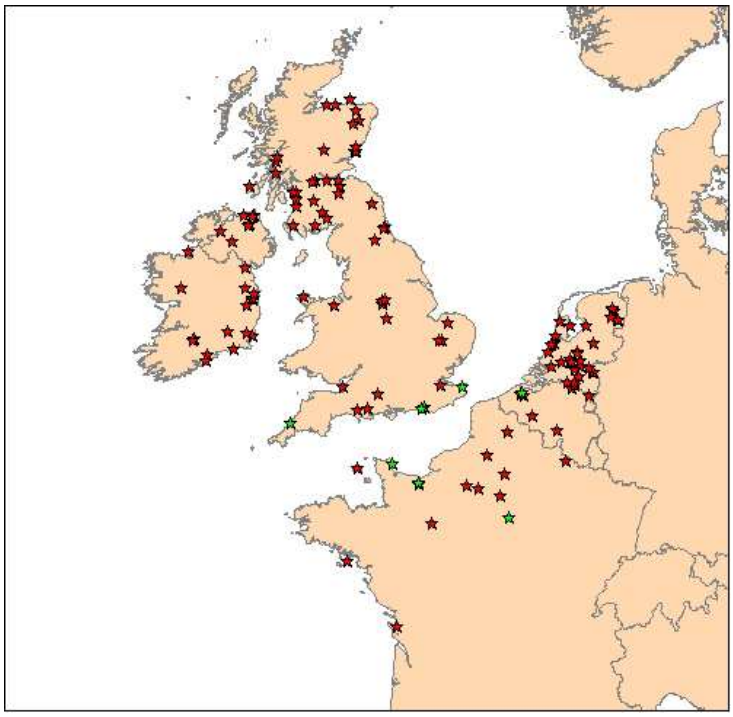

Fig. 4.30 Distribution of dated sites with handles (green: present; red: absent).

A rim pulled in or out, is not a spatially distinct feature, as it occurs in the British Isles and on the Continent (see fig. 4.31).

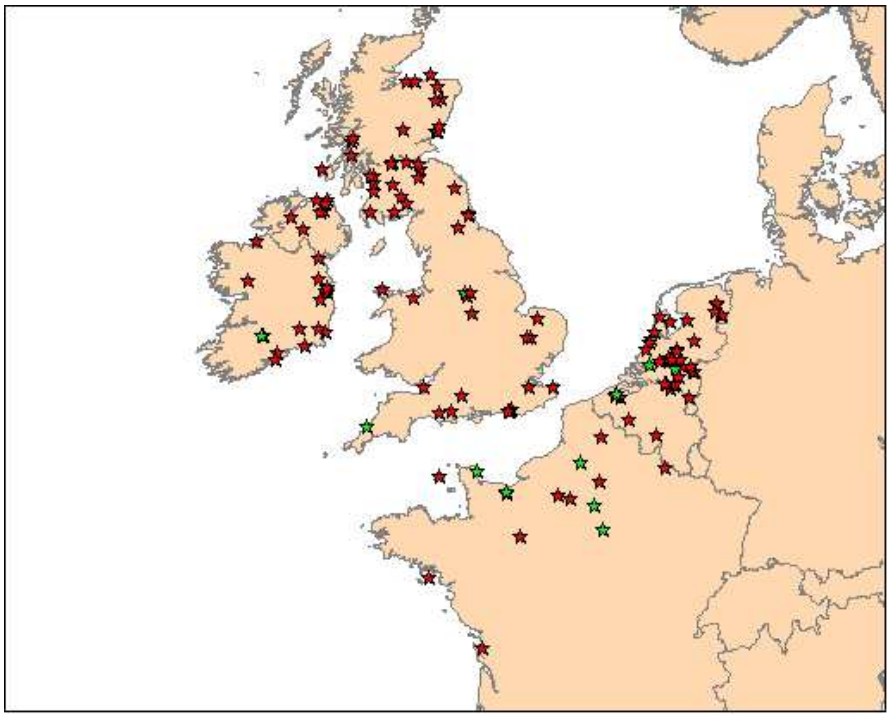

Fig. 4.31 Distribution of dated sites with a pulled out rim (green: present; red: absent).

Finally, horseshoe handles are known throughout the research area. This type of decoration has generated by far the most attention by scholars resulting in a well known distribution (see fig. 4.32). However, only 9 vessels with this type of decoration have been dated. Only one of these dated vessels had been found in Britain (see Cruse 2007). This type of decoration is however frequently found in Britain (*e.g.* Smith 1961; ApSimon 1972), the Netherlands (*e.g.*

Glasbergen 1954; Theunissen 1999), Belgium (*e.g.* Warmenbol 2004) and northern France (*e.g.* Blanchet 1984; Briard 1981).

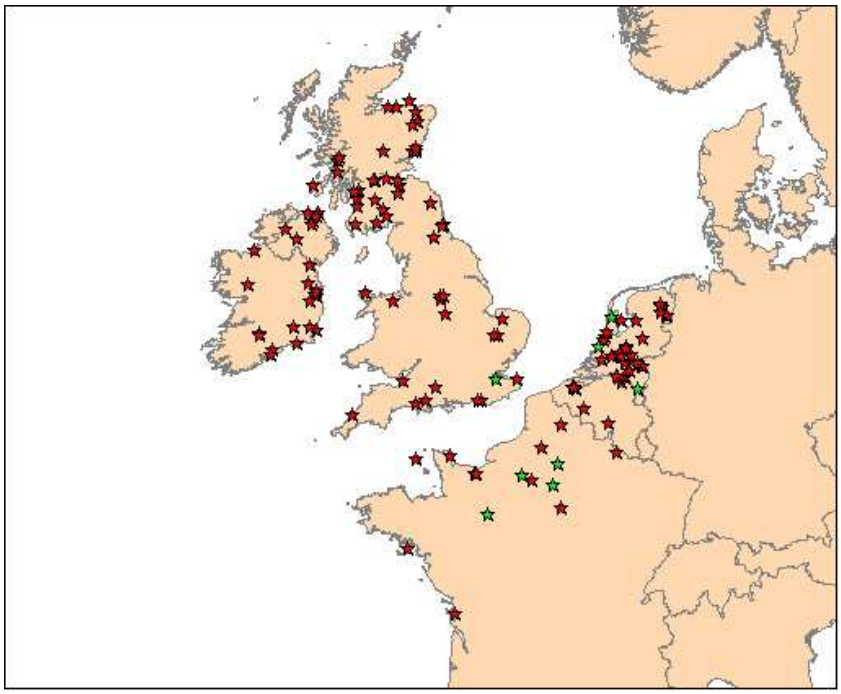

Fig. 4.32 Distribution of dated sites with horseshoe handle decoration (green: present; red: absent).

The smoothing of pottery, using nail plates or small pebbles, has been reported from all across the research area. This of course is not a decorative technique, but in the literature survey, this variable was nonetheless taken into account, in order to assess the validity of the data concerning forming methods (see paragraph 4.2). Whether this distribution extends beyond the research area, is unknown at present and only the reported evidence for smoothing is known and presented (see fig. 4.33).

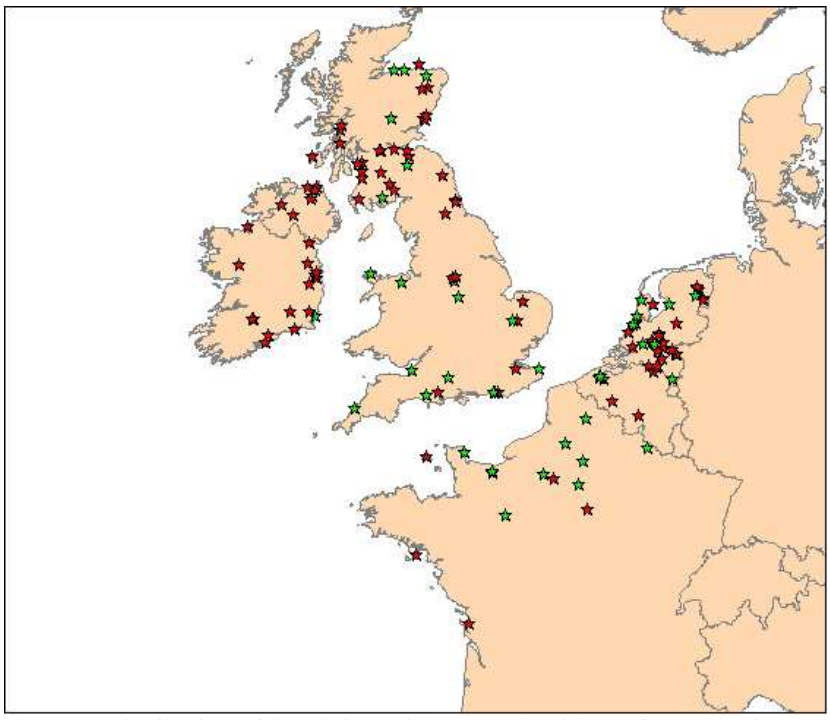

Fig. 4.33 Distribution of dated sites with reported evidence for smoothing (green: present; red: absent).

4.3.2.3 Spatial and chronological patterns in decorating later Early and Middle Bronze Age pottery in North West Europe

Period 0 (2500-2200 cal BC) consists of one single site (La Cave-aux-Fées, Brueil-en-Vexin). The pottery from this site has been found as a later addition in a megalithic tomb. Because of the difficult stratigraphy of such sites, the C-14 date should be treated with caution. Moreover, the C-14 date comes from charcoal and is of limited quality (due to its large sigma). A new C-14 date needs to be established before the site can be used in comparison to other sites. Therefore, I will not use this site further.

For period 1 (2200-2000 cal BC) eleven dated sites yielding pottery vessels with distinct decoration, are known from the research area; it is in this period that earliest dating evidence for barbed wire impressed decoration (2 out of 11 sites), cord impressed decoration (5 sites) and 'false rims' (4 sites) appears in the archaeological record. Also, horseshoe handles have been found on pottery from three sites in this period. From Ireland, the earliest Collared Urn (Harristown 3, Waterford) is known. Also, infrequently, nail impressions and punched impressions have been found (see fig. 4.34). For many sites the evidence for smoothing of the outer wall of the vessels has been appreciated by researchers (5 sites).

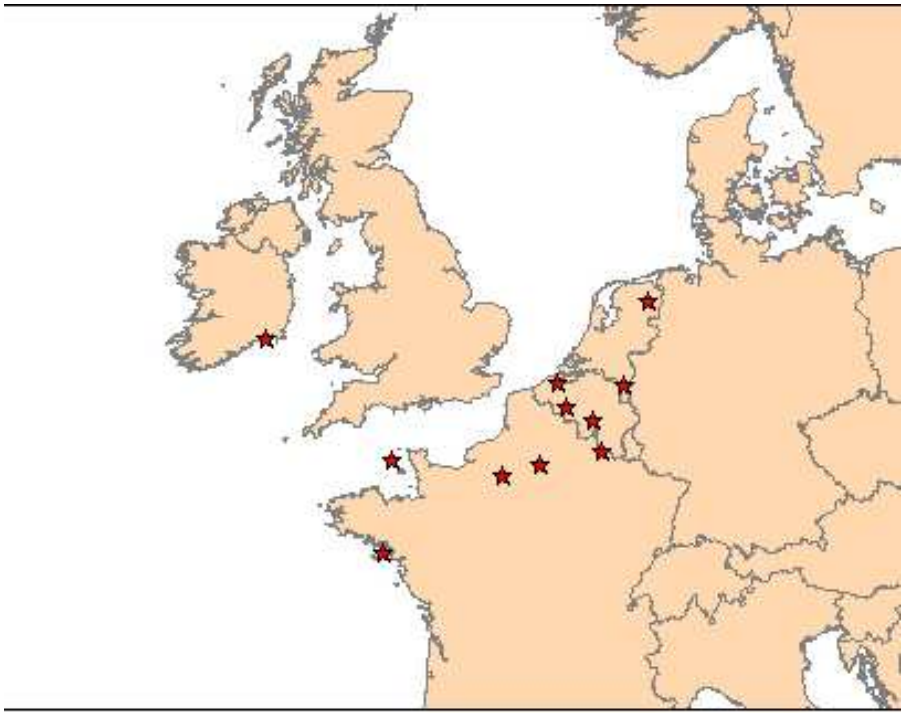

Fig. 4.34 Distribution of sites dating to period 1 (2200-2000 cal BC).

The number of sites increases in period 2 (2000-1800 cal BC) to a total of 36. In this period cord impression decorated pottery prevails (18 out of 36 sites), next to barbed wire decorated pottery (7 sites). Infrequently incised lines occur and nail impressions and punch impressions have been found (see fig. 4.35). From this period neither false rims, nor any horseshoe handles are known. It must be noted that only 9 sites in total have yielded evidence for this latter type of decoration. Any interpretation about the occurrence of this type of decoration over time should therefore remain cautious. Smoothing has been found on pottery from 15 sites.

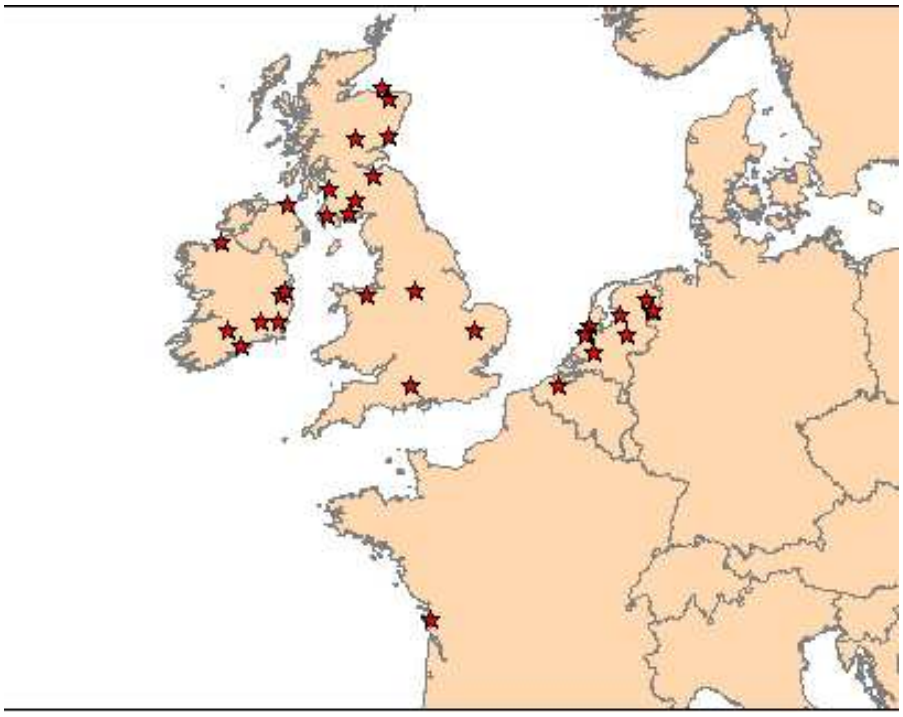

Fig. 4.35 Distribution of sites dating to period 2 (2000-1800 cal BC).

In total, 65 sites are known from period 3 (1800-1500 cal BC, see fig. 4.36). These sites come from a variety of regions, but France is again notably absent in radiocarbon dates. From this period, a single vessel decorated with barbed wire impressions is known from a Dutch burial context (Schuilingsoord 3). Further decoration types include cord impressions (at 32 sites) and false rims (at 4 sites). Collars are frequently present at sites on the British Isles. On these urns a wide variety of decoration motifs found, cord impressions, nail and punch impressions on the older urns (respectively Beeley 2, Tara 2, and West Row Fen, Gilchorn EQ222 and Carwinning). In this period the distinction between applied and pulled out cordons is becoming visible. Applied cordons are not frequently found. The sites from this particular type are all attributable to the application of collars on the insular collared vessels. On the Continent, cordons seem to have been pinched out while forming the pottery, as two examples demonstrate (Den Treek and Empel). On the younger collared vessels from this period, incised lines appear as a new element of decorating. Horseshoe handles are in this period only dated at 6 sites (Wouldham, Île Tatihou, Schagen, Chelles, Bronovo and Vivoin). Other types of handles, possibly more functional related, on pottery occur from this period at Île Tatihou. It is suspected by the researchers that this site is related to the Trevisker pottery types on the basis of these handles. The Trevisker pottery sites are however not securely dated and thus not included in the analysis. Continuously, evidence for smoothing of pottery is noted for several sites (19 out of 65).

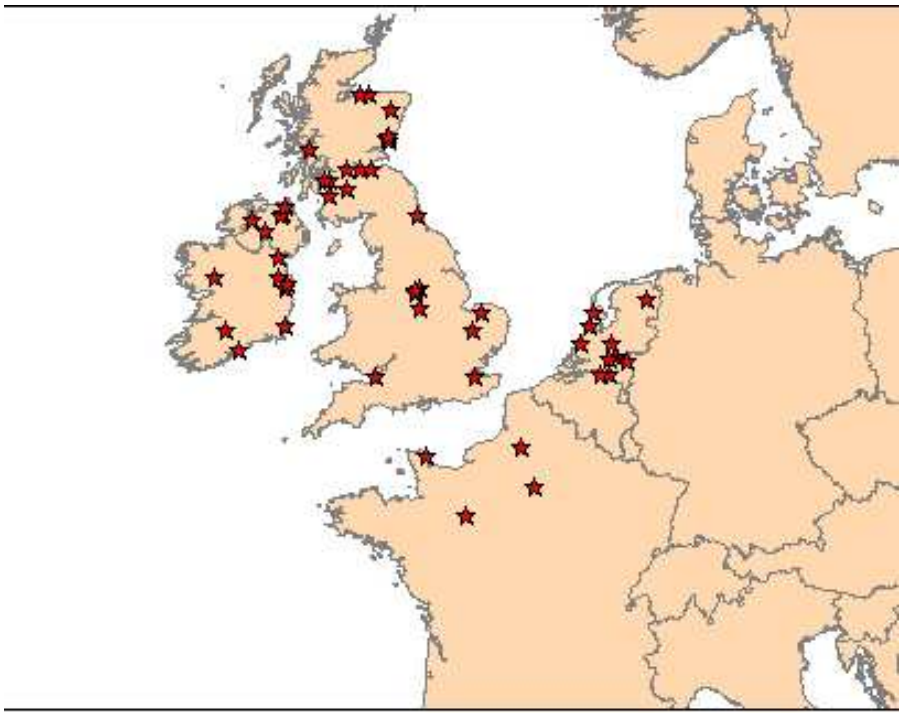

Fig. 4.36 Distribution of sites dating to period 3 (1800-1500 cal BC).

The following period discerned here is the start of the Middle Bronze Age, period 4 (1500-1200 cal BC) in this analysis. From this period 45 dated sites are known (see fig. 4.37). In this period the practices of decorating pottery start to change to a large degree. From a record dominated by variation in types of impression, as we have seen, towards a record where most pottery only has applied cordons and in some cases only nail or punch impressions on its outer surface. From this period no horseshoe handles are known and only two sites with evidence for false rims, albeit very different to the ones in the previous periods. Interestingly is also the absence of horseshoe handles and false rims in this period. At several British, Belgian and French sites, handles occur (12 out of 45 sites). Incised lines decoration from this period is only found in the Netherlands and in Britain.

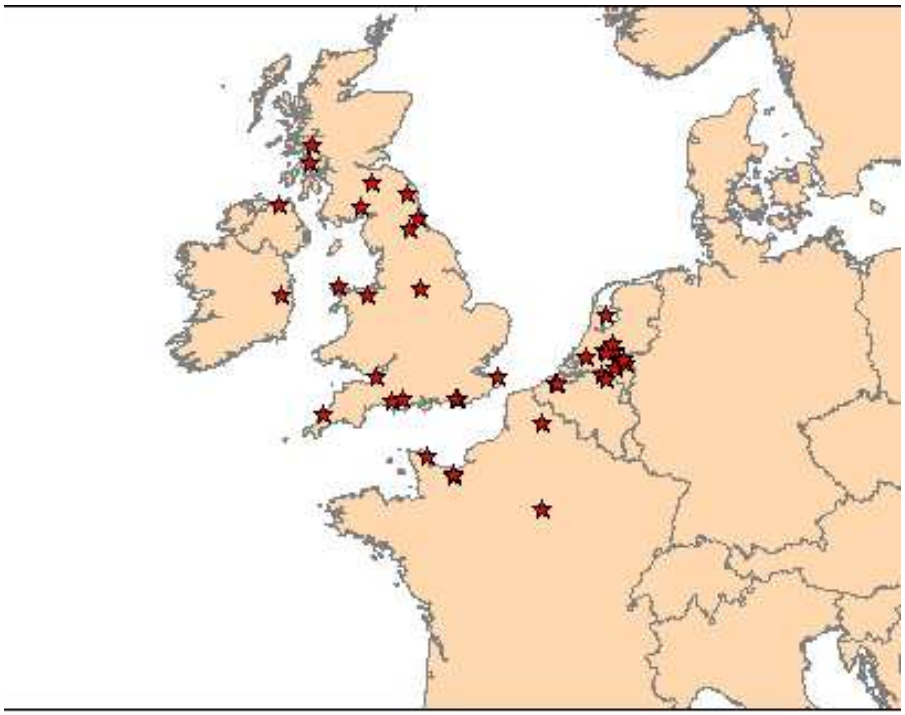

Fig. 4.37 Distribution of sites dating to period 4 (1500-1200 cal BC).

Period 5 (1200-800 cal BC) falls partly outside the scope of this thesis but has been taken onboard because the sites dating in this period were thought to date earlier. These three sites present a continuation of decoration motifs. Nail impressions and incised lines are the only decoration types of these three sites (see fig. 4.38).

Fig. 4.38 Distribution of sites dating to period 5 (1200-800 cal BC).

4.3.3 *Decoration: brief summary*

After this analysis of decoration types, their spatial and chronological range, several things have been made clear. It is now possible to construct a more realistic chronology based on

pottery finds and dates from the whole of North West Europe. As the above analysis is still full of margins, the chronology produced here is one of tendencies. More radiocarbon dates, using statistics and contextual evidence in their foundation (Bayesian analysis; see Whittle *et al.* 2007), are essential to our understanding of pottery chronology and development in decoration techniques. Table 4.7 shows a summary of the analysis and development of pottery decorating traditions throughout the North West European Bronze Age.

	decoration					
period		2200-2000	2000-1800	1800-1500	1500-1200	1200-800
	barbed wire impressed					
	cord impressed					
	paired nail impressed					
	false rim					
	applied cordon					
	pulled out cordon					
	nail impressed					
	punch impressed					
	incised line					
	handles					
	pulled out rim					
	horseshoe handles					
	smoothing					

Table 4.7 The development of pottery decoration techniques in the later Early and Middle Bronze Age of North West Europe

In period 1, much diversity existed on how to decorate pottery. Barbed wire, cord impressions, false rims, horseshoe handles and nail and punch impressions are being produced. Whether techniques are preferred in this period is difficult to say as dating evidence is limited to 11 sites.
In period 2 a specialisation towards barbed wire decoration and cord impression is taking place all over the research area. With a substantial amount of data, this can be said with certain accuracy. The production of pottery, with nail and punch impressions, continues, and incised lines do start appearing in the background.
Period 3 sees a diminishing of the barbed wire decorated pottery. This clearly was a phenomenon restricted to the 2000-1800 cal BC timeframe. In the third period however, cord impressions remain dominant, and false rims and horseshoe handles re-appear. Whether these types of decoration were really gone in period 2, can only be found out with more dated evidence, as the data set for these types of decoration is at present very low. Interesting is the appearance of handles in particular parts of the research area, Cornwall and Northern France most prominently. Also appearing, although still in low numbers, are applied cordons and collars and pulled out cordons. It is thus impossible at present to chronologically separate applied and pulled out cordons. Whether the former technique truly represents a development based on the latter remains to be seen. Next to that, the evidence for the emergence of collars on insular Bronze Age pottery and the emergence of ‘false rims’ on several vessels from Belgium and France point in my opinion to similarities in pottery production traditions. When looking at the published pottery from Geistingen (Heymans/Vermeersch 1983) for instance, the ‘false rims’ evidently resemble the insular collared urn tradition. In some cases distinguishing between false rim and collar is difficult, to say the least.

Period 4 sees the technique of applying cordons increase in importance, together with nail impressions and punch impressions, of which many are probably located on top of the cordons. Next to that, incised lines re-appear in the pottery decorating repertoire quite substantially. The handles of Cornwall also present a particular and peculiar phenomenon in this period.
In period 5 handles and cordons disappear and more local developments lead to new types of pottery which are characterised on a decoration scale by incised lines and nail impressions solely.

4.4 *Forming and decorating contextualised: the production process of later Early and Middle Bronze Age pottery in North West Europe*

In chapter 3 it was argued that a *chaîne opératoire* approach towards pottery, and thereby focusing on the forming and decorating practices and techniques, is a constructive way in which to link pottery and people. Thus it is by this means that pottery in light of overseas interaction should be studied. After analysing both the forming and decorating of later Early and Middle Bronze Age pottery from North West Europe in this chapter, it now becomes time to reconstruct the specific *chaîne opératoire* and to contextualise the role of forming and decorating in this respect.
Any pottery *chaîne opératoire* starts with the collection and mixing of raw materials. In the North West European Bronze Age sedimentary clays are being collected, and hard rock types are sought as tempering agents. Local geological conditions determine the variability in these particular stages of the production process. Sand and riverine quartz are being collected on the shores, while in inland Britain people use particular rock sources and flint as tempering agent. The mixing of both components is done in specific traditional ways. However much of this is unobservable from an archaeologist's perspective.
The forming of a vessel is exemplified by a very strict tradition. All vessels formed in North West Europe were built up with coils of clay. Coils were attached to each other in both the N and H tradition. These coils had varying thickness which might relate to specific potters, but equally be the product of paste type or the perceived function of a vessel. After primary forming by means of coiling, the vessels were smoothed on the outer, and some instances even the inner, surface. Some vessels were batted with paddle and anvil, but this occurred rarely.
After forming, many, but not all, vessels were decorated. The vessels that were decorated were done so in a period specific fashion related to the potter's own, and the society's common, understanding of what pottery should eventually look like.
When the decorating was finished, and when the period in which the pottery was hardened had passed, the vessels were to be fired. Most probably these firings took place in an open bonfire, where little regulation over air supply and temperature could take place, as the colour of vessels shows. Firing presents the final stage in the production process of later Early and Middle Bronze Age pottery from the area around the North Sea and English Channel.

Chapter 5 – A cultural biography for later Early and Middle Bronze Age pottery in NW Europe

5.1 *Introduction*

In chapter 3 we have introduced the concept of cultural biography to the study of pottery in general, and its applicability for the Bronze Age and addressing issues with regard to overseas interaction and aspects of identity. In summary, pottery use and deposition present further evidence on practices that will inform us on the meaning of pottery for Bronze Age society in specific situations. Furthermore, these practices of the use and deposition of pottery inform us on the construction of specific identities by the people who interacted with this type of material culture on both sides of the North Sea and English Channel. Communities interacting must have had comparable notions with regard to pottery during the using and depositing of pottery (*cf.* Sørensen 1990). It is at these moments that values and meanings attached to material culture become an issue of wider debate (*idem*). Construction and (re-) negotiation of values and meanings lead to the conceptual classification of both material culture and identity. Different values and meanings attached to the cultural classification of pottery within communities on both sides of the North Sea can be investigated in the archaeological evidence. The possible patterns emerging will inform us on the similarities and differences in the use and deposition of pottery between the different communities. It has been emphasised in chapter 3 that a situational, contextual approach towards the practices of both use-life and deposition is necessary. As comparative ethnographic and archaeological work from the 1980s onwards has shown context gives meaning to specific practices and their patterning (Hodder 1982). Therefore an outline on the methods employed will start with addressing issues of context in the Bronze Age of North West Europe.

5.2 *Studying the cultural biography of pottery*

5.2.1 Studying context

Both in specific moments of the use-life and at the termination of the use-life of material culture in general, specific situations, being everyday practices or rituals, play an important part (*e.g.* Appadurai 1986; Hodder 1982). Nowadays, contextual archaeology on the North West European Bronze Age studies both contexts and the relationships between these contexts on a landscape basis (Arnoldussen/Fontijn 2006). These studies discern three different contexts; the domestic context, funerary context and the natural context (*e.g.* Fontijn 2002). While critics have noted the modern assumptions lying at the heart of contextual approaches (such as Kristiansen 2004), its value as a basic tool to categorize data on which later interpretations can be formed, has remained. Following the contextual approach, I will make a distinction between the three contexts of domestic, funerary and natural. This will enable a relation between practices related to the use and deposition of pottery and their particular situation. Following these practices across time and space, looking at Northern France, Britain and the Low Countries makes a comparison possible.

Applying these different contexts to the study of pottery deposition will be fairly straightforward. Depositions of pottery on settlements are considered in a domestic context, pottery deposited containing cremated remains, or otherwise related to funerary activities, is interpreted as the funerary context of deposition, while other types of depositions, in inaccessible places such as swamps and caves, will be considered natural contexts.

With regard to the use life of pottery, evidence for the context and situation of use is absent, a problem inherent in archaeological practice. All we can work with is what eventually ended up in the ground, deposited. The use life of pottery therefore needs to be inferred from this, based on associations in the deposition, associations in vessel morphology, long term trends in the archaeological record, analogy with anthropological case studies, and specific studies of

wear and residue analyses. The context of pottery use will be based equally on these, more circumstantial, findings.

5.2.2 Studying practice

Not only context will be studied when considering issues of meaning and value in pottery use and deposition. A second aspect in the cultural classification and conceptualisation of pottery by communities on both sides of the North Sea concerns practice. This will be translated in similarities and differences related to practices in use and deposition. The practices of use concerned here involve food preparation, storage, exchange and repair when broken. Looking at similarities and differences in these aspects informs us to which degree differences exist in the way past communities on both sides of the North Sea and English Channel used pottery, and conceptualised pottery during its use. Food preparation and storage might involve dairy products, alcoholic beverages and practices related to the specific cooking of foodstuffs (of which evidence for encrustations are a common notable feature). Storage of other items can involve (cremated) human remains, metalwork or other vessels of pottery. Other evidence for storage can be argued for in the case of an heirloom, stored for long-term safekeeping, and only deposited generations later (Woodward 2002).

In order to investigate the different practices for which pottery was used throughout North West Europe the above strands of evidence will be combined, and studies related to this will be compared. These practices have lead to the emergence of specific ways of conceptualising pottery on both sides of the North Sea, resulting in different aspects of identity between these communities. In paragraph 5.3 these methods will be applied, answers will be sought to the variability in the way pottery was used on both sides of the North Sea and these results will be used in the framework for cross-Channel and North Sea interaction in the later Early and Middle Bronze Age.

The practice of deposition of pottery can be divided in several variables. A number of scholars have argued for the intentional breakage of material culture at the end of its use life, possibly related to a '*pars-pro-toto*' idea in the Bronze Age (*e.g.* Brück 2004). Therefore, the study of later Early and Middle Bronze Age pottery deposition revolves around recognising the existence or absence of this particular practice through time and space. Other studies have noted the placing of complete vessels in certain contexts (respectively inverted and closed vessels *e.g.* Jongste/Bloo 2002; Blanchet 1984). Following these studies, several variables have been selected (see table 5.1).

Context	Practice
domestic	whole/broken
funerary	single/complex
natural	inverted/upright
	closed/open

Table 5.1 Variables used in the analysis of pottery deposition.

Are these depositional practices, the breaking of pottery, the inverted deposition of complete vessels and the reparation of certain vessels, restricted to specific parts of the research area and therefore indications of regional differences in the cultural classification of pottery? And might these differences be related to the spatial relationship between communities, living on both sides of the North Sea? Are differences in contextual practices present, and can these be

seen as the downplaying of different identities in the later Early and Middle Bronze Age of North West Europe? In paragraph 5.4 these questions will be answered.

5.3 *Application: the study of pottery use-life*

5.3.1 Thinking about use

The first division into distinct classes of use was the early 19th century typological division by Thurnam (1870, 331-400). A subdivision was made into Drinking Cups or Beakers, Urns, Pygmy Cups and Food Vessels. Urns contain the cremated remains of the dead, Food Vessels were seen as containing food prepared for the grave and the dead, Pygmy Cups (also known as Accessory Vessels) were seen as containing hallucinogenic or other substances related to the funerary ritual, while Drinking Cups were seen as containing liquids of some sort. Other pottery, Thurnam suggested, was of less quality and lacked refinement. This type of pottery, scarcely found in the funeral monuments, but mainly in settlements, was interpreted as cooking vessel. Use-life was seen as intrinsically linked with depositional context: pottery deposited in funerary contexts was exclusively used for funerary purposes, while pottery deposited in domestic contexts was used for cooking. Reference for the assumed purpose and use-live of Bronze Age pottery was obtained by early scholars such as Thurnam in both classical and biblical literary sources. Debates concerning his assumptions however, continued until in the 1980s. Around this time scholars found some evidence for funerary vessels (Collared Urns) in domestic contexts (Tomalin 1995). More complex use-lives of pottery are therefore envisaged today, not necessarily one-to-one relating typology to depositional context.

5.3.2 Direct evidence for the use of pottery

The only way in which direct evidence for the way pottery was used within a community can be obtained, is by analysis of residues in the vessel. Analysis by means of stable isotopes and molecular chemistry has been executed on a selected amount of British Bronze Age pottery (Copley *et al.* 2005b). This study was conducted on 256 vessels from the Middle Bronze Age sites of Black Patch (Ellison in Drewett *et al.* 1980) and Trethellan Farm (Woodward/Cane 1991), the Late Bronze Age site of Potterne (Morris 1991), and the Early to Late Bronze Age site of Brean Down (Woodward 1990). The methods of analysis, through the determination of the compound-specific stable carbon isotope values of the principal fatty acids, allowed for the identification of dairy and adipose fats. Combining these results with the pottery typology and depositional context several inferences were made (Copley *et al.* 2005b, 512). A large number of vessels from all four sites contained dairy fats, indicating that dairying was an important aspect of Bronze Age animal husbandry in southern Britain. Secondly, dairy fat was generally found in vessels having smaller rim diameters than vessels without evidence for dairy fat. Relating the use of pottery to its depositional context, at Trethellan Farm pottery found in the 'residential' structures were more likely to contain lipids than the pottery from 'ancillary' buildings. No chronological difference in the presence of dairy fats in pottery could be found. At Brean Down, the site with the only later Early Bronze Age pottery (a fragment of a Collared Urn) investigated in the project, pottery also contained evidence for dairy products. This particular study shows that the use-life of pottery is not necessarily related to typology for the later Early and Middle Bronze Age of Britain. In a specific example, the vessel morphology, its rim diameter, does seem to be related to the vessel's use-life. However, this study was only executed on a small sample, and more analysis is necessary to either confirm or falsify these conclusions. Furthermore, for other parts of the research area such analysis has not (yet) been executed, so comparison is still impossible.

A final caution should focus on the overall domestic context of deposition, and probably of use, for the pottery analysed by means of molecular chemistry in Copley *et al.*'s study. The four sites analysed by Copley and his team are known for the domestic context of deposition (Brück 1999a). A study focusing on the molecular chemistry of vessels from funerary contexts is taking place as we speak.[8] Other domestic contexts have provided evidence for cooking, as burnt food remains and secondary burning of the outer wall of the vessel have demonstrated on a number of occasions. At the Bronze Age site of Velsen, Stationsweg in the Netherlands, this evidence comes from the identification of burnt residues inside several sherds (own observation; pers. comm. J. Roefstra). Chemical and stable isotope analysis of these sherds can shed light on the variation in usage of Bronze Age pottery and similarities and differences in use in relation to Bronze Age pottery from domestic contexts in Britain and elsewhere.

From this overview we can conclude that sound evidence for the use of pottery in the later Early and Middle Bronze Age is only available from British domestic contexts. In order to answer questions about similarities and differences in the way pottery was used and conceptualised on both sides of the North Sea, it will be necessary to look at the chemical composition of residues in Continental pottery vessels as well.

A final direct clue to the use of pottery in the later Early and Middle Bronze Age is presented with the use of pottery for the containment of cremated remains which are deposited subsequently. This particular use of pottery, which might be for a lengthened period of time as the cremated remains of the dead were in some instances kept above ground and exchanged (Brück 2004), also presents the termination of its use-life. Not all vessels were used for the containment of cremated remains. Food Vessels were never deposited containing human remains, and therefore probably not used for the storage of these remains before deposition either. The variety of Urn type vessels however were used for the latter, and therefore probably also used for the former. On the Continent this distinction is more difficult to make, as pottery typologically related to Food Vessels is near absent. Technologically, Food Vessels and Urns are not distinct, apart from the extra collar or cordon (see chapter 4 and Law 2008). Thus throughout the research area Urn types, pottery vessels with a collar or a cordon, were specifically used for the containment of cremated remains. The practice of depositing cremated remains in these vessels was widespread and common throughout North West Europe. This similarity is a conclusion as to the conceptualisation of pottery on both sides of the North Sea. Pottery was similarly conceptualised on both sides of the North Sea, at least in the practice of containing and depositing cremated remains.

5.3.3 Exchanging pottery

Other strands of evidence for the use of pottery are more circumstantial. The use of pottery can be inferred by looking at chronological developments in typology, material associations and the provenance and composition of clays. These different types of evidence and their relationship to the use of pottery will be discussed below.

The use of pottery as an object of exchange can be approached from several angles. In general, exchange itself, however, is also a practice which can only take place when certain agreements exist with regard to the value and meaning of objects during their life (Sørensen 1990). In pottery exchange specifically, this was not any different. Even more so, a pottery vessel, unlike metal, once it is finished and fired, cannot be re-made. This makes the evidence

[8] Project in progress at Bristol University: http://www.chm.bris.ac.uk/ogu/people/soberl.htm (accessed at 24-01-2010).

for pottery exchange an important element in understanding the ways people understood pottery coming from afar. The presence of raw materials in many parts of the research area limits the necessity of pottery exchange.

Studies in fabric analysis and the provenance of clay types have been executed on several case studies with regard to the North West European Bronze Age. This makes a more complex interpretation of the use life of pottery, as an object of exchanges and trade networks, possible. One of these cases is South-eastern Britain, where Ellison looked at pottery fabrics of several Middle Bronze Age settlement sites. In her interpretation of these sites, she sees pottery as an element, next to metalwork, in regional specific exchanges between the elites, living in the different enclosed settlements (Ellison 1980). Williams and Jenkins come to similar conclusions in their analysis of Bronze Age pottery from the Isle of Angelsey (Williams/Jenkins 1999). In another instance, studying the South-western British Bronze Age pottery, Trevisker Ware, Parker Pearson (1995) concludes that the pottery produced in this area is part of a more localised exchange network (related to a possible strong ethnic identity) combined with only several vessels found far outside this distribution (notably having a coastal distribution in Kent and Northern France). Research on these specific finds, their provenance, absolute dating and context, has not been executed. It is accepted by scholars that the exchange of all pottery vessels mainly revolved around the content of the vessels and combinations with other exchanges such as metalwork (Gibson 2002). Another study, by Tomalin (1988), has focused on a specific type of pottery, the Armorican *Vases à Anses*. These vessels, with their characteristic red burnishing and banded ears, occur in several Armorican and Wessex later Early Bronze Age graves. According to Tomalin (1988) these vessels were produced by specialists, due to their specific complex production process. Finding the origin of these vessels in Armorica, Tomalin argued that these vessels were part of trading contacts between elites from Armorica and Wessex in the Early Bronze Age.

As we have seen in the above, evidence for the exchange of finished pottery vessels is limited to regional zones in many instances. Only the distinctive *Vases à Anses* are distributed and used similarly in both Armorica and Wessex, leading to the conclusion of similarities in the understanding of this type of pottery. People in Wessex and Armorica knew what the typical pottery meant and should be used for. At least in this particular aspect, a similar identity existed in Armorica and Wessex of the later Early Bronze Age. The lack of research on the Continental Bronze Age pottery chemical composition makes it impossible to say anything about cross-Channel and North Sea exchanges of pottery. The possibilities of an overarching identity, moving beyond the similarities in the production of pottery (see chapter 4), created by exchanges is not yet possible to grasp on the basis of the present evidence.

Other suggested use of pottery in the later Early and Middle Bronze Age, comes from the notion of feasting, addressed by both Woodward (1999) and Fokkens (2003). The relationship between feasting and pottery was first suggested by Burgess and Shennan (1976) for Bell Beaker pottery and its wide distribution over Europe. They explained the fast spread and the development of the Bell Beaker culture by arguing for the function of these 'Beaker' vessels as prestige items in society. These items served for the purpose of ritualised drinking of alcoholic beverages at feasts where the chiefs of these communities came together and interacted. This explanation was based on the observed standardisation in Bell Beaker pottery shapes and decoration motifs and the specific burial practices of Bell Beaker communities. Taking this element of feasting further into the Bronze Age, several authors have argued for a specific Atlantic Bronze Age feasting complex. They do this on the basis of large accumulations of midden deposits from the Late Bronze Age onwards, the emergence of large

bronze cauldrons from 1500 cal BC onwards, and the occurrence of bronze flesh hooks, flesh knives, and rotary spits at settlement sites in the Late Bronze Age (*e.g.* Needham/Bowman 2005; Gerloff 1986; Burgess/O'Connor 2004, see fig. 5.1).

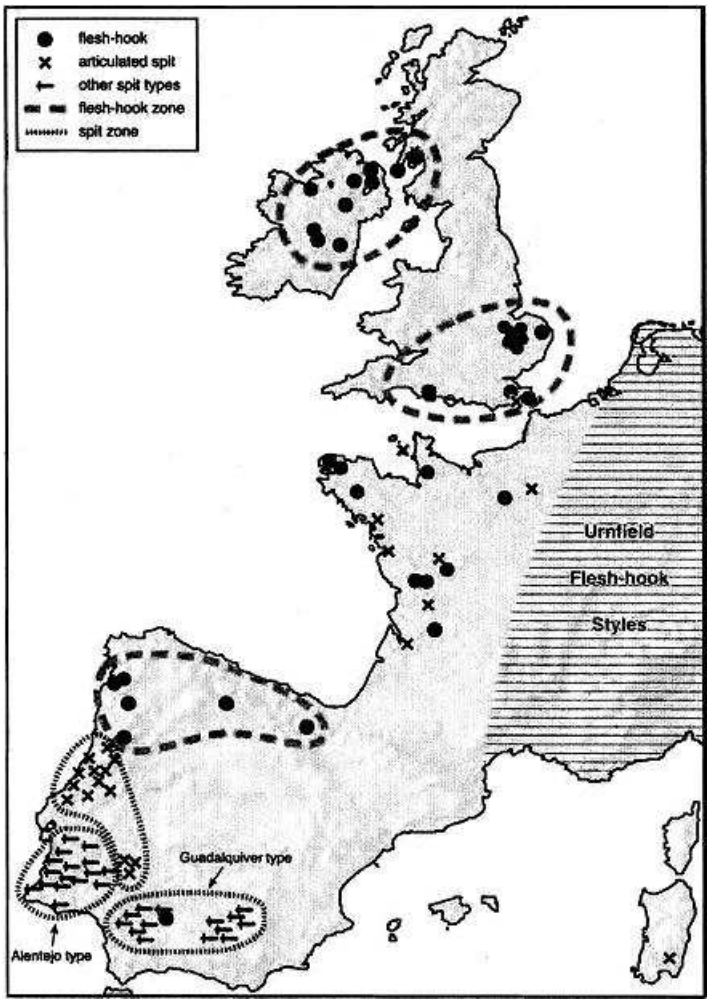

Fig. 5.1 Overview of the different kinds of objects associated with the Atlantic Bronze Age "feasting complex" (taken from Bowman/Needham 2005, fig. 11).

Fokkens (2003), in the light of these theories, discussed the Early Bronze Age Hilversum pottery and its characteristic decoration (horseshoe handles, cord impression and horizontal cordons). He proposes, next to other things, that the "...ornamental elements refer to a way of covering the vase (with a lid in leather, fastened with a cord) for example used in the fermentation of alcoholic beverages, and not to a characteristic of a specific culture. In this opinion, the early Hilversum pottery is still closely related to the Beaker pottery..." (Fokkens 2003, 31) A further continuation of the Atlantic Bronze Age feasting complex is suggested by Woodward (1999) who sees in the particular pottery shapes occurring at a range of Middle Bronze Age domestic sites (based on the combination of similarities in volumes, rim diameters and vessel sizes) evidence for the signifying of social communal identity. Specifically at these feasts values and meanings were (re-)negotiated and constructed and principles of conceptual cultural classification were formed (Sørensen 1990). More practically, communities gathered, metalwork was exchanged and pottery also might have been the subject of transactions in terms of knowledge and ideas about production (see chapter 4), but similarly in terms of material exchanges and ideas about 'what should you do with your vessel'. It is highly probable that these feasts were not a solely British phenomenon. The argument by Fokkens (2003), associated with the evidence from bronze artefacts, is

focusing on the entire Atlantic Bronze Age, both insular and Continental. Further evidence into this matter should come from an analysis of pottery shapes at Continental later Early and Middle Bronze Age domestic sites and the compositional analysis of Continental pottery.

5.3.5 Summing up: using pottery in the Bronze Age

Thus concluding this contribution about the use of later Early and Middle Bronze Age pottery in North West Europe, not much is known about the use of pottery in the Bronze Age in the research area. Evidence for the processing of dairy fat has been found in both Early and Middle Bronze Age pottery from domestic contexts in Britain, but similar research has not been executed for domestic contexts in other parts of the research area. Similarly the movement of pottery from its origin, probably through networks of regional exchange between communities is only known from Britain as well. Pottery typology is only decisive when looking at the practice of cremation and the use of collared and cordoned Urns in both British and Continental funerary contexts. On the Continent and on the British Isles similar ideas existed related to the use of specific vessel shapes as a container for cremated remains. Use of pottery in feasting and communal gatherings of communities from both sides of the North Sea has been assumed and based strongly on circumstantial evidence, but this has not been the focus of any deeper investigation either.

Overall we can say that the use of pottery in the Bronze Age was similar all across the research area. Pottery was used as a container for cooked food and dairy products in domestic contexts and for the keeping of cremated remains in funerary contexts. Any changes in the use of pottery during its life are not visible at this point in research, but more research, especially on residue analysis of pottery used in funerary contexts, will provide clues for this. Meanings attached to the use of pottery during its life were widespread, as both cooking practices and the practice of using pottery for the keeping of human remains were exercised throughout the research area. Evidence for the use of pottery in feasts is solely circumstantial but convincing when combined with evidence for exchanges which probably took place at these feasts, the spread and significance of specific decoration motifs (Fokkens 2003). Exchange of pottery, on a regional scale in Britain at least, shows that here, pottery held similar values for the people using and exchanging. Whether this was the case on the other side of the North Sea, and whether exchange of pottery took place between Britain and the Continent, has not been studied. The sole exception for which evidence seems present, the Trevisker vessels from Hardelot (N-Fr. Pas-de-Calais; Mariette 1961) and Monkton-Minster (Kent; Gibson *et al.* 1997), may hold some keys to answering questions with regard to the exchange of pottery in the Bronze Age and the specific meanings attached to these exchanges.

5.4 Application: the study of pottery deposition

Next to practices related to the production of pottery (chapter 4) and the use of pottery (paragraph 5.3), similarities and differences in the deposition of pottery can be used in order to look at the way communities conceptualised pottery in relation to other communities in Britain and on the Continent. Practices of pottery deposition in the later Early and Middle Bronze Age of North West Europe are addressed in the next paragraph. In order to search for chronological patterns and changes taking place in different areas over time, the data is divided along different periods, different contexts and treated separately on Britain, Northern France and the Low Countries.

The very purpose of this entire paragraph lies in the characterisation of diachronic patterns in the deposition of pottery throughout the research area, leading to a discussion of the similarities and differences between different regions and time periods. These practices

themselves inform us on the way people deposited their pottery, which also involved very specific values and meanings, related to a community its perception of both the material culture and the landscape. If similar practices in deposition are present on both sides of the North Sea and English Channel, one can understand this as the existence of similar values related to deposition of pottery, and the existence of an similar identity in this particular aspect.

5.4.1 Practices of pottery deposition in the research area
Period 2 (see table 5.2a)
In domestic contexts, broken pieces of pottery were deposited at many different places. In the Low Countries, sherds of Barbed Wire Beakers and so-called Trumpet Pot Beakers have been found around older round barrows and at later round barrows (*e.g.* Rhenen, Bourgeois/Fontijn 2007; Oudemolen, Lanting 1973; Lehmann 1965, 24), in clustered pits related to occupation patterns and house structures (*e.g.* Molenaarsgraaf, Louwe Kooijmans 1974; Noordwijkerhout, Van Heeringen/Van der Velde 1999) and as find scatters in buried soils (*e.g.* Velsen, Stationsweg, this thesis). In Britain and France similar sites have been found (Brück 1999a), however, further characterisation of these sites is difficult, due to more recent disturbances of the soil. No evidence for deposition of complete vessels is known from this period.
In Dutch funerary contexts, complete vessels of Barbed Wire pottery were deposited as accessory to inhumed skeletal remains. These vessels were in some instances inverted, or accompanied by sherds of a second vessel (Lanting 1973, 223-226). In British funerary contexts inhumed skeletons were still deposited accompanied by late Beakers, Barbed Wire Beakers and Food Vessels (Clarke 1970; Simpson 1968). The use of pottery as urn for the containment or protection of cremated human remains started in this period as well (Law 2008). The deposition of these early urns, mainly Collared Urns, involved inverting in some instances. In France, depositions of pottery in funerary contexts from this period present a similar picture of vessels accompanying inhumations (late Beakers (*Epicampaniforme*)) or containing cremations. Funerary vessels containing cremated remains were sometimes inverted. In other instances these vessels have been found deposited in stone cist graves or sealed by stone slabs (*e.g.* at the site of Éramecourt, Les Combles; Blanchet 1976).
In natural contexts, deposition of pottery is a continuing practice in the Netherlands from the Neolithic period onwards, as finds of early Funnel Beaker Pottery and Beaker pottery show (*e.g.* Bakker 1959; Van der Sanden 1997). In the peat areas of Drente, finds of pottery deposition are associated with specific places that show continuing practices for sometimes several centuries. The find of Klijndijk (Van der Sanden 1997, 136-138) consists of a single sherd of a Corded Ware Beaker, several Bell Beaker sherds and a complete Early Bronze Age Trumpet Pot Beaker, associated with several cattle skulls and a possible wooden structure. Belgian and French evidence for the deposition of pottery in natural contexts is notably absent. British evidence for pottery deposition in natural contexts is presented by, although badly dated and thus not restricted to this period, cave sites. Johnston (2008) lists several sites where pottery had been deposited in the Bronze Age, and he tries to understand this local practice of deposition in relation to a specific area of Britain, North Wales, where it does not occur. In his argument, Johnston (2008) sees pottery deposition as a particular local practice.

Period 2	whole/broken	single/complex	inverted/upright	closed/open
Low Countries				
domestic	broken	complex	-	-
funerary	whole	single	inverted/upright	open
natural	whole	single	-	-
Britain				
domestic	broken	complex	-	-
funerary	whole	single	inverted/upright	closed/open
natural	broken	complex	-	-
France				
domestic	broken	complex	-	-
funerary	whole	single	inverted/upright	closed
natural	-	-	-	-

Table 5.2a The deposition of pottery in period 2 (2000-1800 cal BC).

Period 3 (see table 5.2b)

Pottery deposition dating between 1800 and 1500 cal BC in Dutch domestic contexts shows a continuation of the practice in the previous period. A problem for this period in the Low Countries lies in the identification of house plans and settlements (Arnoldussen 2008, 174-185). The lack of distinctive characteristics of pottery from this period plays a major role in this problem. Two well dated non-funerary sites with a considerable amount of pottery from the Netherlands are The Hague, Bronovo (Bulten *et al.* 2008) and Bloemendaal, Vogelenzang (Ten Anscher 1990). At these two sites, structural evidence is confined to clusters of pits. Other evidence for deposition of pottery has been noted by Arnoldussen (2008, table 8.1).[9] At Rhenen-Remmerden, for instance, a vessel, probably dating to this period, was buried inverted in a large pit. The original excavators already noted the special character of the deposition (Jongste/Bloo 2002). In Britain pottery deposition at domestic sites is continuing in a similar vein as in the preceding period. Sherds of Biconical Urn and Collared Urn are sometimes found in pit clusters. At the Shaugh Moor settlement, a substantive assemblage of Biconical Urn sherds has been found (Tomalin 1982) and at West Row Fen, sherds of Collared Urns were deposited in another tentative settlement context (Tomalin 1995). In Northern France, pottery deposition in a domestic context from this period is limited to two enclosure sites. At Etaples-Tubersent, two enclosures dating to this period were found. Here pottery deposition was random and consisted of mainly broken sherds. The second site, at Tatihou, comprised of a large system of ditches, dating to the period 1800-1500 cal BC (Marcigny/Ghesquière 2003, 165; Marcigny *et al.* 2007, 257). At this site also a roundhouse has been reconstructed, possibly dating to this period (*bâtiment 25*, Marcigny/Ghesquière 2003). Pottery deposition, consisting of sherds from broken vessels, occurred mainly in the ditches and no spatial pattern could be observed and these seemed to be no evidence to suggest special deposition of pottery sherds or vessels.

[9] In this table, evidence for pottery deposition at many Bronze Age sites from the Netherlands is given. Arnoldussen selected these sites on the basis of the amount of pottery material in single contexts, the presence of complete pots or occasions where something special occurred to the pottery at the moment of deposition. His scheme presents all evidence for pottery deposition in the Netherlands without absolute chronological resolution, as for many sites no C-14 dates is available. Therefore it is difficult to place pottery depositions in the Netherlands in a diachronic perspective, and therefore these sites are not mentioned further or used in this analysis.

In funerary contexts from this period, pottery deposition in Britain continued, related to the inhumation (Food Vessels) and cremation (Biconical and Cordoned Urns) of persons. Also in the southern Netherlands, Belgium and northern France, pottery deposition in the funerary context was primarily in the form of urns associated with the practice of cremating human remains (*e.g.* Theunissen 1993; Blanchet 1984). In the northern and western Netherlands no cremated human remains are known from this period, and pottery does not seem to have been deposited in funerary contexts (Lohof 1994). Pottery deposition in funerary contexts in northern France has been studied by Blanchet (1984). He suggested that for the French Early Bronze Age (from 2000-1500 cal BC) a special type of funerary monument existed, combined with the pottery style, named after Eramecourt, the type site. Thus a continuation of the practice of depositing complete vessels, both in upright and inverted position, in sealed pits is envisaged.
Depositions of pottery in natural contexts dating to the period 1800-1500 cal BC are noteworthy absent in the entire research area. The evidence for pottery deposition in caves in Bronze Age Britain might be dated to this period as well, as no sound dating evidence for practice is known. Whether the absence of pottery deposition in the Netherlands in this period is due to changes in practice and related changes in the way Bronze Age people understood the landscape, is unclear.

Period 3	whole/broken	single/complex	inverted/upright	closed/open
Low Countries				
domestic	whole/broken	single/complex	inverted	open
funerary	whole	single	inverted/upright	open
natural	-	-	-	-
Britain				
domestic	broken	complex	-	-
funerary	whole	single	inverted/upright	open
natural	broken	complex	-	-
France				
domestic	broken	complex	-	-
funerary	whole	single	inverted/upright	closed/open
natural	-	-	-	-

Table 5.2b The deposition of pottery in period 3 (1800-1500 cal BC).

Period 4 (see table 5.2c)
In the Low Countries pottery deposition in a domestic context mainly takes place at well recognisable settlements and surrounding features. Again, Arnoldussen (2008, table 8.1) mentions several sites where pottery depositions of multiple sherds (complex deposits) and single vessels, both upright and inverted, occur on settlement sites. In Britain, Brück (1999c, 2001c) has pointed towards similar deposition of pottery at settlement sites. Pottery is deposited both as sherds and as whole vessels. Whole vessels are found both upright and inverted. In France, the practice of pottery deposition is well known from several domestic contexts in the northern coastal regions of Nord Pas-de-Calais, Picardy and Normandy. At Roeux, a settlement of two roundhouses and two ditches has been found (Desfossés *et al.* 2000). Here pottery has been deposited near the roundhouses and in ditches in a fairly general way, broken and scattered. At Tatihou phase 2, the ditched settlement developed further. A settlement of several small rectangular houses appeared in the southern part of the research area (see fig. 5.2). Here pottery deposition was confined to the ditch around the house

structures. From this phase, many unbroken pots are known (Marcigny/Ghesquière 2003, 74-75).

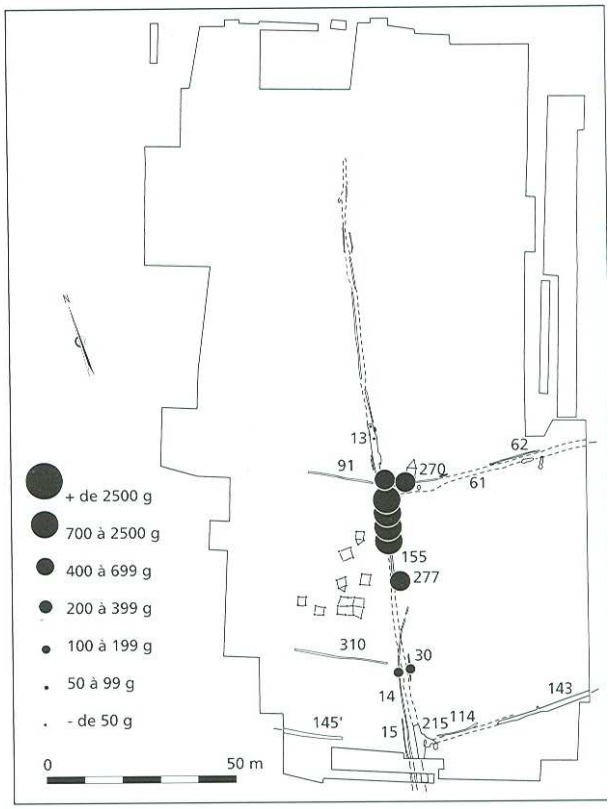

Fig. 5.2 Distribution of the deposition patterns of pottery at Île Tatihou, phase 2 (taken from Marcigny/Ghesquière 2003, fig. 56).

At Mondeville Étoile, another enclosure was excavated. Here pottery deposition concentrated mainly around the entrance and the western end of the ditch. Several complete vessels have been found (Chancerel *et al.* 2006, 111-138). At Mondeville ZI Sud excavations revealed a double enclosure (fig. 5.3). Here, just as at Étoile, several large concentrations of pottery were found. The largest of these concentrations was found at the point where the separate enclosures joined. One of the vessels here, a large jar decorated with applied cordons (horizontal and diagonal) and with nail impressions, was found nearly intact (*idem*, 139-172).

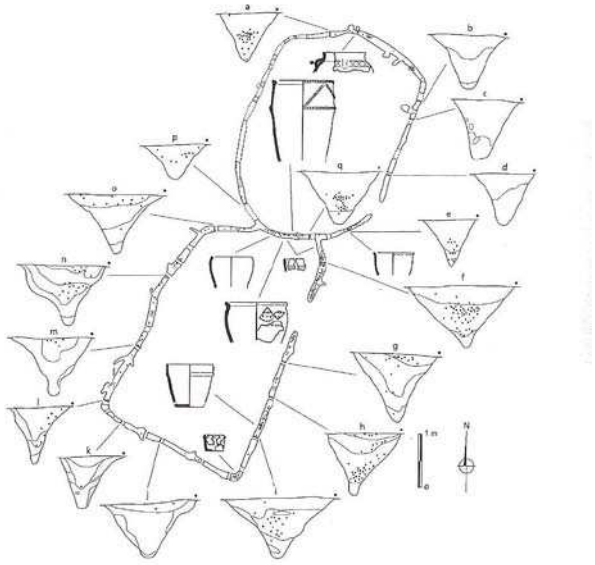

Fig. 5.3 Distribution of pottery deposited at Mondeville ZI Sud (taken from Chancerel *et al.* 2006, fig. 96).

In funerary contexts in the Low Countries, pottery was still deposited as urn for the containing of cremated remains. Urns are found mainly in upright position and open. In this period fewer barrows are constructed (Bourgeois/Arnoldussen 2006). Pottery deposition in the funerary context thus shifts towards interment as later insertion in earlier barrows. In Britain, instead of later insertions in ancestral mounds, large scale cemeteries develop. At one of these cemeteries, Simons Ground in Dorset, statistical analysis of the pottery and its relation to the spatial organisation of the cemetery has been executed (Ellison in White 1982). From this study it can be concluded that generalisations are difficult to make. Inverted urns occur in all clusters and are not related to the date of the cremation or the sex of the person cremated. There is also no direct correlation between the pottery typology and the spatial organisation of the cemetery. From France, no data with regard to pottery deposition in funerary contexts is known.
Also for this period, no evidence for the practice of pottery deposition in natural contexts, caves or swamps, could be found.

Period 4	whole/broken	single/complex	inverted/upright	closed/open
Low Countries				
domestic	whole/broken	single/complex	inverted/upright	open
funerary	whole	single	upright	open
natural	-	-	-	-
Britain				
domestic	whole/broken	single/complex	inverted/upright	open
funerary	whole	single	inverted/upright	open
natural	-	-	-	-
France				
domestic	whole/broken	single/complex	inverted/upright	open
funerary	-	-	-	-
natural	-	-	-	-

Table 5.2c The deposition of pottery in period 4 (1500-1200 cal BC).

5.4.2 *Deposition: Discussion*

Looking at the deposition of pottery in the North West European Bronze Age from a spatial and a chronological perspective has shown us many things. Several elements are relevant for the study of the interaction of ideas, goods and people between communities living on both sides of the North Sea and English Channel. Certain important structuring principles seem evident in all categories of pottery deposition on both sides of the North Sea and the English Channel throughout the later Early and the Middle Bronze Age. When looking at the spatial range of the specific depositional practices, several patterns appear. Both broken and whole vessels have been deposited in domestic contexts throughout the research area and the entire period under investigation. Broken vessels can be part of both single and complex deposits, while whole vessels are, logically, single vessels. Chronologically some other inferences can be made with regard to the deposition of pottery in domestic contexts. Between 1800 and 1500 cal BC, deposits of complete or especially broken pottery vessels occur in domestic contexts. At first, the practice of placing such deposits is only found in the Low Countries, but from 1500 cal BC onwards it takes place throughout the entire research area.[10]

In the funerary context, whole vessels, consisting of single vessel deposits, predominate. Differences in practice throughout the research area are however notable. The closing of a vessel at the moment of deposition, by means of stone slabs or otherwise, is a practice which has been found in both British and French contexts. In contexts from the Low Countries this practice is absent. This difference might be explained by the lack of stone in the Netherlands and the use of other, perishable, materials instead. The closing of vessels at deposition in funerary contexts is, as far as visible in the archaeological record, disappearing in period 4 (from *c.* 1500 cal BC onwards). Vessels were placed both inverted and upright in funerary contexts throughout the research area.

Natural contexts have been researched less often and therefore any conclusions on practices of pottery deposition must remain tentative. Evidence for depositions in caves, in marshes and at other natural places in the landscape is restricted to British and Dutch finds. Because of the lack of finds, no pattern related to detailed and specific practices could be observed. Chronologically however, an interesting development has taken place. While evidence for the continuity of pottery deposition throughout the Neolithic and early parts of the Bronze Age is well attested, this continuity seems to come to an end. Specifically, from period 4 (*c.* 1500 cal BC) onwards, no pottery deposits are known from caves or marshes.

5.5 *How do context and practice relate to identity?*

In the previous paragraphs we have looked at the similarities and differences in the cultural biography of pottery throughout North West Europe in the later Early and Middle Bronze Age. In order to relate these similarities and differences to the general problem addressed in this thesis, the problem of understanding the interaction between communities living on both sides of the North Sea and English Channel, it is necessary to structure these practices around the theme of identity.

In chapter 3 we highlighted the necessity of studying the cultural biography for the study of pottery and identity in general, without addressing these specific variables. From the above we must conclude however, that different contexts and different practices relate to identity in a specific manner. The cultural biography of pottery is primarily related to communal aspects of identity. In the domestic sphere, communal identity is constructed through the use of

[10] This can be partially explained by the sources of information: evidence from domestic contexts in this period is particularly scarce, as many scholars have noted (*e.g.* Brück 1999a, Arnoldussen 2008). However, as this problem of recognition is present in the Low Countries and in Britain, (the French situation being less clear) a valid comparison can still be made between these regions.

pottery in food preparation, eating is foremost a social activity and related to practices of feasting (Parker Pearson 2003). In the funerary context, pottery is used and deposited in the ritual act of the disposal of the body by communities interacting on a supra-regional scale (see for instance Fontijn 2002). This is a moment in which grieving mourners renegotiate their relationships among each other and (re-) construct communal identities (Barrett 1994). In tables 5.3 and 5.4 the relationship between context and practice in deposition and identity, outlined in this paragraph, is summarized.

Context and practice in deposition	Identity
Domestic	Local identity & supra regional identity (gatherings)
whole/broken	
single/complex	
inverted/upright	
closed/open	
Funerary	Supra-regional identity (funerary events)
whole/broken	
single/complex	
inverted/upright	
closed/open	
Natural	Regional identity (landscape understanding
whole/broken	
single/complex	
inverted/upright	
closed/open	

Table 5.3 Pottery deposition and associated aspects of identity.

Context	Identity
Domestic	Local & supra regional
cooking	
exchange	
Funerary	Supra regional
cremations	
exchange	

Table 5.4 Pottery use and associated aspects of identity.

5.6 *Cultural Biography: conclusions*

Having discussed the general cultural biography of pottery in chapter 3, we have in the previous paragraphs highlighted the specifics of a cultural biography for later Early and Middle Bronze Age pottery and established the link between cultural biography of pottery and communal identity. Building on this, makes it possible to assess the similarities and differences in the way people used and deposited pottery through time and space and relate these aspects to communal identity and to overseas interaction between communities living on both sides of the North Sea and English Channel. That will be the focus of this paragraph.

Evidence for the use of pottery throughout the research area comes from the storage of dairy products, and the use of vessels for the cooking of foodstuffs. Additional evidence from southern Britain points to the use of Middle Bronze Age pottery in gatherings of some sort. Similar gatherings, specifically at funeral monuments, have been envisaged for the later Early Bronze Age by Brück (1999a). The exchange of pottery with other communities was probably facilitated by these gatherings. Whether these feasts were related to overseas networks of interaction cannot be said solely on the basis of this solely British evidence and thus remains to be seen. More research, especially on the Continental pottery, should be conducted. These feasts did not only facilitate the exchange of pottery, but also the exchange, negotiation and construction of ideas, technologies, meanings, values and identities (see chapter 6). During its use-life, pottery vessels were broken. After this breakage (deliberate or not), vessels could be repaired or the sherds discarded. Repairing denotes the special significance of that specific vessel, due to its specific use-life, and particular values, meanings and histories attached to it (*e.g.* Dooijes/Nieuwenhuijse 2007). However, for the later Early and Middle Bronze Age, no evidence for the repair of pottery is known. Whether this is a change in attitude towards the social life of pottery and its role in society, remains to be seen as no systematic research has ever been conducted.

The deposition of pottery notes the end of the pottery's use-life. Unbroken vessels, on the other hand, were used in a final act, for the containment of cremated remains throughout the research area, after which the vessel containing these remains was interred in the funerary context. As this practice was emerging throughout all of North West Europe in both the later Early and Middle Bronze Age, and the pottery used for these depositions was evenly similar technologically and typologically (see chapter 4), the conscious construction of a particular identity related to the ritual of cremation can be envisaged here.

Several aspects regarding context and practice characterise the deposition of pottery in the research area. While many practices can be seen as local and of low relevance for studying pottery and assessing its use-life and deposition in the importance for overseas interaction, other practices were conducted with a more regional or supra-regional scale in mind, which possibly relates to networks of overseas interaction. Of these latter practices, some occurred on both sides of the North Sea and English Channel and are thus of primary importance for this study. Particularly the deposition of whole vessels of pottery – inverted or not – in the domestic context seems to be conducted regionally in period 3 (*c.* 1800-1500 cal BC), but on a widespread scale from period 4 (*c.* 1500 cal BC) onwards. The deposition of pottery in funerary contexts, related to the (re-) construction of supra-regional identities between different communities, also shows patterning. Specifically in this context, only whole vessels are considered proper for such deposition. More regionally specific patterns that have emerged are related to the position of the vessel, inverted or upright and its possible closure in some British and French examples. The deposition of pottery in natural places is patterned only to a regional extent. The presence of moors in Drenthe and caves in Wales points to specific practices related to the deposition of pottery and the specific engagement by communities towards these environments (Johnston 2008).

Chapter 6 – Pottery and people in the later Early and Middle Bronze Age

6.1 *Introduction*

In chapter 2 the problems with regard to recent approaches studying the relationship between pottery and people were addressed. The relationship between pottery and people was solely seen in the light of culture historical ideas with regard to decoration motifs and the identification of cultures, and processual approaches towards information exchange and the functionality of pottery decoration in the exchange of ideas. In chapter 3 it was argued that these problems were to be resolved by adopting an isochrestic approach towards style and variation in general. Next to that, in order to relate people to pottery again, it became necessary to look at the creation of identity through practices of production, use and deposition. Aspects of structure and agency involved in different stages of the production of pottery were addressed, using the perspective of Gosselain (2000), focusing on salience, technical malleability and the cultural transmission of knowledge. Furthermore, the use and deposition of pottery, following the concept of the cultural biography, could inform us on other aspects of interest in relation to the construction of identities. In chapter 4 and 5 subsequently the production process and the use-life and deposition of later Early and Middle Bronze Age pottery were analysed and conclusions with regard to the construction of identity between communities living on both sides of the North Sea and English Channel were given. In this chapter both these strands of evidence will be combined in re-forging the relationship between pottery and people. As will be argued, the construction, (re-) negotiation and conceptualisation of pottery, is at the same time taking place between people. These negotiations are played out through exchanges related to the production, use and deposition of pottery (aspects discussed extensively in chapters 4 and 5). Next to that, as we have seen in chapter 4 and 5, the production, use and deposition of pottery was taking place on different scales of knowledge: the individual potter making the vessel, the community of potters and their technical knowledge and the wider community in which the pottery was used and deposited. The recognition of these three scales archaeologically, their internal dynamics and the interaction taking place between them is the focus of this chapter.

6.2 *Studying identities in prehistory*

When discussing the relationship between pottery and people, many scholars have used the term identity, and also in this thesis it has come up on several occasions already. In chapter 3 it was argued that the different parts in the production process of pottery were related to the differential construction of identity between potters and between communities. In combination with this, and further substantiated, practices related to the use and deposition of pottery were also seen in respect to the notion of communal identity and its construction during specific events (see chapter 5).

What then is this vague notion of 'identity' we have been discussing? According to Jones (1997) identity "...is a product of the intersection of similarities and differences in people's *habitus* and the conditions characterizing any given historical situation..." (Jones 1997, 126) Taking the term *habitus* from Bourdieu's work (see Barrett 2005a, 2005b), she and others, have dealt with the division between structure and agency in general and the specific relationship between individual and communal identities in particular. Through structure, the influence of the wider community on the maker, the user and depositor of pottery, traditions are maintained. Through agency, the individual his own ideas and choices, innovation is given shape. Identity, both communal and traditional, and personal and innovative, is constructed and continuously reshaped through practice; practices of potters, users, exchangers and depositors contribute to this. As has become clear, identity operates on more than one scale,

taking the personal, communal and possible other aspects into account. When considering personal identity, other, mainly anthropological concepts have been used to look at the (individual) person in society. The specific concepts of personhood and gender also function in the study of past persons.

Particularly, gender differs from identity in its association with biological sex and the body (Sørensen 2006). Therefore, when discussing gender, one is primarily concerned with the individual body and male/femaleness. Personhood is more specifically related to the relations people maintain through exchanges of all sorts and the influence on the way the individual sees himself and society sees him (Fowler 2004). Personhood is in itself closely related to aspects of craft specialisation, time management and social complexity. A variable range of other themes including multiple authorship (Finlay 2003), and the themes of labour division and specialisation of production between the sexes (Hurcombe 2000), make use of ideas from both gender and personhood studies. In all these aspects the position of the person within larger frameworks (political, economical and social) is analysed under a certain specific angle. Studying identity, specifically the potter and its role in society, should therefore include aspects of all the above, including gender and personhood.
When studying identity in prehistoric societies, one should bear in mind that it is not about finding it, but understanding it. This difference is one of relativity. As Sorensen rightly stresses, all these aspects are fluid and changing. Understanding these relativities is what matters for understanding the (re-) construction and negotiation of identity (Sørensen 2006).

Further complicating matters, Gosselain (2000) talked about a supposed difference between superficial aspects of identity and more deep rooted aspects of identity in his study of the relationship between pottery and people in sub-Saharan Africa. Superficial aspects of identity are related to the exchange of information and easy-to-learn and easy-to-change practices. These practices, also known as fashion, change swiftly and are not rooted within a particular person's or community's religious or culture. In contrast, the deep rooted aspects of identity Gosselain (2000) discusses are only learned at a young age, related to motor-habits and the acquiring of skill through repetitive movements and behaviour. These aspects are firmly rooted in culture and traditions of particular persons.

In summary we can say that identity is formed at different scales through processes of structure and agency by persons looking at similarities and differences across time and space in the way they relate to each other in practices of production, use and deposition of material culture, both personally and communally. Therefore, any discussion of identity should take both personal identity and communal identity into consideration.

6.3 *Identity in the North West European Bronze Age*

Applying the concepts outlined above to the Bronze Age, I will first focus on the results of the several studies executed in chapters 4 and 5 of this thesis and the implications they hold. After this, a link will be made with other recent studies into the construction of identity in the Bronze Age, following studies of Sørensen (1997), Fontijn (2002) and others. The conclusions arising from this relationship between pottery and people will be used in chapter 8 to construct a new model for overseas interaction in the later Early and Middle Bronze Age of North West Europe.

6.3.1 *Communal identity*

6.3.1.1 How is communal identity constructed, with respect to pottery?

The decoration of pottery, as we have argued in chapter 3, was related to the more superficial aspects of identity. Decorating involved techniques, tools and motifs which are all (to a certain degree) visible, technically malleable and all had the possibility of being influenced by the larger society in which the potter resides. Therefore the community has certain expectations and prejudices attached to this part of the production process. Following this argument, the meanings and values attached to decoration were similarly shared across a large area, as adoption of new techniques was easily achieved through information exchange and post-learning networks of potters. Taking these points further, it becomes possible to see the decorating of pottery in the light of constructing the communal aspects of identity; aspects of identity which are shared through superficial relationships. These relationships consisted of material and immaterial exchanges, by which ideas spread and symbolic significances became accepted and shared within and between different communities.

Distribution maps of decorating techniques, decorating tools and decoration motifs therefore do show, in increasing degree of complexity, the construction and negotiation of a particular communal identity. Reviewing the decorating of pottery, is therefore reviewing superficial relationships; relationships of exchange and interaction between communities. The use of pottery in feasts and gatherings, and the exchange of pottery at these events, provide other opportunities for the construction of communal identities. In the next paragraph, the construction of communal identities in the later Early and Middle Bronze Age will be argued for particularly.

6.3.1.2 Constructing communal identity

In chapter 4 we have learned that decorating techniques were both spatially and chronologically specific in several cases throughout the North West European Bronze Age. Firstly, the period of 2000-1500 cal BC will be addressed here.

As was argued in chapter 4, both on the Continent and on the British Isles, impressed decoration techniques existed in this period. The specific tools used in association with these techniques are strings of 'barbed wire' and cords. Next to these two impression techniques, both on the Continent and on the British Isles, certain techniques with regard to the application of clay onto the vessel existed. The use of specific tools and decorating techniques in impressing vessels, and the specific motifs observed in the practice of applying decoration (such as the famous horseshoe handles), shows that communities on both the British Isles and the Continent shared ideas about all aspects in the practice of decorating pottery. Potters have little individual influence on the decorating of pottery, due to the structuring principles discussed earlier. The evidence for corresponding decorating techniques and tools shows that identity was constructed similarly by people on both sides of the North Sea in the period 2000-1500 cal BC. This particular communal identity was not deep rooted, but based on post-learning innovations. This can be envisaged as the superficial exchange of ideas and knowledge, related to the exchange of material culture such as the earliest, British and Irish, metalwork (Northover 1980; Bray 2008[11]). Variability, specifically in the motifs of decoration, should be seen as a more complex relationship between communities. The knowledge behind the meaning of these particular motifs and its symbolism is restricted to particular communities. The distribution of complex motifs such as horseshoe handles and cord impressed motifs should therefore be seen as representing more intense exchanges of knowledge. These exchanges are related to the gathering of communities at specific places in the landscape and specific moments in time at funerary monuments and related to the movement of specifically potters between different communities (see below). Brück (1999a,

[11] Bronze Age Forum 2008 lecture titled 'New approaches to analysing Jeannot's knife and my grandfather's axe. Identifying, quantifying and explaining British and Irish Early Bronze Age copper and bronze recycling.'

69-70) also hints on this, making reference to the social implications of residential mobility in the later Early Bronze Age. At these particular events, the exchange of ideas about rituals and symbolism probably facilitated the emergence of a shared understanding of complex motifs of pottery decoration.

Generally, from 1500 cal BC onwards, decorative techniques change towards the application and pulling out of cordons, frequently impressed with nails, fingers or punches. It can be argued that this change in decorating technique is related to the lowering of false rims to the shoulder of a vessel. This however does not explain the appearance of these techniques throughout North West Europe and the change in decorating practices altogether.
The distribution of particularly decorating techniques and tools over a large area in Europe shows that the construction of a superficial identity (related to exchange of knowledge, ideas and material culture) became common practice within communities over large areas of Europe through networks of diffusion and interaction.
As many studies have shown, it is possible to distinguish regional styles with regard to the pottery decoration in the period 1500-1000 cal BC (*e.g.* Ellison 1975; Marcigny *et al.* 2007; this thesis). These stylistic differences are all based specifically on the discriminating of particular decoration motifs. These 'regional styles', as Ellison (1975) defined them, are best interpreted as the expression of regional social networks related to the exchange of ideas and symbolism, the execution of feasts and rituals (Woodward 1995) by the more sedentary communities of the Middle Bronze Age. Interactions between these neighbouring agricultural communities on this particular level could also relate to the very particular moving of specific persons, for example through the exchange of marriage partners.

Having reviewed the construction of communal identity in the periods 2000-1500 BC and 1500-1000 cal BC, it becomes possible to relate this to overseas interaction between communities living on either side of the North Sea and English Channel.[12]
The exchange of ideas related to the techniques and tools of decorating pottery, probably facilitated by metalwork exchanges, is an ongoing process between 2000 and 1000 cal BC. Thus, together with the well-documented exchange of metalwork across the North Sea and English Channel, ideas concerning the techniques and tools of decorating pottery were exchanged.
The exchange of ideas that relate specifically to the motifs of pottery decoration can be separated chronologically into two periods. While in the period 2000-1500 cal BC similar pottery decoration motifs occur on the Continent and on the British Isles, the decoration motifs in the Middle Bronze Age (1500-1000 cal BC) show a more restricted, regional, geographical spread. This change in geographical spread can best be seen in the light of similar changes taking place around 1500 cal BC. Changes in agricultural practice, residential mobility, social organisation, funerary ritual and structuring of the landscape all occur around the same time (for an overview see Brück 2000; Arnoldussen/Fontijn 2006, this particular change and how the construction of communal identity fits into this is further described in chapter 8).

6.3.2 *Individual identities*

6.3.2.1 How individual identity is constructed through pottery production

The forming of pottery, as chapter 3 has made clear, is one of the aspects in pottery production which provides information on the more deep rooted aspects of identity. Deep rooted aspects of identity, as has been argued at the start of this chapter, are related to the

[12] Here only the first results are presented. A more extensive discussion is presented in chapter 8 of this thesis.

more enduring and traditional aspects of a community; their rituals, mythology and the particular technological knowledge that can only be learned at young age. Because of specific knowledge involved, several aspects of pottery production are less visible to the wider community, and therefore less susceptible to changes from outside. Therefore changes in pottery forming are infrequent, and, when found, related to substantial changes in society. These involve the specific migration of potters, the integration of completely new ideas about technological knowledge or profound changes in other practices influencing the practice of pottery producing.
Other aspects which require specific knowledge, practices such as paste mixing and firing techniques, are practices that have strict environmental constraints. Therefore, with specifically these two aspects of pottery production there is also little room for variation. The forming of pottery is less influenced by these physical barriers, as similar vessels can be manufactured by many different forming techniques.
Next to a more deep rooted form of identity, forming practices at the same time relate to potters' individual identity (Gosselain 2000; Wallaert-Pêtre 1999). The potter is free to choose whatever method he thinks is best for the occasion, thereby only restricted by the traditional body of knowledge he received from his teacher and the associated motor habits he has learned. As these motor habits are deep rooted in repetitive movements and acquiring the necessary knowledge and skills, only young student potters can learn how to form 'proper' pots. Similarly there is no need for variation as virtually all pottery can be made using a single forming technique. The variation in pottery forming techniques therefore can only be interpreted as variation in the potters' individual behaviour. But who is the potter within society? And what does he (or she) do, inferred from the vessels he or she produced?

6.3.2.2 The potter in practice
First I will focus on what the potter did in the later Early and Middle Bronze Age. Again evaluating the different stages in the production process, I will subsequently come to terms with the potter's practice.

The production of pottery started with the collecting of raw materials and the creation of a paste. Different clays require different types of temper. In order to create a useful paste, detailed environmental knowledge about characteristics of the clay and the temper is necessary. Usually this type of knowledge is regionally specific, as clay types and available temper vary accordingly. Knowledge of these variables and their inter-relatedness is easily obtained, mainly through trial and error and knowing what one should be looking for (*e.g.* Gosselain/Livingstone Smith 2005).
After the paste had been created, a vessel could be formed. The knowledge required for the forming of pottery is based in tradition and skill, learned at a young age through repetitive behaviour known as motor-habits (Arnold 1985; Gosselain 2000). These practices were in many non-Western societies based in traditional knowledge, mythology and acts of ritual (*e.g.* Gosselain 1998).
As has been demonstrated in chapter 4, the forming of pottery was for 100% done by using the coiling technique both on the Continent (France: Manem 2008; Low Countries: this thesis) and in Britain (this thesis). In order to further discriminate motor habits however, and to get behind the more detailed choices potters made, other variables were analysed. The joining of coils, an aspect which can be attributed to resulting from motor habits, was generally done by means of H and N types on both sides of the North Sea. The third variable, wall thickness, also showed no significant differences throughout the four case studies. Therefore, no differences were observed with respect to the forming of pottery in the later Early and Middle Bronze Age of North West Europe. Potters across this region shared a body of knowledge in

forming pottery vessels. It seems likely that this knowledge was traditional and based on the then ancient techniques (see Raemaekers 1999 for Neolithic pottery in the Lower Rhine Basin) which might have set the potter apart from society in this respect. The widespread evidence for smoothing of the outer wall, which made the traces of forming invisible, contributes to the idea of a particular exclusivity around the practice of potting. Also these factors point to a shared common understanding of 'how to form a pot'.
After the forming process, decoration was applied to the surface of a vessel. This was always practiced according to a body of knowledge based on the norms and values of the wider community (Gosselain 2000). Individual potters may have had influenced the decoration on vessels, as Tomalin (1995) showed for certain design motifs on Collared Urns. However all decorative elements were agreed upon by the people who are going to see and use them, as Gosselain has argued. Therefore, the knowledge of applying decoration was easily changed and just as easily transmitted to other persons and communities. This knowledge was based on shared ideas about pottery and people, personal adornment and cosmological and religious concepts (see David *et al.* 1988). The potter's influence on this was limited to a large extent.
After it had been formed and was decorated, the vessel was ready to be fired. Firing of pottery is another particular event at which specific knowledge was required, as it posed a potential risk in the transformation from clay to ceramic. Knowledge of atmospheres and firing temperatures was therefore necessary for controlling this specific process and understanding the risks involved.

From this reception of the knowledge required in producing a pottery vessel we can infer that 'the potter' in the North West European later Early and Middle Bronze Age practiced a specialised craft.[13] As on both sides of the North Sea similar techniques and traditions were employed and similar choices were made (out of a variety of possibilities), these bodies of knowledge were not constrained by the natural feature of the North Sea. Knowledge of different aspects in the production of pottery, including specialised knowledge related to the use of fire and forming techniques, thus crossed the North Sea in movements of potters. Specific persons, by learning these practices at a young age, became part-time potters and became part of a community of potters who learned their own apprentices, exchanged ideas and crossed the North Sea (as the evidence from chapter 4 has indicates).

6.3.2.3 The potter in context: distribution of knowledge within society
As was argued in the above paragraph, the production of pottery was a specialised craft in prehistoric society, due to the difficult, restricted and traditional knowledge involved. However the knowledge on which several of these specific parts of the production process of pottery were based, were not restricted to potters solely. Evidence from other material culture based analysis, notably investigations of basketry and metalwork, has demonstrated this and established this link between technologies and knowledge (Hurcombe 2008; Ingold 2000, 339-361; Owoc/Hurcombe 2008[14] on the relationship between basketry, pottery forming and pottery decoration and Roberts 2008 most recently on pyrotechnology and the production of metalwork).
Taking these recent studies into other crafts in the Bronze Age on board, a picture emerges in which complex networks of persons, who were all farmers but had specific knowledge about

[13] The craft of pottery producing might be a specialised craft, this does not mean however that potters were full-time specialists, as, for the Bronze Age, no evidence for specialist production of pottery (Wardle 1992; Ladle/Woodward 2003; this thesis) or metalwork (Kuijpers 2008) exists.
[14] Bronze Age Forum 2008 lecture titled 'A new twist on the Bronze Age: using perishables to break down traditional categories of inquiry'

particular practices, existed. This network of part-time craftsmen extended beyond the limits of the North Sea, and a high-flux interaction of knowledge and ideas was taking place in the later Early and Middle Bronze Age of North West Europe.

6.3.2.4 The potter in context: craft specialisation as identity

In the previous paragraphs, the potter's specialist knowledge was discussed and put in a wider social context. Craftsmen (and women) appear to have been moving, exchanging ideas and knowledge with each other and apprentices on both sides of the North Sea and English Channel. One might get the impression that these people were specialists, itinerary smiths and alike. However a more complex picture emerges when reviewing the evidence for specialist crafts and specialists as Hurcombe (2000) has done. On the basis of an analysis of the required time, knowledge and skill in different practices and in different parts of the operational sequence of pottery production, metallurgy, basketry weaving and flint knapping, she argues for the existence of part-time specialists for these crafts in prehistory. She argues against the presence of full-time specialists on the basis of archaeological evidence and ethnographical parallels from all around the world. Instead, she sees a specific interconnectedness between all types of crafts executed on the basis of varying relationships between skill, knowledge and time.

For the later Early Bronze Age particularly, communities on both sides of the North Sea consisted of people who, whether semi-sedentary or mobile, for the largest part of the year practiced farming (Brück 1999a; Fontijn/Arnoldussen 2006). It is fairly easy to envisage that, aside to this daily work (possibly even in particular seasons), they practiced their specialist craft and taught young pupils the specific knowledge of pottery production, metallurgy, basketry and the ancient craft of flint working.
With the emergence of structured settlements, and a new way of perceiving the landscape throughout North West Europe in the Middle Bronze Age (from *c.* 1500 cal BC onwards; Arnoldussen/Fontijn 2006), more formal methods in the production of material culture were probably practiced, leading to the more standardised pottery decoration repertoire of impressed cordons (see chapter 4 and paragraph 6.2.1.2) and probably more formal methods of cultural transmission, separating the practices of potting, weaving and metalworking to a particular extent. Further research should focus on changes in the production of material culture of this period and the possible nature of this separation and the specific relations that were changing at this time.

6.3.2.4 The potter in context: personhood as identity

In the previous paragraphs we've looked at the Bronze Age potter and his relationships with other craftsmen on the basis of their shared knowledge of stages in the production process. Next to that, the particular identity of a craftsman, based on his part-time specialism and his daily life as a farmer, was emphasised. One aspect that has remained unattended up to now is the specific relationship between these different part-time craftsmen (and women). How do these persons see themselves and each other? Were these part-time craftsmen individuals? Were they seen as elites, competing and exploiting their own knowledge in their quest for individual power and wealth? Or were other aspects playing a role in this?

Central to the archaeology and anthropology of personhood, is exchange. Following the anthropology of Mauss (1954) exchange, 'une fait sociale total', is what makes society what it is. Similarly, exchanges are everywhere; in the production of material culture, the birth of a newborn, the giving of gifts to other persons, the use of a specific natural environment and the rituals of everyday life. According to these theories, the exchange of objects leads to several

obligations, which connect people. Following also other anthropologists such as Godelier (1999), the exchange of objects between persons similarly leads to the construction of persons and influences the way people see the other and themselves.
An important conclusion from these theories on personhood is that the way a person sees himself and others, is not necessarily related to individualism (which is only a particular form of personhood; see LiPuma 1998), but part of wider social relations and the obligations attached to the exchange of objects. Thus a more realistic view of personhood looks at the exchange of objects and their influence on the (re-) construction of persons.

Specifically then, how did this situation affect the potter and the wider community he was part of? And how does this influence the existing relationships with other potters, craftsmen, and communities overseas?
By producing pottery, although part-time, potters frequently engaged in exchange relationships. At the moment of collecting raw materials for the production of pottery, exchanges took place through the extraction of clay and temper, an exchange with the natural environment. Next to that, when the vessel was finished, it was in many instances exchanged with other persons. These exchanges, as we have argued in chapter 5, probably took place at specific events at which communities gathered (Brück 1999a). Here communities, and probably also potters, exchanged with each other, re-forging social relations.

The exchange of pottery at these events turned the attention to the potter specifically. His knowledge of the origins of pottery vessels, in both clay and temper, and his knowledge of its transformation into a ceramic, made the potter aware of his personhood as a potter on these moments.[15] Similarly at these moments of exchange of material culture, other crafts were being propagated. However as we've seen in the previous paragraph, these potters and fellow craftsmen (or women) were part-time specialists. The basis for their particular knowledge stayed at these gatherings and at moments of exchange. During a large part of the life of a craftsman (or woman), other activities were more important. Archaeological evidence points to other activities of subsistence, mainly farming activities, carried out by these persons. The personhood of potters was thus only for a small and temporal part constituted by his practices as a potter, and for a large part by his activities besides potting.

6.3.2.5 The potter in context: aspects of gender
We've spoken about the potter, the craft of potting in relation to other crafts and the way the potter is related to other persons within society and the personhood of the potter. We haven't however yet found an answer to the question of who was the potter, within a particular community. Was he a male or female? And what are the implications of the potter being male or female for his or her social interactions?

Not many archaeologists have tried to answer this first question specifically. Anthropological studies focusing on the gender of the potter have concentrated on African examples (*e.g.* Barley 1994; Gosselain 2000). In general, both archaeological and anthropological studies have centred the role of women in the production of pottery. This fits well with the general trend of looking at pottery production as a domestic, everyday and household practice, which is typical of many studies (*e.g.* Burgess 1980). In order to move beyond this, several authors have looked critically at the theories of gender and their understanding of the archaeological record, focusing on crafts and funerary archaeology specifically. One of these archaeologists,

[15] This interpretation can also explain the absence of any potter´s graves throughout North West European Bronze Age. At the moment of the deposition of the corpse into a barrow, other values were considered more important than 'being a potter' or being a craftsman in general (Fokkens *in press*).

Sørensen, published a short study on the relationship between women and metalworking (Sørensen 1996; cited by Whitehouse 2006, 750; see also Sørensen 2004). In this study se also addressed issues related to pottery production, specifically the production of clay casting moulds, tools used in metalworking. As a particular example to her argument, she highlights the ambiguity in assigning crafts to different sexes in general. Sørensen considers three different possible scenarios, all not without problems. By doing this, she presents a more detailed account of gender relations in the Bronze Age of North West Europe. Firstly, clay technologies might have been a female activity, such as is generally thought of. This assumption implies a female role in the process of metalworking through the use of these clay moulds in the fire and the production of metal objects, a craft generally considered to be associated with males. The second scenario considers the opposite possibility of males having made the clay moulds for metalworking. This implies that clay working is not exclusively a women's domain, which is assumed by many scholars, as men participated in these activities making these clay moulds. A third and final option blurs the picture even more by questioning the assumption of gender exclusivity in relation to technology. She states that "...the production was dependent on the cooperation of gender groups, and the planning of production involved negotiation around gender divisions and ideologies..." (Sørensen 1996 cited by Whitehouse 2006, 750)
Moving forward from this last option, one can similarly question the necessity for the entire production process of pottery (or metalwork) to have been executed by a single craftsman (or woman). The concept of 'multiple authorship' has been noted already for specific Mesolithic flint assemblages in Britain (Finlay 2003). Associated with this concept are more general theoretical applications and meanings focusing on the dynamics of craft, personhood and gender relations (Hoskins 1998) which might also hold value for resolving the problems with regard to pottery and gender, raised here. However, evidence for neither complete, nor parts of, the pottery production sequence, can arguably be related to male or female craftsmen. It is therefore at this moment still inconclusive whether potters were male or female or even whether pottery production was dominated by a single sex throughout the North West European Bronze Age. Following Sørensen, we should not be looking for the different sexes in the archaeological record, but instead focus on understanding the gender relations that led to the production of pottery. However, we are still far from any understanding of these dynamics.

Implications for understanding the production of pottery from a gendered perspective are immense. When evidence for the 'multiple authorship' of pottery will potentially be found, this influences the model put forward in this thesis in which it is implied that the later Early and Middle Bronze Age pottery of North West Europe is produced by single craftsmen who had specialist knowledge and control over all parts of the production process. Next to that, the role of women as potentially pottery producing and potentially exchanged through marriage, influences the transmission of knowledge and (overseas) interaction between communities. It has been shown in a particular case by MacEachern (2000) that sub-Saharan women, who married into foreign communities, were expected to produce pottery in the local traditional way. While several archaeologists have argued for the exchange of marriage partners as a factor in the transmission of knowledge in the Beaker period, preceding the later Early and Middle Bronze Age, (*e.g.* Brody 1997; Vander Linden 2007), this complex relationship between the moving of (women) potters into new communities and the role of tradition in this might be a factor worth considering in the future.

6.4 *Humans on the move*

Having addressed the relationship between pottery and people in the North West European Bronze Age, on multiple occasions the evidence was best explained by a large degree of mobility, both on land and on sea. Contact between these communities, at specific gatherings and events have led to the observed similarities and differences in pottery decoration techniques and tools and similarities in use and deposition of pottery. More intensive contacts between part-time potters, sharing and exchanging their specialist knowledge, through apprenticeships and the general mobility of persons, have certainly led to the similarities in forming methods and to similarities in decoration techniques, tools and motifs, such as the patterns observed in chapter 4.

All in all, these two conclusions should be put in a larger perspective. Was mobility common good or restricted to certain special people?

Common interpretation of burial data and presently emerging isotopic studies is in favour of the latter, for instance by Kristiansen and Larsson (2005). They argue explicitly that isotopic evidence confirms the long-distance contacts between particular elites who were in contact across Europe and went on journeys for the sake of acquiring esoteric knowledge and goods. However having questioned the elite interpretation earlier, we can also question the restrictedness of migration and the relative value of mobility for the Early Bronze Age (Fokkens *in press*). The relative value of mobility is an aspect which has received little attention in many studies using isotopic data, or relating the archaeological record to aspects of mobility and migration. An interesting way out of this has only come up recently. Mans and Laffoon (2009[16]) used modern day ethnographic data from Surinam on particularly this problem. They compared the historically known movements of 19th and 20th century horticulturalists throughout the forests of Surinam with the local geological composition and the birth, life and death of these people. Having done this, shed light on what to expect in the isotopic record in terms of (in this case specifically) strontium values. Conclusions from this theoretical study (no strontium values were measured) shows two things. Firstly, a large amount of mobility is invisible in the isotopic record. Secondly, the mobility that is visible should be contextualised in the many different possibilities with regard to a person's life and biography. While it is difficult to apply these ideas to more practical use for the purpose of studying overseas interaction in the later Early and Middle Bronze Age of North West Europe, they do point at a hitherto underdeveloped theoretical discussion concerning mobility. In chapter 7 this argument will be followed further by focusing on this mobility and its environmental and historical context. It will be argued there that the overseas interaction between, and mobility of, communities in North West Europe had a long history, being based in Palaeolithic and Mesolithic times. Next to that, throughout prehistory natural environments have been suited for this overseas mobility of communities to take place.

[16] Lecture at the 'Humans on the Move' workshop organised by the Graduate School of Archaeology at Leiden University (7-04-2009).

Chapter 7 – An environmental and historical context for overseas interaction

7.1 *Introduction*

In the previous chapter, we have discussed the relationship between pottery and people in the later Early and Middle Bronze Age of North West Europe. However, in order to understand the complexities and relativity of the mobility of persons and the interaction between communities, several steps should first be taken, as will be argued in the first part of this chapter. In the second part, the history of the North Sea as an environmental entity will be given. This sets the scene for a broad overview of cross-Channel and North Sea interaction and the mobility of communities and individuals throughout prehistory in the third and final part of this chapter. This chapter will function as a reference for chapter 8, focusing on overseas interaction in the later Early and Middle Bronze Age of North West Europe.

7.2.1 *Seeing a boundary? Archaeology and the sea*

Archaeologists and anthropologists have looked at the sea in the past from a particular perspective. Recently, several scholars (*e.g.* Needham 2000; Kristiansen/Larsson 2005; Van de Noort 2006) have used the anthropological model of Helms (1988) in the context of the (North West) European Bronze Age. Needham (2000) argued for the cosmological acquisition of exotic goods and knowledge by elites, living in Wessex and Armorica, on both sides of the English Channel. In Needham's argument, the crossing of the English Channel is interpreted as a move into the unknown, towards far lands, in search for distant knowledge and goods. These crossings were executed in the form of raids commissioned by the later Early Bronze Age elites of Wessex and Armorica, supposedly visible in the burial record. In more recent years, Van de Noort (2006) used the work of Helms in arguing for the crossing of the North Sea as a special enterprise in the Early Bronze Age. He sees it as a *rite de passage* for young elites. These elites could achieve power by these journeys and by the exchange of exotic goods and knowledge in distant lands. Also, the use of knowledge in constructing technically demanding sea crafts such as the Dover boat, and the subsequent deposition of the boat in special locations is used by Van de Noort (2006) in arguing for the existence of specialist maritime communities.

These two examples of interpreting overseas interaction take on a particular theoretical basis for their study, the work of Helms (1988). Using Helms' model is not without problems, as was already argued in chapter 2. Next to being based in a specific neo-Marxist framework, Helms is concerned with a specific type of mobility; that of long distance acquisition of exotic goods by specific people (portrayed as stereotypical modern Western individuals[17]) within sedentary, island communities. These notions frame the model in looking at the sea as a boundary which needs to be crossed. In the two examples noted above this is well illustrated. The crossing of the sea is seen as both valuable and a difficult enterprise. This particular study does not stand alone, but is part of a wider approach to the study of the sea in anthropology and archaeology. It is based on the 1960s and 1970s New Archaeology, when stricter boundaries were sought and found within social evolutionary models (*e.g.* Binford 1962; Evans 1973; Renfrew 1968), using theories from the field of Darwinian biology (see Rainbird 1999). Studying islands became the perfect location for studying social change and the evolution of societies and aspects of interaction, as a strict division between societies and 'the outer world' (*i.e.* beyond the island) was envisaged. Evans (1973, 517) notes "...The fundamental limitation [is the sea]; it imposes [restrictions], more or less, on intercourse with groups living elsewhere..." Besides aspects of movement across the sea, studies focusing on the sea itself have been similarly imbued with ideas of danger and mortality (*e.g.* Pollard

[17] The 1980s 'Young Urban Professional' springs to my mind

1999). Clearly, in many studies about interacting communities, archaeological reasoning focused on the land; the sea was seen as a dangerous boundary between these lands.

Since the 1990s, both the insularity model of Evans and the subsequent perspective of 'the sea as a boundary' have been criticised. These studies approached the sea from a completely different perspective. Simultaneously with anthropological and archaeological studies on landscape perception, the sea was studied in a more contextual perspective. Studies focusing on a contextual analysis of the landscape did this by looking at the human engagement with this landscape through the application of social theory and practice (Barrett 1994). Specifically focusing on the sea is the study by Gosden and Pavlides (1994). Their results, based on a specific example of exchange relationships (the Arawe Islands, Papua New Guinea), show that the model which sees the sea as a boundary, cannot be the only right one. Contextualising their specific study in a wider framework, they argue that seeing the sea as a boundary between islands or regions is a specific historical reality. In their particular study, the sea is the main medium of connection in terms of exchange networks of obsidian and food. In fact, Gosden and Pavlides state that "...[t]he whole layout and use of the (...) landscape is predicated upon the demands of the wider system created by maritime contacts..." (*idem*, 166) While this situation is specific for the Arawes region, as Gosden and Pavlides also note, this does exemplify the more complex nature of human – sea interactions and the possible ways people have perceived the sea. In their final words they state "...[t]he sea is not necessarily either a bridge or a barrier: it is what people make it. Just as the land can be made and remade by human influence, so can the sea..." (*idem*, 170) While this does not deny the possibility of interpreting the sea as a boundary in general, it does criticise scholars who assume this interpretation beforehand, such as has been the case for the North West European Bronze Age (like Van de Noort 2006).

In the North West European Bronze Age specifically, some studies do exist which have similarly argued against a boundary. It was Briard (1993) who specifically saw the English Channel as 'a highway for prehistoric bronze exchanges'. More recently, archaeologists specifically working on Bronze Age occupation of the small islands in the English Channel area have argued that some islands had specific roles in maritime exchanges, related to redistribution of goods and special local navigational knowledge (*e.g.* Perkins 2006). Concluding, geographical features such as islands now feature prominently in interpreting prehistoric exchange and interaction networks across the North Sea and English Channel. Communities living on islands, such as Scilly, Thanet and Jersey and near the dynamic coasts of estuaries and river mouths form an important part of Needham's (2009) maritory model. In this model, it is Perkins' specialist maritime communities that perform exchanges on both sides of the North Sea because of their geographical knowledge, navigational skills and related advantages. While this is certainly a move in the right direction, seeing the sea as a corridor, a highway, for exchanges, it still relates seafaring to a certain specialness of which the roots lie in modern Western land oriented and boundary-oriented thinking. As if the North Sea is a boundary that could only be crossed by specific high-status persons who exploited a special body of knowledge. Based on the aforementioned study of Gosden and Pavlides (1994) and the large amount of evidence for overseas interaction most scholars agree on (see for instance Briard 1993; Marcigny *et al.* 2007; Needham 2009), I argue that this is wrong for the later Early and Middle Bronze Age. Such a model is a Modern oversimplification, based on the present day situation where the North Sea and English Channel is being exploited by specialists.[18]

[18] For instance in the present day, when crossing the North Sea is mainly facilitated by specialists navigating boats and flying aeroplanes or other more extraordinary examples of swimming from Dover to Calais or using a

In order to assess the general importance of the sea, it is better approaching this particular space as an entity on its own: the North Sea and English Channel as environments with which people have engaged. Only then can we argue for specific attitudes (whether it was a boundary, whether it was a maritime highway or whether it was a zone in which access and crossing was restricted to specialists) in overseas interaction.

7.2.2 *The coast: a liminal zone?*

In relation to this discussion we find both similar and different problems when looking at the discussion on the significance of the coasts and coastlines of the North Sea and English Channel. Bailey and Parkington (1988) provide an overview on relatively early examples of systematic research into the nature of the coastline for prehistoric communities. These studies, as they show have centred on the importance of coasts in mainly economical respects. They relate to coast to the abundant evidence of resources and the specific situation as an ecotone between land and sea environments, focusing on aspects like coastal inhabitation, sedentism, midden formation and use of (shell fish) resources. Other, more recent, influences, many anthropological, have changed this ecological perspective towards a more ritualised and symbolic interpretation of the coast. Pollard (1995) has neatly summarised this perspective with regard to the perception of Scottish Mesolithic coastal environments, arguing for liminality and ambiguity when interpreting coastal shell midden sites. This liminality is based on the association of the shore with the interplay between sea and land. In Pollard's words (*idem*, 202) "...The shore is an environment subject to constant change, being neither land nor sea, but a transitional zone between the two..." This liminality is further enhanced by the dynamics of coastal environments (*e.g.* tidal movements, sea level changes, sedimentation and erosion).
In discussions of overseas interaction in the Bronze Age, the coast is notably absent. Scholars have been mainly interested in the possibility of mooring a boat on different types of shore.[19] A more contextual analysis can get more depth in this topic. Whether a coast is dynamic or not, or consists of rocky outcrops, clearly influences the way people perceive the coast and the sea beyond that coast. The ability to land a boat should also be seen in this respect.

When taking the earlier stated contextual approach on attitudes towards the sea and the land, to the coast, one can only state that a focus on the way people engaged with the coast, through practices, will inform us on a more balanced interpretation, beyond the ritual/liminal and beyond the economical/ecological. Recent approaches have tried this for the Bronze Age by coining the concept of seascape (*e.g.* Van de Noort 2003; Chapman/Chapman 2005). While the concept itself is interesting and useful for such undertaking, several problems with its application should be stressed. These studies have been biased (Van de Noort 2003), focusing on a neo-Marxist interpretation of the social context of seafaring in general (instead of focusing on how past peoples have used and were formed by the sea), or focusing on very specific and particular situations such as the topography of the Humber estuary (Chapman/Chapman 2005). It would be better to construct a seascape which takes the sea itself into full consideration. As any interpretation of landscape is based on geological and environmental parameters, so should a seascape be based on similar (palaeo-) oceanographic notions. These aspects, such as sea level rise, the change of tidal currents and coastal development, can then be related to human practice, and engagement with this changing environment: the true seascape.

---

car as a boat in trying to get across (*cf.* TopGear: http://www.topgear.com/uk/videos/more-wetness; accessed at 24-01-2010). Similarly international jurisdiction considers the North Sea to be a boundary (*cf.* Mak 1974)

[19] See the papers by Clarke & Cunliffe at 'Bronze Age Connections: Cultural Contacts in Prehistoric Europe' November 2006 (recently published in Clark (2009)).

7.2.3 *Engaging with the sea and its environments*

Interaction between communities on both ends of the North Sea and English Channel is heavily influenced by the way people approach and engage with the context of these interactions, the sea itself. People, as many recent studies into the nature of human – environment interaction have shown, engage with the sea, the medium through which interaction between persons and communities is taking place, on a daily basis (*e.g.* Ingold 2000; Cooney 2003; papers in Cummings/Fowler 2006). Therefore, in order to understand the overseas interaction taking place in the later Early and Middle Bronze Age it is necessary to look closer at the context of prehistoric overseas interaction, the sea specifically. What kind of sea did these people see? How was their interaction influenced by this sea? Understanding prehistoric overseas interaction, mobility and exchange can only be explained by considering the way communities engaged with this environment throughout prehistory. This particular environment is highly dynamic, as will become clear below. Therefore, a long-term overview of the developments in sea levels, palaeotides and coasts will be given.

7.3 *Development of the North Sea and English Channel*[20]

When discussing the development of the North Sea and English Channel, several proxies can be used. In this paragraph an outline of the development of the North Sea and English Channel will be based on several variables. Changes in sea level, the development of North Sea and the English Channel coasts, and the development of past tidal regimes all leave traceable evidence in the sediment. These factors all influence the environment in which past communities and persons could dwell, move and interact. In order to put these outcomes in perspective, a long-term perspective is adopted, taking the flooding of the North Sea basin as a starting point. In the next paragraph (paragraph 3 of this chapter), the environmental developments of the North Sea and English Channel will be related to the developments in mobility patterns and the perception of landscapes and seascapes by hunter-gatherer and farming communities.

7.3.1 *Sea level changes*

Long lasting research into the Lower Rhine estuary, mostly on the sedimentation of clay and the formation of peat on the flanks of Weichselian river dunes, has led to the appreciation of detailed regional sea level curves for the Dutch coastal plain (Louwe Kooijmans 1974; Jelgersma 1979; Berendsen *et al.* 2007). Other regional curves for the Vecht basin (Van de Plassche *et al*. 2005) and the Elbe basin (Behre 2007) have been updated recently. Even more recently, Vink *et al.* (2007) published an overview on the latest data concerning the relative sea-level rise from northwest Europe, comparing these regional curves with each other and with recent models concerning isostatic adjustments and the theoretical 'best fit' sea level curves. Much variation exists when comparing regional curves with one another. This variation is based on regional variation in hydro- and glacio-isostatic effects that have occurred in the area. In general the regional curves and the general curve produced by Vink *et al.* (2007) show a rise in sea level up to the present day with a gradual levelling off after 6000 BP ((*idem*, 3263; see also fig. 7.1).

[20] A thorough outline on the present day situation of the North West European waters, with regard to physical oceanographic conditions (temperature, salinity, tides) is given by Lee (1988). For a basic understanding of the principles behind these conditions and an explanation of their development annually and throughout recent history, the reader is referred to this work.

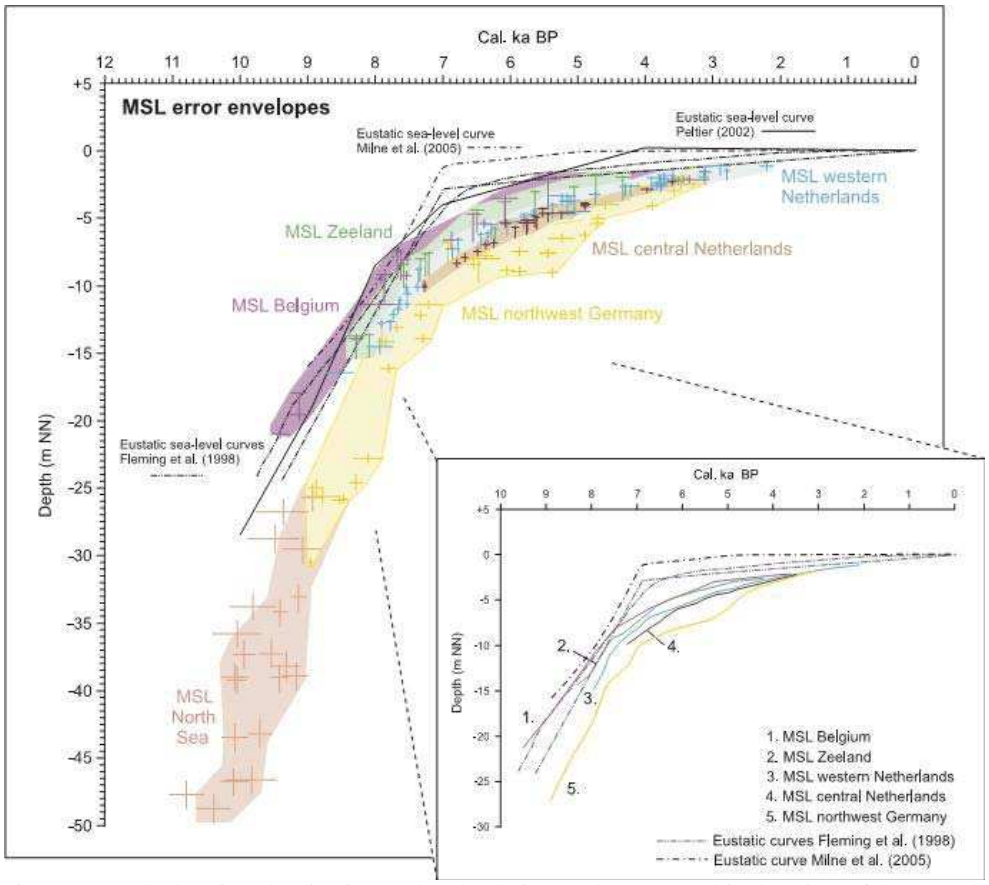

Fig. 7.1 Graph showing the rise in sea-level relative to the geographical region of the sample. Note for example the differences between curves for northwest Germany (yellow area) and Belgium (purple area; taken from Vink *et al.* 2007, fig. 6).

After the last Ice Age, the Weichselian glacial (*c.* 18000 BP), sea levels began to rise globally, due to volume expansion of the warmer water which until that time was stored in ice. In the North Sea basin this process was further enhanced due to isostatic effects, related to the near presence of glaciers. The melting of these glaciers led to the isostatic rebound of the regions to the south of it, such as the North Sea basin, resulting in a lowering of the land surface. The sea level around 18000 BP, when the land ice started to retreat, was about 130 m. below the present level. Sea level changes in the Early Holocene period were fairly rapid. Around 10000 BP, the start of the Holocene, sea levels were around 50 m below present Dutch and German ordnance data (NAP and NN). In half a millennium these sea levels rose to 35 m. below present, which is an increase of 3 metres every 100 years (not mentioned is the possible regional or temporal punctuated changes in this increase in sea level). Until around 8000 BP, this was the general rate of sea level rise communities had to cope with. After *c.* 8000 BP, the rise of sea levels decreased due to climatic changes. These general trends had profound impact on the North West European sea- and landscapes and the people inhabiting these sea and landscapes.

During the Late Weichselian glacial, before the rise in sea level occurred, the North Sea and English Channel had fallen dry. As a result of this, a dry landscape existed between the present day British Isles and the Continent, a landscape on which humans lived their lives and which with these humans engaged. This landscape, submerged by the above presented rise in sea level, is known by the name of Doggerland (Coles 1998). The development of this landscape and its inevitable submergence forms the basis of the perception of the sea by early hunter-gatherer communities living there and the later farming communities on both shores of the North Sea.

7.3.2 *The development of Doggerland*

Discussions about the development Doggerland, by geologists known as North Sea palaeogeography, have been firmly rooted in geological work (*e.g.* Shennan *et al.* 2000) and only recently a discussion between geologists and archaeologists was initiated by the already seminal paper by Coles (1998). In this work she discusses the geological modelling and archaeological implications of these models, with regard to the human occupation of this landscape and the Mesolithic/Neolithic transition. Geological models, and archaeological correlates, have been primarily based on bathymetry[21] and the lowering of the sea level in order to assess the land mass and coastline of Doggerland (*e.g.* Jelgersma 1979; Hinton 1996). Taking isostatic effects into consideration, and using observed data, Shennan *et al.* (2000) have constructed a new general model. Because this model proved too course for detailed questions and analysis, a fine grained case study was executed by Gaffney *et al.* (2007). Their study has reconstructed a specific part of the Doggerland palaeolandscape based on coring samples, 2D and 3D seismic data and high resolution bathymetry. However for studying the development of Doggerland in general, the model by Shennan *et al.* (2000, 308-312) will suffice, due to its large extent and general applicability. Their model traces back the development of Doggerland from 10000 BP until 3000 BP at intervals of 1000 or 500 years each (see figs. 7.2 - 7.7).

[21] Bathymetry is the study of seabed topography. Differences in altitude at the moment of scanning, by means of sonar, are measured.

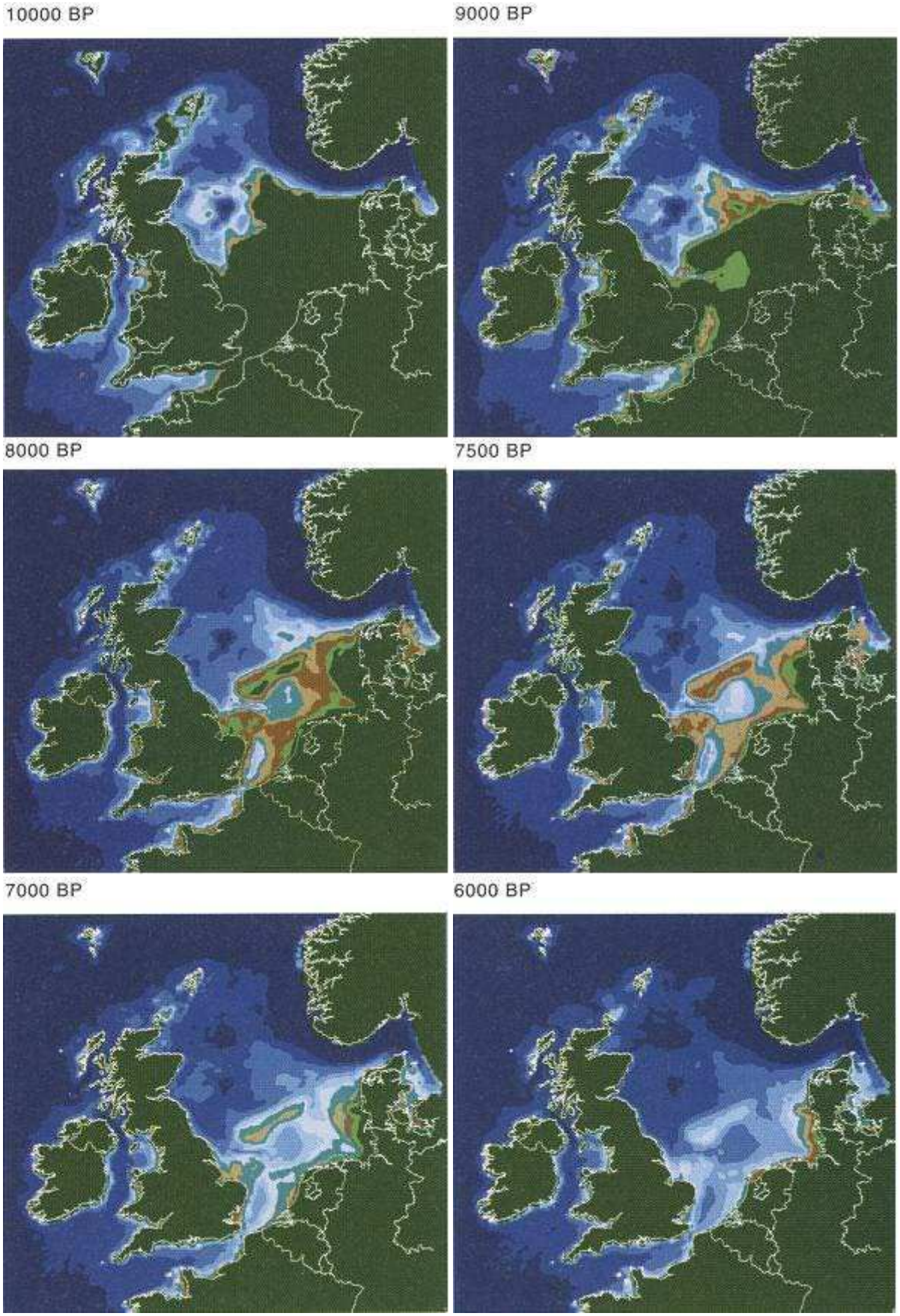

Fig. 7.2 (top left); 7.3 (top right); 7.4 (middle left); 7.5 (middle right); 7.6 (lower left); 7.7 (lower right) Paleogeographic reconstructions of the North Sea and English Channel basin dating to respectively 10000, 9000, 8000, 7500, 7000 and 6000 BP (taken from Shennan 2000, fig. 5).

Around 10000 BP Doggerland was at its maximum size, ranging from present day Yorkshire to North-western Denmark and beyond the Strait of Dover. By 9000 BP, small areas of this landscape, the northern part especially, had flooded. Most significantly is the emergence of a wide tidal system directly southwest of the Norwegian Trench and the appearance of several small lakes of which one originated directly between the later Belgian and British coasts. Around 8000 BP these lakes had increased in size and had become attached to the sea, forming lagoons now. The southern lake became attached to the English Channel, further extending the estuary of the Channel River. From this period onwards, only a small strip of land separated the Northern part of the North Sea now from the English Channel. By 7500 BP, this small strip of land had become a tidal marshland environment, as the sea level had again risen. Also around this time, the Doggersbank, a significant strip of higher ground, became detached from the Continent, creating an island. Around 7000 BP, which is around 4500 cal BC, sea levels had risen to such extent that the North Sea and English Channel merged together. In this period, the Doggersbank had become one of the many common sandbanks in the still shallow waters of the Southern North Sea. From 6000 BP, around 4000 cal BC, onwards, these sandbanks had disappeared to a large degree and the North Sea and English Channel had become comparable to the present day situation to a large extent, from a palaeogeographical perspective (Shennan *et al.* 2000, 308-312).

Further developments and rising sea levels were noticeable on a more local and regional scale in coastal regions such as the Wash and the Lower Rhine Basin, where the interplay between land and sea remained and an ever-changing and unique coastal landscape was created. We will now focus more specifically on these coastal landscapes and their development.

7.3.3 *The development of coastlines*

Related to the submerging of Doggerland, is the development of the North Sea and English Channel coastlines. As we have seen, coastlines have previously been interpreted both as an important ecological niche and as liminal zone in the transition from land to sea. In models with regard to Bronze Age overseas interaction in North West Europe, the coast is notably absent. However, a focus on the coast itself and its development can shed more light on how people have perceived it in prehistory.

At the end of the last Ice Age, the northern Doggerland coast consisted of broad, flat sand beaches on which probably low dunes developed. This environment was intersected by the broad estuaries of the Ouse and the Elbe. The southern coast of Britain, Doggerland and the Continent consisted of a stony beach coast intersected by estuaries of smaller rivers, such as the Avon into a single large estuarine environment, based on the Channel River, a single river based on the combined flows of the Thames, the Rhine and the Meuse (Coles 1998). The Channel river valley, with the white cliffs of Dover and similar cliffs on the Northern French part of the Continent, was already a relic of earlier geological activity. As the sea level rose, the sediments that formed the Early Holocene beach moved further inland until this was halted at these ancient cliffs. This situation, the emergence of large estuaries and complex coastal alignments, lasted throughout the early centuries in the Holocene, with the sea gaining more and more territory over the land. From 8000 BP onwards, due to the rising sea levels, the estuaries had broadened to large extents. In the northern Doggerland these estuaries became lagoons, while in the southern Doggerland the three river confluences separated and flowed into a single bay, the English Channel. Gradually, on a regional scale, the coasts began to shift. Firstly separating the Continent from Britain, and secondly by a horizontal advancement inward, leading to the creation of complex and highly dynamic riverine basins such as the Lower Rhine Basin and the Thames estuary from around 8000 BP onwards. The northern Doggerland coast had by then become capricious and evenly dynamic, with the

Doggersbank peninsula rapidly decreasing in size and many small bays appearing. From around 7000 BP onwards, when the North Sea and English Channel merged into one body of water, developments of coastlines become more regionally specific. On the Continent this development is characterised by a land inward movement of beach barriers and dunes, creating an environment of barriers, back-barrier basins and river estuaries (Van der Molen/Van Dijck 2000, 226-227). From 5000 BP onwards, the sea level rise diminished, which led to less coastal erosion. As the sedimentation rate of the large Continental rivers increased, a new situation emerged, in which, from this period, around 5000 BP onwards, beach barriers expanded in the direction of the sea and the former tidal basins silted up and slowly became filled with peat. This continued until sediment supply decreased and did no longer exceed the effects of sea-level rise. This resulted in the closing of the barrier system, with several rivers flowing in the North Sea. In several distinct regional transgressive phases, related to a decrease in riverine sedimentation activity, new tidal basins emerged.

7.3.4 *The development of tides and currents*

As we have seen in many of the preceding paragraphs, the North Sea landscape has changed considerably, both in terms of land mass and geography, and coastal evolution. An important feature which has changed with equal degree, but has been the subject of far less research, is the tidal development, as characterised by the surface current. Studies into the influence of currents and tidal regimes on prehistoric contact and interaction, have always related to the modern day current and tidal situation (*e.g.* McGrail 1993). However, as these regimes are to a large degree influenced by, climate and geography and changes in those respects, it is necessary to incorporate these changes in addressing issues of tides in prehistory. Prehistoric tides themselves leave no detectable traces, thus palaeotidal data is only found when combining data in a model. As inherent in the process of modelling, only broad changes and tendencies are found. Next to that, in models only a approximation of the past situation can be given. The improvement of models towards a better reconstruction however, has led to several interesting conclusions. Two types of models will be discussed here, a bathymetric and palaeogeographical one, and a sedimentary one.

The first palaeotidal models for the North Sea and English Channel were constructed in the 1980s and 1990s (Hinton 1996). These models only use modern day bathymetry and seabed topography in reconstructing palaeogeographic and palaeotidal models, not taking isostatic effects in consideration, and only use a limited amount of data. These models predict a general increase in tidal range. Shennan *et al.* (2000) do take isostacy into account and use more data for their model. Results similarly show an increase in tidal range since the early Holocene, with major changes occurring prior to *c.* 6000 BP. An even more recent model by Uehara *et al.* (2006) is wider in set up. They look at changes beyond the North West European shelf seas, as research has shown that the tidal influence is dominated by the oceanic M2 tides (North Atlantic). Glacial events on a larger scale, related to the blocking of the Hudson Bay and the subsequent Heinrich event[22] at the end of the Last Glacial Maximum (Griffiths/Peltier 2008; Arbic *et al.* 2004), have caused changes which had a major significance on North West European tidal regimes and changes therein. Results from this more complicated model are twofold. Firstly, before 10000 BP, tides and tidal currents were significantly larger, due to North Atlantic Ocean tides enhanced by the Heinrich events. Secondly, after 8000 BP, tidal changes have been generally small when the sea level became closer to the present (Uehara *et al.* 2006, 14). How small these changes might have been is however not attested, as this requires more detailed research.

[22] A Heinrich event occurs when, during early stages of deglaciation, large amounts of ice-rafted debris are broken from the Arctic Icecaps, and subsequently deposited in the North Atlantic at roughly 7000 year intervals (see Arbic *et al.* 2004 or, even better, Heinrich 1988).

This model, and the models constructed earlier, do leave enough ground for the earlier assertions of a relative but seriously notable increase in tidal range throughout this period (Shennan *et al.* 2000; Hinton 1996). Most recently, points raised by Vink *et al.* (2007, 3269-3270) show the rapid development of tidal ranges in the Belgian and Dutch coastal regions, related to the rapid sea-level rise around *c.* 9000 BP.

A different body of research, mainly executed by Dutch scholars, relates the tidal range to sediment transport and the study of sandbank genesis. Van der Molen and Van Dijck (2000) modelled early Holocene wave heights and wave-induced sand transport and sedimentation evidence from the coastal region of the Netherlands and Belgium. Their study uses present day bathymetry data and the modelling of waves on the basis of both this bathymetric data, and the knowledge of the outcome on the present day continental coast. Isostatic effects are not accounted for in their model. The sand transport and sand erosion/deposition by tides are modelled for 8000 BP, 7500 BP, 6000 BP and the present day situation (see fig. 7.8-7.11; Van der Molen/Van Dijck 2000, 233-235). While their study is not on tides specifically, a general development of the tidal range can be inferred from their study. The development of the tides, from a stronger current on the western part of the southern North Sea-tidal bay around 8000 BP, towards a more centred and easterly based current around 7500 BP at a time when the land bridge was being eroded and submerged, towards a more stable situation around 6000 BP. This 6000 BP situation is less erosive in the southern North Sea, and thus less tidally active, than the present day situation. When looking at the transportation of sediment over the long term, Van der Molen and Van Dijck present an eastward evolution of beach barriers (Van der Molen/Van Dijck 2000, 234-235), such as already inferred from less detailed data and side information.

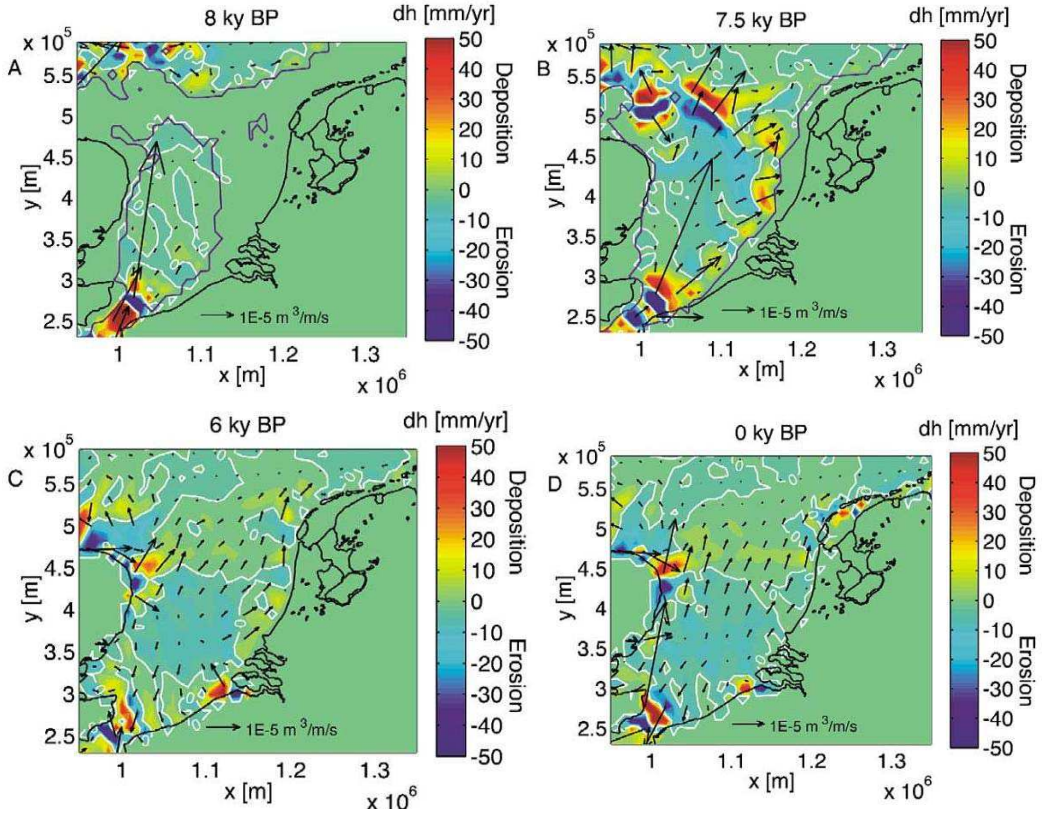

Fig. 7.8 (upper left); 7.9 (upper right); 7.10(lower left); 7.11 (lower right) Development of currents and sedimentation activity in the North Sea basin for respectively 8000, 7500, 6000 and 0 years BP (taken from Van der Molen/Van Dijck 2000, fig. 7).

7.3.5 *Concluding: environmental developments and their importance*

As we have seen, during the course of North Sea and English Channel environmental history, many aspects changed until the present situation; a rise in sea level, the submerging of Doggerland, the emergence of a constantly highly dynamic coastal zone and the increase in tidal range. What is the importance of all this, when related to the long-term history of interaction between communities living on both sides of the North Sea and English Channel? Did these communities perceive the changes that took place on the longer term, and how did they respond to it?
In the next paragraph an answer to this last question will be addressed for the Late Palaeolithic until the Beaker period, as a prelude to the overseas interaction taking place in the later Early and Middle Bronze Age, the primary focus of this thesis, which will be addressed in chapter 8.

7.3 *Towards a North Sea seascape*

In the above, we have seen that the evolution of the North Sea and the English Channel was a complex and dynamic process. From the Upper Palaeolithic period onwards, anatomically modern humans lived in this rapidly changing landscape (Fitch *et al.* 2007). To a certain extent their lives were structured by this environment. In this paragraph the way these peoples engaged with this environment and the ways in which subsequent generations coped with the dynamic landscapes and seascapes of the North Sea and English Channel will be addressed.

Many scholars have looked at communities and their engagement with the natural environment and their contribution to overseas interaction in particular periods (*e.g.* Pailler/Sheridan 2009; Sheridan 2008; Needham 2009; Cunliffe 2009). However these studies consider problems of overseas interaction without looking into the longer term and the broad developments in mobility and land and seascape perception that took place throughout prehistory. Without addressing these issues, studies into overseas interaction have remained particularistic and incoherent to a large extent.

However, any environment is imbued with specific meanings attached to it related to earlier engagements and the history of human - environment relationships. A landscape is never a blank slate on which people act (Fontijn 1996), nor is a seascape. Thus, in the later Early and Middle Bronze Age, individual persons and communities lived in landscapes and seascapes imbued with significance. These communities probably had myths and narratives about their ancestors (hunter-gatherers and early farmers) who dwelled in these places, and engaged with the same landscapes and seascapes of North-West Europe a long time ago.
Next to that, practices related to mobility and movement on the land and on sea, are always part of an ongoing engagement with these environments and the long-lasting appreciation of certain significant places (Ingold 2000). Thus in order to understand the mobility taking place in the later Early and Middle Bronze Age, it is necessary to look into the history of mobility through the landscapes and seascapes and the significance of particular places in North West Europe.

Thus, in order to really understand these later Early and Middle Bronze Age developments, to contextualise their history and assess their relativity, this paragraph will focus on the long-term history of overseas interaction. More specifically, aspects of mobility and perception of the land and sea will be addressed for hunter-gatherer communities (Upper Palaeolithic/Mesolithic; 13000 BP – 5200/4000 cal BC), early farming communities (Mesolithic/Neolithic; 5200/4000 - 2500 cal BC) and especially the Beaker period (2500 - 2000 cal BC) which directly precedes the later Early Bronze Age. Only when we appreciate

this long term approach, we can look at the overseas interaction taking place in a particular period. And only then can we put this interaction in its particular chronological context. Looking successively at Upper Palaeolithic and Mesolithic hunter-gatherers, the Neolithic early farming communities and the Beaker period, focusing particularly on these aspects of overseas interaction will provide the context needed for this study.

7.4.1 *Upper Palaeolithic and Mesolithic period (13000 BP – 5200/4000 cal BC)*

7.4.1.1 Mobility

The Upper Palaeolithic and Mesolithic period are characterised by colonisation. After the Last Glacial Maximum, the climate became warmer. Animals, including humans, moved into the new landscapes of North West Europe. These lands were until that time uninhabited. Thus the Lower Rhine Basin and Doggerland, extending into the island we now know as Britain were colonised at first. Colonisation of other, more geographically extreme parts of North West Europe, the coastal regions of Norway and the island of Ireland, occurred later in the Mesolithic, around respectively 9500 and 9000 cal BC (Bjerck 2009; Woodman 2003). The only way this later colonisation could have taken place, was by seafaring, as both the Irish Sea and the north eastern Atlantic were present at that point in time. Also, finds distribution maps from Norway show a predominantly coastal distribution with regard to the earliest occupation (see figs. 7.12 and 7.13), which can only be explained by regular visits crossing open seas.

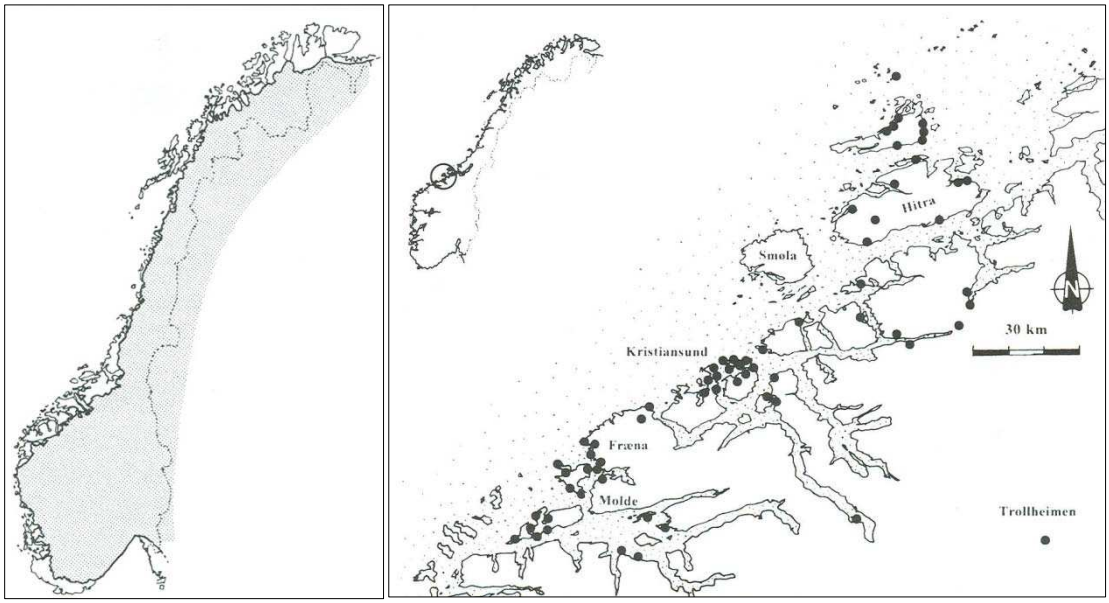

Fig. 7.12 (left) The extent of the ice sheet in Scandinavia at the moment of colonisation by earliest hunter-gatherers (in grey; left image); 7.13 (right) the distribution of early hunter-gatherer sites on the coast of a specific part of Norway (both taken from Bjerck 1995, fig. 5(left) and fig. 11(right)).

Certainly, this means these communities were engaged with the sea particularly in colonising activities. The most commonly found Mesolithic boat, the logboat, was probably unsuited for this task which required regular seafaring voyages. It had a low freeboard and was not stable enough on open sea (McGrail 1997). Therefore, regular seafaring in the Mesolithic was limited to the use of hide and skin built boats, supported by timber frames. Such boats only exist in archaeological interpretational models. None have been found yet, as the materials they were made of are generally not preserved in the archaeological record. The use of logboats was confined to coastal fishing activities and riverine transport (Louwe Kooijmans/Verhart 2007) throughout large parts of North West Europe. Coastal movements

may have been another use of logboats, as many have been found on Mesolithic settlements near the coasts of Denmark (Skaarup 1995).
The mobility of these hunter-gatherer communities is also reflected in the settlement pattern. A large degree of variation exists (Waddington 2006), from (quite substantial) houses to seasonal camps and isolated scatters of flint in places where specialised activities were carried out. It can be argued that this mobility extended over the entire Continent and that it did not stop at the sea. The use of maritime technology, hide- and skin-built boats, allowed these hunter-gatherers to 'dwell on the sea' and engage with this environment in the same way as was customary on land (*e.g.* Warren 2000; Sturt 2006).

7.4.1.2 Landscape and seascape perception
Recently, the relationship of hunter-gatherers and early farmers to the landscape has been caught under the term of 'dwelling through the environment', a perspective in which daily engagement and a fine attention to the environment structured daily life. In this perspective, landscape, object and person are seen relationally (*e.g.* Pannett/Baines 2006; Pollard 2006; see also Ingold 2000). As a result, scholars have argued that hunter-gatherers did not discriminate themselves from nature in the same way as we at present do, by constructing settlements or producing a substantial body of culture. On the contrary, they engaged with nature on a daily basis, which led to more blurred categories of classification, a particular way of looking at nature and culture and a rhythmical understanding of daily life.

The humans who lived here in North West Europe were hunter-gatherers and fishers. They were highly mobile, and concentrated themselves on the edge of different ecosystems, where a large variation of food resources could be acquired. They hunted large fauna (aurochs, reindeer, etc.; see Prummel *et al.* 2002; Andersen *et al.* 1990), and, for some time of the year, lived close by water; the valley of a river or the shore of the sea. The southern Atlantic seaboard, in Britain, Doggerland and on the Continent (Tolan-Smith 2008; Coles 1998; Dupont *et al.* 2009), provided such environments, rich of resources and imbued with many meaning. At these shores and near river estuaries, hunter-gatherers collected shellfish and probably practiced coastal and riverine fishing activities, using logboats and probably also hide and skin built boats. The evidence for shell middens in Britain, France and Denmark (Milner 2005), combined with the isotopic evidence from Denmark, Britain, France and the Lower Rhine Basin shows similar patterns with regard to the use of predominantly marine resources (*e.g.* France: Schulting/Richards 2001; Lower Rhine Basin: Smits/Van der Plicht 2009; Britain: Schulting/Richards 2002; Denmark: Milner *et al.* 2004). A recent overview on fishing evidence for Mesolithic Europe (Pickard/Bonsall 2009) showed that, based on ethnographic parallels and lack of evidence, deep-sea fishing was probably not practiced. Fishers probably stayed near the existing coastlines, where risk was low and enough fish could be caught.

Concluding, in the Upper Palaeolithic and Mesolithic period, mobility was high (Waddington 2006; Warren 2000). People already knew their way around the land and seas of North West Europe, through acts of colonisation and mobility related to (economically, socially and ritually) the visiting of significant places on land and on sea (Bjerck 2009; Barton *et al.* 1995; Woodman 2003). The submerging of Doggerland, taking place in the Mesolithic, had little effect on the population, as these communities were fine-tuned to environmental changes and adapted easily to this new situation (Leary 2009). Positive effects of this submerging have been under recognised; the newly emerged coasts provided an ecological wealth for these fishing, gathering and hunting communities, and could have been the reason for them not adopting agriculture (Coles 1999). Next to these developments, a large degree of uniformity

in bone and flint tools existed for the Upper Palaeolithic and earlier Mesolithic. Later Mesolithic flint assemblages are more regionally variable (see Jacobi 1976; Barton/Roberts 2004). Variation in the shape of bone tools is present throughout the Mesolithic, although the reasons behind this are unclear and might be related to other aspects than social identity (see Verhart 1990).

7.4.2 *The Neolithic period (5200/4000 cal BC – 2500 cal BC)*

7.4.2.1 Mobility

These highly mobile communities of the Mesolithic lived their lives, when around 5200 cal BC Neolithic farmers of the *Linear Bandkeramik* (LBK) settled in the Paris Basin, the Middle Rhine area and the southernmost part of the Netherlands. In the Lower Rhine Basin, the Scandinavian region and on the British Isles, Mesolithic life continues largely unaltered until around 4000 cal BC (Louwe Kooijmans 2007). In Denmark and Britain, change towards an agricultural lifestyle is said to have occurred swiftly in the centuries around 4000 cal BC (Andersen 2008; Whittle *et al.* 2007). For Britain settlements remain notably absent, and there seems to develop a Neolithic based on ephemeral architecture, small scale farming and a high degree of mobility (*e.g.* Garrow 2007; Sturt 2006; Harris 2009). Many of these places, such as Kilverstone in East Anglia, show a long period of repetitive use.

Changes in the diet, such the use of domesticated plants (Brown 2007), are also attested for Britain from 4000 cal BC onwards, with the majority of finds dating from 3800 cal BC onwards. However, evidence for the use of fish by coastal communities has remained in the Neolithic diet (see Milner *et al.* 2004 and the discussion that developed as a consequence of this paper).

Whether these changes towards a Neolithic life can be seen as specific migrations or the result of more gradual and largely indigenous developments, related to changes in perception of the local landscape and mentalities, is debated fiercely among several scholars regarding the neolithisation of Britain (*cf.* Sheridan 2007 *versus* Thomas 2007a). It is evident that in Britain, a complex situation of old traditions and new developments was taking place from 4000 cal BC onwards.

As said, Mesolithic life in the Lower Rhine Basin continued largely unaltered throughout the Neolithic. Only slowly certain specific elements of Neolithic life were adopted by the local, pottery producing, hunter-gatherers and fishers (the early Neolithic Swifterbant and Hazendonk-3 communities). These developments took place around 4000 cal BC onwards, when contacts with the agrarian communities from the loess and southern sandy soils started (the Michelsberg culture; see Louwe Kooijmans 2007, 2009). Similar developments are noted for the more southern Scheldt basin, with the appearance of Michelsberg communities in these areas (Crombé/Vanmontfort 2007). Marine resources were still a large component of Neolithic life in the Lower Rhine Basin, supplemented increasingly by agrarian products, throughout the Neolithic. Louwe Kooijmans nicely phrased this particular neolithisation process as an ‘extended broad spectrum economy’ (Louwe Kooijmans 1993).

In the later Neolithic, different patterns of mobility are starting to emerge. With the appearance of Grooved Ware communities in Britain the earliest evidence for settlements appeared. In this period, the Orkney’s and in the area around Durrington Walls show signs of settlement (see Richards 2005; Parker Pearson 2007). In many other parts of the British Isles, no such evidence is available. Around Durrington Walls, the settlement relates to the Stonehenge landscape and probably to specific seasonal gatherings at the midwinter solstice. On the Orkney’s, settlements seem to have been occupied all year long (Jane Downes pers. comm.). The specific construction of these houses, their internal structure and even the fact that they are unlike anything else, might be related to the special character of these locations

(as is also suggested by the specific 'ceremonial' houses inside Durrington Walls (Thomas 2007b) and at Barnhouse on Orkney (Richards 2005)). In the Lower Rhine Basin, similar developments took place. Here, several sites provided evidence for the first built settlement structures. These sites consisted of large accumulations of postholes, from which several large and irregular house-plans could be reconstructed, such as at Haamstede-Brabers and Vlaardingen (dating to the Vlaardingen Culture; see Arnoldussen/Fontijn 2006). While most sites are considered seasonal camps and extraction camps related to special activities, the site of Zeewijk reveals occupation of a more permanent nature. This is possibly related to a ritual function, alike the British later Neolithic examples (see Arnoldussen/Fontijn 2006 for an overview). In the northern regions, the Drenthe plateau, from *c.* 4000 cal BC onwards people of the Funnel Beaker culture had started building large megalithic collective tombs, the *hunebedden* (Bakker 1992). A single, regular, house-plan is known from a German site in this culture area (at Flögeln-Eekhöltjen; Zimmermann 2008).

7.4.2.2 Landscapes and seascape perception

Although the Neolithic period is generally seen as the introduction of agriculture, caused by the emergence of the LBK, change was slow in large parts of North West Europe. Only around 4000 cal BC, hunter-gatherer communities on both sides of the North Sea and English Channel adopted several very specific elements of Neolithic agrarian way of life. While their main food source became increasingly agricultural, their mobility remained high. These mobile communities (the Hazendonk-3 group in the Lower Rhine Basin, Michelsberg communities in Belgium, the southern Netherlands and the northernmost parts of France, and the earliest farmers in Britain) shared an understanding of their immediate landscape. They all recognised and acknowledged the specific historical nature of both natural and cultural places in the land, and their specific meaning in an relational viewpoint. Expressions of this common understanding include, for instance, the repetitive visits to riverdunes (*donken*) in the Lower Rhine Basin (Louwe Kooijmans 2009) and similar repetitive visits to significant places in Britain, where, possibly around natural three-throw holes, pit clusters were dug (*e.g.* Kilverstone, Garrow *et al.* 2005; see also Evans *et al.* 1999). These early farming communities developed an understanding and engagement with these places in their own particular way, related to the rhythms of nature and daily life practices (Sturt 2006).
In addition to a focus on place, these late hunter-gatherer and early farming communities understood the landscape through movements, in many instances of repetitive nature. Many studies into the Neolithic way of life, focused on phenomena such as procession routes, avenues, particular ways of 'moving through the landscape', and the significance of rivers as paths of movement (*e.g.* Johnston 1999; Cummings 2007; see Ingold 2000 for an overall focus on movement and mobility of individuals and communities in a non-Modern context). In addition to the spatial aspect of these studies, a temporal aspect, that of rhythm or cyclical movement, is incorporated in several recent landscape studies (*e.g.* Sturt 2006; Garrow 2007).

These perspectives on the perception of the landscape can similarly be applied for the perception of the sea. At sea, particular places (because of their specific environmental development, for instance the recently submerged sandbanks (see paragraph 7.2.2)) acquired an historical meaning and remained important throughout the Neolithic for all sorts of activities; economically (such as specific fishing grounds), socially and ritually. It seems likely that these locations figured in all sorts of narratives and myths, possibly even stories about fishing activities carried out. In addition to that, the movement across the sea, between these significant places, by using specific routes, taking the currents, tides and winds as a guide, is easily envisaged.

Concluding, in the Mesolithic/Neolithic transition period, mobility remained high. Mobility was related to specific places in the landscape and movement through the landscape (as well as the sea). In the later Neolithic, movement became more structured, through bounded avenues, seasonal and otherwise temporally distinct occupational phases of certain 'special' houses and settlements (in contrast to the normal, ephemeral settlements of the later Neolithic). Still, the land and the sea were well known to communities living on both sides of the North Sea. Major changes in the North Sea and English Channel natural environment did not occur in this period, and thus the influence of the environment on overseas interaction is limited and a continuation of earlier practices is envisaged. As no finds of boats are known from this period (other than riverine logboats), it is suggested here that hide- and skin-built boats were still used for overseas mobility and interaction, and thus no changes in practices related to overseas interaction and seafaring took place. Other, material, evidence for overseas interaction in the Neolithic comes from the introduction of pottery and import of Jadeitite axes into Britain, from the Continent (*e.g.* Pailler/Sheridan 2009; Pétrequin *et al.* 2008, see fig. 7.14).

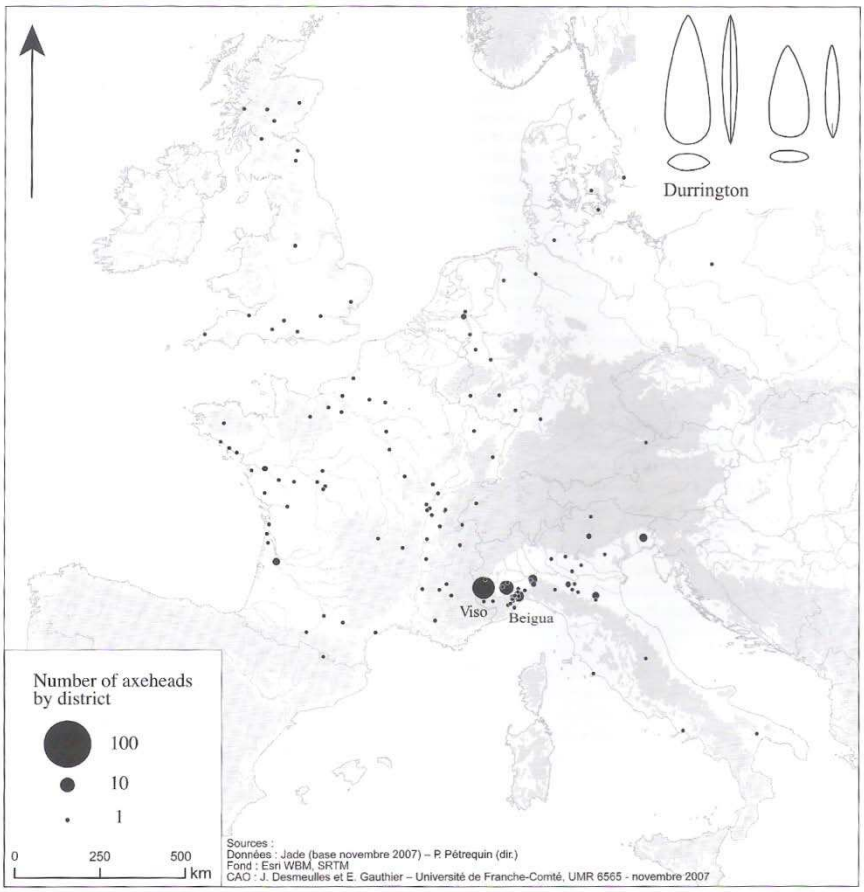

Fig. 7.14 Distribution of the Durrington type of Jadeitite axeheads; evidence for long distance exchange networks between the region of origin (south of the Alps) as far as Scotland, Denmark and Poland (taken from Pétrequin *et al.* 2008, fig. 22.7).

7.4.3 *The Beaker period (2500-2000 cal BC)*

7.4.3.1 Mobility

With the start of the Beaker period, patterns of mobility change again. Whereas late Neolithic settlements are known from the Orkney's and the area around Durrington Walls (places where evidence has turned up for the gathering of large amounts of people), Beaker settlements have remained elusive. In Britain, tentative structures dating to the Beaker period have been

reconstructed at several places (*e.g.* at Willington, Derbyshire and Easton Down, Wiltshire; see Gibson 1987 for an overview). Most Beaker 'settlement' sites in Britain are however based on scatters of flint and Beaker pottery, associated with numerous post-holes, layers of cultural debris eroded into dry valleys, or deposits in the ditches of Early Bronze Age funerary monuments (see Brück 1999a for a recent discussion of Beaker period settlement in Britain). After reviewing the evidence, Brück (1999a) suggested for Britain a pattern of residential mobility based on the gathering of communities at specific regionally important places in the landscape, such as funeral monuments. Allen (2005) more recently discussed the Beaker settlement in southern England and argues for the existence of specific sites in the low lying, infrequently studied regions of the southern chalkland. These views are not necessarily conflicting, as the settlement sites Allen found could as well be places of similar regional significance and ephemerality as the gathering at funeral monuments, presented in Brück's (1999a) model. It should be noted that ephemeral settlement sites (tentative roundhouses, pit clusters and finds scatters) existed in both the earlier and the later Neolithic (besides the 'monumental' evidence for settlements at sites such as Durrington Walls and Barnhouse on Mainland, the Orkney's; see for an overview Garrow 2007). Dutch evidence for Beaker settlements and mobility shows continuity from the late Neolithic Vlaardingen and Single Grave cultures. Similarly, in the Beaker period, the variability in settlement character remains. Evidence for more-or-less permanent Beaker settlements comes from (for instance) the sites of Molenaarsgraaf and P14, while more temporary camps, situated in low-lying valleys, have been found at, for instance, J97 and Oldeboorn (Drenth 2005, 354). From the southern Netherlands, Belgium and Northern France, the evidence is even scarcer. Not only did Beaker settlements leave little trace here, the widespread soil erosion in these areas presents further complications. Continental evidence for the re-use of funerary monuments in the same way as suggested for Britain by Brück (1999a) has not been subject of detailed study yet, but indications are pointing in a similar direction, as the recent Rhenen barrow excavations have revealed (Bourgeois/Fontijn 2007).

Recently, a new type of evidence has come available for the Beaker period. In Britain, stable isotope evidence (carbon, nitrogen, oxygen, sulphur and strontium isotopes), from inhumation burials dating to this period, is increasingly being studied (*e.g.* the 'Beaker People Project': Parker Pearson *et al.* 2006; Montgomery *et al.* 2007; Jay/Richards 2007). Initial results from these studies reveal that many burials show non-local isotopic signatures, probably linked to the areas where these individuals grew up in their childhood. Thus, these signals reflect specific patterns of mobility of individuals (Evans *et al.* 2006; Parker Pearson *et al.* 2006). While the earliest data concerning this mobility has been interpreted as the long-distance migration of elites and specialists into Britain (*e.g.* the Amesbury Archer; Evans *et al.* 2006), it is still unclear whether this individual should be seen as an outlier or as part of a period in which long-distance mobility was generally high. Future studies into, firstly, the base-line measurements of natural isotopes and their occurrence in prehistory, secondly, the combination of different isotopic data in individual burials, and thirdly on the relationship between the expected and observed results in the data (taking local geological signatures into account), will shed more light on this matter.

7.4.3.2 Landscape and seascape perception

In the Beaker period the communities living in North West Europe were still mobile to a large degree. This is reflected in both the settlement data and isotopic evidence. Thus, the way these communities perceived the landscape around them only changed little. A particular element in the perception of the landscape did change. Attitudes towards monumental places in the landscape are played out differently than in the later Neolithic. In the later Neolithic,

gatherings at specific historically and environmentally important places led to the construction of large monuments, regional monument complexes, and monumental landscapes such as at Stonehenge and Avebury in Wiltshire and at the Heart of Orkney, Mainland, the Orkney's. These monumental landscapes then, at the same time, became centres of settlement. Contrastingly, in the Beaker period, people started to appreciate the more local specialness of places in their immediate surroundings, and a more variable aesthetic perception of the landscape. This shift is encapsulated by the construction of smaller monuments and monumental cemeteries, taking the form of round barrows and round barrow cemeteries, throughout large parts of both the Continent and Britain (Woodward 2000). These round barrows are situated along natural ridges, on hills or in and near other promontory natural and cultural places (for instance the Stonehenge Envelope; Woodward/Woodward 1996). The larger later Neolithic ceremonial centres were still modified in the Beaker period, as for instance numerous later phases in the construction history of the Stonehenge monument have revealed (Parker Pearson *et al.* 2009). Other ways of engaging with the landscape in the Beaker period, by non-monumental nature such as pit clusters and finds scatters are not well understood. It is suggested here that these ephemeral indications of Beaker residential mobility are comparable to the observed patterns in the Neolithic non-monumental use of the landscape. In this period then, attitudes towards the landscape become more regional and variable, related to the regional natural environment these communities dwell in, and come together. Contrastingly (or perhaps because of this landscape regionalisation), communities did relate to each other on a supra-regional scale, in a very different way. Specifically the widespread adoption of fine Beaker pottery and metallurgy throughout Europe reflects this tendency of increased interaction between communities. Regional communities choose to be part of 'the Beaker people' community and choose to refer to supranational norms and values in relation to specific elements of their existence (*e.g.* Barrett 1994, 86-108; Fokkens *in press*), while other elements, related to the landscape, are considered in a more regional fashion.

Extrapolating these views to changes in the perception of the sea is difficult. In the Neolithic, particular places and pathways at sea became important, as was argued on the basis of an analogy to the perception of the land. Specific areas and routes probably played an important part in economical (fishing), social ('being at sea') and historical sense. For the Beaker period, a regionalisation in landscape perception and use can be envisaged. Similarly, one could argue for a change in understanding of the sea, with a focus on particular coastal zones and the characteristics of certain regional places and more important navigational routes for specific purposes. However, reconstructing the importance of these tentative places and routes will be impossible, due to the fluid and dynamic nature of the sea.

Concluding, in the Beaker period, large settlements, related to monumental landscapes and ceremonial centres, disappear. A continuation of earlier and later Neolithic regional settlement dynamics, related to gathering at regionally important round barrows, is proposed. Specific task-related settlements and variability in (semi-) permanent settlements continues to exist in the Beaker period. Isotopic evidence shows that Beaker people were very mobile. Regional mobility seems to have occurred frequently. More research into the relative value of these findings needs to be done. Furthermore, more research, combining different isotopic analyses and using samples from Continental inhumation graves, is needed in order to assess evidence for supra-regional mobility and overseas interaction. In landscape perception this can be seen as a regionalisation, with communities focusing more and more on the particular regional landscape histories and ancestry, by constructing round barrows and round barrow cemeteries in prominent landscape positions. While the perception of the landscape, and probably also

the seascape, became more regional, the perspective towards the social and other communities became more international and an increase in interaction between communities can be envisaged by studying material culture. Pottery production, metalwork production and the deposition of objects as sets in grave assemblages show similarities in large parts of Western Europe (*e.g.* on ceramics Prieto Martinez/Salanova 2009; Kohring *et al.* 2006; on metalwork Roberts 2009; on grave-sets Fokkens 2005, *in press*).[23]

7.4.4 *Conclusion: Engaging with the North Sea and its coasts before the later Early Bronze Age*

In the above, mobility and landscape and seascape perception by communities living on both sides of the emerging North Sea was addressed. These developments contribute to an understanding of how these communities perceived and engaged with the North Sea and its coasts, leading up to developments taking place in the later Early and Middle Bronze Age. These perceptions and engagements by hunter-gathering and early farming communities will be shortly reviewed below.

From the emergence of the North Sea in Mesolithic until the Beaker period, the sea was not seen as a boundary. In fact the active engagement with the sea and its dynamics in the Mesolithic led to an understanding that stimulated later overseas interaction, as we have seen in the previous paragraphs. Palaeolithic and Mesolithic evidence for the recurrent use of the sea, (Bjerck 2009; Woodman 2003) points to the existence of specific knowledge of this environment, its dynamics, possible sea routes and early navigation. The development of the North Sea, the rising sea levels, changing tidal regimes and currents, and the submerging of Doggerland (developments sketched in paragraph 2 of this chapter) had no negative effect on overseas interaction in the Mesolithic period. Mesolithic hunter-gatherers and Neolithic farmers were well attuned to these changes and responded likewise (Leary 2009; *contra* McGrail 1993). These changes might even have stimulated Mesolithic subsistence by an increase in the number of fertile coasts and a rise in coastal wild fauna diversity, possibly forming an argument for the extended neolithisation process in the Lower Rhine area (Coles 1999). Coastal zones were frequently used in the Mesolithic, Neolithic and Beaker period. Thus evidence for perceiving the coast as a liminal zone is absent.

[23] Much more can be said on the nature of material culture in the Beaker period, however the function of this chapter and the focus of this thesis prevents me from doing so

Chapter 8 – The maritory reviewed: combining strands of evidence

8.1 *Introduction*

In the previous chapter, evidence for overseas interaction in the periods preceding the later Early and Middle Bronze Age was presented. This context forms the basis of an understanding of overseas interaction taking place in the second millennium BC. Having discussed extensively the pottery production (chapter 4), use and deposition (chapter 5) and the position of the person in Bronze Age society (chapter 6), these various strands of evidence will now be combined in harmony. All the arguments from these various chapters will be used here to review the basic theme of this thesis: Approaching the high-flux interaction between the British Isles and the Continent in the later Early and Middle Bronze Age.

The term 'high-flux interaction' is derived from the work of Needham (2006, 2009). Some of his main arguments for using this term in the specific context of the North West European Bronze Age will first be considered here. These arguments were already briefly summarized in chapter 2. Second part of this chapter will involve the construction of a new model for overseas interaction, based on the arguments put forward in the earlier chapters of this thesis. These arguments will also be briefly reiterated below.

8.2 *Needham's models*

8.2.1 *The maritory model*

Focusing on the later Early and Middle Bronze Age, Stuart Needham has come up with the most recent model which takes many strands of evidence into account. In this paragraph his model will be outlined and put into its historical and theoretical context. Using metalwork, funerary data, and to a lesser extent settlement and pottery evidence, Needham has created an convincing account for this period, called the Early Bronze Age 'maritory' and Middle Bronze Age 'Channel Bronze Age' (Needham 2009).

The arguments of Needham for his 'maritory' model come forth out of his earlier work on the preceding Beaker period (2500-2000 cal BC, Needham 2005) and his study of overseas interaction between the communities in Wessex and Armorica in the later Early Bronze Age (Needham 2000). This last study focused specifically on the extraordinary burial evidence in both regions. Taking these works and his subsequent studies on later Early and Middle Bronze Age overseas interaction together, Needham put together a diachronic picture on this topic. Throughout these works, Needham argued for the appearance of elite networks in the Beaker period, related to the technology and exchange of metalwork and the predominance of the single grave burial ritual, by which these elites maintain their status. Through three distinct 'phases of meaning', the Beaker culture as exclusive culture, instituted culture and past reference, reproduction of society is achieved (Needham 2005). In the later Early Bronze Age, Needham (2000) sees new elite individuals emerging, associated with new forms of burial and exceptional grave goods. These elites base their wealth on relationships with other wealthy individuals from Armorica (northern France). These relationships centre on the exchange of prestige goods such as gold, amber and jet. It is these last elites which form the basis for Needham's maritory model. In this model (Needham 2009), stratified communities, living near the coast, control overseas interaction and facilitate the exchange of objects and ideas across the Channel and the North Sea.

The main object of exchange in this period was metalwork. The production of 'full bronze' (an alloy of copper and tin) objects in the British Isles, where both copper and tin occur naturally, started around 2000 cal BC (Pare 2000, 20-21) and marks the beginning of the later Early Bronze Age. Whether the earliest bronze objects from the Continent came from these British sources is unclear. Material from France and the Low Countries has not yet been analysed on metal content (with the exception of the Voorhout hoard, see Fontijn 2009).

Therefore, the identification of British and Irish imports in the Low Countries, recently by Fontijn (2009), rests primarily on the comparison of typological characteristics. Needham similarly uses typological comparison in his identification of the exchange networks within the maritory. He looks specifically at continental metal objects which resemble insular forms, such as the "Amorico-British inspired daggers" from four graves at Singen, Germany (Needham 2009, 13). A more formal enquiry of evidence related to metalwork exchange and overseas interaction is lacking at present.
A further element in Needham's maritory model is the exchange of so-called 'exotic goods' between elites. These items include beads of faience, jet and amber and certain golden objects, such as *lunulae*. Distribution patterns, highlighting the exchange of these items extend well into the Continent (*e.g.* Haveman/Sheridan 2006 on amber). A special role in this particular 'exchange of exotic goods' was reserved for so-called 'precious cups' (fig. 8.1).

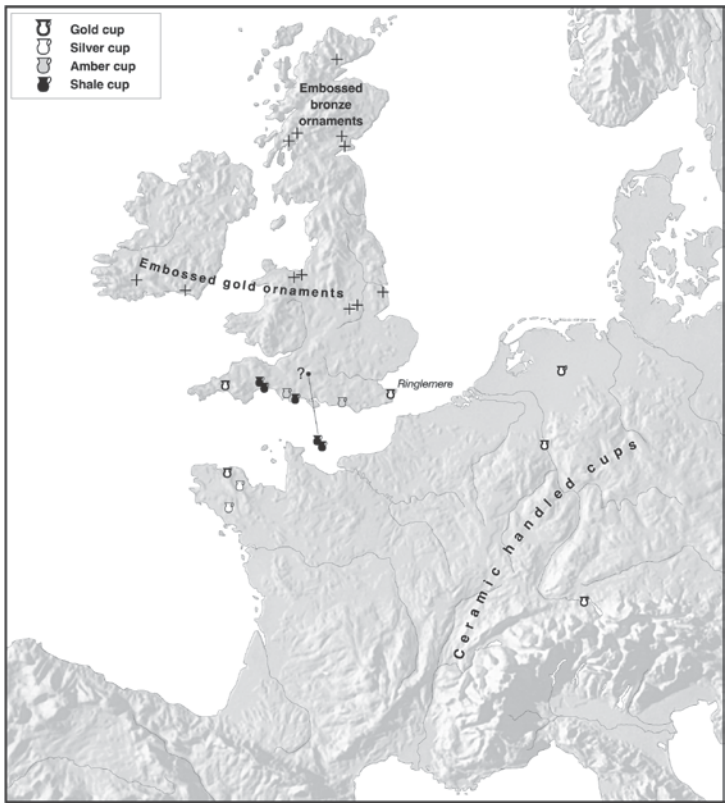

Fig. 8.1 Distribution of 'precious cups', embossed gold ornaments in the later Early Bronze Age (taken from Needham 2009, fig. 2).

These cups, sixteen have been found in total, have been found all over North West Europe and were made from exotic materials such as gold, amber, shale and silver. They all date to the later Early Bronze Age and Middle Bronze Age (more specifically between 1950 and 1350 cal BC, Needham 2006, 60-63). No single cup is the same, in vessel shape, material and physical appearance, but all cups do seem to present the same underlying principles and concepts. Needham sees these as related to their use in rituals, the cups being 'owned' by certain people in a sacred and custodian sense. These people fulfilled highly specialised roles in society as shamans of some sort (*idem*, 69-72). The position of the cups in these rituals is, according to Needham, the '...servicing [of] a specialised communication network focussing on the waterways of the Channel-Rhine-Frisian Coast axis..." (*idem*, 75)

Another exchanged type of material culture Needham discussed briefly is pottery.[24] He discusses the elite exchange of *Vases à Anses* from Brittany and southern Britain, following Tomalin (1988) in this respect and arguing for the existence of elites in both regions copying each other and possibly the migration of northern French elites into Britain, bringing new ceramic forms with them. Further evidence for exchange of pottery, the Trevisker ware from Monkton-Minster, Kent and Hardelot, Pas-de-Calais, is seen in similar ways oriented towards the exchange of metallurgy related objects and raw materials such as tin.

Next to the exchange of metalwork, exotic materials, pottery, the maritory model is based on the evidence for a particular type of seafaring. Needham sees the Dover boat (see fig. 8.2 and 8.3), following Van de Noort (2006), as "...the craft that serviced the maritime networks of the earlier second millennium BC..." (Needham 2009) The construction of the Dover boat, and similar finds from Britain, by means of the stitching and sewing of planks in a complicated fashion proved to be an innovation for the Early Bronze Age.

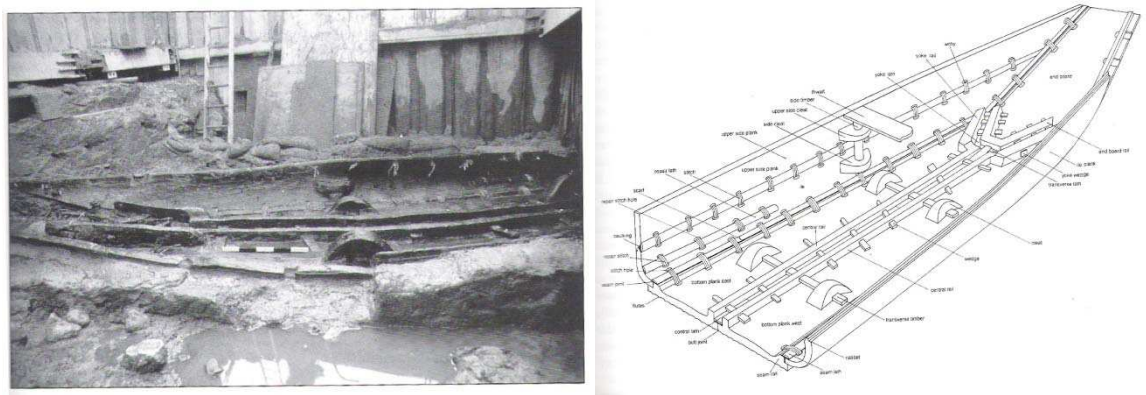

Fig. 8.2 (left) excavation of the Dover boat (taken from Clark 2009, fig. 1.2) ; 8.3 (right) reconstruction of the Dover boat (taken from Clark 2009, fig. 1.3).

Before this period, stitching and sewing was probably confined to skin and hide-built boats. Similarly, the woodworking technologies employed in the Dover boat and similar later Early Bronze Age boats show an origin in logboat construction. When communities combined these two technologies in the later Early Bronze Age, this led to the construction of sewn-plank boats such as the Dover boat. Combining this idea of a 'new technology' with the size and the context of the deposition of these boats near ancestral sites has led some scholars to favour a ritualised elite and specialist involvement in production, use and deposition of these boats (*e.g.* Van de Noort 2006).

A final important aspect of the maritory is related to the specific geography of the region. Islands and near-islands in the Channel and North Sea basin and rivers and estuaries leading to the sea had an important 'corridor function', related to the local communities' specific knowledge of the environment in terms of seafaring possibilities. Based on the work of Perkins (2006), who tried to identify a Bronze Age maritime community on the Isle of Thanet, Kent, linked to the exploitation of local knowledge on tides and currents, Needham taps into the recent debate concerning the significance and critiques on the 'insularity' of islands (a discussion also followed in the first paragraphs of chapter 7; *cf.* Rainbird 1999). Coastal communities, for Needham (2009), were the prime motivators of exchange with each other

[24] Having already dealt with the exchange of pottery extensively in chapter 5, the reader is referred to there and only a small summary of pottery exchange in the 'maritory model' will be provided here.

within the maritory, because of advantages in their geographical position and their specific knowledge of the dynamic environment of the coast and the sea.

Overall, according to Needham's maritory model, the renewed interest in overseas interaction in the later Early Bronze Age was related to the emergence of these new wealthy individuals after the Beaker period. These 'nouveau riche', who maintain authority through funerary rituals and rituals in which exotic objects are incorporated within their own society, are the essence of this maritory concept. Quoting Needham in this respect, cultural contact between communities on both sides of the North Sea and English Channel in this later Early Bronze Age is confined to "...a definable zone of privileged or relatively high-flux interaction used for the execution of certain specialist maritime exchanges..." (*idem*, 18)

8.2.2 *Towards the Middle Bronze Age: The Channel Bronze Age*

Around 1750/1700 cal BC this changes, according to Needham. Together with other scholars he sees a 'cultural unification' which persists throughout the rest of the Bronze Age, albeit with fluctuating territorial coverage. Marcigny *et al.* (2007) call this the *Manche – Mer du Nord* techno-complex (fig. 8.4), while Needham terms it the *Channel Bronze Age*.

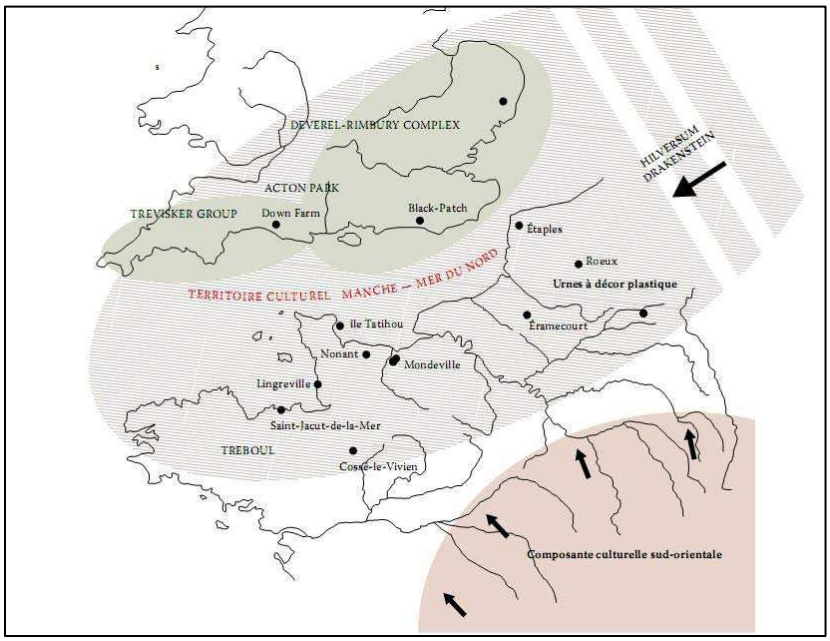

Fig. 8.4 Cultural unification in the Middle Bronze Age (from *c.* 1500 cal BC onwards; taken from Marcigny 2008, fig. 5).

This emerging cultural unification itself is part of the larger emerging, more loose, cultural system of the *Atlantic Bronze Age*. Defined by Brun (1991) and re-assessed by several other scholars (Oliveira Jorge 1998), this *Atlantic Bronze Age* is possibly based on associations with feasting and studied primarily through typological analysis of metalwork. Most interesting is Needham and Bowman's work on the distribution of bronze feasting equipment in North West Europe (Needham/Bowman 2005), taking a more practice oriented approach towards the construction of meanings.
The specific 'cultural unification' of the *Channel Bronze Age* however, is more difficult to trace in Needham's work. It is primarily based on earlier studies, such as the work of Marcigny *et al.* (2007) on pottery decoration styles and pottery chronology and Gabillot's (2005) work on metalwork production and exchange, focusing primarily on the international context of French finds.

8.3 *Critique*

The models described above have been created with particular ideas in mind about society, about personhood, about the nature of exchange networks and about values in human – environment interaction in a fairly straightforward sense. In chapter 2 critiques onto these ideas have been presented thoroughly. In this paragraph an overview will be given, after which the previous chapters (on pottery, society and sea perception) will be put in their context of a new model for overseas interaction in the later Early and Middle Bronze Age of North West Europe.

Firstly, the ideas expressed in the models of Needham (2009) are based on a neo-Marxist approach towards society. In neo-Marxism the social reproduction of inequality forms the basis of all society. From here it follows that the existence of elites is a primary feature of all neo-Marxist models. Thus, when elites are inherent in the model, this particular way of looking at society can thus not be demonstrated on the basis sound archaeological evidence. The archaeological evidence towards the identification of elites in general is inconclusive, to say the least.

Secondly, Needham's models (and many other models which focus on the Bronze Age) focus on the exchange of metalwork and exotic goods. The exchange of these goods is seen as the prime motivator for changes in other archaeological phenomena. While this is not necessarily wrong, it does lead the pottery evidence in the direction of simple information exchange whereas more complex interpretations can be correct with respect to the interpretation of pottery distributions patterns, as was argued in chapter 4, 5 and 6 and will be further demonstrated below.

Thirdly, models which focus on overseas interaction generally assume a specific nature of the sea and its coasts, related to its function as a boundary between societies. In this particular case, many models focusing on interaction across the English Channel and the North Sea have opposed the societies from the British Isles to those from the Continent. This particular way of reasoning is related to a modern conception of space, place and sedentism, as was argued in chapter 7. In prehistory in general, also in the Bronze Age, a more complex understanding of mobility and migration existed.

8.4 *Reinterpreting the evidence: redefining the maritory and reconsidering the Channel Bronze Age*

Following these critiques, which form a summary of the argument made in chapter 2, and having proposed another way of looking at the data in chapters 3 and 7, an alternative to Needham's maritory model can now be constructed. The data analysed and discussed in chapter 4, 5, 6 and 7 will be reviewed and combined here in a descriptive sense. Below, a new model for approaching high-flux interaction in the later Early and Middle Bronze Age of North West Europe will be presented, using the developments outlined at the end of chapter 7.

8.4.1 *The later Early Bronze Age maritory (2000-1500 cal BC)*

8.4.1.1 Mobility

On the Continent, this is the first period in which recognisable domestic settlements appear (for instance at Noordwijk-Bronsgeest, Van Heeringen/Van der Velde 1999; Arnoldussen 2008, 167-174). Although still irregular, with numerous rebuild posts indicating a long use-life, this two-aisled longhouse is the best evidence for a decrease in mobility in this period. As argued in the last paragraphs of chapter 7, mobility remained high throughout the Neolithic and the Beaker period (see also Vander Linden 2007; *contra* Arnoldussen/Fontijn 2006 who

stated that mobility already decreased during the Late Neolithic[25]). Another example of later Early Bronze Age settlement is found at Île Tatihou in France, where an irregular roundhouse was found dating to this period (Marcigny/Ghesquière 2003). Similarly, in Britain evidence for settlements is based on the reconstruction of these irregular roundhouses. Thus, arguably, it appears that communities were more and more experimenting with settlements, the regularity of dwelling structures in domestic contexts and living in one place for an extended amount of time.

Also, mobility at sea was changing in this period, as new developments in ship building technology appeared (Wright 2004). The evidence of several sewn-plank boats such as the North Ferriby and Dover boat points to a change in the way people used boats and perceived their marine environment. As we have seen in the previous chapter, until this period seafaring was probably only executed by means hide and skin-built boats. While Needham (2009) and Van de Noort (2006) argue for a development structured by elites and specialists, and the use of these specific boats in specialist maritime exchanges across the North Sea and English Channel, some objections can be raised against this (see also Kleijne *in prep*). Firstly, these specific boat building technologies (the sewing of wooden planks) are embedded in earlier practices related to the stitching and sewing of hide and skin-built boats. These practices have already taken place from the Upper Palaeolithic onwards (see chapter 7) and probably continued well into the Bronze Age.[26] There is no reason, other that the appearance of these new boats, to suggest that hide and skin built boats were no longer being used in overseas transport by the start of the 2nd millennium BC. Instead, the appearance of these new boats shows that the two technologies of woodworking and hide and leatherworking started to be combined in the construction of specific maritime crafts, from this period onwards.
Any model should therefore take both the newly developed sewn-plank boats and the already traditional hide and skin-built boats into consideration. Doing this, it is important to note the distinctive qualities of the sewn-plank boats, in relation to the, ethnographically known, hide and skin-built boats. In the Mesolithic and Neolithic periods, these smaller craft were large enough for dwelling on the water; colonisation activities, fishing activities and regular crossings were certainly carried out using these boats. In the Bronze Age, fishing and the regular crossing of the North Sea and English Channel could as well have been carried out by using these hide and skin-built boats. The use of plank built boats is thus not necessarily related to these activities. The use of plank built boats from the later Early Bronze Age onwards could as well be related to the decrease in mobility noted on the land. Prolonged activity at sea and the undertaking of longer journeys might be envisaged here. In addition to this, Samson (2005) argued that "...boat building and seafaring were most likely communal, independent, nucleated, household-recruited and part-time activities..." (*idem*, 137) This picture suits well with the picture outlined above which stresses continuity of traditions and the specific role of these sewn-plank Early Bronze Age boats within the community.

8.4.1.2 Landscape and seascape perception
In essence, similar activities were being carried out in the landscape as in the preceding Mesolithic, Neolithic and Beaker periods. Thus a continuation of this particular way of life is envisaged in many respects, as can also be seen on the basis of much of the settlement

[25] Their analysis of Neolithic and Bronze Age settlements is based on the evolution and the inevitability of 'familiar' settlements in the Middle Bronze Age. Instead, an approach focusing on dwelling and the history of human – environment interaction from the Mesolithic onwards would present a more encompassing argument for interpreting the Neolithic and later Early Bronze Age settlement evidence, in contrast to the convincing model these authors put up.
[26] Even in more recent years, skin- and hide-built boats were still used in Ireland (the well-known *curraghs*).

evidence. The first appearance of recognisable, well built settlement structures in this period does indicate that later Early Bronze Age communities slowly began adopting a more permanent and sedentary way of life (fig. 8.5; see Fokkens/Arnoldussen 2008) in which the house would become the centre of activity and, simultaneously, the centre of the world.

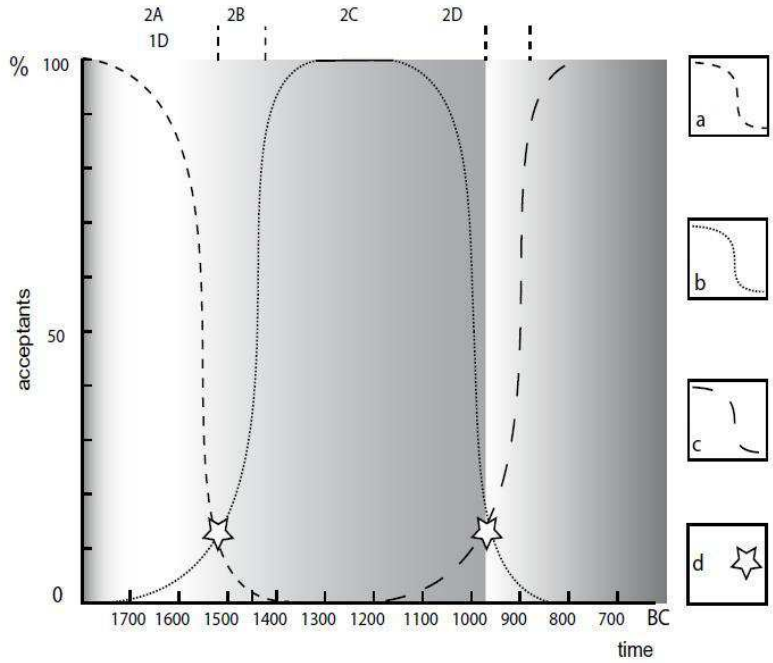

Fig. 8.5 Model for the introduction of the three-aisled longhouse in the Netherlands. "...1D indicates the period that the two-aisled house plan still exists. At the end of that period (2A) the three-aisled plan develops, but apparently is not visible yet archaeologically. Only when the critical mass is reached (star) the development becomes 'revolutionary' fast and visible. Its momentum slows down in phase 2C and this type of building disappears in phase 2D. In that period a new development takes shape (small three aisled plans with roof bearing construction outside the wall) following the same pattern of innovation..." (Fokkens/Arnoldussen 2008, 12, fig. 1.8).

Also, from this period onwards, changes in burial practices are noted for Britain and northern France, from a record dominated by inhumation in the Beaker period, towards cremation in the later Early Bronze Age. Still in the later Early Bronze Age, many new barrows were erected near the remains of older, Beaker period, barrows. As Bourgeois and Arnoldussen (2006) argued, monumentality in the later Early Bronze Age still focused on the construction of new barrows in the landscape, and the appearance of barrow clusters and cemeteries in particular landscapes. Only from the Middle Bronze Age onwards, starting around *c.* 1500 cal BC, this changed.

On the sea, a more complex situation has appeared in the later Early Bronze Age, by the appearance of sewn-plank boats. It is argued above that sewn-plank boats were probably an addition instead of a replacement of hide-boats. The reasons for this development and the implications in terms of seascape perception are varied. A probable answer to why this new technology of boat building appeared is that these sewn-plank boats were used for different activities than the hide and hide boats. What sorts of activities were carried out by this new type of boats remains unclear. These might be related to the crossing of the North Sea and English Channel by larger groups, taking more goods with them (most logically would be the exchange of bronze), or by communities being longer at sea than before and carrying out all sorts of activities.

8.4.1.3 Material culture

Having discussed mobility and the perception of landscape and seascape in the later Early Bronze Age, it now becomes the moment to ask how these people related to each other materially. As we have argued, this 'high-flux interaction' between communities is not based on exchanging elites through some sort of peer-polity interaction network, but based on mobility, engagement with the landscape and the seascape and with other communities, and the practices of production, use and deposition of material culture in this context.

8.4.1.3.1 Pottery

In chapter 4 and 5, the production process, use life and the deposition of pottery were discussed extensively. Here, an overview of the results will be given and the relationship to overseas interaction will be stressed more extensively.[27]

The forming of pottery and the different stages in the process of decorating a vessel are expressions of the way the potters and the communities relate to each other. Throughout the 'maritory', specific people produce pottery in similar ways, where a multitude of options is available. Forming of pottery is done by coil building in nearly all cases. These coils are attached to each other in both N and H type throughout the research area. In addition, the evidence for smoothing of a vessel, after it has been formed, is present at large. These similarities demonstrate a large coherence in the technologies used by potters on both sides of the North Sea and English Channel. These particular technologies are only shared by potters as complex motor habits and long periods of learning are required before the technique of forming a vessel is obtained. The identities, both consciously and unconsciously expressed through the forming of pottery, are deeply rooted among potters. In order to maintain and develop these identities, it was thus necessary for potters in the later Early Bronze Age to remain in contact with fellow potters on the opposite side of the North Sea and English Channel. These contacts were not based on the regular exchange of material culture and superficial ideas and fashion, but based on more intimate networks of cultural transmission and the early learning of these motor habits to young potters. Thus for these interactions to have taken place, it was necessary to have skilled potters moving and spending time in many different places on both sides of the North Sea and English Channel.

A second aspect of pottery production is the decorating of a vessel after it has been formed. In the decorating of pottery, thee different aspects come together; the decorating technique, the decorating tool and the motif of decoration. A large degree of variation in the decorating of a pottery vessel is recorded for the later Early Bronze Age of North West Europe. However, some patterns do appear present in the techniques, tools and motifs of decoration. The impression with cordage in specific complex patterns, and the application of clay onto the shoulder in distinctive patterns such as the horseshoe handles and false rims are present on both British and Continental vessels. As decoration techniques and tools are well visible for the wider community, malleable and easily changeable, they relate to more superficial aspects of identity. Thus in the later Early Bronze Age of North West Europe, the exchange of information through the character of decoration techniques and tools can be seen as related to the exchange of material culture and the agreement on meanings attached to both these material culture and the superficial forms of information expressed by decoration on pottery. The motifs of decoration, more regionally patterned and complex than techniques and tools, express evenly more complex information regarding the more specific aspects of society. It has become evident that pottery decoration, on both the simple and complex level, was transmitted across the North Sea and English Channel. An origin for these developments in decoration in the later Early Bronze Age cannot be mentioned as many different meanings

[27] For a more thorough account on the production, use and deposition of pottery in the later Early Bronze Age of North West Europe, the reader is referred to chapter 4 and 5.

and exchanges of information run parallel and through each other. A possible link with the exchange of metalwork, at the same time taking place in this period as we shall see below, can be envisaged.

The use of pottery in the later Early Bronze Age was probably related to the gathering of communities (see chapter 5; see also Brück 1999a). At these gatherings exchange networks were constructed and negotiated, and pottery was both being used (possibly for the containment of alcoholic beverages) and exchanged on a regional scale (Ellison 1980; Woodward 1999). Several distinct pottery vessels, *Vases à Anses* and Trevisker Urns, were certainly exchanged across the English Channel, as finds have demonstrated. The former type of pottery has been associated with prestigious potters (Tomalin 1988), and the latter with the export of Cornish tin to the Continent (Gibson 2002). The Armorican *Vases à Anses* are, in my opinion, better interpreted as a regional specific tradition in which several communities broke away from their traditional practice of producing pottery. The difference with other later Early Bronze Age vessels is mainly based on distinctive decorative aspects (red ochre colouring, incised lines motifs, broad handles) and the development of a specific globular shape. These are all aspects of more superficial contact, and they highlight the absence of information exchange and the lack of exchange of material culture at a supra-regional level, between these particular communities and the other communities of the later Early Bronze Age of North West Europe. The extent to which information was exchanged in Armorica remained local and regional to a large degree. Another plausible interpretation stresses the particular function of the *Vases à Anses* within the later Early Bronze Age communities of Armorica and Wessex. More research into the spatial, technological, chronological and functional relation between this type of pottery and the biconical shaped pottery produced in large parts of North West Europe in the later Early Bronze Age is necessary. The Trevisker series from Cornwall, vessels with large lugs and distinctive elaborate decoration schemes, can be interpreted as being related to a different, more localized, sphere of interaction, as Parker Pearson (1990) already suspected. Interestingly, evidence for the natural occurrence of tin has been found in both Cornwall and Armorica. The exchange of this product might have had something to do with their distinctive, localised, potting traditions.
Deposition of pottery, throughout North West Europe, was in the later Early Bronze Age mainly confined to complex deposits of broken vessels in domestic contexts (with special deposits of whole vessels occurring from around 1800 cal BC in the Low Countries). In funerary contexts the predominance of whole vessels, as containers or covers of cremated remains, is apparent. In Britain and France, evidence for the closure of the vessels at the moment of deposition has been found. Evidence for pottery deposition in liminal contexts remains locally defined throughout the research area. In summary, the deposition of pottery was probably a local phenomenon in which particular relationships of exchange between communities and the landscape were played out.

Concluding, pottery can inform us about many aspects of the later Early Bronze Age that hitherto played an underdeveloped role. Particular communities and individual potters interacted with each other, moving across the North Sea and English Channel. The interaction of these potters and communities with each other led to patterns in respectively methods of forming and the decoration of vessels. Overseas interaction also led to the exchange of pottery vessels and their content, in the case of Trevisker Urns, *Vases à Anses* and possibly also the common biconical pottery. Acts of depositing pottery show widespread similarities in the funerary ritual with the containment of cremated remains. Gatherings of regional communities at events where human remains were cremated and buried inside an urn, under a barrow of regionally importance in the landscape, facilitated the spread of ideas related to this practice.

8.4.1.3.2 Metalwork

The exchange of metalwork started in the Beaker period, when copper was extracted at Ross Island, Ireland. In the later Early Bronze Age, from 2000 cal BC onwards (see Pare 2000), other copper ores in Britain and Ireland were mined and the copper was alloyed to tin, another metal, naturally occurring in Cornwall and Armorica. Similar copper and tin mines exist in Central Europe, where mining continued throughout the Beaker and later Early Bronze Age. Chemical analyses have shown that bronze objects dating to the later Early Bronze Age in Britain all come from the British and Irish sources (Northover 1982). The evidence for the movement of bronze to the Continent in this period is scarce and limited to the typological characterisation of metal objects (most recently Fontijn 2009). Furthermore, it is unclear whether (and to what extent) other, typologically distinct objects, might have been re-melted in the Low Countries into locally acceptable forms (Kuijpers 2008), making them indistinguishable to metal coming from other sources. It can be said that, in the Low Countries, a complex network of exchange relationships existed as, typologically, several other objects show similarities to Central and Northern European bronzes (*e.g.* the Velserbroek palstave; Fontijn 2009).

8.4.1.3.3 Exotic goods

Next to the pottery and metallurgical evidence, objects made of exotic materials such as amber, gold, silver, jet and faience have been found on both sides of the North Sea and English Channel. These items are mainly interpreted as prestigious goods by scholars such as Needham (2009), but the value and materiality of these items is more complex than meets the eye.

Amber, for example, is found locally on many beaches in the Low Countries (see Waterbolk/Waterbolk 1991). The many stages in the local production process of amber beads is well recorded for the later Early Bronze Age at the site of Velsen*Stationsweg (Vons 1970) and similar sites have probably existed along the North Sea coast. To say that the distribution of amber was related to networks of prestigious exchanges between elites is to neglect the archaeological evidence for localised production. More study into the cultural biography of amber objects, and the local character of production is now necessary in order to address the role of amber in the process of overseas interaction.

A second type of material culture that is generally associated with exchanges is faience. A recent study into the faience beads from the Continent and the British Isles (Sheridan *et al.* 2005) shows that manufacturing was executed on a small-scale basis. Producing this particular faience was done mostly by using a mixed alkali based paste and glaze from plant ash sources and a copper-based glaze colorant to which tin (or tin oxide) was added deliberately. These last two ingredients suggest a direct link between the production and exchange of tin-based bronze and faience. The distribution of finds and typological variability suggests a similar localised basis to the production of faience in the North West European later Early Bronze Age (*idem*, 223-224). It can thus be envisaged that, together with the exchange and localised re-melting of bronze, the knowledge of faience was exchanged and similarly faience was produced by local smiths. Interestingly, the only faience from the Low Countries, other than the Exloo necklace discussed below, is found in the coastal regions (at Vogelenzang and Den Haag*Bronovo; see Haveman/Sheridan 2006).

Items made of gold, such as *lunulae* and objects such as the ‘precious cups’ are a different story. All later Early (and Middle) Bronze Age gold from North West Europe probably came from the Southern Uplands Terrane in Ireland (Chapman *et al.* 2006). Much however is still unknown about the production, use and depositional context of golden objects. On the basis of distribution maps one can infer the existence of long-distance exchange networks, such as for

instance Needham (2009) has done. However, a more contextual approach towards gold working, taking the complex individual cultural biographies of many of these objects into account, and which would in turn review the possible existence of these exchange networks on the basis of an analysis of depositional evidence, is lacking at present.

A famous example of an Early Bronze Age 'exotic good' that should be mentioned of here is the necklace from Exloo, Drenthe (Haveman/Sheridan 2006; see fig. 8.6).

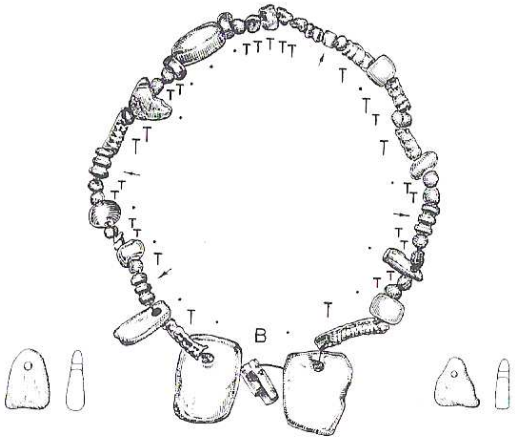

Fig. 8.6 Drawing of the the Exloo necklace, consisting of amber beads, tin beads (T), and a bronze bead (B; taken from Fontijn 2009, fig. 9.5).

This composite necklace dates between the 19th and 15th century BC. It consists of 4 segmented faience beads, 1 tubular sheet bronze bead, 25 tin beads of which 7 are segmented and 18 are plano-convex, 14 amber components, of which 4 are pendants and 10 are beads (of which in turn 1 is nowadays lost; *idem*, 103). The necklace was found in the 19th century during peat digging activities. Since then it has been interpreted mainly as an imported item, said to have come from the British Isles and associated with the Hilversum-culture immigrants (*e.g.* Smith 1961) or being a compilation of different origins (*e.g.* Butler 1990). Recently, Sheridan and Haveman re-analysed the necklace and came to interesting results. Use-wear analysis of the beads has shown that many of the amber beads were used prior to the deposition of the necklace. Furthermore, the bronze sheet metal bead was probably a recycled, 'heirloom' item. The faience beads also show considerable degree of wear, leading Sheridan and Haveman to conclude that the Exloo necklace should be associated with the "...geographically extensive social and economic dynamics of the early second millennium BC..." (Haveman/Sheridan 2006, 130)
But the picture can be complicated further. It is demonstrated that the constituent parts of the necklace, the various types of beads, individually, had a complex use life. These independent use-lives might even be related to relatively 'normal' exchanges that took place in the early 2nd millennium BC. While many components of the necklace probably had their origin in southern Britain, their ultimate coming together into a single piece which in turn was deposited in a Dutch moor was probably a more-or-less coincidental coming together of different object histories into a single piece. It was probably this particular aspect, the complexity of the object and its manifold histories, which led to its particular significance for Early Bronze Age communities living in the Northern Netherlands. This ultimately led to the deposition of the Exloo necklace in this marshy environment.

8.4.1.4 *Concluding: the redefined maritory*

Concluding, the later Early Bronze Age 'maritory' is a period in which communities interact with each other on a different level than in the preceding Beaker period. This change in the character of interaction is however not demonstrably related to the emergence of new elites, opposed to what many scholars have argued. First of all, as the mobility of people was still high in the later Early Bronze Age, communities and individual potters and probably other craftsmen travelled on both land and sea. This is reflected in the pottery evidence, showing characteristics of transmission related to deep rooted identities, which can only be sustained

through regular contact and learning networks by specialists. Exchange of bronze was one of the main facilitators of the diffusion of more superficial social identity, knowledge and cultural values and ideas relating to the information exchange in decoration motifs on pottery vessels. As mobility was still high, the variability in decoration motifs on pottery vessels, such as the horseshoe handles, false rims and collars, can be regarded as the degree to which people (in general, not potters specifically) were mobile. This exchange took place from Britain to the Continent mainly, but a more complex and balanced picture of overseas interaction and exchange must surely be envisaged, as several finds of *Vases à Anses* from Wessex and the overall distribution of horseshoe handles demonstrate. In addition to material exchanges, the production of boats might have similarly involved the formation and transformation of networks at the community level, as Samson has argued (Samson 2005, 138). Surely, the high-flux interaction between the Continent and Britain existed for the early parts of the 2nd millennium BC, albeit, as argued above, its foundation was different than hitherto recognised and acknowledged.

8.4.2 *How this changes around 1500 cal BC: the Channel Bronze Age*

Around 1500 cal BC, many things changed in North West Europe. The process of 'cultural unification' as Needham (2009) noted, was related to changes in many parts of prehistoric life. In terms of human engagement with the landscape, it seems a particularly structured landscape emerged in this period, a landscape with 'everything in its right place' (Fontijn 2008). In material sense, similarities in pottery styles and metalwork styles dominate the archaeological record. These developments will be assessed and their value for understanding overseas interaction and the Middle Bronze Age seascape of the North Sea and English Channel will be discussed below.

8.4.2.1 *Changes and the culmination of neolithisation*

In this particular period, regular settlements and farmsteads with a certain degree of permanence developed. In Britain and northern France these settlements were characterised by roundhouses and ditches and banks of field systems. Characteristic settlements include the French site of Île Tatihou and the southern British sites of Itford Hill and Black Patch, both in Sussex (respectively Marcigny/Ghesquière 2003; Russell 1996; Drewett 1982). In the Low Countries, characteristic rectangular three-aisled longhouses, with regularly spaced posts, emerged in this period. It is argued, that these longhouses, because of their time-investment and rigidity in construction, are a new type of monuments, the focus of attention in the landscape (Bourgeois/Arnoldussen 2006). At the same time, in both the Low Countries and in Britain, the erection of new barrows decreased dramatically, and most cremation burials were inserted in earlier barrows as secondary interments (Bourgeois/Arnoldussen 2006; Bourgeois/Fontijn 2008; Woodward 2000). This highlights the changing position of the burial mound in the wider Middle Bronze Age landscape. The evidence for structured deposition of bronze objects in hoards, in particular places in the southern Netherlands landscape, presents another element of this change. More internationally, the appearance of farmsteads, with fencings and field systems, led to a 'compartmentalisation' of the landscape (Johnston 2000). This change, towards a more permanent settlement system and the appearance of field systems, is associated with the full adoption of agricultural practices and social changes. Evidence for domesticated cattle and cereals is overwhelmingly present in the archaeological record from this period onwards (*e.g.* Clason 1999; Brück 2000; Marcigny *et al.* 2007b) and a 'mixed farming economy' is established in North West Europe. Probably, from this period onwards, manuring was practiced as evidence from the Low Countries has established (Bakels 1997). It has been argued on many occasions that this change was based on the need to intensify agricultural production, required for the economic surplus of a prestige-goods

economy (*e.g.* Burgess 1980, Drewett 1980; Rowlands 1980). For the Netherlands specifically, the emergence of farmsteads and the intensification of agricultural production in the Middle Bronze Age was seen in the light of continuity towards the pre-industrial 19th century peasant farms (*e.g.* Waterbolk 1980). However, recently scholars have doubted the economic interpretation and focused on social interpretations (Brück 2000; Wickstead 2007). Not only in landscape terms, thus, these communities changed their understanding towards a particular structure, also in social terms, communities interacted differently and the exchange of cremated remains, pottery and other objects proliferated (Brück 2000). Associated with all these changes at the start of the Middle Bronze Age, is the decrease in mobility. From a long term perspective, this transformation takes us from the Mesolithic dwelling and education of attention, into the more rhythmical and seasonal inhabitation of the Neolithic, towards the Middle Bronze Age in which permanent settlements form the standard and movement and mobility were more structured within the landscape.
In the Middle Bronze Age, also the sea was perceived differently than in earlier periods. As Samson (2006) points out, evidence exists for the deposition of particular bronze objects in the sea. She interprets these objects as further evidence for 'structured deposition' (Samson 2006). It can be argued that this evidence points to a change in the nature of the sea, from being a highway for maritime exchanges and overseas interaction, towards being a boundary that needed to be crossed in order to exchange goods. The emergence of sewn-plank boats in the later Early Bronze Age can be seen as a starting point for this development towards a more boundary oriented perception of the sea.

In general, the Middle Bronze Age, from 1500 cal BC onwards, is the period in which sedentary communities developed. These communities structured the landscape and the seascape and developed a cosmology in which certain activities needed to be executed in certain places of the landscape. These communities structured the deposition of bronze objects, the burial of certain individuals, the use of arable fields for farming and the living alongside animals in large monumental longhouses. All these structuring principles were regionally defined, as indicated by for instance the structured deposition of metalwork in the southern Netherlands (see fig. 8.9).

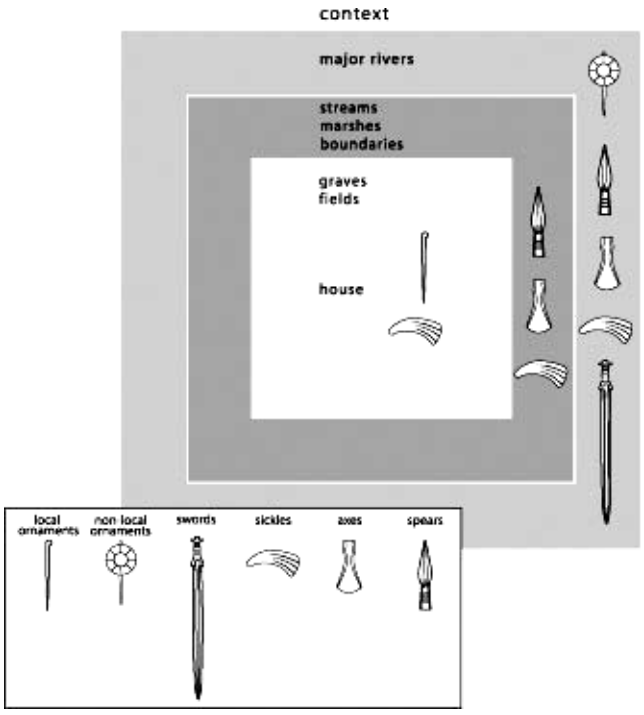

Fig. 8.9 The house as the centre of the world in the Middle Bronze Age landscape of the structured deposition of metalwork (taken from Fontijn 2002, fig. 14.2).

While many of these structuring practices indeed already existed in earlier periods (Arnoldussen/Fontijn 2006) it is in this period that all these elements are finally grasped together. To speak with the words of Ingold (2000, 61), this change can be seen as a shift 'from trust to domination' in the interaction between humans and their environment.

8.4.2.2 *Material culture*

8.4.2.2.1 Pottery

Pottery dating to the Middle Bronze Age shows strong similarities across North West Europe, with regard to decoration and vessel shapes. This has been noted already by scholars such as Marcigny *et al.* (2007a), Bourgeois/Talon (2009) and Needham (2009). In general, these scholars have interpreted these links as evidence for the exchange of information in an old-fashioned culture historical, and a socio-evolutionary neo-Marxist sense, relating pottery decoration to the exchange of bronze and the symbolic transmission of messages concerning social identity between elites. Such an approach was criticised in chapter 2 of this thesis. Looking from a different angle, as was done in chapters 3 to 5 of this thesis, different conclusions could be drawn as to the nature of these observed similarities and the specific changes in the overseas interaction taking place in the Middle Bronze Age.

The production of pottery in the Middle Bronze Age shows many similarities to the later Early Bronze Age. Forming techniques still involved the use of coils of both the N and H type in Continental and British pottery assemblages. A change in the shape of pottery vessels, from biconical towards straight-walled (barrel and bucket) and globular shaped pottery, does point to the emergence of regional differences. Globular vessels are only known from specifically British contexts, while Continental vessels show predominance for bucket shaped vessels. With respect to the decoration of pottery vessels, a large degree of uniformity appears to be present. Decoration of pottery involved the application of a cordon, or possibly more cordons, around the belly of a vessel. Next to that the cordons were on many occasions impressed with fingernails or fingertips. The position of these cordons on the vessel, and their internal motifs, did vary regionally. The presence of the cordon however, impressed or not, was a characteristic of most North West European Middle Bronze Age pottery. Other decoration types involved the sole impression of fingertips or fingernails, or the incision of line motifs in a regionally varying motif (see also Ellison 1975 for a comparative study of the southern British material).

Thus, how does this reflect the choices potters made? One of the most traditional aspects of their production process, the forming of a vessel, is showing a continuous development from later Early Bronze Age pottery vessels. This implies that learning networks remained continuous over the later Early and Middle Bronze Age. Pottery shapes, a more variable aspect of technology, however do change towards a more regional pattern, indicating the decrease in contact between potters and a decrease in overseas interaction. Similarly, the decoration motifs, related to systems of knowledge beyond the potter but accepted and agreed upon by multiple communities, came under pressure. Communities throughout North West Europe (from as far as Switzerland and Ireland) accepted the notion of an applied cordon, sometimes impressed with fingernail or fingertip. However, the details in this respect, the particular motifs present in this decoration set, were part of more local ways of knowing the world. Interaction between communities thus still existed at a superficial level, between communities in general, exchanging ideas, and probably related to the exchange of bronze objects. So in pottery a distinct 'cultural unification' is visible. It is only a cultural unification

at a particular level of interaction, that of superficial exchange of ideas. Very much different than the intensive, high-flux, interaction proposed for the later Early Bronze Age.

8.4.2.2.2 Metalwork

Whereas later Early Bronze Age bronzes originated mainly in British sources, such as the mines of Great Orme, Wales, a 'collapse' of the industry of these mines is envisaged around 1400 cal BC, as analytical research has shown and the exchange of scrap metal has pointed out (Pare 2000, 29). According to this interpretation, Middle Bronze Age metal objects are almost exclusively coming from Continental, Central European sources and, through the process of commodification, a system based on the trade of weighted metal developed (*idem*). A problem with Middle Bronze Age metalwork, however, is the lack of a distinct chemical composition, making it nearly impossible to trace objects to their area of origin. This specific problem is probably born by the fact that much exchanged metal was recycled several times during the Middle Bronze Age, decreasing its impurities content and the possibilities of sourcing the material (Needham 1998; Bray/Roberts 2009[28]). Also, the exchange of scrap metal has been one of the features discussed by Muckelroy (1981) in his study of the offshore finds at Langdon Bay. Similarly, O'Connor (1980) and Rowlands (1976) discussed the copious evidence for respectively overseas and regional exchange of various types of metalwork of Middle Bronze Age date. Recently, Kuijpers (2008) studied the possible evidence for localized Bronze Age smithing in the Low Countries. He came to the conclusion that it certainly was possible that smiths, with knowledge of the re-melting of bronze, practiced their craft locally. As direct evidence for these re-melting practices is scanty, a start for this practice of local re-melting and production of bronze to have occurred was not given by Kuijpers. However, typological evidence does exist for the local manufacturing of axes from the Middle Bronze Age onwards (Kuijpers 2008, 156-168).

As argued above, mobility was still high in the later Early Bronze Age. Thus, it is likely that, among other persons, metalworkers travelled across the North Sea and English Channel. Associating, specifically for the Middle Bronze Age, the prolific exchange of (scrap-) metal with the evidence for re-melting and local metalworking practices in this period, we can see that there was no need for metalworkers to actively cross the North Sea in order to obtain knowledge, goods or raw materials any more. Not only the production of metalwork was probably organised at a more regional and local, settlement, level in the Middle Bronze Age. The deposition of metalwork, by means of structured deposition, such as in the wet areas of the southern Dutch landscape, is by no means a practice executed throughout North West Europe. Particularly, in southern Britain, between 1600 and 1200 cal BC, the 'ornament horizon' shows the distinct deposition of particular objects, bronze and gold, in funerary contexts (see Roberts 2007). Thus, in the deposition of metalwork, regional practices related to the landscape and society, seem to have developed in the Middle Bronze Age.

8.4.2.3 *Towards cultural unification?*

Concluding, in the Middle Bronze Age communities became sedentary. Potters, metalworkers and other craftsmen did not engage in overseas interaction anymore. The exchange of information, superficial ideas and fashions relating to the techniques and tools of decoration (application of cordons, impression of fingernails and fingertips, incision of lines) and the exchange of metalwork, became the only ways in which communities interacted materially and became 'culturally unified' in their own more regionally based knowledge systems and understandings of the world around them.

[28] A paper, presented at the Bronze Age Forum Research Day: 'Transformations or Continuities: Understanding Britain from 1600-1400 BC' focusing on the Early-Middle Bronze Age transition, at 26th of October 2009.

Chapter 9 – Conclusions

9.1 *Concluding this thesis*

This final chapter considers the results obtained in this thesis, by answering the main questions addressed at the start of this enterprise.
In the first chapter of this thesis, the recent development of a new paradigm of culture history was outlined. The newly emerging studies of isotopes and DNA, combined with an old-fashioned perspective on pottery, have been used to again construct narratives about people, migrations and the diffusion of ideas and cultures. The study of later Early and Middle Bronze Age societies in North West Europe has been one of the best known culture historical narratives. The Dutch 'Hilversum-culture' and its British and French counterparts received much attention throughout the 20th century (for an overview see Theunissen 1999). This particular case study was selected to function as a pilot study in producing a theoretical framework which combines the recent ideas about mobility with an improved understanding of pottery, from a technological point of view. The anthropological work of Olivier Gosselain and the Ceramics and Society project featured prominently in this enterprise.
I proposed several central questions, all of which have been addressed in detail throughout the various chapters. Short answers to these questions will be reviewed here one-by-one.

- What are the similarities and differences in the production of pottery on both sides of the Channel and North Sea in the later Early and Middle Bronze Age (2000-1000 cal BC)?

In chapter 4, this question was answered. Specific stages in the production process of pottery were analysed for pottery from Britain and the Continent. A case study was executed, focusing on the forming of vessels. This study revealed that techniques used in the forming of pottery were widespread across the different parts of the research area and remained similar throughout the later Early and Middle Bronze Age. Both on the Continent and in Britain, the vessel shape did change from biconical shaped towards more bag shaped. In addition, data obtained by a scholar on French later Early and Middle Bronze Age pottery revealed similar forming techniques. With respect to the decorating of pottery in the later Early and Middle Bronze Age, more variability, both temporally and spatially, existed. Specific later Early Bronze Age decoration motifs include a variety of cord impressions, applied horseshoe handles, applied collars and cordons. These different motifs have been found in Britain and in several distinctive regions on the Continent. In the Middle Bronze Age, a more uniform picture of pottery decoration, by means of applied cordons, finger and nail impressions and incised lines, appeared all over North West Europe.

- What is the cultural significance of later Early and Middle Bronze Age pottery for communities on both sides of the Channel and North Sea, when looking at evidence for use and deposition?

The cultural significance of pottery in the later Early and Middle Bronze Age was analysed in chapter 5, by using the concept of the cultural biography. The cultural significance of pottery was expressed by both its use in life and the particular way this use ended at the moment of deposition. Fabric analyses of later Early and Middle Bronze Age pottery, from various parts of Britain show, in addition to the overseas movement of specific vessels (*Vases à Anses* and Trevisker Ware), that pottery was exchanged among communities during its use life. Furthermore, the use of pottery in gatherings and events, at which regionally, and possibly

even overseas communities, participated, can be hypothesised from circumstantial evidence. In addition, early evidence from lipid studies, show a remarkable homogeneity in vessel contents. This evidence combined, points to the existence of a supra-regional cultural significance in the use of pottery in the later Early and Middle Bronze Age of North West Europe. Pottery was used for similar purposes, at specific events held throughout North West Europe and exchanged regionally and supra-regionally among the different communities. At the moment of deposition, such uniformity is absent. Many different ways of depositing a pottery vessel exist, and it seems that supra-regional structuring practices at this moment were confined to the containment and deposition of cremated human remains. The particular way of depositing this vessel, contained with human remains, whether upside down or covered with a slab, is regionally varying practice. Other practices of depositing pottery, as a whole vessel or in broken pieces, in settlements or as special deposits in natural places such as caves and swamps, are more of local significance, related to the natural physical landscape.

- What is the social context of pottery production in the later Early and Middle Bronze Age in the study area?

Pottery is produced, both by potters and by a community. The potter makes the vessel, but similarly, the community influences the way it is produced to a large extent. Specifically the decoration of pottery is, due to its visibility and technical malleability, easily influenced by the wider community. In chapter 6 the implications of this proposition were discussed. For the later Early and Middle Bronze Age, the distribution of decoration techniques and tools indicate that communities interacted at least at the level of (superficial exchange of) ideas. Exchange at a deeper level, beyond this superficial point, are interpreted from the specific motifs of decoration, such as horseshoe handles and cord impressions, for the later Early, and applied cordon motifs for the Middle Bronze Age, which occur frequently in both Continental and British finds assemblages. Exchanges we can think of, relate to the exchange of marriage partners and the common appreciation of origin myths and rituals at gatherings. These understandings are deep rooted, yet probably were widely known within later Early and Middle Bronze Age societies. Other aspects of pottery production, most notably the forming of a vessel, were not widely known to the wider later Early and Middle Bronze Age societies. These specific methods and techniques of forming a vessel, as was argued in chapter 3, were reserved for the potter and his pupils. In the pottery evidence this is also visible, looking at the specific conscious ways in which the outer wall of many vessels were smoothed, and all wrinkles and hints that could indicate how the pot was formed were erased. Arguably, in the later Early and Middle Bronze Age the craft of potter was a specialised craft. The craft was practiced by part-time specialists, people who daily practiced farming. These people similarly invested time in acquiring skill and teaching young potters (especially thus in the methods of forming). Furthermore, these potters interacted with each other, as synchronous developments and similarities in forming and vessel shapes demonstrated. Pottery production was not the only recognisable craft in the later Early and Middle Bronze Age societies. Evidence from the production of metalwork, basketry and boatbuilding all show that a certain amount of, hard to obtain, technical knowledge was necessary. Knowledge was distributed within society in a particular way, related to practice and skill. Thus probably relations between these crafts existed, making innovations (such as the emergence of plank-built boats in the later Bronze Age) possible. A network of persons having knowledge about a variety of crafts existed beyond the limits of the North Sea, and high-flux interaction was taking place in the later Early Bronze Age. In the Middle Bronze Age, more regionalised production existed, as evidence for a change in decoration motifs and the shape of vessels demonstrate.

- What are the environmental and historical context for overseas interaction between the Continent and the British Isles in the later Early Bronze Age (2000-1500 cal BC) and Middle Bronze Age (1500-1000 cal BC)?

This high-flux interaction across the North Sea and English Channel had its own history, based in the dynamics of the natural environment, the changing perceptions towards the sea and the long term histories of overseas interaction. All these factors influence the later Early and Middle Bronze Age developments in overseas interaction, as was argued in chapter 7. The environmental history of the North Sea and English Channel is centred on the rise in sea levels after the Last Glacial Maximum and the submergence of Doggerland. This development put several other developments in motion, such as the rise in tidal regime, the dynamics in the creation and the submergence of new coastal lands and the widening of the English Channel and North Sea basin up to the present situation. These developments mainly took place in a period in history, the Mesolithic, when hunter-gatherers dwelled along the shores of North West Europe. These communities were well attuned to the natural environment, and their response was probably based on the daily 'education of attention' (Ingold 2000; Leary 2009). Overseas colonisation in the Upper Palaeolithic and Mesolithic, and overseas interaction in the Neolithic and the Beaker period have all left numerous traces on the Continent and on the British Isles. Flint and bone tools (*e.g.* Verhart 1990), pottery (*e.g.* Pailler/Sheridan 2009), stone axes (*e.g.* Pétrequin *et al.* 2008), copper artefacts (*e.g.* Roberts 2008) and isotopic signatures (*e.g.* Evans *et al.* 2006) all demonstrate the existence of overseas relations between communities throughout prehistory. By the later Early Bronze Age, many ships travelled from the Continent as far as Ireland and probably all sea routes across the North Sea (based on the tides and wind directions) were well known.

- What will the 'maritory' model, the latest model on the later Early and Middle Bronze Age, as put forward by Needham (2009), look like when dealing with pottery, environment and Bronze Age society as dealt with in the aforementioned questions?

For the later Early and Middle Bronze Age specific models with regard to the overseas interaction between communities, have been constructed. All of these models were based on premises which were deconstructed throughout this thesis. Past research has focused on metalwork assemblages and exotic goods and this focus determined the nature of models for overseas interaction, such as Needham's (2009) 'maritory' model. Next to that, the 'maritory' model, among other interpretations, uses a modern Western conception of the sea. All these studies uncritically approach the North Sea and English Channel as a boundary. In chapter 7 this was criticised, and a different way of looking at overseas interaction was proposed. The need for realignment of the evidence is therefore inevitable. In chapter 8, the characteristics of such an undertaking were presented. It follows from the above that mobility features prominently in this. People, individuals and communities, were much more mobile that hitherto recognised. Pottery decoration evidence also suggests that people continued to interact across the Channel and the North Sea, after the Beaker period. The change in character of this interaction, as seen in the change in patterns of decoration motifs, can be best explained by changes of social nature. The social changes that took place in this transition period are not likely to have been caused by the emergence of new elites (*contra* Needham 2000), as the evidence proposed can easily be interpreted in multiple ways. Instead, these changes might be related to a change in the sphere of bronze production and the exchange of metalwork (the appearance of tin-bronze alloys; see Pare 2000) or the widespread adoption of the practice of cremation and changes in the construction of relational identity from *c.* 2000 cal BC onwards (Brück 2004). Changes in forming methods at the start of the 2nd millennium BC, and the shape of pottery vessels developed more slowly. The slender S-shaped fine

Beaker vessels and the more robust Beaker course ware developed into the biconical shaped pottery of the later Early Bronze Age (see also Needham 2005). This development shows that the interaction between potters, at the deep-rooted level of learning the forming techniques to young scholars, was well developed. Thus, overseas interaction, of moving potters (among many other persons), still took place regularly around 2000 cal BC. At the start of the Middle Bronze Age, many aspects of this model change. The evidence of settlements shows that mobility became less common and perception of the landscape became centred on the house and the household (see fig. 8.9).
Changes in the various aspects of the production of pottery are also noted. Techniques related to the forming of vessels do not change in this period, reflecting the traditional nature of this particular type of knowledge. Changes do take place in the shape of vessels, as these become more variable. A general trend towards more bag-shaped vessels is also noted, but variability in shape (globular, barrel, bucket), is showing first signs of less interaction between potters and the breaking down of traditional relationships, the depletion of a shared deep rooted identity, and the demise of the system of overseas interaction. The decorating of pottery, on the other hand, changed around 1500 cal BC towards a more uniform pattern of applied cordons and fingernail impressions all over North West Europe. Interaction between communities, both regional and overseas, at a superficial level, still existed and even increased in intensity. This 'cultural unification', as some scholars have termed it, is probably related to the increase in exchange of metalwork (both finished objects and scrap) and simultaneously, the exchange of ideas regarding meanings and values in general.

9.2 *Vision of the Future*[29]

After concluding this thesis, many questions remain and many new avenues for research can be opened, using the theory and method outlined in this thesis.

Firstly, studies focusing on other types of material culture should also use an isochrestic approach towards variation, looking at producers, their influences and the outcome of their choices. One can apply these theories to, for example, the study of Mesolithic flint and bone tool assemblages in order to assess the relativity of Verhart's 'social territories' (Verhart 1990) and the influence of the submerging of Doggerland on this particular question of overseas interaction. One can just as easily use these theories in studying the neolithisation of the British Isles, focusing on the Carinated Bowl pottery and their relationship to continental Michelsberg and related 'cultures' (Pailler/Sheridan 2009). Furthermore, it would be interesting to look at the Beaker culture and the supposed migration of people towards Britain at the start of this period (Sheridan 2008). Such an enterprise would link detailed pottery production data, future metal characterisation analyses (that take Kuijpers' (2008) thorough theoretical assessment of the smith in prehistory onboard) and evidence for mobility (such as the recently emerging isotopic data (Parker Pearson *et al.* 2006)) together.

Using the theories on landscape and seascape, and human engagement with these environments as a basis, other sorts of problems can be addressed. Looking, for instance, at Anthony's (2001) concept of 'persistent identity', the existence of a long-term border between two culture areas (separated by rivers or mountain ranges) this can be approached more constructively by concentrating on how these communities interacted with this particular environment and how they perceived this natural phenomenon.

[29] After: Zahn, T., 1999. *Vision of the Future*, New York (The Hand of Thrawn II)

As to the methodology of analysing pottery it has proven very difficult to find evidence for forming on such a detailed scale of analysis as comparable to ethnographic reference. Where ethnographically, Gosselain could see how pots were made and see the different processes involved, archaeologists are left with the end result and possible ways of retrieving vital information about techniques. Study of prehistoric pottery forming should therefore not only focus on the coil attachment, but perhaps try to look at other features as well. A good stimulus for further research has recently been provided by Budden and Sofaer, who analysed a large number of variables on Hungarian Bronze Age pottery production (Budden/Sofaer 2009). Doing this will make it possible to get more detailed information about the potter's behaviour and the choices he makes. A second method in analysing pottery forming techniques is the use of XRF (X-Ray Fluorescence) analysis, as a pilot project, part of Law's (2008) thesis, states.
Another aspect that might be interesting to look at, as forming is linked with motor habits and patterns in hand movement, is the potter's hands themselves and the traces they leave behind on the vessel. At first this can be done by assessing the right- or left handedness of nail and fingertip impressions on pottery decoration (see also the database in which attempts are made at such an undertaking). Secondly, a possible new avenue related to this is the promising research on fingerprint analysis (palaeo-dermatoglyphics) in identifying hand movements, motor habits and detailed forming processes using 3D imaging techniques (Králík/Novotný 2005). Interestingly could also be the use of a new technique, called X-Ray 3D Tomography, which, non-destructively, next to producing images of the outer surface, can produce slices of the inner structure and an indication of the chemical composition (Dammers *in press*).
Decoration on pottery has already seen a wide interest from early onwards. However until recently, interest in the technical aspects of decorating a pot were not considered. Further investigations into the details of impressions (Hurcombe 2008; Hurcombe/Owoc 2009), the temporal ordering of different decoration motifs on a single pot, and the possible use of inlays as decoration (Roberts *et al.* 2008), are necessary in order to understand the potter's choices and the way potters and communities interacted, both consciously and unconsciously, by specific means of their material culture.

Specifically with regard to pottery production in the North West European Bronze Age, it is essential to acquire a better chronological resolution, in order to improve our understanding of the complex processes of cultural transmission and the changes in both forming and decorating. For now, the lack of a structural body of well dated sites is problematic at least. The recently advances in dating cremated bones (Lanting *et al.* 2001) has already stimulated the indirect dating of many urns from Scotland (by the excellent "NMS dating cremated bone project" of Dr. J.A. Sheridan, see Sheridan 2007) and from Ireland (Brindley 2007). However comparative work on other, southern, British material, French material and cremations from the Low Countries is in desperate need before overseas relations can be discerned in more detail than is done in this thesis. In the future, contextual approaches towards dating and the reanalysis of past excavations will, by using Bayesian statistics, hopefully lead to the chronologies needed in addressing detailed questions on changes in pottery production, and the related changes in learning networks and cultural transmission of knowledge. Next to that, the analysis of fabrics on Continental Bronze Age pottery, in a comparable systemic way as has been done on British material, will improve our understanding of overseas interaction taking place. Similarly, the study of pottery use, by means of lipid and residue analysis, is up to now another solely British enterprise. Futures studies into this particular respect can inform us whether in the later Early and Middle Bronze Age pottery was used for similar purposes in both British and Continental contexts. Interestingly as well, would be to contextualise the production process of *Vases à Anses* pottery within the study of biconical later Early Bronze

Age assemblages. Are these vessels really the product of special elites (as Tomalin 1988 suggested), or is a different social interpretation possible? Specific attention should also be aimed at a deeper understanding of the several examples of Trevisker pottery found long ago, in the 1960's, in France. Are these vessels really part of the Trevisker group, or are they perhaps local variants of a more indirect network of the interaction of knowledge?

Acknowledgements

While doing research for this thesis, I received a lot of feedback during official talks (at the Leiden MPhil Research Day, at the Bronze Age Forum in Sheffield, at the Lifewaves conference in Manchester), at unofficial conversations in a variety of pubs in Britain, Belgium, Germany and the Netherlands, through various e-mail correspondences and at many other social occasions. The majority of help came from Sébastien Manem and Cyril Marcigny (for French data), Ben Roberts, Ann and Peter Woodward and Stuart Needham (for British data) and Stijn Arnoldussen (for data his PhD was related to) and Simone Bloo (for her unpublished data). Text editing support came from Linda Rooijmans. Bob Johnston and Irene Garcia Rovíra let me talk at the conferences in Sheffield and Manchester. All of these people are thanked for their support. All errors, omissions, bold statements and misapprehended good advices are my own responsibility.

Further words of thanks are directed towards my family (Ton, Hanneke, Chris and Eveline) and numerous friends who all (on many occasions not even known to themselves) stimulated and encouraged this research. In addition, Ann and Peter Woodward are thanked for their hospitality and guidance during my stay in Dorchester. My professor Harry Fokkens is thanked for his encouragement and for guiding the difficult process of writing a piece longer than ten pages. I am furthermore grateful to have met Jean Roefstra. He, besides being one of my dearest friends, was the person who first guided me in archaeology. From the moment we met, around 10 years ago, he taught me the basics of excavating, archaeological analysis and interdisciplinary local history.

A final word of thanks is provided for my grandfather, Koos Mak (1931-1996), who, among many other things, taught me to always be critical on myself and to read a lot (he learnt me reading at an very early age). These lessons I still appreciate and value deeply (one only has to consider the bibliography of this thesis). It is to him, a seaman at heart, with always a straight course, that this thesis is dedicated.

Bibliography

Abercromby, J. 1902. The Oldest Bronze-Age Ceramic Type in Britain: it's Close Analogies on the Rhine: it's Probable Origin in Central Europe, *Journal of the Anthropological Institute of Great Britain and Ireland* 32, 373-397.

Abercromby, J. 1912. *A study of the Bronze Age pottery of Great Britain and Ireland and its associated grave-goods*, Oxford.

Allen, M.J. 2005. Beaker Settlement and Environment on the Chalk Downs of Southern England, *Proceedings of the Prehistoric Society* 71, 219-245.

Andersen, S.H. 2008. The Mesolithic - Neolithic transition in Western Denmark seen from a kitchen midden perspective. A survey. In: H. Fokkens/B.J. Coles/A.L. Van Gijn/J.P. Kleijne/H.H. Ponjee/C.G. Slappendel(eds), *Between Foraging and Farming: An extended broad spectrum of papers presented to Leendert Louwe Kooijmans*, Leiden (Analecta Praehistorica Leidensia 40), 67-74.

Andersen, S.H./A. Bietti/C. Bonsall/N.D. Broadbent/G.A. Clark/B. Gramsch/R.M. Jacobi/L. Larsson/A. Morrison/R.R. Newell/J.-G. Rozoy/L.G. Straus/P.C. Woodman 1990. Making Cultural Ecology Relevant to Mesolithic Research: I. A Data Base of 413 Mesolithic Fauna Assemblages. In: P.M. Vermeersch/P. Van Peer(eds), *Contributions to the Mesolithic in Europe*, Leuven, 23-51.

Anthony, D.W. 2001. Persistent Identity and Indo-European Archaeology in the Western Steppes. In: C. Carpelan/A. Parpola(eds), *Early Contacts between Uralic and Indo-European. Linguistic and Archaeological Considerations. Papers presented at an international symposium held at the Tvärminne Research Station of the University of Helsinki 8–10 January, 1999*, Helsinki (Mémoires de la Société Finno-Ougrienne 242), 11-35.

Anthony, D.W. 2007. *The Horse, the Wheel and Language. How Bronze-Age riders from the Eurasian steppes shaped the modern world*, Princeton.

Appadurai, A. 1986. Introduction: commodities and the politics of value. In: A. Appadurai(ed.), *The Social Life of Things: commodities in a cultural perspective*, Cambridge, 1-59.

ApSimon, A.M. 1972. Biconical Urns outside Wessex. In: F. Lynch/C.B. Burgess(eds), *Prehistoric Man in Wales and the West*, Bath, 141-160.

Arbic, B.K./D.R. MacAyeal/J.X. Mitrovica/G.A. Milne 2004. Ocean tides and Heinrich events, *Nature* 432, 460.

Arnold, D.E. 1985. Conclusion. In: *Ceramic Theory and Cultural Process*, Cambridge, 225-237.

Arnoldussen, S. 2008. *A Living Landscape. Bronze Age settlement sites in the Dutch river area (c. 2000-800 BC)*, Leiden.

Arnoldussen, S./E.A.G. Ball 2007. Nederzettingsaardewerk uit de late bronstijd in Noord-Brabant en het rivierengebied. In: R. Jansen/L.P. Louwe Kooijmans(eds), *Van contract tot wetenschap. Tien jaar archeologisch onderzoek door Archol BV, 1997-2007*, Leiden, 181-203.

Arnoldussen, S./D.R. Fontijn 2006. Towards familiar landscapes? On the nature and origin of Middle Bronze Age landscapes in the Netherlands, *Proceedings of the Prehistoric Society* 72, 289-317.

Audouze, F. 2002. Leroi-Gourhan, a Philosopher of Technique and Evolution, *Journal of Archaeological Research* 10, 277-306.

Avery, M./J. Close-Brooks 1969. Shearplace Hill, Sydling St Nicholas, Dorset, House A: a suggested re-interpretation, *Proceedings of the Prehistoric Society* 35, 345-351.

Bailey, G.N./J. Parkington 1988. The archaeology of prehistoric coastlines: an introduction. In: G.N. Bailey/J. Parkington(eds), *The archaeology of prehistoric coastlines*, Cambridge, 1-10.

Bakels, C.C. 1997. The beginnings of manuring in western Europe, *Antiquity* 71, 442-445.

Bakker, J.A. 1959. Veenvondsten van de Trechterbekercultuur. In: J.E. Bogaers/W. Glasbergen/P. Glazema(eds), *Honderd Eeuwen Nederland: Antiquity and Survival*, 's Gravenhage (Honderd Eeuwen Nederland 5/6), 93-99.

Bakker, J.A. 1992. *The Dutch Hunebedden. Megalithic Tombs of the Funnelbeaker Culture*, Ann Arbor (Archaeological Series 2).

Barley, N. 1984. Placing the West African potter. In: J. Picton(ed.), *Earthenware in Asia and Africa: a colloquy held 21-23 June 1982*, London (Colloquies on Art And Archaeology in Asia 12), 93-105.

Barrett, J.C. 1994. *Fragments of antiquity: an archaeology of social life in Britain, 2900-1200 BC*, Oxford.

Barrett, J.C. 2005. Agency. In: A.C. Renfrew/P. Bahn(eds), *Archaeology: The Key Concepts*, London/New York, 3-7.

Barrett, J.C. 2005. Habitus. In: A.C. Renfrew/P. Bahn(eds), *Archaeology: The Key Concepts*, London/New York, 133-137.

Barton, N./A. Roberts 2004. The Mesolithic Period in England: Current Perspectives and New Research. In: A. Saville(ed.), *Mesolithic Scotland and its Neighbours*, Edinburgh, 339-359.

Barton, R.N.E./P.J. Berridge/M.J.C. Walker/R.E. Bevins 1995. Persistent Places in the Mesolithic Landscape: an Example from the Black Mountain Uplands of South Wales, *Proceedings of the Prehistoric Society* 61, 81-116.

Becker, C.J. 1955. Coarse Beakers with 'Short-Wave Moulding', *Proceedings of the Prehistoric Society* 21, 65-71.

Behre, K.-E. 2007. A new Holocene sea-level curve for the southern North Sea, *Boreas* 36, 82-102.

Berendsen, H.J.A./B. Makaske/O. Van de Plassche/M.H.M. Van Ree/S. Das/M. Van Dongen/S. Ploumen/W. Schoenmakers 2007. New groundwater-level rise data from the Rhine-Meuse delta - implications for the reconstruction of Holocene relative mean sea-level rise and differential land-level movements, *Netherlands Journal of Geosciences* 86, 333-354.

Bickle, P./D. Hofmann 2007. Moving on: the contribution of isotope studies to the early Neolithic of Central Europe, *Antiquity* 81, 1029-1041.

Binford, L.R. 1962. Archaeology as anthropology, *American Antiquity* 28, 217-225.

Binford, L.R. 1965. Archaeological Systematics and the Study of Culture Process, *American Antiquity* 31, 203-210.

Bjerck, H.B. 2009. Colonizing seascapes: comparative perspectives on the development of maritime relations in the Pleistocene/Holocene transition in north-west Europe. In: S. McCartan/R.J. Schulting/G. Warren/P.C. Woodman(eds), *Mesolithic Horizons*, Oxford, 16-23.

Blanchet, J.-C. 1976. Les tumulus des Combles d'Eramecourt (Somme) dans leur contexte du bronze ancien et moyen en France du Nord-Ouest, *Cahiers Archéologiques de Picardie* 3, 39-54.

Blanchet, J.-C. 1984. *Les Premiers Métallurgistes en Picardie et dans la Nord de la France*, Paris.

Bourgeois, J./M. Talon 2009. From Picardy to Flanders: Transmanche connections in the Bronze Age. In: P. Clark(ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, Oxford, 38-59.

Bourgeois, Q.P.J./S. Arnoldussen 2006. Expressing monumentality: some observations on the dating of Dutch Bronze Age barrows and houses, *Lunula* 14, 13-25.

Bourgeois, Q.P.J./D.R. Fontijn 2007. Nieuw onderzoek naar twee grafheuvels op de Utrechtse Heuvelrug, gemeente Rhenen (Nl.), *Lunula* 15, 3-12.

Bourgeois, Q.P.J./D.R. Fontijn 2008. Houses and barrows in the Low Countries. In: S. Arnoldussen/H. Fokkens(eds), *Bronze Age settlements in the Low Countries*, Oxford.

Brandt, R.W. 1988. Aardewerk uit enkele Bronstijdnederzettingen in West-Friesland. In: J.H.F. Bloemers(ed.), *Archeologie en oecologie van Holland tussen Rijn en Vlie*, Assen (Studies in Prae- en protohistorie 2), 206-276.

Braun, D.P. 1983. Pots as tools. In: A. Keene/J. Moore(eds), *Archaeological hammers and theories*, New York (Studies in Archaeology, 107-134.

Briard, J. 1981. Urnes et 'Champs d'Urnes' en Bretagne. In: H. Von Lorenz(ed.), *Studien zur Bronzezeit. Festschrift für Wilhelm Albert v. Brunn*, Mainz, 39-62.

Briard, J. 1993. Relations between Brittany and Great Britain during the Bronze Age. In: C.J. Scarre/F. Healy(eds), *Trade and Exchange in Prehistoric Europe*, Oxford, 183-190.

Brindley, A.L. 2007. *The dating of food vessels and urns in Ireland*, Groningen.

Brodie, N. 1997. New perspectives on the Bell Beaker Culture, *Oxford Journal of Archaeology* 16, 297-314.

Bronk Ramsey, C. 2001. Development of the Radiocarbon Calibration Program, *Radiocarbon* 43, 355-363.

Brown, A. 2007. Dating the onset of cereal cultivation in Britain and Ireland: the evidence from charred cereal grains, *Antiquity* 81, 1042-1052.

Brown, N. 1995. Ardleigh reconsidered: Deverel-Rimbury pottery in Essex. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 123-144.

Brück, J. 1999a. What's in a settlement? Domestic practice and residential mobility in Early Bronze Age southern England. In: J. Brück/M. Goodman(eds), *Making places in the prehistoric world: themes in settlement archaeology*, London, 52-75.

Brück, J. 1999b. Houses, Lifecycles and Deposition on Middle Bronze Age Settlements in Southern England, *Proceedings of the Prehistoric Society* 65, 145-166.

Brück, J. 2000. Settlement, Landscape and Social Identity: The Early-Middle bronze age transition in Wessex, Sussex and the Thames Valley, *Oxford Journal of Archaeology* 19, 273-300.

Brück, J. 2001c. Houses, Bodies, Pots, Quernstones: Meaning and Metaphor in the English Later Bronze Age. In: D. Gheorghiu(ed.), *Material, Virtual and Temporal Compositions; On the Relationship between Objects*, Oxford (British Archaeological Reports: International Series 953), 63-73.

Brück, J. 2004. Material metaphors: The relational construction of identity in Early Bronze Age burials in Ireland and Britain, *Journal of Social Archaeology* 4, 307-333.

Brun, P. 1991. le Bronze Atlantique et ses Subdivisions Culturelles: Essai de Définition. In: C. Chevillot/A. Coffyn(eds), *L'Age du Bronze Atlantique : ses faciès, de l'Ecosse à l'Andalousie et leurs relations avec le Bronze continental et la Méditerranée. 1er Colloque du Parc Archeologique de Beynac, 10-14 Sept. 1990.*, Beynac-et-Cazenac, 11-24.

Budd, P./T. Taylor 1995. The faerie smith meets the bronze industry: magic versus science in the interpretation of prehistoric metal-making, *World Archaeology* 27, 133-143.

Budden, S.A./J.R. Sofaer 2009. Non-discursive Knowledge and the Construction of Identity: Potters, Potting and Performance at the Bronze Age Tell of Százhalombata, Hungary, *Cambridge Archaeological Journal* 19, 203-220.

Burgess, C.B. 1980. *The Age of Stonehenge*, London.

Burgess, C.B. 1995. Bronze Age Settlements and Domestic Pottery in Northern Britain: some suggestions. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 145-158.

Burgess, C.B./B. O'Connor 2004. Bronze Age rotary spits: finds old and new, some false, some true. In: H. Roche/E. Grogan/J. Bradley/J.M. Coles/B. Raftery(eds), *From Megaliths to Metal*, Oxford, 184-199.

Burgess, C.B./S.J. Shennan 1976. The Beaker Phenomenon: some suggestions. In: C.B. Burgess/R. Miket(eds), *Settlement and Economy in the Third and Second Millennia B.C.*, Oxford (British Archaeological Reports: British Series 33), 309-331.

Butler, J.J. 1990. Bronze Age metal and amber in the Netherlands (I), *Palaeohistoria* 32, 47-110.

Butler, J.J./I.F. Smith 1956. Razors, Urns and the British Middle Bronze Age, *Annual Report of the University of London Institute of Archaeology* 12, 20-52.

Celtel, A. 2005. *Categories of self: Louis Dumont's theory of the individual* New York (Methodology and history in Anthropology 10).

Chancerel, A./C. Marcigny/E. Ghesquière 2006. *Le plateau de Mondeville (Calvados) du Neolithique à l'âge du Bronze*, Paris (DAF 99).

Chapman, H.P./P.R. Chapman 2005. Seascapes and Landscapes - the Siting of the Ferriby Boat Finds in the Context of Prehistoric Pilotage, *International Journal of Nautical Archaeology* 34, 43-50.

Chapman, J. 1997. The impact of modern invasions and migrations on archaeological explanation. In: J. Chapman/H. Hamerow(eds), *Migrations and Invasions in Archaeological Explanation*, Oxford (British Archaeological Reports: International Series 664), 11-20.

Chapman, R.J./R.C. Leake/R.A. Warner/M.C. Cahill/N.R. Moles/C.A. Shell/J.J. Taylor/F. Lafagem 2006. Microchemical characterisation of natural gold and artefact gold as a tool for provenancing prehistoric gold artefacts: A case study in Ireland, *Applied Geochemistry* 21, 904-918.

Childe, V.G. 1929. *The Danube in Prehistory*, Oxford.

Clark, J.G.D. 1931. The Dual Character of the Beaker Invasion, *Antiquity* 5, 415-426.

Clark, J.G.D. 1966. The Invasion Hypothesis in British Archaeology, *Antiquity* 40, 172-189.

Clark, P. 2009. *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, Oxford.

Clarke, D.L. 1970. *Beaker Pottery of Great Britain and Ireland*, Cambridge.

Clason, A.T. 1974. The Antler, Bone and Tooth Objects from Velzen: A Short Description, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 26, 119-131.

Clason, A.T. 1999. What's New in the Bronze Age? In: H. Sarfatij/W.J.H. Verwers/P.J. Woltering(eds), *In Discussion with the Past. Archaeological studies presented to W.A. van Es*, Zwolle/Amersfoort, 34-40.

Clay, R.C.C. 1926. The Woodminton Group of Barrows, Bowerchalke, *Wiltshire Archaeological and Natural History Magazine* 43, 313-326.

Coles, B.J. 1998. Doggerland: a speculative survey, *Proceedings of the Prehistoric Society* 64, 45-81.

Coles, B.J. 1999. Doggerland's loss and the Neolithic. In: B.J. Coles/J.M. Coles/M. Shou Jørgensen(eds), *Bog Bodies, sacred sites and wetland archaeology*, Exeter, 51-57.

Conscience, A.-C. 2000. Reichverzierte frühbronzezeitliche Keramik am Zürichsee - der Fundkomplex von Wädenswil-Vorder Au, *Jahrbuch der Schweizerischen Gesellschaft für Urgeschichte* 83, 181-190.

Cooney, G. 2003. Introduction: seeing the land from the sea, *World Archaeology* 35, 323-328.

Copley, M.S./R. Berstan/S.N. Dudd/S. Allioud/A.J. Mukherjee/V. Straker/A. Payne/R.P. Evershed 2005a. Processing of milk products in pottery vessels through British prehistory, *Antiquity* 79, 895-908.

Copley, M.S./R. Berstan/V. Straker/S. Payne/R.P. Evershed 2005b. Dairying in antiquity. II. Evidence from absorbed lipid residues in dating to the British Bronze Age, *Journal of Archaeological Science* 32, 505-521.

Crawford, O.G.S. 1922. A Prehistoric Invasion of England, *The Antiquaries Journal* 2, 27-35.

Crombé, P./B. Vanmontfort 2007. The neolithisation of the Scheldt basin in western Belgium. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-Neolithic Transition in North-West Europe*, London (Proceedings of the British Academy 144), 263-285.

Cruse, R.J. 2007. Dating the cremation in a Biconical Urn at the Early Bronze Age barrow, Hill Road, Wouldham, *Archaeologia Cantiana* 123, 163-173.

Cummings, V. 2007. From midden to megalith? The Mesolithic-Neolithic transition in Western Britain. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-Neolithic Transition in North-West Europe*, London (Proceedings of the British Academy 144), 493-510.

Cummings, V./C.J. Fowler 2006. *The Neolithic of the Irish Sea: Materiality and Traditions of Practice*, Oxford.

Cunliffe, B.W. 2001. *Facing the Ocean. The Atlantic and its peoples*, Oxford.

Cunliffe, B.W. 2009. Looking forward: Maritime contacts in the first millennium BC. In: P. Clark(ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, Oxford, 80-93.

David, N./J. Sterner/K. Gavua 1988. Why Pots Are Decorated, *Current Anthropology* 29, 365-389.

Desfossés, Y. 2000. Synthèse de l'occupation de l'Age du Bronze. In: Y. Desfossés(ed.), *Archéologie préventive en Vallée de Canche. Les sites protohistoriques fouillés dans le cadre de la réalisation de l'autoroute A16* Berck-sur-Mer (Nord-Ouest Archéologie 11), 165-194.

Dobres, M./C.R. Hoffman 1994. Social Agency and the Dynamics of Prehistoric Technology, *Journal of Archaeological Method and Theory* 1, 211-258.

Dooijes, R./O.P. Nieuwenhuyse 2007. Ancient Repairs: Techniques and Social Meaning. In: M. Bentz/U. Kästner(eds), *Konservieren oder Restaurieren, Die Restaurierung griechischer Vasen von der Antike bis heute*, München (Beihefte zum Corpus Vasorum Antiquorum Deutschland 3), 17-22.

Drenth, E. 2005. Het Laat-Neolithicum in Nederland. In: J. Deeben/E. Drenth/M.-F. Van Oorsouw/L.B.M. Verhart(eds), *De Steentijd van Nederland*, Zutphen (Archeologie 11/12), 333-365.

Drewett, P. 1980. Black Patch and the Later Bronze Age in Sussex. In: R.J. Bradley/J.C. Barrett(eds), *Settlement and society in the British Later Bronze Age*, Oxford (British Archaeological Reports: British Series 83), 377-396.

Drewett, P. 1982. Later Bronze Age Downland Economy and Excavations at Black Patch, East Sussex, *Proceedings of the Prehistoric Society* 48, 321-400.

Dupont, C./A. Tresset/N. Desse-Berset/Y. Gruet/G. Marchand/R.J. Schulting 2009. Harvesting the Seashores in the Late Mesolithic of Northwestern Europe: A View from Brittany, *Journal of World Prehistory* 22, 93-111.

Ellison, A.B. 1975. *Pottery and settlements of the later Bronze Age in southern England*, Cambridge (PhD Thesis University of Cambridge).

Ellison, A.B. 1980. Settlements and regional exchange: a case study. In: R.J. Bradley/J.C. Barrett(eds), *Settlement and society in the British Later Bronze Age*, Oxford (British Archaeological Reports: British Series 83), 127-140.

Evans, C./J. Pollard/M. Knight 1999. Life in woods: Tree-throws, 'settlement' and forest cognition, *Oxford Journal of Archaeology* 18, 241-254.

Evans, J./C.A. Chenery/A.P. Fitzpatrick 2006. Bronze Age childhood migration of individuals near Stonehenge, revealed by strontium and oxygen isotope tooth enamel analysis, *Archaeometry* 48, 309-321.

Evans, J.D. 1973. Islands as laboratories for the study of culture process. In: A.C. Renfrew(ed.), *The Explanation of culture change: Models in Prehistory*, London, 517-520.

Finlay, N. 2003. Microliths and Multiple Authorship. In: L. Larsson/H. Kindgren/K. Knutsson/D. Leoffler/A. Åkerlund(eds), *Mesolithic on the move: papers presented at the Sixth International Conference on the Mesolithic in Europe, Stockholm 2000*, Oxford, 169-176.

Fitch, S./V.L. Gaffney/K. Thomson 2007. The Archaeology of the North Sea Palaeolandscapes. In: V.L. Gaffney/K. Thomson/S. Fitch(eds), *Mapping Doggerland: The Mesolithic Landscapes of the Southern North Sea*, Oxford, 105-118.

Fokkens, H. 2001. The periodisation of the Dutch Bronze Age: a critical review. In: W.H. Metz/B.L. Van Beek/H. Steegstra(eds), *Patina. Essays presented to Jay Jordan Butler on the occasion of his 80th birthday*, Groningen/Amsterdam, 241-262.

Fokkens, H. 2003. Le début de l'âge du bronze aux Pays-Bas et l'horizon Hilversum ancien. In: J. Bourgeois/M. Talon(eds), *L'Âge du Bronze du Nord de la France dans son contexte européen : 125e congrès national des sociétés historiques et scientifiques, Lille, 2000.* , Paris, 11-33.

Fokkens, H. 2005. *Voorbeeldige voorouders: graven naar de ideeënwereld van prehistorische boerengemeenschappen*, Leiden.

Fokkens, H. *in press*. Dutchmen on the move? A discussion of the adoption of the Beaker package. In: M.J. Allen/J.P. Gardiner/J.A. Sheridan/D. McOmish(eds), *The British Chalcolithic: People, Place and Polity in the Later 3rd Millennium*, Oxford (Prehistoric Society Research Papers 4).

Fokkens, H./S. Arnoldussen 2008. Towards new models. In: S. Arnoldussen/H. Fokkens(eds), *Bronze Age settlements in the Low Countries*, Oxford.

Fontijn, D.R. 1996. Socializing Landscape: second thoughts about the cultural biograpy of urnfields, *Archaeological Dialogues* 3, 77-87.

Fontijn, D.R. 2002. *Sacrificial Landscapes. Cultural biographies of persons, objects and 'natural' places in the Bronze Age of the southern Netherlands, c. 2300-600BC*, Leiden (Analecta Praehistorica Leidensia 33/34).

Fontijn, D.R. 2009. Land at the other end of the sea? Metalwork circulation, geographical knowledge and the significance of British/ Irish imports in the Bronze Age of the Low Countries. In: P. Clark(ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, Oxford.

Fowler, C.J. 2004. *The Archaeology of Personhood: An anthropological approach*, London/New York (Themes in Archaeology.

Friedman, J. 1975. Tribes, States, and Transformations. In: M. Bloch(ed.), *Marxist Analysis and Anthropology*, London, 161-202.

Friedman, J./M.J. Rowlands 1978. Notes towards an epigenetic model of the evolution of civilisation. In: J. Friedman/M.J. Rowlands(eds), *The Evolution of Social Systems*, London, 201-277.

Gabillot, M. 2005. Des relations privilegiees entre le Nord-Ouest de la France et la region de l'Elbe au Bronze Moyen. In: R. Laffineur/J. Driessen/E. Warmenbol(eds), *Actes du XIV congrès UISPP, Université de Liège, Belgique, 2-8 septembre 2001: Section 11: L'Age du Bronze en Europe et en Mediterranée: sessions générales et posters*, Oxford (British Archaeological Reports: International Series 1337), 43-53.

Gaffney, V.L./K. Thomson/S. Fitch 2007. *Mapping Doggerland: The Mesolithic Landscapes of the Southern North Sea*, Oxford.

Garrow, D. 2007. Placing pits: Landscape Occupation and Depositional Practice During the Neolithic in East Anglia, *Proceedings of the Prehistoric Society* 73, 1-24.

Garrow, D./E. Beadsmoore/M. Knight 2005. Pit Clusters and the Temporality of Occupation: an Earlier Neolithic Site at Kilverstone, Thetford, Norfolk, *Proceedings of the Prehistoric Society* 71, 139-157.

Gerloff, S. 1986. Bronze Age Class A Cauldrons: Typology, Origins and Chronology, *Journal of the Royal Society of Antiquaries of Ireland* 116, 84-115.

Gibson, A.M. 1987. Beaker domestic sites across the North Sea: a review. In: J.-C. Blanchet(ed.), *Les relations entre le continent et les Iles Brittaniques à l'Age du Bronze, Actes du colloque de Lille dans le cadre du 22ème Congrès Préhistorique de dare d'édition, 2-7 Septembre 1984.*, Paris, 7-16.

Gibson, A.M. 2002. *Prehistoric Pottery in Britain and Ireland*, Stroud.

Gibson, A.M./N. MacPherson-Grant/I. Stewart 1997. A Cornish vessel from farthest Kent, *Antiquity* 71, 438-441.

Glasbergen, W. 1954. *Barrow excavations in the Eight Beatitudes: The Bronze Age cemetery between Toterfout & Halve Mijl, North Brabant*, (Palaeohistoria 2 & 3).

Godelier, M. 1999. *The Enigma of the Gift*, Cambridge/Oxford.

Gosden, C./Y. Marshall 1999. The Cultural Biography of Objects, *World Archaeology* 31, 169-178.

Gosden, C./C. Pavlides 1994. Are islands insular? Landscape vs. seascape in the case of the Arawe Islands, Papua New Guinea, *Archaeology in Oceania* 29, 162-171.

Gosselain, O.P. 1992. Technology and Style: Potters and Pottery among Bafia of Cameroon, *Man* 27, 559-586.

Gosselain, O.P. 1998. Social and Technical Identity in a Clay Crystal Ball. In: M. Stark(ed.), *The archaeology of social boundaries*, Washington DC, 78-106.

Gosselain, O.P. 2000. Materializing Identities: An African Perspective, *Journal of Archaeological Method and Theory* 7, 187-217.

Gosselain, O.P./A. Livingstone Smith 1997. The Ceramics and Society Project: An Ethnographic and Experimental Approach to Technological Choices. In: A. Lindahl/O. Stilborg(eds), *The Aim of Laboratory Analyses of Ceramics in Archaeology*, Stockholm (KVHAA Konferenser 34), 147-160.

Gosselain, O.P./A. Livingstone Smith 2005. The source. Clay selection and processing practices in Sub-Saharan Africa. In: A. Livingstone Smith/D. Bosquet/R. Martineau(eds), *Pottery manufacturing processes: reconstitution and interpretation*, Oxford (British Archaeological Reports: International Series 1359), 33-47.

Green, C.S./S.M. Davies/A.B. Ellison 1987. *Excavations at Poundbury, Dorchester, Dorset 1966-1982. Volume I: The Settlements*, Dorchester (Dorset Natural History and Archaeological Society Monograph Series 7).

Griffiths, S.D./W.R. Peltier 2008. Megatides in the Arctic Ocean under glacial conditions, *Geophysical Research Letters* 35, doi:10.1029/2008GL033263.

Harris, O. 2009. Making Places Matter in Early Neolithic Dorset, *Oxford Journal of Archaeology* 28, 111-123.

Haveman, E./J.A. Sheridan 2006. The Exloo Necklace: New light on an old find, *Palaeohistoria* 47/48, 101-139.

Hawkes, C.F.C. 1942. The Deverel Urn and the Picardy Pin: A Phase of Bronze Age Settlement in Kent, *Proceedings of the Prehistoric Society* 8, 26-47.

Heinrich, H. 1988. Origin and Consequences of Cyclic Ice Rafting in the Northeast Atlantic Ocean during the Past 130,000 Years, *Quaternary Research* 29, 142-152.

Helms, M.W. 1988. *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*, Princeton.

Helms, M.W. 1998. *Access to Origins: Affines, Ancestors, and Aristocrats*, Austin.

Heymans, H./P.M. Vermeersch 1983. Siedlungsspuren aus Mittel- und Spätneoithikum, Bronzezeit und Eisenzeit in Geistingen, Huizerhof (Provinz Limburg), *Archaeologica Belgica* 255, 15-64.

Hinton, A.C. 1996. Tides in the Northeast Atlantic: Considerations for Modelling Water Depth Changes, *Quaternary Science Reviews* 15, 873-894.

Hodder, I.R. 1982. Toward a Contextual Approach to Prehistoric Exchange. In: J.E. Ericson/T.K. Earle(eds), *Contexts for Prehistoric Exchange*, New York, 199-211.

Hoskins, J.A. 1998. *Biographical Objects: How Things Tell the Stories of People's Lives*, London/New York.

Howard, H. 1980. Clay and the archaeologist. In: I. Freestone/C. Johns/T. Potter(eds), *Current research in ceramics: thin-section studies. The British Museum Seminar 1980*, London (British Museum Occasional Papers 32), 145-158.

Hurcombe, L. 2000. Time, Skill and Craft Specialisation as Gender Relations. In: M. Donald/L. Hurcombe(eds), *Gender and Material Culture in Archaeological Perspective*, London, 88-109.

Hurcombe, L. 2008. Organics from inorganics: using experimental archaeology as a research tool for studying perishable material culture, *World Archaeology* 40, 83-115.

Ingold, T. 2000. *The Perception of the Environment. Essays in livelihood, dwelling and skill*, London.

Jacobi, R.M. 1976. Britain Inside and Outside Mesolithic Europe, *Proceedings of the Prehistoric Society* 42, 67-84.

Jay, M./M.P. Richards 2007. The Beaker People Project: progress and prospects for the carbon, nitrogen and sulphur isotopic analysis of collagen. In: M.G. Parker Pearson/L. Larsson(eds), *From Stonehenge to the Baltic. Living with cultural diversity in the third millennium BC*, Oxford (British Archaeological Reports: International Series 1692), 77-82.

Jelgersma, S. 1979. Sea-level changes in the North Sea basin. In: E. Oele/R.T.E. Schüttenhelm/A.J. Wiggers(eds), *The Quartenary History of the North Sea*, Uppsala (Symposium Universitas Upsaliensis Annum Quingentesimum Celebrantis 2), 233-248.

Johnston, R. 1999. An empty path? Processions, memories and the Dorset Cursus. In: A. Barclay/J. Harding(eds), *Pathways and ceremonies: the cursus monument of Britain and Ireland*, Oxford (Neolithic Studies Group Seminar Papers 4), 39-48.

Johnston, R. 2000. Field Systems and the Atlantic Bronze Age: Thoughts on a Regional Perspective. In: J.C. Henderson(ed.), *The Prehistory and Early History of Atlantic Europe*, Oxford (British Archaeological Reports: International Series 861), 47-55.

Johnston, R. 2008. Copper mining and the transformation of environmental knowledge in Bronze Age Britain, *Journal of Social Archaeology* 8, 190-213.

Jones, S. 1997. *The Archaeology of Ethnicity: Constructing Identities in the Past and Present*, London/New York.

Jongste, P.F.B./S.B.C. Bloo 2002. Aardewerkdeposities in kuilen uit een bronstijdnederzetting te Rhenen (Utrecht, Nl.), *Lunula* 10, 26-31.

Kleijne, J.P. *in prep*. Approaching High-Flux Interaction. In: L. Doughton/I. Garcia Rovíra(eds), *Lifewaves: Explorations in Maritime Contact and Identity in Prehistoric Saltwater Communities*, Oxford (British Archaeological Reports: International Series.

Kohring, S./C.P. Odriozola/V.M. Hurtado 2006. Materialising 'complex' social relationships: Technology, production and consumption in a Copper Age Community. In: S. Kohring/S. Wynne-Jones(eds), *Socialising Complexity: Approaches to Power and Interaction in the Archaeological Record*, Oxford, 100-117.

Kopytoff, I. 1986. The cultural biography of things: commodization as process. In: A. Appadurai(ed.), *The Social Life of Things: commodities in a cultural perspective*, Cambridge, 64-94.

Kossinna, G. 1911. *Die Herkunft der Germanen. Zur Methode der Siedlungsarchäologie*, Würzburg (Mannus-Bibliothek 6).

Králík, M./V. Novotný 2005. Dermatoglyphics of Ancient Ceramics. In: J.A. Svoboda(ed.), *Pavlov I southeast: A window in the Gravettian lifestyles*, Brno (Dolnověstonické Studie 14), 449-497.

Kristiansen, K. 1987. From stone to bronze - the evolution of social complexity in Northern Europe, 2300 - 1200 BC. In: E.M. Brumfield/T.K. Earle(eds), *Specialisation, Exchange and Complex Societies*, Cambridge, 30-51.

Kristiansen, K. 1994. The emergence of the European world system in the Bronze Age: divergence, convergence and social evolution during the first and second millenia BC in Europe. In: K. Kristiansen/J. Jensen(eds), *Europe in the first millenium B.C.*, Sheffield (Sheffield Archaeological Monographs, 7-30.

Kristiansen, K. 2004. Institutions and Material Culture: Towards an Intercontextual Archaeology. In: E. DeMarrais/C. Gosden/A.C. Renfrew(eds), *Rethinking materiality. The engagement of mind with the material world*, Cambridge, 179-193.

Kristiansen, K. 2005. What language did Neolithic pots speak? Colin Renfrew's European farming-language-dispersal model challenged, *Antiquity* 79, 679-691.

Kristiansen, K./T.B. Larsson 2005. *The Rise of Bronze Age Society: Travels, Transmissions and Transformations*, Cambridge.

Kuijpers, M.H.G. 2008. *Bronze Age metalworking in the Netherlands (c.2000-800 BC). A research into the preservation of metallurgy related artefacts and the social position of the smith*, Leiden.

Ladle, L./A.B. Woodward 2003. A Middle Bronze Age House and Burnt Mound at Bestwall, Wareham, Dorset: an Interim Report, *Proceedings of the Prehistoric Society* 69, 265-277.

Lanting, J.N. 1973. Laat Neolithicum en Vroege Bronstijd in Nederland en N.W.-Duitsland: Continue ontwikkelingen, *Palaeohistoria* 15, 215-312.

Lanting, J.N./A.T. Aerts-Bijma/J. Van der Plicht 2001. Dating of cremated bones, *Radiocarbon* 43, 249-254.

Lanting, J.N./J. Van der Plicht 2001. De ^{14}C Chronologie van de Nederlandse Pre- en Protohistorie IV: Bronstijd en Vroege IJzertijd, *Palaeohistoria* 43/44, 117-246.

Law, R. 2008. *The Development and Perpetuation of a Ceramic Tradition: The Significance of Collared Urns in Early Bronze Age Social Life*, Cambridge (PhD Thesis University of Cambridge).

Leary, J. 2009. Perceptions of and responses to the Holocene flooding of the North Sea lowlands, *Oxford Journal of Archaeology* 28, 227-237.

Lee, A.J. 1980. North Sea: Physical Oceanography. In: F.T. Banner/M.B. Collins/K.S. Massie(eds), *The North-west European shelf seas: the sea bed and the sea in motion. II. Physical and chemical oceanography, and physical resources*, Amsterdam, 467-493.

Lehmann, L.T. 1965. Placing the pot beaker, *Helinium* 5, 3-31.

Lemonnier, P. 1986. The Study of Material Culture Today: Toward an Anthropology of Technical Systems, *Journal of Anthropological Archaeology* 5, 147-186.

Lemonnier, P. 1993. *Elements for an Anthropology of Technology*, Ann Arbor, Michigan.

LiPuma, E. 1998. Modernity and forms of personhood in Melanesia. In: M. Lambek/A. Strathern(eds), *Bodies and Persons: Comparative Perspectives from Africa and Melanesia*, Cambridge, 53-80.

Livingstone Smith, A. 2000. Processing clay for pottery in Northern Cameroon: social and technical requirements, *Archaeometry* 42, 21-42.

Lohof, E. 1994. Tradition and change: burial practices in the Late Neolithic and Bronze Age in the north-eastern Netherlands, *Archaeological Dialogues* 1, 98-132.

Longworth, I.H. 1984. *Collared Urns of the Bronze Age in Great Britain and Ireland*, Cambridge (Gulbenkian Archaeological Series.

Louwe Kooijmans, L.P. 1974. *The Rhine/Meuse Delta, four studies on its prehistoric occupation and Holocene geology*, Leiden (Analecta Praehistorica Leidensia 7).

Louwe Kooijmans, L.P. 1976. Local developments in a borderland; a survey of the Neolithic at the Lower Rhine, *Oudheidkundige Mededelingen van het Rijksmuseum van Oudheden te Leiden* 57, 227-297.

Louwe Kooijmans, L.P. 1993. Wetland Exploitation and Upland Relations of Prehistoric Communities in the Netherlands. In: J.P. Gardiner(ed.), *Flatlands and Wetlands: Current Themes in East Anglian Archaeology*, Norwich (East Anglian Archaeology 50), 71-116.

Louwe Kooijmans, L.P. 2007. The gradual transition to farming in the Lower Rhine Basin. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-*

Neolithic Transition in North-West Europe, London (Proceedings of the British Academy 144), 287-309.

Louwe Kooijmans, L.P. 2009. The agency factor in the process of Neolithisation - a Dutch case study, *Journal of Archaeology in the Low Countries* 1, 27-54.

Louwe Kooijmans, L.P./L.B.M. Verhart 2007. Pebbles and paddles. On Rijckholt flint distribution and water transport in the Mesolithic and Neolithic of the Netherlands. In: B. Hård/K. Jennbert/D. Olausson(eds), *On the road. Studies in honour of Lars Larsson*, Stockholm (Acta Archaeologia Lundensia 4 (26)), 201-206.

MacEachern, S. 2000. Genes, Tribes, and African History, *Current Anthropology* 41, 357-384.

Mak, J. 1974. *"Loodsplicht of loodsdwang"*, Amsterdam (unpublished doctoral thesis Vrije Universiteit Amsterdam).

Manem, S. 2008. *Les Fondements Technologiques de la Culture des Duffaits (Âge du Bronze Moyen)*, Paris (PhD Thesis Université de Paris X / Université de Nanterrre).

Marcigny, C. 2008. Du territoire immédiat au territoire culturel à l'âge du Bronze: Quelques exemples de l'ouest de la France, *Archéopages* 21, 22-29.

Marcigny, C./C. Colonna/E. Ghesquière/G. Verron 2005. *La Normandie. À l'aube de l'histoire. Les découvertes archéologiques de l'âge du Bronze 2300-800 av. J.C.*, Paris.

Marcigny, C./E. Ghesquière 2003. *L'île de Tatihou (Manche) à l'âge du Bronze. Habitats et occupation du sol*, Paris (DAF 96).

Marcigny, C./E. Ghesquière/I.A. Kinnes 2007. Bronze Age Cross-Channel Relations. The Lower-Normandy (France) Example: Ceramic Chronology and First Reflections. In: C.G.P. Burgess/P. Topping/F. Lynch(eds), *Beyond Stonehenge: Essays on the Bronze Age in honour of Colin Burgess*, Oxford, 255-267.

Marcigny, C./E. Ghesquière/L. Lespez/M. Clet-Pellerin 2007. Emprise ou déprise à l'âge du Bronze Moyen sur le littoral de la Manche? Une lecture du phénomène grâce aux sites Normands. In: H. Richard/M. Magny/C. Mordant(eds), *Environnements et cultures à l'âge du Bronze en Europe occidentale*, Paris, 311-326.

Mariette, H. 1961. Un gisement de l'âge du Bronze à Hardelot (Pas-de-Calais). In: G. Bersu/W. Dehn(eds), *Berichte über den V. Internationalen Kongress für Vor- und Frühgeschichte*, Berlin, 523-529.

Mauss, M. 1934. Les techniques du corps, *Journal de Psychologie* 32.

Mauss, M. 1954. *The Gift. The form and reason for exchange in archaic societies*, London/New York.

McGrail, S. 1993. Prehistoric Seafaring in the Channel. In: C.J. Scarre/F. Healy(eds), *Trade and Exchange in Prehistoric Europe*, Oxford.

McGrail, S. 1997. Early Sea Voyages. In: S. McGrail(ed.), *Studies in Maritime Archaeology*, Oxford (British Archaeological Reports: British Series 256), 299-305.

Milner, N. 2005. Seasonal Consumption Practices in the Mesolithic: Economic, Environmental, Social or Ritual? In: N. Milner/P. Woodman(eds), *Mesolithic Studies at the beginning of the 21st Century*, Oxford, 56-68.

Milner, N./O.E. Craig/G.N. Bailey/K. Pedersen/S.H. Andersen 2004. Something fishy in the Neolithic? A re-evaluation of stable isotope analysis of Mesolithic and Neolithic coastal populations, *Antiquity* 78, 9-22.

Modderman, P.J.R. 1955. Laat bekeraardewerk versierd met indrukken van een wikkeldraadstempel, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 6, 32-43.

Montgomery, J./R.E. Cooper/J.A. Evans 2007. Foragers, farmers or foreigners? An assessment of dietary strontium isotope variation in Middle Neolithic and Early Bronze Age East Yorkshire. In: M.G. Parker Pearson/L. Larsson(eds), *From Stonehenge to the Baltic. Living with cultural diversity in the third millennium BC*, Oxford (British Archaeological Reports: International Series 1692), 65-75.

Morris, E.B. 1991. Ceramic analysis and the pottery from Potterne: a summary. In: A. Middleton/I. Freestone(eds), *Recent developments in ceramic petrology*, London (British Museum Occasional Papers 81), 277-287.

Muckelroy, K. 1981. Middle Bronze Age trade between Britain and Europe: a maritime perspective, *Proceedings of the Prehistoric Society* 47, 275-297.

Müller, J. 1999. Zur Radiokarbondatierung des Jung- bis Endneolithikums und der Frühbronzezeit im Mittelelbe-Saale-Gebiet (4100-1500 v. Chr.), *Berichte der Römisch-Germanischen Kommission* 80, 31-90.

Needham, S.P. 1996. Chronology and periodisation in the British Bronze Age, *Acta Archaeologica* 67, 121-140.

Needham, S.P. 2000. Power Pulses Across a Cultural Divide: Cosmologically Driven Acquisition Between Armorica and Wessex, *Proceedings of the Prehistoric Society* 66, 151-207.

Needham, S.P. 2005. Transforming beaker culture in North-West Europe: process of fusion and fission, *Proceedings of the Prehistoric Society* 71, 171-217.

Needham, S.P. 2007. Isotopic Aliens: Beaker movement and cultural transmissions. In: M. Larsson/M.G. Parker Pearson(eds), *From Stonehenge to the Baltic*, Oxford (British Archaeological Reports: International Series 1692), 41-46.

Needham, S.P. 2009. Encompassing the Sea: 'Maritories' and Bronze Age Maritime Interactions. In: P. Clark(ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe*, Oxford, 12-37.

Needham, S.P./S. Bowman 2005. Flesh-hooks, technological complexity and the Atlantic Bronze Age feasting complex, *European Journal of Archaeology* 8, 93-136.

Needham, S.P./K. Parfitt/G. Varndell 2006. *The Ringlemere Cup: Precious Cups and the Beginning of the Channel Bronze Age*, London (British Museum Research Publication 163).

Northover, J.P. 1980. Bronze in the British Bronze Age. In: W.A. Oddy(ed.), *Aspects of Early Metallurgy*, London, 63-70.

O'Brien, M.J./T.D. Holland/R.J. Hoard/G.L. Fox 1994. Evolutionary Implications of Design and Performance Characteristics of Prehistoric Pottery, *Journal of Archaeological Method and Theory* 1, 259-304.

O'Connor, B. 1980. *Cross-channel relations in the later Bronze Age: relations between Britain, North-Eastern France and the Low Countries during the later Bronze Age and the Early Iron Age, with particular reference to the metalwork*, Oxford (British Archaeological Reports: International Series 91).

Oliveira Jorge, S. 1998. *Existe uma idade do bronze Atlàntico?*, Lisbon.

Oppenheimer, S. 2006. *The Origins of the British. The new prehistory of Britain and Ireland from Ice-Age hunter gatherers to the Vikings as revealed by DNA-analysis*, London.

Orser, C.E./T.C. Patterson 2004. Introduction: V. Gordon Childe and the Foundations of Social Archaeology. In: T.C. Patterson/C.E. Orser(eds), *Foundations of Social Archaeology: Selected Writings of V. Gordon Childe*, Walnut Creek, California.

Pailler, Y./J.A. Sheridan 2009. Everything you always wanted to know about... la néolithisation de la Grande-Bretagne et de l'Irlande, *Bulletin de la Société Préhistorique Française* 106, 25-56.

Pálsson, G. 1994. Enskilment at Sea, *Man* 29, 901-927.

Pannett, A./A. Baines 2006. Making Things, Making Places: The Excavation of Mesolithic Flint Knapping Sites at Oliclett, Caithness, *Scottish Archaeological Journal* 28, 1-26.

Pare, C.F.E. 2000. Bronze and the Bronze Age. In: C.F.E. Pare(ed.), *Metals make the world go round. The supply and circulation of metals in Bronze Age Europe. Proceedings of a conference held at the University of Birmingham in June 1997*, Oxford, 1-38.

Parker Pearson, M.G. 1990. The Production and Distribution of Bronze Age Pottery in South-Western Britain, *Cornish Archaeology* 29, 5-32.

Parker Pearson, M.G. 1995. Southwestern Bronze Age pottery. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 89-100.

Parker Pearson, M.G. 2003. Food, Identity and Culture: An introduction and overview. In: M.G. Parker Pearson(ed.), *Food, Culture and Identity in the Neolithic and Early Bronze Age*, Oxford (British Archaeological Reports: International Series 1117), 1-30.

Parker Pearson, M.G. 2007. The Stonehenge Riverside Project: excavations at the east entrance of Durrington Walls. In: M. Larsson/M.G. Parker Pearson(eds), *From Stonehenge to the Baltic*, Oxford (British Archaeological Reports: International Series 1692), 125-144.

Parker Pearson, M.G./A.T. Chamberlain/C. Chenery/N. Curtis/J. Evans/A.P. Fitzpatrick/M. Jay/P. Mahoney/J. Montgomery/S.P. Needham/M.P. Richards/J.A. Sheridan 2006. The Beaker People Project: Mobility and diet in the British Early Bronze Age, *The Archaeologist* 61, 14-15.

Parker Pearson, M.G./A.T. Chamberlain/M. Jay/P. Marshall/J. Pollard/C.C. Richards/J.S. Thomas/C.Y. Tilley/K.M.A. Welham 2009. Who was buried at Stonehenge?, *Antiquity* 83, 23-39.

Perkins, D. 2006. Prehistoric maritime traffic in the Dover Strait and Wantsum: some thoughts as the the vessels and their crews, *Archaeologia Cantiana* 122, 279-293.

Pétrequin, P./J.A. Sheridan/S. Cassen/M. Errera/E. Gauthier/L. Klassen/N. Le Maux/Y. Pailler 2008. Neolithic Alpine axeheads, from the Continent to Great Britain, the Isle of Man and Ireland. In: H. Fokkens/B.J. Coles/A.L. Van Gijn/J.P. Kleijne/H.H. Ponjee/C.G. Slappendel(eds), *Between Foraging and Farming: An extended broad spectrum of papers presented to Leendert Louwe Kooijmans*, Leiden (Analecta Praehistorica Leidensia 40), 261-279.

Pfaffenberger, B. 1988. Fetished Objects and Humanised Nature: Towards an Anthropology of Technology, *Man* 23, 236-252.

Pickard, C./C.J. Bonsall 2009. Deep-Sea Fishing in the European Mesolithic: Fact or Fantasy?, *European Journal of Archaeology* 7, 273-290.

Piggott, S.E. 1955. Review of 'Barrow Excavations in the Eight Beatitudes: The Bronze Age Cemetery between Toterfout and Halve Mijl, North Brabant. By Willem Glasbergen, *The Antiquaries Journal* 35, 235-237.

Pollard, J. 2006. Solid nature and ephemeral architecture? Understanding the architecture of earlier Neolithic occupation in southern Britain from a dwelling perspective, *Journal of Iberian Archaeology* 8, 41-51.

Pollard, T. 1995. Time and tide: Coastal environments, cosmology and ritual practice in early prehistoric Scotland. In: T. Pollard/A. Morrison(eds), *The early prehistory of Scotland*, Edinburgh, 198-213.

Pollard, T. 1999. The drowned and the saved: archaeological perspectives on the sea as grave. In: T. Pollard/J. Downes(eds), *The Loved Body's Corruption: Archaeological Contributions to the study of Human Mortality*, Glasgow, 30-51.

Prieto Martinez, M.P./L. Salanova 2009. Coquilles et Campaniforme en Galice et en Bretagne: mécanismes de circulation et stratégies identitaires, *Bulletin de la Société Préhistorique Française* 106, 73-93.

Prummel, W./M.J.L.T. Niekus/A.L. Van Gijn/R.T.J. Cappers 2002. A Late Mesolithic kill site of aurochs at Jardinga, Netherlands, *Antiquity* 76, 413-424.

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)*, Leiden (Archaeological Studies Leiden University 3).

Rahtz, P./A.M. ApSimon 1962. Excavations at Shearplace Hill, Sydling St. Nicholas, Dorset, England, *Proceedings of the Prehistoric Society* 28, 289-328.

Rainbird, P. 1999. Islands Out of Time: Towards a Critique of Island Archaeology, *Journal of Mediterranean Archaeology* 12, 216-234.

Reimer, P.J./M.G.L. Baillie/E. Bard/A. Bayliss/J.W. Beck/C. Bertrand/P.G. Blackwell/C.E. Buck/G. Burr/K.B. Cutler/P.E. Damon/R.L. Edwards/R.G. Fairbanks/M. Friedrich/T.P. Guilderson/K.A. Hughen/B. Kromer/F.G. McCormac/S. Manning/C. Bronk Ramsey/R.W. Reimer/S. Remmele/J.R. Southon/M. Stuiver/S. Talamo/F.W. Taylor/J.v.d. Plicht/C.E. Weyhenmeyer 2004. INTCAL04, *Radiocarbon* 46, 1029-1058.

Renfrew, A.C. 1968. Wessex without Mycenae, *Annual of the British School of Archaeology at Athens* 63, 277-285.

Renfrew, A.C. 1969. Trade and Culture Process in European Prehistory, *Current Anthropology* 10, 151-169.

Rice, P.M. 1987. *Pottery Analysis: A Sourcebook*, Chicago.

Richards, C.C. 2005. *Dwelling among the monuments: an examination of the Neolithic village of Barnhouse, Maeshowe passage grave and surrounding monuments at Stenness, Orkney*, Cambridge.

Richards, M.B. 2003. The Neolithic Invasion of Europe, *Annual Review of Anthropology* 32, 135-162.

Roberts, B.W. 2007. Adorning the Living but Not the Dead: Understanding Ornaments in Britain *c.* 1400-1100 cal BC, *Proceedings of the Prehistoric Society* 73, 135-167.

Roberts, B.W. 2008. Migration, Craft Expertise and Metallurgy: Analysing the 'Spread' of Metal in Western Europe, *Archaeological Review from Cambridge* 23, 27-45.

Roberts, B.W. 2009. Production Networks and Consumer Choice in the Earliest Metal of Western Europe, *Journal of World Prehistory* 23.

Rowlands, M.J. 1976. *The Production and Distribution of Metalwork in the Middle Bronze Age in Southern Britain*, Oxford.

Rowlands, M.J. 1980. Kinship, Alliance and exchange in the European Bronze Age. In: J.C. Barrett/R.J. Bradley(eds), *Settlement and society in the British Later Bronze Age*, Oxford (British Archaeological Reports: British Series 83), 15-56.

Roymans, N. 1995. The cultural biography of urnfields and the long-term history of a mythical landscape, *Archaeological Dialogues* 2, 2-38.

Russell, M. 1996. *A reassessment of the Bronze Age cemetery barrow on Itford Hill, East Sussex, and its place in the prehistory of Southeast England*, Bournemouth (Bournemouth School of Conservation Sciences Research Reports 2).

Rye, O.S. 1981. *Pottery Technology: Principles and reconstruction*, Washington DC.

Sackett, J.R. 1985. Style and Ethnicity in the Kalahari: a reply to Wiessner, *American Antiquity* 50, 154-159.

Sackett, J.R. 1986. Isochrestism and Style: a clarification, *Journal of Anthropological Archaeology* 5, 266-277.

Sackett, J.R. 1990. Style and Ethnicity in archaeology: the case for isochrestism. In: M.W. Conkey/C.A. Hastorf(eds), *The Uses of Style in Archaeology*, Cambridge (New Perspectives in Archaeology, 32-43.

Samson, A.V.M. 2005. *Considering the crew: Seafaring in NW Europe in the Bronze Age - A Social Archaeology*, Leiden (MA Thesis Leiden University).

Samson, A.V.M. 2006. Offshore finds from the Bronze Age in North-Western Europe: The shipwreck scenario revisited, *Oxford Journal of Archaeology* 25, 371-388.

Schulting, R.J./M.P. Richards 2001. Dating Women and Becoming Farmers: New Palaeodietary and AMS Dating Evidence from the Breton Mesolithic Cemeteries of Téviec and Hoëdic, *Journal of Anthropological Archaeology* 20, 314-344.

Schulting, R.J./M.P. Richards 2002. Finding the coastal Mesolithic in southwest Britain: AMS dates and stable isotope results on human remains from Caldey Island, south Wales, *Antiquity* 76, 1011-1025.

Shennan, I./K. Lambeck/R. Flather/B. Horton/J. McArthur/J. Innes/J. Lloyd/M. Rutherford/R. Wingfield 2000. Modelling western North Sea palaeogeographies and tidal changes during the Holocene. In: I. Shennan/J. Andrews(eds), *Holocene Land-Ocean Interaction and Environmental Change around the North Sea*, London (Special Publications 166), 299-319.

Shennan, S.J. 1978. Archaeological 'cultures': an empirical investigation. In: I.R. Hodder(ed.), *The Spatial Organisation of Culture*, London, 113-139.

Sheridan, J.A. 2007. Dating the Scottish Bronze Age: 'There is clearly much that the material can still tell us'. In: C.G.P. Burgess/P. Topping/F. Lynch(eds), *Beyond Stonehenge: Essays on the Bronze Age in honour of Colin Burgess*, Oxford, 162-185.

Sheridan, J.A. 2007. From Picardy to Pickering and Pencraig Hill? New information on the 'Carinated Bowl Neolithic' in northern Britain. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-Neolithic Transition in North-West Europe*, London (Proceedings of the British Academy 144), 441-492.

Sheridan, J.A. 2008. Upper Largie and Dutch-Scottish connections during the Beaker period. In: H. Fokkens/B.J. Coles/A.L. Van Gijn/J.P. Kleijne/H.H. Ponjee/C.G. Slappendel(eds), *Between Foraging and Farming: An extended broad spectrum of papers presented to Leendert Louwe Kooijmans*, Leiden (Analecta Praehistorica Leidensia 40), 247-260.

Sheridan, J.A./K. Eremin/A. Shortland 2005. Understanding Bronze Age Faience in Britain and Ireland. In: P.B. Vandiver/J.L. Mass/A. Murray(eds), *Materials Issues in Art and Archaeology VII*, Boston (Materials Research Society Symposium Proceedings 852), 217-229.

Simpson, D.D.A. 1968. Food Vessels: associations and chronology. In: J.M. Coles/D.D.A. Simpson(eds), *Studies in Ancient Europe. Essays Presented to Stuart Piggott*, Leicester, 197-211.

Skaarup, J. 1995. Stone-Age Burials in Boats. In: O. Crumlin-Pedersen/B. Munch Thye(eds), *The ship as a symbol in Prehistoric and Medieval Scandinavia*, Kopenhagen, 51-58.

Smith, I.F. 1955. Late Beaker Pottery from the Lyonnesse Surface and the Date of the Transgression, *Annual Report of the University of London Institute of Archaeology* 11, 29-42.

Smith, I.F. 1961. An essay towards the reformation of the British Bronze Age, *Helinium* 1, 97-118.

Smits, E./J. Van der Plicht 2009. Mesolithic and Neolithic human remains in the Netherlands: physical anthropological and stable isotope investigations, *Journal of Archaeology in the Low Countries* 1, 55-85.

Sørensen, M.L.S. 1990. Material order and cultural classification: the role of bronze objects in the transition from Bronze Age to Iron Age in Scandinavia. In: M.W. Conkey/C.A. Hastorf(eds), *The Uses of Style in Archaeology*, Cambridge, 90-101.

Sørensen, M.L.S. 1997. Reading dress: the construction of social categories and identities in Bronze Age Europe, *Journal of European Archaeology* 5, 93-114.

Sørensen, M.L.S. 2006. Gender, Things and Material Culture. In: S.M. Nelson(ed.), *Handbook of Gender in Archaeology*, Lanham, 105-135.

Stevenson, R.B.K. 1953. Prehistoric pot-building in Europe, *Man* 53, 65-68.

Struve, K.W. 1955. *Die Einzelgrabkultur in Schleswig-Holstein und ihre kontinentalen Beziehungen*, Neumünster.

Sturt, F. 2006. Local knowledge is required: a rhythmanalytical approach to the late Mesolithic and early Neolithic of the East Anglian Fenland, UK, *Journal of Maritime Archaeology* 1, 119-139.

Ten Anscher, T.J. 1990. Vogelenzang, A Hilversum-1 Settlement, *Helinium* 29, 44-78.

Theunissen, E.M. 1993. Once again Toterfout-Halve Mijl, *Analecta Praehistorica Leidensia* 26, 29-43.

Theunissen, E.M. 1999. *Midden-bronstijdsamenlevingen in het Zuiden van de Lage Landen; een evaluatie van het begrip 'Hilversum-cultuur'*, Leiden.

Thomas, J.S. 2007a. Mesolithic-Neolithic transitions in Britain: from essence to inhabitation. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-Neolithic Transition in North-West Europe*, London (Proceedings of the British Academy 144), 423-439.

Thomas, J.S. 2007b. The internal features at Durrington Walls: investigations in the Southern Circle and Western Enclosures 2005-6. In: M. Larsson/M.G. Parker

Pearson(eds), *From Stonehenge to the Baltic*, Oxford (British Archaeological Reports: International Series 1692), 145-157.

Thomas, N. 1991. The cultural dynamics of peripheral exchange. In: C. Humphrey/S. Hugh-Jones(eds), *Barter, Exchange and Value: An anthropological approach*, Cambridge, 21-41.

Thurnam, J. 1870. On Ancient British Barrows, especially those of Wiltshire and the adjoining counties (Part 2, Round Barrows, *Archaeologia* 43, 1-400.

Tolan-Smith, C. 2008. Mesolithic Britain. In: G.N. Bailey/P.A. Spikins(eds), *Mesolithic Europe*, Cambridge, 132-157.

Tomalin, D.J. 1982. The Formal and Textural Characteristics of the Biconical Urn Assemblage from Shaugh Moor Enclosure 15, and their Implications, *Proceedings of the Prehistoric Society* 48, 228-237.

Tomalin, D.J. 1983. *British biconical urns: their character and chronology and their relationship with indigenous Early Bronze Age ceramics*, Southampton (PhD Thesis University of Southampton).

Tomalin, D.J. 1988. Armorican Vases à Anses and Their Occurence in Southern Britain, *Proceedings of the Prehistoric Society* 54, 203-221.

Tomalin, D.J. 1995. Cognition, ethnicity and some implications for linguistics and perpetration of 'Collared Urn art'. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 101-112.

Uehara, K./J.D. Scourse/K.J. Horsburgh/K. Lambeck/A.P. Purcell 2006. Tidal evolution of the northwest European shelf seas from the Last Glacial Maximum to the present, *Journal of Geophysical Research* 111, doi:10.1029/2006/JC003531.

Van Beek, R. 2001. *Elp in perspectief : een evaluatie en incorporatie van de verschillende aspecten van een bronstijd-cultuur*, Leiden.

Van de Noort, R. 2003. An ancient seascape: the social context of seafaring in the early Bronze Age, *World Archaeology* 35, 404-415.

Van de Noort, R. 2006. Argonauts of the North Sea - a Social Maritime Archaeology from the 2nd Millennium BC, *Proceedings of the Prehistoric Society* 72, 267-287.

Van de Plassche, O./S.J.P. Bohncke/B. Makaske/J. Van der Plicht 2005. Water-level changes in the Flevo area, central Netherlands (5300–1500 BC): implications for relative mean sea-level rise in the Western Netherlands, *Quaternary International* 133-134, 77-93.

Van der Leeuw, S.E. 1976. Neolithic beakers from the Netherlands: The potter's point of view. In: J.N. Lanting/J.D. Van der Waals(eds), *Glockenbecher Symposion Oberried 1974*, Bussum/Haarlem, 81-118.

Van der Leeuw, S.E. 1993. Giving the potter a choice. In: P. Lemonnier(ed.), *Technological choices: transformation in material cultures since the Neolithic*, London, 238-288.

Van der Molen, J./B. Van Dijck 2000. The evolution of the Dutch and Belgian coasts and the role of sand supply from the North Sea, *Global and Planetary Change* 27, 223-244.

Van der Sanden, W.A.B. 1997. Aardewerk uit natte context in Drenthe: het vroeg- en laat-neolithicum en de vroege bronstijd, *Nieuwe Drentse Volksalmanak* 116, 127-141.

Van Heeringen, R.M./H.M. Van der Velde 1999. Delta Talk: An Early Bronze Age House Plan and Field System in the Coastal Dunes near Noordwijk, the Netherlands. In: H. Sarfatij/W.J.H. Verwers/P.J. Woltering(eds), *In Discussion with the Past. Archaeological studies presented to W.A. van Es*, Zwolle/Amersfoort, 23-34.

Van Heeringen, R.M./M.C. Van Trierum 1987. The Iron Age in the Western Netherlands, I: Introduction and Method of Pottery Description, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 37, 347-353.

Vander Linden, M. 2007. What linked the Bell Beakers in the third millennium BC Europe, *Antiquity* 81, 343-352.

Verhart, L.B.M. 1990. Stone Age Bone and Antler Points as Indicators for "Social Territories" in the European Mesolithic. In: P.M. Vermeersch/P. Van Peer(eds), *Contributions to the Mesolithic in Europe*, Leuven, 139-151.

Vink, A./H. Steffen/L. Reinhardt/G. Kaufmann 2007. Holocene relative sea-level change, isostatic subsidence and the radial viscosity structure of the mantle of northwest Europe (Belgium, the Netherlands, Germany, southern North Sea), *Quaternary Science Reviews* 26, 3249-3275.

Vons, P. 1970. De vervaardiging van barnsteen-kralen te Velsen in de Vroege Bronstijd, *Westerheem* 19, 34-35.

Vons, P. 1971. Velsen - Waterland, *Westerheem* 20, 304.

Vons, P. 1975. Prehistorie. In: H. Gemser/S. Schaafsma(eds), *Een kerk en een handvol huizen*, Velsen, 11-14.

Voss, J.A. 1980. A Study of Western TRB Social Organization, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 32, 9-102.

Waddell, J. 1995. The Cordoned Urn Tradition. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 113-122.

Waddington, C. 2006. Rethinking Mesolithic Settlement and a Case Study from Howick. In: K. Pedersen/C. Waddington(eds), *Mesolithic Studies in the North Sea Basin and Beyond*, Oxford, 101-113.

Wallaert-Pêtre, H. 1999. Manual Laterality Apprenticeship as the First Learning Rule Prescribed to Potters: A case study in handmade pottery from Northern Cameroon., *Urgeschichtliche Materialhefte* 14, 185-206.

Wardle, P. 1992. *Earlier prehistoric pottery production and ceramic petrology in britain*, Oxford (British Archaeological Reports: British Series 225).

Warmenbol, E. 2004. Le début des âges des Metaux en Belgique. In: M. Vander Linden/L. Salanova(eds), *Le troisième millénaire dans le nord de la France et en Belgique. Actes de la journée d'études SRBAP-SPF, 8 mars 2003, Lille*, Brussel (Anthropologica et Praehistorica 115), 27-48.

Warren, G.M. 2000. Seascapes: People, boats and inhabiting the later Mesolithic in Western Scotland. In: R. Young(ed.), *Mesolithic Lifeways: Current Research from Britain and Ireland*, Leicester, 97-104.

Waterbolk, H.J./H.T. Waterbolk 1991. Amber on the Coast of the Netherlands. In: H. Thoen/J. Bourgeois/F. Vermeulen/P. Crombé/K. Verlaeckt(eds), *Studia Archeologica. Liber Amicorum Jacques A.E. Nenquin*, Gent, 201-209.

Waterbolk, H.T. 1980. Hoe oud zijn de Drentse dorpen?, *Westerheem* 29, 190-212.

White, D.A.(ed.), 1982. *The Bronze Age cremation cemeteries at Simons Ground, Dorset*, Dorchester (Dorset Natural History and Archaeological Society Monograph 3).

Whitehouse, R. 2006. Gender Archaeology in Europe. In: S.M. Nelson(ed.), *Handbook of Gender in Archaeology*, Lanham, 733-783.

Whittle, A.W.R. 1997. Moving on and moving around: Neolithic settlement mobility. In: P. Topping(ed.), *Neolithic Landscapes*, Oxford (Oxbow Monographs 86), 15-22.

Whittle, A.W.R. 2007. The temporality of transformation: dating the early development of the southern British Neolithic. In: A.W.R. Whittle/V. Cummings(eds), *Going Over: The Mesolithic-Neolithic Transition in North-West Europe*, London (Proceedings of the British Academy 144), 377-398.

Wickstead, H. 2007. *Land Division and identity in Later Prehistoric Dartmoor, South-West Britain: Translocating Tenure*, London.

Wiessner, P. 1983. Style and Social Information in Kalahari San Projectile Points, *American Antiquity* 48, 253-276.

Wiessner, P. 1985. Style or Isochrestic Variation? A reply to Sackett, *American Antiquity* 50, 160-166.

Williams, J./D. Jenkins 1999. A Petrographic Investigation of a Corpus of Bronze Age Cinerary Urns from the Isle of Angelsey, *Proceedings of the Prehistoric Society* 65, 189-230.

Wobst, H.M. 1977. Stylistic behaviour and information exchange. In: C. Cleland(ed.), *For the Director: Research Essays in Honor of James B. Griffin*, Ann Arbor (Anthropological Papers, 317-342.

Woodman, P.C. 2003. Colonising the edge of Europe: Ireland as a case study. In: L. Larsson/H. Kindgren/K. Knutsson/D. Leoffler/A. Åkerlund(eds), *Mesolithic on the move: papers presented at the Sixth International Conference on the Mesolithic in Europe, Stockholm 2000*, Oxford, 57-61.

Woods, A.J. 1986. Form, Fabric, and Function: Some Observations on the Cooking Pot in Antiquity. In: W.D. Kingery(ed.), *Technology and style*, Ohio (Ceramics and Civilisation 2), 157-172.

Woodward, A.B. 1990. The Bronze Age pottery. In: M.G. Bell(ed.), *Brean Down: Excavations, 1983-87*, London (English Heritage Archaeological Reports 15), 121-145.

Woodward, A.B. 1995. Vessel size and social identity in the Bronze Age of southern Britain. In: I.A. Kinnes/G. Varndell(eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, Oxford (Oxbow Monographs 55), 195-202.

Woodward, A.B. 1999. When did pots become domestic? Special pots and everyday pots in British prehistory, *Medieval Ceramics* 22-23, 3-10.

Woodward, A.B. 2000. *British Barrows. A matter of Life and Death*, Stroud.

Woodward, A.B. 2002. Beads and Beakers: heirlooms and relics in the British Early Bronze Age, *Antiquity* 76, 1040-1047.

Woodward, A.B./C. Cane 1991. The Bronze Age Pottery. In: J.A. Nowakowski(ed.), *Trethellan Farm, Newquay: The Excavation of a Lowland Bronze Age Settlement and Cemetery*, Truro (Cornish Archaeology 30), 103-131.

Woodward, A.B./P.J. Woodward 1996. The Topography of some Barrow Cemeteries in Bronze Age Wessex, *Proceedings of the Prehistoric Society* 62, 275-291.

Wright, E.V. 2004. Affinities and differences. In: P. Clark(ed.), *The Dover Bronze Age Boat*, London, 256-263.

Zimmermann, W.H. 2008. Phosphate mapping of a Funnel Beaker Culture house from Flögeln-Eekhöltjen, district of Cuxhaven, Lower Saxony. In: H. Fokkens/B.J. Coles/A.L. Van Gijn/J.P. Kleijne/H.H. Ponjee/C.G. Slappendel(eds), *Between Foraging and Farming: An extended broad spectrum of papers presented to Leendert Louwe Kooijmans*, Leiden (Analecta Praehistorica Leidensia 40), 123-129.

Appendices

Appendix 1
List of biconical urns in the Dorset County Museum, Dorchester (updated list from Ellison 1975, compiled by Ann Woodward (formerly known as Ann Ellison, on 24-01-2009). These burial urns were inspected in order to assess the valitity about claims made on later Early Bronze Age pottery, with respect to forming methods and the application of decoration.

DORCM Accession	Parish	Description (Grinsell nr)	Museum Location	Notes	Photonumbers 2nd card
1885.16.31	Weymouth	G23	DC 7/7(2)	DCM 48	41-42
1885.16.34	Dewlish	G6	DC 2/2(E)	DCM 1	26-31
1885.16.35	Dewlish (with cement inside)	G6	EM/257	DCM 3	11-14
1885.16.38	S/SW of Dorchester		DC 7/7(13)	Fordington Field	38-40
1885.16.39	Bere Regis (with cement inside)	? G46c Roke Down	EM/259	DCM 35	15-17
1931.6.1	Chaldon Herring	G24a '? Bush barrow'	EM/220	DCM 145	1-5
1931.6.2	Chaldon Herring cremations	G24a '? Bush barrow'	cremations EM/279	DCM 146	
1932.11.1	Winterborne Houghton	?G3a	?EM/272	On loan in Christchurch ?	
1932.11.2	Winterborne Houghton cremations	?G3a	cremations EM/272		
1937.28.1	Tyneham	Povington Barrow G14	EM/223		6-10
1937.84.1& 2	Wimbourne St Giles	Ackling Dyke	EM/224	Sherd	
1953.55.1	Wimbourne St Giles	Oakley Down	B 142/C	Excavation Archive	21-25
1962.12.19	Puncknowle	G1	DC 2/2(E)		32-36
1957.16.1	Portesham	Hardy Mon G2a	EM/267	PPS23(1957) Fig3nos1&4	18-20

Appendix 2
Table of the data gathered from the four case studies. Data concerning the full *chaine operatoire* of analysed pottery is presented here. For this thesis, only aspects of forming were used. In the future, the data concerning detailed decoration techniques and patterns and the evidence for distinctive fabrics might be of further use.

Appendix 2 is made available digitally through the e-Depot of Dutch Archaeology (http://edna.dans.knaw.nl and http://persistent-identifier.nl/?identifier=urn:nbn:nl:ui:13-8gh-9vw; because of its size, it is not published here).

Appendix 3
Table of the C-14 dated sites analysed on the techniques, tools and motifs of decoration in chapter 4 (paragraph 3). This list was used in order to create the GIS environment that led to the distribution maps produced in chapter 4.
Appendix 3 is made available digitally through the e-Depot of Dutch Archaeology (http://edna.dans.knaw.nl and http://persistent-identifier.nl/?identifier=urn:nbn:nl:ui:13-8gh-9vw; because of its size, it is not published here).