Monuments on the Horizon

The formation of the barrow landscape throughout the 3rd and 2nd millennium BC

Quentin Bourgeois

Monuments on the Horizon

Sidestone Press

Monuments on the Horizon

The formation of the barrow landscape throughout the 3rd and 2nd millennium BC

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van de Rector Magnificus prof. mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen op
donderdag 10 januari 2013
klokke 13.45 uur

door

Quentin Philippe Jean Bourgeois

Geboren te Gent
In 1982

Promotiecommissie

Promotor:	Prof.dr. H. Fokkens
Co-promotor:	Dr. D.R. Fontijn
Overige leden:	Prof.dr. S. Wirth, Université de Bourgogne
	Dr. D.W. Wheatley, University of Southampton
	Dr. M.K. Holst, Aarhus University

Published by Sidestone Press, Leiden
www.sidestone.com
Sidestone registration number: SSP131520001

ISBN 978-90-8890-104-1

Lay-out design: Sidestone Press
Lay-out: M. Kerkhof
Cover design: K. Wentink, Sidestone Press
Cover photograph: Barrows on the Rechte Heide close to the town of Goirle, Noord-Brabant, The Netherlands. Photograph by Quentin Bourgeois

This research project was funded by the Dutch Organisation for Scientific Research (NWO).

This publication was financially supported by the Stichting Nederlands Museum voor Anthropologie en Praehistorie (SNMAP) and Leiden University.

S·N·M·A·P

Contents

Preface

Barrows, as burial markers, are ubiquitous throughout North-Western Europe. Tens of thousands of these monuments are still visible in the present day landscape, while probably ten times as many vanished over the centuries since their construction.

It is therefore not surprising that barrows, as of old, are the most researched elements of later prehistory. Early antiquarian interest in these monuments ensured that thousands of them were dug into. Notably England and Denmark saw hundreds of these monuments being excavated – more or less scientifically – in the 19th Century. This interest continued into the 20th Century, when thousands more barrows were investigated.

And it is not surprising as well that several generations of archaeologists have dug their teeth into the topic. Especially within Dutch Archaeology, several of the great household names were 'barrow' archaeologists. Holwerda started excavating barrows in the early 20th Century and in the following decades his assistants Remouchamps and Bursch took over from him. Van Giffen quickly followed in the 1920's and continued excavating barrows for more than three decades, often preceding their imminent destruction. His legacy was succeeded by Glasbergen, Modderman and Waterbolk, particularly in the 1950's. From the 1960's onwards, interest in these monuments decreased considerably and shifted to settlement archaeology. The old excavations nevertheless provided food for generations to follow, and several syntheses were published in the second half of the 20th Century.

So indeed, we know quite a lot of these monuments and many of the artefacts coming from these mounds are central to our image of later prehistory. We know the majority of these mounds was built in the 3rd and 2nd Millennium BC. We know the contents and form of the graves and we think we know who built them and for whom. And when the Faculty of Archaeology at Leiden started excavating barrows anew in 2004, it was often remarked that we knew 'enough' about these barrows and that all there was to be said about them, was already said. Yet the excavations disproved this and several monographs – now published or in press – continue to add to our knowledge of these ancient mounds.

Yet this book is not so much about the barrow itself. Rather, it is more about the role of a barrow within the wider landscape. This difficult subject is often not addressed or dealt with in passing, or – especially in the early days – was not considered of any relevance. It is also an understandable oversight given the difficulty of creating an overview from such a vast dataset. The issue is complicated by the fact that it is not uncommon for hundreds of these barrows to be spread out over several square kilometres, forming veritable *barrow landscapes*. Areas, where everywhere you look you will see these monuments, close by and far off in the distance. In some cases they form up in kilometre long alignments while in others they are dispersed in small groups or are found in apparent isolation. Why is that? It is this fundamental issue which is a the heart of this research, how did this peculiar and vast configuration of mortuary monuments originate and how did it develop?

Chapter 1

Outlining the problem: barrows, barrow groups and barrow landscapes

1.1 Introduction

My first encounter with barrows was as a small boy, probably eight or nine years old. I was sitting in the backseat of a small single-engine aircraft flying over the Flemish countryside. I was trying very hard not to vomit while the former fighter pilot was forcing his aircraft through all sorts of acrobatics. After circling for a while, he spotted something in the fields below and suddenly thrust the nose down. Hurling towards the ground at tremendous speed, he took several photographs of two crop-circles. Seconds from impact the pilot pulled up and out came my lunch. My father tells me the acrobatics were less dramatic than this, but yet I still remember vividly how fast these two circles filled up the entire windscreen. We quickly returned to solid ground, where I was told that there were hundreds of those circles, and that on a normal day the pilot photographed dozens of such crop-marks.

Fortunately one of my later encounters with barrows was gentler. As a student of archaeology we went on a field trip excursion to the barrow cemetery of Toterfout Halve Mijl, close to Eindhoven in the Southern Netherlands. The mounds were excavated by Glasbergen between 1948 and 1951 and have taken up a prominent position in the Dutch Bronze Age ever since (Fig. 1.1; Glasbergen 1954a; b; Theunissen 1999).

Since this first visit I went back to the area on numerous occasions. The barrows of that cemetery have become familiar to me. I know what was found in them, how many graves were recovered from each and what the original form of each mound must have been.

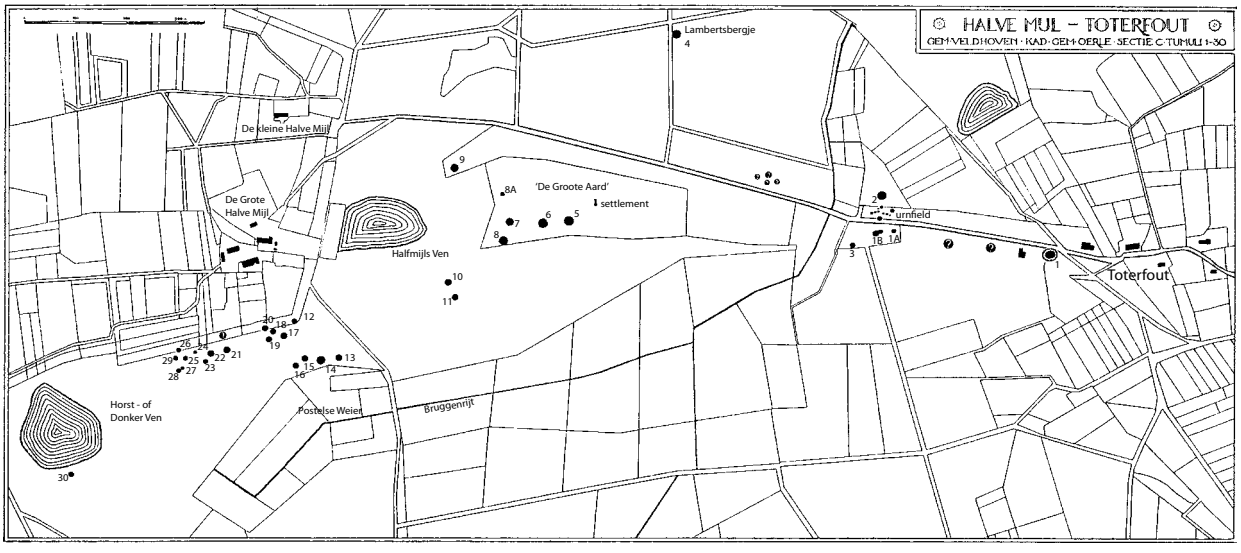


Fig. 1.1: The barrows of the Toterfout – Halve Mijl 'cemetery' excavated by Glasbergen (modified after Glasbergen 1954a, Fig. 3).

Fig. 1.2: Barrows 5 and 6 of the Toterfout barrow group. The photograph was taken to the east, with barrow 6 in the foreground.

The visits to this barrow group are usually structured in the same manner. We park the car close to a small stand of trees in which the first mounds can be seen (barrows 1A, 1B and 3). For some reason I always stand on top of mound 1B, survey the other barrows and then continue along the dirt road. Crossing a small stream valley, we quickly move on towards several groups of barrows hidden away in small clearings.

Usually after a short stop at barrow 4, we continue towards an alignment of three barrows with a few more barrows scattered around it (Fig. 1.2, barrows 5 to 9). And as with the first mound we encounter, here too I must stand on top of the three mounds. And apparently I am not the only one. As can be judged by the hollowed out track running over the top of the mounds, hundreds of people seem to have done the same. A few hundred metres on, the next two barrows, encircled by a coppice of young pine (barrows 10 and 11).

And still we go on, until we reach the last surviving mounds some 1.5 km from our starting point. Four barrows, fenced off by barbed wire on all sides (barrows 13 to 16). This is usually the end-point of our walks, yet Glasbergens' excavation plan tells me that there were once at least half as many barrows in what is now arable land and that I have not yet reached the extent of the barrow cemetery of Toterfout Halve Mijl.

In the cemetery, as Glasbergen called it, 50 graves were discovered in 34 barrows and the barrows were built over a period of four or five centuries. Yet the entire *cemetery* covers an area of more than one square kilometre and the extent of the barrow distribution does not stop there. Dozens of other barrows can be found just a few hundred metres away in all directions. Indeed, as I will argue in Chapter 5, the Toterfout barrows are a small part of a larger group of barrows encircling a lake.

The more I became familiar with this barrow group, the more its extent puzzled me. The mounds were surely not fortuitously thrown up, they form small alignments of three or four barrows. At the same time others do not conform to this obvious structuring and they are scattered about. Similar patterns have been observed all over north-western Europe (see below). It is this peculiar wide-spread distribution that will be the subject of this research. What is the logic behind this distribution? In this Chapter I will first introduce the problem and the research questions followed by an overview of the structure of the research.

1.2 The European barrow phenomenon

Barrows are arguably the most ubiquitous prehistoric monuments in the whole of Europe. When walking through the countryside it is very likely that you might chance upon a prehistoric mound cresting a hill in Denmark; hidden away in forests in Eastern Germany; covered in purple heath in the Low Countries; amidst lush green pastures in Southern England.

In countries where barrows are well preserved, they number in the tens of thousands. In Denmark alone 86.000 barrows have been recorded (Johansen, *et al.* 2004, 34). Parker Pearson notes that for Britain 30.000 barrows are known (Parker Pearson 2005, 81). Dense concentrations of barrows are present in certain regions of Belgium, France and Germany as well (*e.g.* De Reu, *et al.* 2011b; Balquet 2001; Fily, *et al.* 2012; Delrieu and Milcent 2012; Görner 2002; Herring 2009). And several thousands of barrows are known from the Netherlands (see Chapter 4).

Since the earliest advent of archaeology these mounds have attracted the attention of archaeologists and antiquarians. Many were dug into in order to reveal their treasures, and in some areas not a single barrow has been left untouched (Harding 2000, 84-85). This early interest does mean that today our knowledge on barrows is extensive.

It is therefore not surprising that barrows and the burials they contain feature prominently in studies concerning the Late Neolithic and the Bronze Age and their ubiquity explains why barrows are the primary source of information for these periods (Bogucki 1999, 276; Harding 2000, 75, 122).

The burial ritual surrounding a barrow is usually very elaborate, and involves more than just the digging of a grave and covering it with a layer of sods, chalk or stone. Elaborate wooden constructions encircle the mound, ditches were dug around them and additional layers of material were stacked on top of the barrow. And once built they kept attracting attention. Secondary graves were added to already existing barrows, sometimes even millennia after their initial construction (*e.g.* Sopp 1999; Williams 1998; Holtorf 1998).

1.2.1 The concept of a barrow landscape

Yet each individual barrow, however complex its creation and biography, is found amongst hundreds of other barrows. At the most basic level barrows cluster in small groups of two or three, sometimes even more mounds. Invariably these small clusters are part of more intricate structures such as kilometres long alignments of barrows. On the other hand they are also part of vaguely defined and extensively dispersed barrow cemeteries covering several square kilometres (Ashbee 1960, 34; Fleming 1971, 142; Woodward 2000, 73; Fontijn 1996; 2011). Where some barrows are part of long alignments or groups and clusters, others are not. They are placed away from them, and they do not appear to conform to any apparent structuring.

This typical distribution is a feature of barrows throughout north-western Europe. The region of South-Western Jutland for example is covered in more than 8000 barrows, the majority of which are organized in long lines extending over dozens of kilometres (Johansen, *et al.* 2004, 40-41). Yet at the same time hundreds of barrows are placed away from these alignments.

Similarly, the Veluwe has one of the densest concentrations of barrows in the Low Countries, with more than 1000 recorded barrows (Fig. 1.3). Several distinct lines of barrows can be observed here as well (Bakker 1976; 2008; Klok 1982), yet hundreds are dispersed beyond these alignments.

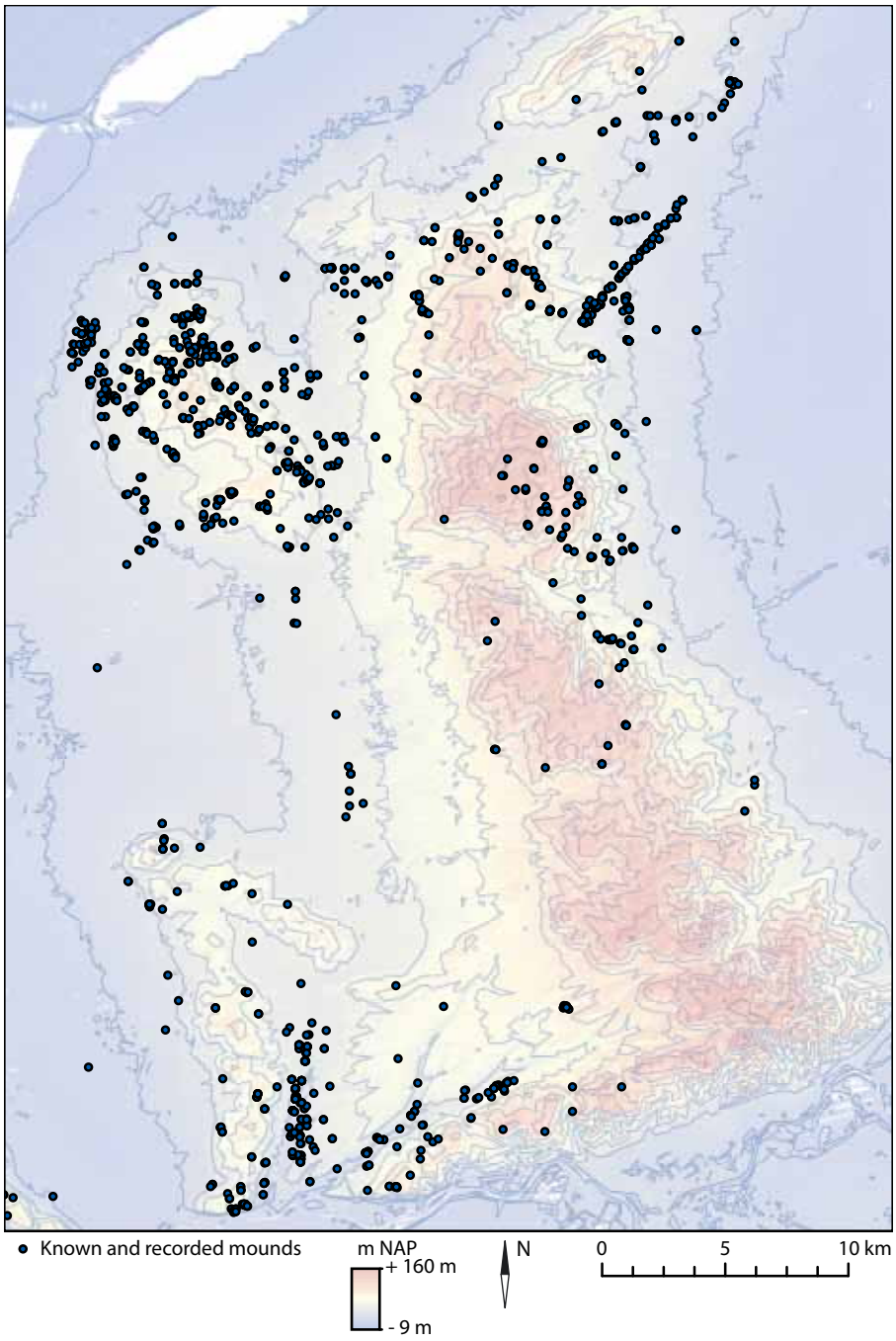


Fig. 1.3: The distribution of all known barrows on the Veluwe. The elevation map was created with the AHN elevation data (copyright www.ahn.nl).

Equally British barrows are also distributed over large areas. Fleming already argued in the early 70's that barrows in Wessex are widely dispersed and can cover areas of several square kilometres (and he even omitted barrows not dating to the Bronze Age, Fleming 1971, 139). While his typological subdivision in different types of barrow cemeteries may be subject to debate, it nevertheless demonstrates how vast the barrow distribution truly is.

Therefore, we should not talk of barrow groups or barrow cemeteries, but rather of veritable *barrow landscapes* (Fontijn 1996, 78) – entire regions completely covered in hundreds of such burial monuments.

1.3 What is so different about the barrow landscape?

1.3.1 The barrow landscape as characteristic for the 3rd and 2nd Millennium BC

The dispersed nature of barrow groups and the formation of vast barrow landscapes is typical for the 3rd and 2nd Millennium BC. The majority of the funerary monuments in the present day landscape of north-western Europe are burial monuments dating to these two millennia (Harding 2000, 99). With a few notable exceptions, it can be said that most cover an individual grave (*ibid.*, 84-85).

The sheer number of individual graves indicates a fundamental change in how prehistoric societies structured the landscape. Certainly there are indications of round barrows preceding these two millennia (Leary, *et al.* 2010; Anthony 2007, 249-254) and other types of funerary monuments were already present long before this (Midgley 2008, 26-32).Yet, following Fontijn, I would argue that a significant change in scale took place in the 3rd and 2nd Millennium BC (Fontijn 2011, 436).

Especially in the Low Countries, the distribution of barrows, compared to the preceding megaliths is markedly different. Funnel Beaker (TRB) settlements are known from the central and northern Netherlands, yet megaliths are only known from a relatively short ridge of roughly 45 by 10 km in the northern Netherlands (Van Gijn and Bakker 2005, 288-289).

On the other hand barrows are known from all over the Low Countries (Fig. 1.4). More than 1500 barrows are known from the ice-pushed ridges of the *Veluwe* and the *Utrechtse Heuvelrug* (Klok 1982; Fontijn 2010); hundreds of barrows have been documented on the cover-sand ridges of the *Kempen* (Theunissen 1999) and the eastern Netherlands (Van Beek 2009) as well as in the low-lands of West-Frisia (Roessingh and Van Zijverden 2011); at least a thousand have been documented in sandy Flanders (De Reu, *et al.* 2011b).

The majority of these thousands of barrows were constructed between 2800 and 1400 cal BC and it is during this period that the foundations of the barrow landscape were laid out (Bourgeois and Fontijn 2012, 542-545). These barrows were built almost everywhere.

An important point is that a barrow visually transforms the landscape. Each mound marked out an individual grave and together they created a vast mortuary landscape, framing it with the dead. The visual nature of these burials is contrasted with other elements of prehistoric life which are not lasting and visible (*e.g.* flatgraves, depositions, etc.). The end-result created an almost monotonous succession of small hills, hundreds upon thousands in fact. By the end of the Bronze Age, this process had created a landscape where, especially in certain areas, barrows were visible all around (Fontijn 2011, 437).

1.3.2 Variability as key to the barrow landscape

It would be wrong to think, however, that the barrow ritual remained stable for two or three thousand years. On the contrary, it changed fundamentally on multiple occasions and displayed significant variability. As Hoare – who investigated hundreds of barrows in the early 19th Century – mused:

> *'There seemed so much variety and so little uniformity in the construction and contents of all our barrows that I almost despair of forming any regular system respecting them'* (quoted in Barrett 1990, 184).

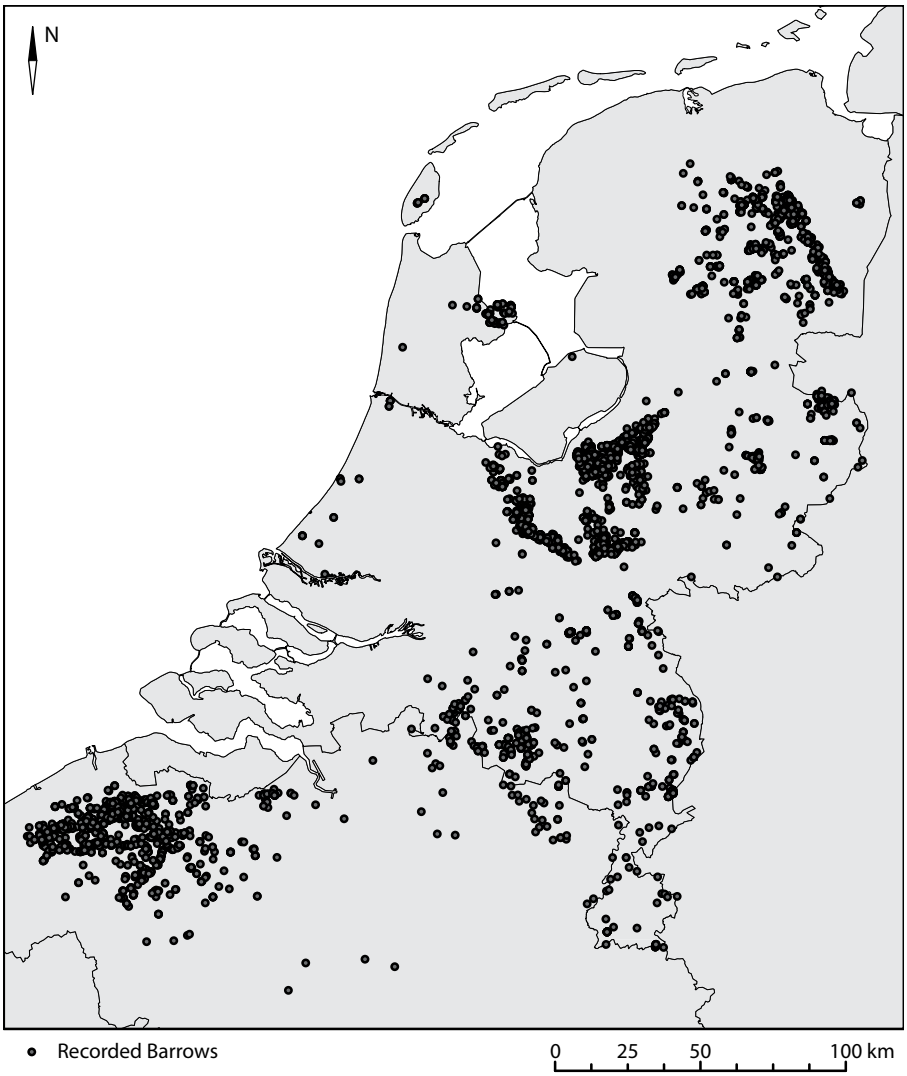


Fig. 1.4: An overview of all known and recorded barrows in the Low Countries. The Dutch data was extracted from ARCHIS and expanded upon with an intensive literature survey (see Chapter 4). The Flemish data was kindly provided by J. de Reu (East- and West-Flanders) and R. Vergauwen (for the provinces of Antwerpen, Vlaams-Brabant and Limburg).

The mounds can be almost inconspicuous, just 50 cm in height with a diameter of only 6 m. On the other hand they can also be massive, over 50 m in diameter and several meters high. Some yield no graves at all while others contain dozens. They are built at the head of dry valleys, they crest ridges and hills, they are located on gently sloping plateaus, close to rivers or the sea. They can cluster or they can be placed far and wide from one another. They may have been built as early as 2800 cal BC, as late as 500 cal BC.

The variability in the barrow ritual already suggests that we are not dealing with a single phenomenon, but rather with a succession of distinct practices (Garwood 2007, 30). In some cases the construction of barrows in specific areas within the landscape has led some authors to suggest differences in site locations for specific periods (Last 2007, 2; Garwood 2007, 30-31). Kristiansen for instance, points to a difference in the position of Corded Ware barrows at the foot of hills and Bronze Age barrows on top of them, overlooking the valleys (Kristiansen 1998, 288).

This variability is a direct consequence of the geographic and temporal scale of the barrow landscape. Yet little consideration is given to this variability.

1.3.3 Understanding the variability: researching the formation of barrow landscapes

The barrows of the 3rd and 2nd Millennium BC feature prominently in most accounts of those two millennia. Without going into much detail (I will discuss interpretations of the barrow landscape in depth in Chapter 2), we can state that barrows are commonly interpreted as the expression of an ancestral presence (*cf.* Fokkens 2012, 566-568). They are thought to represent the physical and visual presence of *past generations*.

These visual remains of past generations are interpreted as reflecting the elite, with alignments of barrows seen as representing lineages and dynastic succession (Bogucki 1999, 286; Kristiansen and Larsson 2005, 218). In a similar vein, the dispersed barrow groups are explained as the physical remnants of wandering settlements where the barrows reflect the presence of past house(hold)s (Roymans and Fokkens 1991, 11; Roymans and Kortlang 1999, 37; Fokkens 2003, 19; Gerritsen 2003, 191-192; but see Fokkens and Arnoldussen 2008, 8-9 for a reappraisal of this concept). The ancestral presence is also considered to be manipulated to demarcate territories and delineate boundaries between these (*e.g.* Hanks 2008, 262; Watson 2001, 209). There is certainly some validity to these interpretations. Yet at the same time it leaves two unresolved issues.

The first issue is that these explanations rarely engage with the palimpsest nature of the barrow landscape. Perhaps some alignments may represent lineages or dynasties. Yet – as I will argue in Chapter 5 – these alignments took over 1500 years to form. The palimpsest nature applies to dispersed barrow groups as well.

The second issue is that viewing a barrow as the expression of territoriality and ancestral presence, does not directly explain the distribution of barrows within the landscape.

Rather I would argue that these approaches have rarely considered how the barrow landscape developed. The barrow landscape, through its physical and visual nature, forces people to engage with it. By adding a barrow to the barrow landscape, they had to react to earlier monuments, either by associating or opposing to them (Barrett 1990, 183).

Thus, the barrow landscape, by its very palimpsest nature, is an amalgam of thousands of additions. Yet if we wish to understand why people reacted to it in the way they did (and thus created the barrow landscape), we first need to engage with its palimpsest nature and understand its development.

1.4 Research questions

The question central to this research focuses on the landscape component of the barrow phenomenon. I seek to understand *how the barrow landscape originated and how it developed.* In this research I will try and resolve the two issues mentioned above. I will first set out to unravel (specific parts of) the barrow landscape and establish *how* it developed. Then I will attempt to answer a perhaps more difficult question, *why* did it develop in the way it did?

The central question can be broken down into several sub-questions:

1. What patterns can be identified in the development of the barrow landscape? And do these change over time?
2. What was the visual role of a barrow in the structuring of the landscape?
3. How did previous monuments influence the development of the barrow landscape?

4. What was the (ritual?) dynamic (logic?) behind the ordering of the landscape or was it loosely structured as sometimes suggested?
5. Why did people continue to add to the barrow landscape? How should we understand the development of the barrow landscape?

1.5 Methodology and Research area

The research in this book operates on two levels. On the one hand, as a well-documented barrow distribution is essential to this research, I will explore the development of the barrow landscape in detail for specific areas. A choice was made to study four different case studies, each representative of particular aspects of the Barrow Landscape (I will introduce and discuss these further in Chapter 4 and 5; see Fig. 4.4 for an overview).

Such an in-detail reconstruction cannot be undertaken everywhere. Fortunately several areas within the Central and Southern Netherlands are ideally suited to this research. Primarily because several dense concentrations of barrows are known in these regions, notably on the *Veluwe* and in the *Kempen* (Fig. 1.4).

Additional reasons to focus upon the Central and Southern Netherlands is that the earliest barrows in the Low Countries can be found in both regions (especially in the Central Netherlands). At the same time both regions have a very good record of research. In total 384 barrows were excavated by both professional and amateur archaeologists (approximately 20% of the total record of known barrows). The research is in general of high quality, with detailed excavation plans and good reports. And lastly, Lidar-data is available for the whole of the Netherlands. This is essential to the construction of Digital Elevation Models (DEM) and in researching visibility patterns.

On the other hand, I will contextualise the patterns and developments I observe within these case studies with data on barrows within the entire Low Countries. The developments within the case studies and within the Southern and Central Netherlands are part of wider developments. There are certainly regional tendencies within the Low Countries (Drenth and Lohof 2005, 436-437) yet the similarities between regions are equally strong.

1.6 The dataset

For the purpose of this research two datasets were collected. A first dataset comprises the excavated barrows in the Low Countries. The primary purpose of this dataset was to obtain a general overview of the constituent elements of a barrow and their changes through time.

In general the barrows entered in the database concern the excavated and published barrows. The dataset was primarily based upon a literature survey. Several PhD's and a few articles have been published in the last two decades, providing an entry point into the published material (*e.g.* Lohof 1991; Theunissen 1999; Lanting 2007/2008). Additionally, a survey of all relevant journals was carried out (*i.e. Helinium, Palaeohistoria, Analecta Praehistorica Leidensia, Berichten Van De ROB, Oudheidkundige Mededelingen Van het RMO, Nieuw Drentse Volksalmanak, Archeologische Kronieken, Archeologisch Nieuws, Brabants Heem*, etc.).

Each individual barrow, and all relevant information on the build-up of the mound, the surrounding features and the graves uncovered was entered into this database. As many of these records concern old excavations, some manner of re-interpretation was necessary. I primarily based myself upon the published reports. Nevertheless in some cases it was necessary to return to the field drawings to clarify some observations.

Each barrow received a unique ID (a barrow nr.). In total 589 barrows were entered into the database (Appendix A). This primary dataset was expanded upon with a second dataset concerning the Late Neolithic and Bronze Age graves from these barrows, collected by my colleague K. Wentink. In total 1283 graves were recorded (Wentink in prep.).

The second dataset comprises a detailed survey of four case studies, Epe-Niersen, Ermelo, Renkum and Toterfout-Halve Mijl. Here, the purpose was to reconstruct the distribution and development of *all* known and recorded barrows within a given region as accurately as possible and to collect all relevant information pertaining to these mounds.

Two sources were used: the national database of archaeological sites (ARCHIS) and a literature study of all excavated barrows within the region. Within each region, all available information on each individual monument was collected and stored in the database (Appendix B). A barrow ID was created for each barrow not yet in any of the other databases.

In a few rare cases new barrows were discovered on the Digital Elevation Model (DEM) of the research area. In most cases the exact position of each individual barrow could be determined with an accuracy of five to ten metres. In the case of already disappeared barrows the best approximation of their location was determined on the basis of the literature (barrows with an approximate location are marked with a ? in the respective figures). As some excavated mounds have been entered multiple times within ARCHIS (notably in the Renkum case study), additional research and choices had to be made. Where this was the case, it has been noted in the appendix.

1.7 The structure of the research

In order to approach the problem I have structured the research into three parts. In the first part I will outline the nature of the barrow landscape (Chapters 1 and 2), and how it has been studied in the past (Chapter 2). Before we can attempt to reconstruct the formation of the barrow landscape we first need to establish *when* barrows were built (Chapter 3), and we need to assess what fragments of the barrow landscape have survived (Chapter 4).

In the second part of the research I will start by reconstructing the development of the barrow landscape for four case-studies (Chapter 5). The patterns with which the barrow landscape developed will then form the basis for the following Chapters. In Chapter 6 I will investigate the visual role of a barrow within the landscape, using Geographical Information Systems (GIS) and viewshed studies within on two of the case studies discussed in Chapter 5.

In the third part I will put the observed patterns of Chapters 5 and 6 into a wider context, moving away from the particularistic nature of the case studies. I will first look at how people reacted to the barrow landscape and how they reused the monuments already present (Chapter 7). In Chapter 8 I will investigate how prehistoric societies structured the barrow landscape and how they formed the barrow landscape by constantly adding to it. In the last Chapter (9) I will bring together the different strands of both previous Chapters and I will return to the question central to this research: how did the barrow landscape originate and how did it develop?

Chapter 2

Making sense of the barrow landscape

2.1 Introduction

In this Chapter I will explore how we should approach and make sense of the barrow landscape. I will first outline how archaeologists have tried to explain its particular distribution. Two general approaches can be identified (Last 2007, 2). Firstly approaches that only consider the role of the individual barrow without taking into account its position within the wider landscape – so called barrow-centric approaches. And secondly, approaches that do consider the barrow within the wider landscape, yet do not account for the deep temporality of the barrow landscape.

I will argue that explanations concerning barrow landscapes have generally been retrospective and singular in nature and I will conclude the Chapter with an alternative approach on how we should understand and research the formation of the barrow landscape.

2.2 The barrow as an exclusive and visible burial ritual

If we are to understand the nature of the barrow landscape, we need to start with the barrow itself. What is a barrow and what makes it so special?

Firstly, the barrow as a burial ritual – creating mounds of sods, chalk, turf or stones heaped up on top of a grave – was exclusive. Even though it is difficult to estimate the exact percentage, only a small portion of people in prehistory ended up underneath or in a barrow (Lohof 1994, 113; Wentink in prep.).

Secondly, through the construction of a mound, people physically altered the landscape and manipulated its inherent visual structure (Llobera 2007b, 53). By building a barrow they created a visual image immediately recognisable for what it is: a burial place (Fontijn 2011, 437). This is contrasted with the burial of deceased in flat graves, and other aspects of life which appear more transient and fleeting, although not necessarily less significant (*cf.* Fontijn 2007).

Once a mound is constructed, the space where it is located must be interpreted in a different way than before (Barrett 1994, 113) and it is transformed into an evocative space (Smith 2003, 73). That space now becomes a conspicuous and meaningful *place* (Thomas 1996, 88; *cf.* Tuan 1977, 161-166; Cummings and Whittle 2004, 9-10).

And thirdly, the medium of choice for a burial, the mound, indicates it was meant to last (Barrett 1989, 123; Bradley 2003, 222) and therefore to remain visible and interpretable for what it is (Sherratt 1997, 355). Once constructed, the mound becomes a *lieu de mémoire* (Fontijn 2011, 430; see Chapter 9), a location where subsequent onlookers were forced to engage with the monument. How subsequent generations then reacted to the barrow, however, was beyond the control of the builders and may well have been far removed from the reaction they sought to elicit (Holtorf 1996, 123; Bradley 2002, 85).

In essence, by building a mound people visually and permanently demarcated the burial place of an exclusive group of people.

2.3 Barrow-centric approaches: barrows as the resting place of individuals, the elite, warrior aristocracies and ancestors

Traditionally much of the research concerning barrows has focussed on the grave it covers, the social position of the person within that grave and the significance of the objects that accompanied him. This focus is understandable as barrows are usually erected over individual graves as opposed to the collective burials of the preceding period (*cf.* Barrett 1994).

It is in this light that a barrow is thought to physically fix the place of an individual (ancestor) in the landscape and to create a place to remember the individual dead (Barrett 1994, 112; Bogucki 1999, 277; Watson 2001, 214; Garwood 2007, 37; Beck, *et al.* 2007, 839; Hanks 2008, 261). The barrow itself by extension becomes '*an eloquent testimony to the identity of the dead*' (Harding 2000, 84) and through the construction of a mortuary monument, '*a chief can become 'immortal''* (Kristiansen and Larsson 2005, 57). The barrow is thus thought to be inextricably linked to the individual buried underneath it.

As some of these barrows cover graves in which extraordinary and exotic grave goods have been found, they are assumed to be the burials of an emerging aristocracy, where the right and access to a barrow was governed by an elite (Bogucki 1999, 286; Kristiansen and Larsson 2005, 218). The creation of a new barrow is therefore considered to be the reconfirmation of the elite (Kristiansen and Larsson 2005, 240).

In other interpretations it is not so much the elite that is emphasised, but rather the genealogy and ancestry of a community. By associating and building upon older, sometimes much older, barrows, the claims of ancestry and permanency in the landscape would have been reinforced and reworked through time (Barrett 1994, 115; Woodward and Woodward 1996, 228; Garwood 2007, 41; Hanks 2008, 258; Fokkens 2003, 21-23). Thus a barrow can be seen as a *locus memoriae* of the deceased, creating visual remnants of the ancestors in the landscape (Fokkens and Arnoldussen 2008, 8-9).

By extension, in some cases, the building of the mound itself is considered to have been the important action and not necessarily the burial of a deceased member of the community. In a few cases cenotaphs have been interpreted in this way (Garwood 2007, 46; Barrett 1990, 185; Ashbee 1960, 35; Lawson 2007, 129). By building a mound a community would thus create its own focal place in the world by physically monumentalising their real or mythical presence (Garwood 2007, 46).

The discussion on what social category of a person was buried underneath a barrow and what the items accompanying them truly mean, is part of an ongoing debate (*cf.* Brück 2001). The question of the identity and personhood of the dead underneath barrows, whether they are part of an elite, whether they are ancestors or not, is a very complex one and not within the scope of the present research.

It is certainly true that some of these barrows cover spectacular graves, with exceptional items of extraordinary quality and rarity. Several of these graves feature prominently in the narratives on the European Bronze Age. Every self-respecting Bronze Age specialist has heard of *Clandon* and *Bush Barrow*, the *Egtved* mound, and the *Leubingen tumulus* to name but a few. These names ring out to us and take up a central position in our image of Bronze Age society (*e.g.* Bogucki 1999).

The problem however is that these mounds are singled out and isolated (Last 2007, 2). Yet they are invariably part of a group of barrows, in fact usually hundreds of others are located in the vicinity. They are part of intricate alignments and clusters of barrows where the location of each mound was carefully deliberated.

To continue with the Clandon barrow example, the mound is part of a vast concentration of barrows on the South Dorset Ridgeway. Yet it is *not* located on the Ridgeway itself, where most of the mounds can be found. Rather, it is placed on a lower-lying inner arc of barrows, as are several other rich Wessex graves (Woodward and Woodward 1996, 277).

So clearly a certain logic underlies the placing of each mound, yet in understanding the role of the individual barrow, we should move beyond the grave itself and consider its position within the wider landscape (Woodward 2000, 20; Last 2007, 2). However, if we wish to understand the role of a barrow in the landscape, we first need to understand the scale of the barrow landscape.

2.4 The scale of the barrow landscape: from individual barrows and barrow groups to barrow landscapes

The definition of the barrow landscape and how we should understand the role of a barrow within it, is fundamentally a scalar problem (*cf.* Wandsnider 1998). This problem is aggravated by the fact that barrows tend to be dispersed over large areas (*e.g.* Ashbee 1960, 34; Woodward 2000, 80-84). Previous research has generally focussed on barrows as part of barrow cemeteries and small clusters of barrows (*e.g.* Garwood 2007; Fleming 1971). Usually this approach departed from excavations and the mounds which were researched (*e.g.* Geschwinde 2000).

The Goirle barrow group is a case in point. In 1935 Van Giffen excavated seven burial mounds on the *Rechte Heide* in the Southern Netherlands (Van Giffen 1937a; Fig. 2.1). Six of the barrows are placed in a linear arrangement alongside a small stream valley, while a seventh mound is located some 400 m to the southeast of it and slightly off-axis. Is it part of the alignment or not? Additional barrows can be found on the opposite flank of the stream valley, are these part of the same group? And what of another barrow located one km to the south (Glasbergen 1954b, 56)?

A further example can be found in the extensive barrow group of Toterfout I introduced in the first Chapter. Glasbergen excavated a total of 34 barrows located on an elongated cover sand ridge (Glasbergen 1954a, see Fig. 1.1). Almost all of the barrows date to the Middle Bronze Age (see Chapter 5). Glasbergen numbered the Tumuli from 1 to 30 creating the impression of a single cemetery.[1] In reality the barrows are unevenly spread out across the ridge and cover an area of 2 by 0,6 km. Some are placed in small alignments, others in small clusters, others in apparent isolation. What then are the limits of this barrow group? Is it made up of multiple groups as Theunissen suggested (Theunissen 1993)? Clustering can certainly be identified on multiple levels, yet how do we decide which barrow belongs to which group if any?

The examples presented above demonstrate why it is very difficult to delineate and distinguish individual barrow groups from one another. If we adhere to arbitrary definitions – such as '*every barrow within 300 m of another*' (Drenth and Lohof 2005, 453, note 8); within 1,5 km of one another (Roymans and Kortlang 1999, 38); less than 100 m for nucleated cemeteries and approximately 150 m for dispersed cemeteries (Fleming 1971, 141-142); or some other implicit level of proximity (*e.g.* Theunissen 1999, 47; Llobera 2007b, 55; Needham, *et al.* 2010, 32, Fig. 13) – the barrow landscape would be cut up in several groups which in no way reflects its complex spatial composition. Barrows were constructed, not

1 It should be noted that the term *cemetery* is perhaps not well suited to describe these barrow groups. A *cemetery* implies a delimited area solely used for burial. As I will argue throughout these Chapters, this was never the case throughout prehistory.

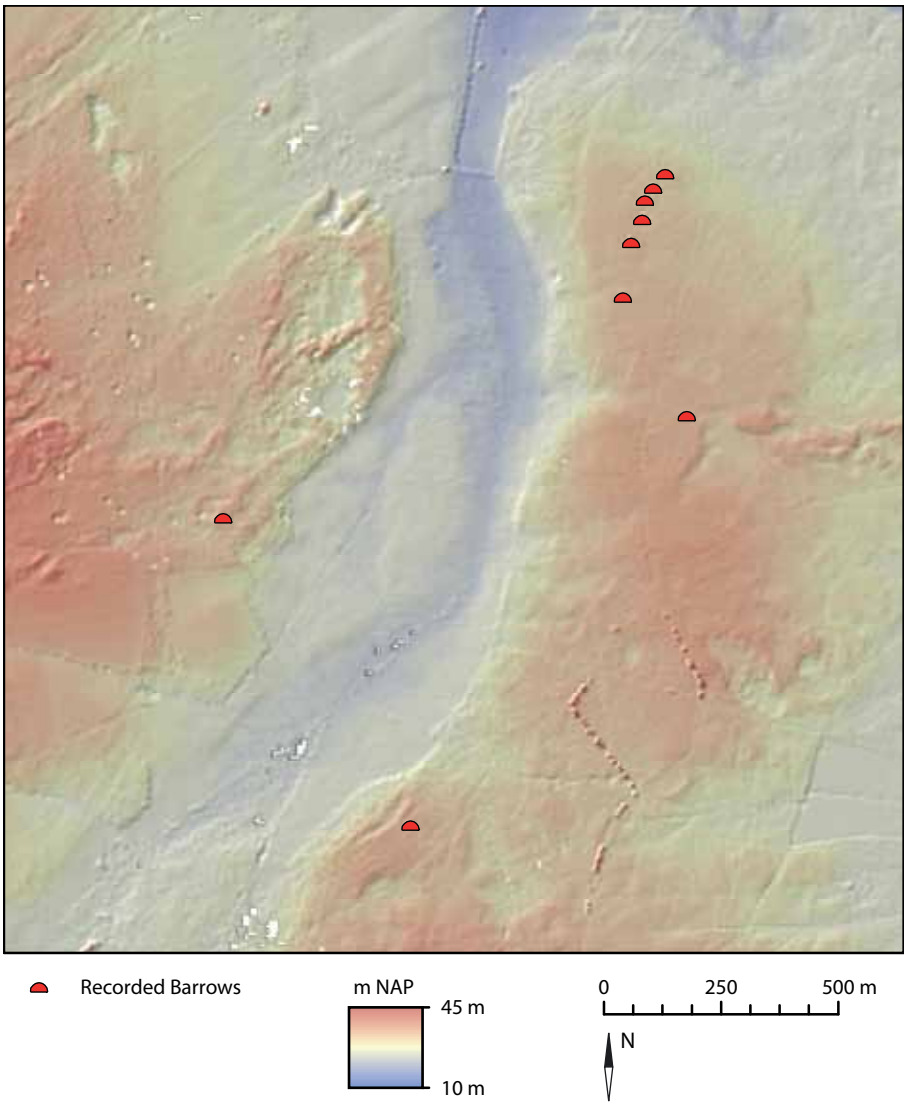


Fig. 2.1: The barrows on the Rechte Heide close to the town of Goirle. The elevation map was created with the AHN elevation data (copyright www.ahn.nl).

in isolated groups, but rather in wide zones (Fontijn 1996, 78; *cf.* Fleming 1971, 142-143). Therefore the research-unit on which this research bases itself must be the landscape in which these barrows were constructed.

To illustrate this, let us consider a well-studied barrow group in north-west European prehistory, the Normanton Down barrow group. Located approximately a kilometre to the south of Stonehenge, it is the site of one of the most famous and richest Wessex burials in Great-Britain, Bush Barrow.[2] Excavated in 1808, it has taken up a central position in studies on the British Early Bronze Age ever since (Ashbee 1960, 76-78; Woodward 2000, 39; Needham, *et al.* 2010).

The extraordinary and exotic items in the grave have been extensively discussed in multiple articles (*e.g.* the daggers by Gerloff 1975; the gold objects by Kinnes, *et al.* 1988; etc.). These items are seen as the chiefly regalia of an extraordinary individual without par in Southern England (*e.g.* Needham, *et al.* 2010, 31-35; *cf.* Bogucki 1999; Earle 1997). The focus in these studies lies solely on the burial and the associated items.

2 For a recent and extensive discussion on Bush Barrow and the barrows surrounding it, see Needham *et al.* 2010.

Other authors however place Bush Barrow within its context of the Normanton Down Barrow Group (*e.g.* Woodward 2000, 104-105; Garwood 2007; Lawson 2007; Needham, *et al.* 2010). Bush Barrow then becomes just one of the thirty odd barrows placed along a single alignment. Indeed, many of the barrows next to it contain similar prestige items (Needham, *et al.* 2010, 25, Fig. 9), although perhaps not as spectacular as those from Bush Barrow. When viewed on the scale of the Normanton Down Barrow Group, Bush Barrow is considered to be placed within a lineage, with the explicit position of each barrow reflecting historical time and its genealogical ties (Garwood 2007, 43).

Yet the Normanton Down Barrow Group is one of the many groups of barrows identified around Stonehenge (Needham, *et al.* 2010, 32, Fig. 13). When viewed on this larger scale, the Normanton Down Barrow Group is part of an inner ring of barrows encircling and cordoning off Stonehenge (Woodward and Woodward 1996, 288). It has been argued that most barrows on the inner ring were placed in such a way that they would skyline when viewed from Stonehenge itself (Bradley 1998, 126-131; Exon, *et al.* 2000; Lawson 2007, 209-210). From this perspective Bush Barrow then becomes only one of the 260 barrows within a three km radius of Stonehenge (Parker Pearson 2005, 81) and part of an intricate 'sacral' landscape (Field 1998, 321). And this without even mentioning the barrows beyond the World Heritage Site (*cf.* Fitzpatrick 2011, 3, Fig. 2).

The Bush Barrow example demonstrates how the burial itself, even though spectacular, cannot be seen in isolation of its wider landscape setting. Bush Barrow is inextricably linked with the other barrows around it and its position in regard to Stonehenge and other elements in the landscape.

2.5 Why barrows are built in certain locations: barrows as the creation of lineal histories, genealogies, demarcating territories and ritual landscapes

The landscape setting of a barrow has certainly been discussed before. Previous research on the role of a barrow within the wider landscape can be broken down into three positions. On the one hand barrows are seen as marking ancestral presence and therefore ownership of land. Closely related to this is the position where barrows are seen as territorial markers, with mounds 'claiming land' or being placed alongside borders demarcating right of access. And lastly barrows are thought to be the expression of a cosmological landscape, with barrows referentially placed to significant places in the landscape. All three of these positions depart from the visual role of a burial mound.

2.5.1 The visual nature of the barrow

The discussion on the visual nature of a barrow is an extensive one and I will delve deeper into it in Chapter 6. Yet the point I would like to emphasise here is that barrows visually demarcate specific places in the landscape. It marks out that specific location and elicits a specific reaction from onlookers. As I argued in the beginning of the Chapter, it transforms a locality into a meaningful place.

The point is that the end-product of centuries of barrow construction has thus resulted in vast areas where hundreds of these places are visually marked out. It is the cumulation of all these markers which created a visual landscape (Fontijn 2002, 270-271). Barrows, by their visual nature, take up an important role in the structuring of the landscape. Be it as a territorial marker or as part of a cosmological landscape.

2.5.2 Barrows marking out ancestral presence

The visibility of a barrow – as a marker – has often been interpreted in the sense of territoriality and ancestral presence (Fleming 1971, 155; Bogucki 1999, 286). The monumental permanency of the barrow and the presence of past generations it implies would signal property or control of land (Hanks 2008, 262). The ownership or, more neutrally, the right of access to land would then result from the association of communities with real or mythical ancestors. The act of placing an ancestor underneath a new barrow is then equalled to a statement of right of access to that land by the community creating the barrow (Harding 2000, 426).

At the same time these barrows are also considered to control or dominate the landscape by the views obtained from them (*e.g.* Thrane 1998, 275; Lagerås 2002; Tilley 2004b, 197). It is often remarked that by standing on top of a barrow, one often has wide ranging vistas. And the ancestors underneath the barrows, through these views, would then control access to land.

The relation of barrows with ancestral presence would imply that the land is owned by the ancestors (*cf.* Helms 1998; De Coppet 1985). A further implication would then be that by the time of the Bronze Age, the land would already have been completely infilled with ancestral presence and ownership. To continue to legitimise the presence of a community in the landscape, people had to negotiate with the ancestors in order to still be allowed access to the land (Fokkens and Arnoldussen 2008, 8-9).

The placing of a new grave in relation to other burials enabled it to be situated historically. The reference to place allowed for the reference to ancestors or genealogical succession (Barrett 1994, 123). Each subsequent construction of a barrow is thus seen as a reworking of genealogical lines, a reshaping of political alliances and the redefinition of genealogical status (Barrett 1990, 183-184). The association with pre-existing barrows may thus have been a form of legitimation or appropriation (Watson 2001, 207; Bogucki 1999, 286).

Especially barrow lines have been explained in terms of genealogy and legitimation (*cf.* Barrett 1994; Bogucki 1999, 277; Garwood 2007, 44). The lines of barrows are seen as the expression of the lineal history of local groups. Some authors consider this lineal history as the remnants of dynastic succession (Bogucki 1999, 277; Kristiansen and Larsson 2005, 57; Needham, *et al.* 2010, 31).

This idea in itself is not new, it has in fact been around since the earliest days of archaeology. One can already see it reflected in the use of the name Old King and New King barrows - two linear barrow groups close to Stonehenge. These names were already attached to them in the 18th Century.

Each individual barrow is here transposed into an individual, with the location of each mound marking out that person as well as its social position within prehistoric society.

2.5.3 Barrows as territorial markers

At the same time barrows are thought to '*divide the landscape into blocks*' (Last 2007, 5), effectively monumentalizing boundaries between two different landscapes and territories (Field 1998, 316; Woodward and Woodward 1996, 288; Watson 2001, 209; *cf.* Renfrew 1976). Through their monumental permanency, barrows would be more suited to fulfil this task rather than the more ephemeral remains of the settlements from those same periods (Barrett 1989, 123).

A similar link between ephemeral settlements and permanent barrows is outlined in the influential model by Roymans and Fokkens (Roymans and Fokkens 1991; later refined by Roymans and Kortlang 1999). The model problematised the differences between settlements and barrows from the Middle Bronze Age

as opposed to the Late Bronze Age and Early Iron Age. It assumed barrows were created by local communities within their own territories (Roymans and Kortlang 1999, 37; Fokkens 2003, 19; Gerritsen 2003, 191-192).

Essentially this model implies that each longhouse, farmstead or settlement site is accompanied by 'its' barrow (Arnoldussen 2008, 84; Bourgeois and Fontijn 2008, 42). The fact that barrows are widely dispersed in conjunction with the *wandering farmstead* model (Schinkel 1998) led them to conclude that territorial organisation in the Middle Bronze Age was loosely defined (Roymans and Fokkens 1991, 11; Roymans and Kortlang 1999, 38; Gerritsen 2003, 198). In this sense the presumed loose organisation of barrows is explained through the loose territorial organisation of the settlements. Implicitly a barrow is thus seen as a territorial marker, fixing the individual settlement in the landscape.

Here, each individual barrow is seen as the expression of changing territorial relations. Wherever people went, barrows went along with them.

2.5.4 Cosmological landscapes

An althogether different approach considers the placement of all barrows within the landscape as the creation of an encompassing ritual landscape. Each barrow is then assumed to take up a specific position within the cosmological landscape. Other elements of the cosmology may include rivers or the sea, specific mountaintops, etc (Lagerås 2002, 188; Cummings and Whittle 2004, 82).

To give an example, Christopher Tilley suggests that the positioning of barrows in Southern England can be translated into an entire cosmological landscape networking and linking distinctive topographical elements (Tilley 2004b, 197). He argued that by manipulating the views available from barrows people differentially referenced specific places in the landscape (*ibid.*, 198).

There is no doubt that a deeply rooted symbolism permeates all aspects of the burial ritual. Recently Kristiansen and Larsson (2005, 242) have made a valiant attempt at interpreting every aspect of the barrow ritual from the perspective of a Bronze Age cosmology. For example the grassland and the turves used in the construction of the barrow might symbolize the everlasting pastures in the afterlife, or might be considered as a burial gift to the deceased. The oak coffin would then be a symbol of the tree of life, and thus possibly hinting at rebirth. At the same time the position of the mound in the landscape, cresting on the hill tops, might be seen to symbolise the rising sun.

Whether or not this interpretation of the Bronze Age burial ritual is correct is debatable (nor do Kristiansen and Larsson presume it to be!), but the underlying implication is that every action in the construction of a barrow was important to the people building them (*cf.* Watson 2001, 212). As each mound contributed to the formation of the cosmological landscape, the exact position of each new mound will have been meaningful to the societies creating them (Field 1998, 315). The creation of such cosmological landscapes is not only assumed to be reflected in the position of monuments in relation to natural features, but can be expanded to other barrows or man-made features.

The circle of barrows surrounding Stonehenge is one of the most remarkable examples. Here, an inner and an outer ring of barrows surrounds the henge, defining zones and borders within the landscape. These configurations have lead to interpretations of rings of the special dead guarding the sacred site (Woodward and Woodward 1996, 288), or to the creation of procession routes leading towards Stonehenge. It is thought that the circularity seen in the henges and the round barrows is recreated in their landscape setting (Watson 2001, 208).

Similarly, in some cases the areas where barrows are found are interpreted as the lands of the dead, where people returned to bury their dead, while they themselves lived in other areas or the lower lying valleys (Fleming 1971, 159). A barrow landscape would thus become or be a true necropolis, where only the sheep would graze on the everlasting hills of the dead. In many schematic representations of a Bronze Age landscape, the dead are placed on the hills while the settlements are located in the valleys (*e.g.* Bradley 2002, fig 3.9, 76).

Here, a barrow and its position within the landscape is seen as something different, set apart from the living with its own internal logic and dynamic.

2.6 Problems with the previous approaches to the barrow landscape

There is certainly something to be said in favour of each of these approaches. Yet in my opinion there are two reasons why the previous approaches and explanations fail to understand the nature of the barrow landscape. Firstly the discussions on territoriality as well as the discussions on ritual landscapes do not explain why certain barrows cluster, why some are placed on long alignments nor why others are not. Secondly they fail to engage with the deep temporality of the barrow landscape and they consider the development of the barrow landscape retrospectively.

2.6.1 Barrows as claiming land

The question whether or not we can speak of territoriality and tenure in prehistory is a difficult one (*e.g.* Gerritsen 2003, 115-117). I will not enter into a discussion on territoriality itself, rather I am more concerned with the assumption that a barrow functions as a territorial marker.

Essentially the assumption is based on the idea that each social group creating a barrow is territorially defined *and* that they create barrows to manifest these territories in the landscape. Especially the second part of the assumption is, in my opinion, difficult to substantiate.

There is certainly evidence that some barrows have been used as territorial markers in historical times (Bonisch 2007). Several of the mounds in the Low Countries are located on the borders between the Netherlands and Belgium or Germany. In af few cases a border post was planted on top of them, fossilizing the border within the barrow (*e.g.* barrow 6 at Swalmen, Lanting and Van der Waals 1974, 25). Yet as Holtorf observed: *'it is not the megaliths which were, as Renfrew argued, 'territorial markers' (1976), it is us – or he rather – who see them in such a light'* (Holtorf 1996, 130). The point is that some of these barrows *became* territorial markers, yet it remains to be proven that they were created as such.

A second point is then the question what territory each barrow definesd? In Dutch Archaeology this is taken as the territory of the *local* group (Roymans and Kortlang 1999, 37; Fokkens 2003, 19; Gerritsen 2003, 191-192). This implies that each local group delineated *their* local territory. It also implies that the people building the barrow were the same people constituting a local group.

Yet what is this local group? In Dutch archaeology it is assumed that the local community is: *'the social unit that in a certain area lives together, uses the same fields and grazing grounds, worships the supernatural at the same cult places and buries their dead in the same cemetery of common ancestry'* (Fokkens 2003, 19). These local communities are thought to consist of a few dozen people (Gerritsen 2003, 112), three to six households (Roymans and Kortlang 1999, 36), or an extended family (Fokkens 2003, 26).

Simply equating burial communities with local communities is disputable however and even the definition of communities is highly problematic (Cohen 1985, 12-13). In essence a community defines itself through the use of symbols – which can take any form, be it manner-of-speech, dress, specific rituals, etc. These symbols are then used to create insiders and outsiders, members and non-members (*ibid.*, 12-15). The important point, however, is that people can simultaneously be part of multiple and separate communities (*ibid.*, 116).

Following Cohen and others, Gerritsen argued for the existence of burial communities during the Late Bronze Age and Early Iron Age (Gerritsen 2003, 110-115) and Fontijn for the existence of sacrificial communities in the Middle and Late Bronze Age (Fontijn 2002, 270-271; 2008, 103-104). In the same light I would argue that the people building a barrow were part of a barrow community (I will return to this in the Chapter 9).

As I asserted in the beginning of this Chapter, the barrow as a burial ritual was an exclusive way of burial. The barrow then was reserved for a restricted group of people, a selection from prehistoric society and not the local community. There may well have been a certain overlap between the burial and the local community. Yet the shape and form of many of the constituent elements of the burial ritual rather points to the importance of non-local communities (*e.g.* the martial identity expressed in some graves, Fontijn 2002, 246, 273-274; Wentink in prep.).

If barrows demarcate a territory, what territory was it then, that of the local community or rather that of the social group building the barrow?

A more fundamental issue is that territoriality and ancestral presence do not directly explain the distribution of barrows. They do not explain why a barrow was placed where it was.

Additionally there is the implicit assumption that something could be gained by associating with earlier monuments (Gerritsen 2003, 145). But if it was simply a question of associating with earlier monuments, why do certain barrow groups develop into dense clusters where others do not? How should we understand this disparate distribution?

Essentially territoriality explains the development of the barrow landscape from one perspective: throughout the 3rd and 2nd Millennium, prehistoric communities kept demarcating their territories with ancestral burial mounds. Quite literally barrows are seen as flags with which groups demarcate and signal their position within the landscape.

A last assumption is then that a barrow always functioned as a territorial marker. This, I argue, does not do justice to the vast time scale of the practice of barrow construction nor of the various communities involved. This point brings me to the second problem pertaining to explanations on barrow landscapes: they depart from a singular perspective and are retrospective.

2.6.2 The temporality of barrow landscapes: single logic and retrospective explanations

Fundamental to the study of barrow landscapes is its temporal dimension. The practice of mound building continued for thousands of years and their omnipresence in the modern-day landscape must be seen as a testament to the longevity of the barrow as a funerary marker. The thousands of barrows represent several phases of intensive barrow construction alternated by phases of disuse or only secondary use (see Chapter 3, 5 and 7). We are thus observing the end-product of a long series of practices associated with the barrows and their surrounding landscape (Garwood 2007).

It is imperative to understand that people in the Bronze Age lived in a landscape already filled in with barrows (Ashbee 1960, 37; Kristiansen and Larsson 2005, 338), they had no choice but to react to older barrows: either opposing or associating with them (Barrett 1990, 183). So the intentions and meanings behind the placing of a barrow in the Bronze Age will have differed from those in the early Late Neolithic. This has lead to several statements on the difference between Bronze Age and Neolithic barrows (*cf.* Kristiansen 1998, 288; Watson 2001, 213; Last 2007, 3).

Yet this temporal depth is rarely explored and the complex interplay of diachronic events is reduced to a single seemingly synchronous layer and the formation process is explained from a single logic perspective (*e.g.* Llobera 2007b; Tilley 2004b).

To return to a previous example already mentioned above, Woodward and Woodward postulate that Stonehenge was surrounded by a ring of the special dead (Woodward and Woodward 1996, 288), but one must wonder how and when that ring was formed (Garwood 2007, 30). The two rings of barrows did not come into existence overnight, but were the end-product of several centuries of barrow construction (*cf.* Exon, *et al.* 2000; Lawson 2007).

This single logic perspective can be extended to almost every approach to barrow landscapes. Discussions on territoriality, ritual landscapes and expressions of lineages all fail to grasp the temporal depth of the barrow landscapes. At the heart of these theories, permeates a feeling of primal ordering structuring the entire landscape (see for example Field 1998, 315; Harding 2000, 87; Watson 2001, 207; Woodward 2000, 84; Tilley 2004b, 198; Johansen, *et al.* 2004, 38). It is as if the end-product was implicitly ingrained in the placing of the first barrow (Barrett and Ko 2009, 283).

This, however, does not do justice to the many layers of meaning and the chronological ordering of the evidence (Garwood 2007, 31). In essence these are *retrospective* models, that – with the benefit of hindsight – explain the development of the barrow landscape from a singular perspective.

On the contrary, the persistence of barrow construction implies that barrow groups and barrow landscapes are layered with a multitude of meanings that are temporally and culturally separate (Garwood 2007, 31). The barrow landscapes were constantly reworked and added upon. They were not founded on a pre-set plan (Barrett 1994, 24), but rather came into being through the reworking of and acting upon previous elements (*cf.* Bradley 2002). Increasingly the landscape would then become dotted with barrows, creating a physical reality as each barrow transformed, however subtly, the shape of the landscape (Barrett 1994, 113).

2.7 Approaching the problem: reconstructing the development of the barrow landscape

In order to understand why the barrow landscape attained its current form, we need to understand how people created and transformed it (*cf.* Fontijn 2002, 21). As I stated above, each new barrow influenced and directed how a certain place must be viewed. Each new addition to the barrow landscape transformed its structure and must be seen as a meaningful addition to the whole. This active process of shaping and modifying is what created the barrow landscape.

If we wish to depart from retrospective views on such landscapes, we should work the other way round and start by unravelling the barrow landscape and look at *how* people transformed it. We first need to understand *when* and *how* the barrow landscape came about before we can understand why it developed into

the encompassing mortuary landscape we observe today. The patterns in which it formed will then form the basis with which we can try and understand its development.

Essential to such a chronological approach is a barrow landscape in which we can fully reconstruct its development: in other words we need to study a barrow landscape where we can put every barrow in its right place, from first to last.

On a pragmatic level it is thus important to find a balance between sufficient detail on the barrows themselves on the one hand and the necessary contextual scale on the other. For this purpose, the choice was made to study case studies, each representing a particular aspect of the barrow landscape.

However, before presenting these case studies we need to establish two things. First, a chronological framework with which we can determine when eac respective barrow was built (Chapter 3). Second, we need to know how representative our dataset is. To understand with what morsels and scraps of the barrow landscape we are dealing, we need to study which significant changes and modifications it has undergone through the millennia. These so-called map formation processes (Fokkens 1998) will be the focus of Chapter 4.

Chapter 3

The chronology of barrow construction in the Low Countries

3.1 Introduction

The praxis of mounded burial lasted for several millennia in the Low Countries. The construction of round barrows started at around 2800 cal BC (Lanting and Van der Plicht 2001, 35; Furholt 2003, 100) and continued up to at least the Early Roman Period (*e.g.* Hiddink 2003, 22; 2011).

Barrow construction throughout these three millennia was, however, by no means continuous. Recent research has suggested a gap between the Middle Bronze Age and Late Bronze Age in terms of frequency (Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008). And mounded burial appears to decrease in intensity in the Middle and Late Iron Age (Hessing and Kooi 2005, 649-652; but see Fontijn, *et al.* 2011).

While at the same time the outward form of the barrow remained the same, its constituent elements changed fundamentally. As these constituent elements are typical for specific periods, it is relatively easy upon excavation to establish when a barrow was built. Indeed, it is not very difficult to distinguish between a Neolithic and a Middle Bronze Age mound. And at the same time, there is little confusion between Middle Bronze Age and Late Bronze Age and Early Iron Age mounds (Gerritsen 2003, 124-125).

These differences have allowed archaeologists to differentiate between specific features of a barrow. Post circles, surrounding barrows, for example, are typical for the Middle Bronze Age. Palisaded ditches on the other hand are common in the Late Neolithic, and non-existent in the Middle Bronze Age. These elements have thus been used in various typochronologies (for a latest reappraisal see Drenth and Lohof 2005, 441; Hessing and Kooi 2005, 634-635).

Recently, many new radiocarbon dates have been made available (for an overview see Lanting and Van der Plicht 2001; 2003). These new dates have already led to significant revisions of the older typochronologies (Bourgeois and Arnoldussen 2006). An overview of these shifts, however, is still lacking.

In this Chapter I will first review the existing typochronologies. I will argue that they are based on predominantly typological arguments and that these are in need of a revision. In the second part of this Chapter I will discuss the available evidence and assess the chronological position of several typical elements of a barrow.

3.2 Barrow chronologies, the creation of a chronological framework

3.2.1 Existing typochronologies

The original framework for the Late Neolithic and the Bronze Age in the Low Countries was developed in the 60's and 70's (Anonymus 1965/1966; and especially Lanting and Mook 1977; see Fokkens 2001 for an overview). This original framework was based upon the occurrence of specific types of burial, pottery and surrounding features in specific periods (Lanting and Mook 1977, 4-6; Fig. 3.1). In the past two decades the original framework has been reworked and updated by several authors (Drenth and Lanting 1991; Lohof 1991; Theunissen 1999; Lanting and Van der Plicht 2001; 2003; Drenth and Lohof 2005; Van den Broeke, *et al.* 2005; see Fig. 3.1). Each revision modified the upper and lower boundaries for each respective phase.

Especially the position and dating of the Early Bronze Age shifts dramatically between several of these typochronologies. According to Lanting and Van der Plicht, the Early Bronze Age starts at around 1900 cal BC and continues up to 1575 cal BC with the beginning of the Sögel-Wohlde phase (Lanting and Van der Plicht 2003, 151; see Drenth and Lohof 2005, 449 for a similar view). On the other hand, if we accept the typochronology as presented in *The Prehistory of the Netherlands* (Van den Broeke, *et al.* 2005, 28, see note 28; and which is also used by Theunissen 1999, 57), the Early Bronze Age starts in 2000 cal BC and stops at around 1800 cal BC.

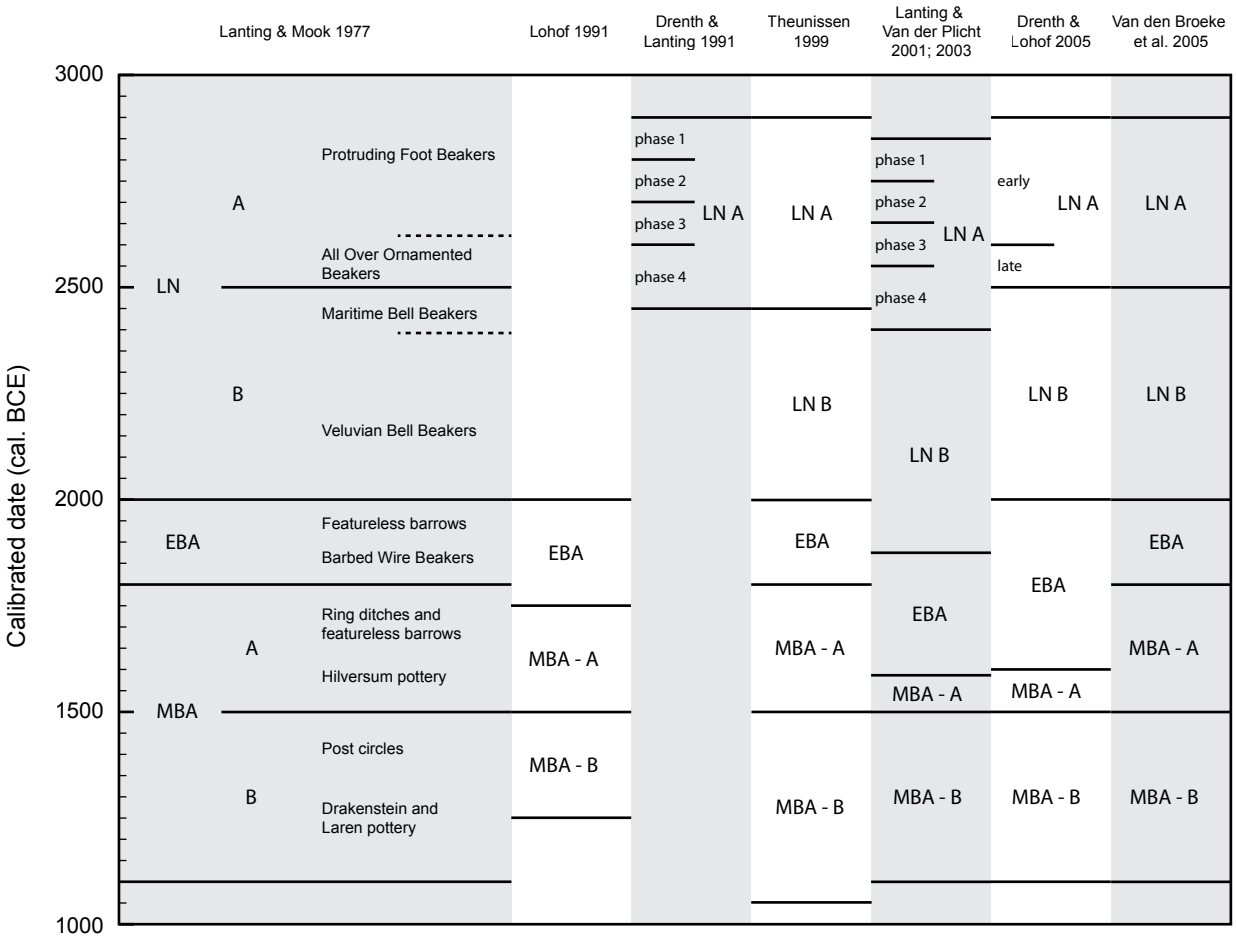


Fig. 3.1: The typochronological framework for the 3rd and 2nd Millennium BC as defined in several publications. The respective boundaries have been calibrated where some of the authors used uncalibrated dates.

It is important to note however that both revisions still consider Barbed Wire Beakers as typical for the Early Bronze Age. While the boundaries may have changed, the underlying assumptions and the arguments for the subdivision have not (Fokkens 2001, 241). For example, in each revision the Middle Bronze Age A still includes barrows surrounded by ring ditches and the Middle Bronze Age B barrows with post circles.

In this sense, the revisions have only moved the goal posts, while not challenging the underlying assumptions (*cf.* Fokkens 2001). This moving of the goal posts is of particular relevance to the present research as each element is assumed to date to a specific time-period. Ring-ditches, for example, are assumed by all authors to date to the Middle Bronze Age A, yet are they to be dated to the period between 1575 and 1500 or rather to 1800-1500? And are they then exclusive to that period?

In this Chapter I will not concern myself with redefining the boundaries that separate each specific phase. That discussion is neither of any relevance to the present research nor within its scope. I would rather argue that we need to revise the underlying assumptions and reappraise the available evidence. Simply put, in this Chapter I will try and establish a dating range for all relevant and constituent elements of the barrow.

The need for a reappraisal has only increased with the advent of new radiocarbon dating techniques (notably on cremated bone; Lanting, *et al.* 2001; Lanting and Van der Plicht 2003). It has been of particular relevance to the Bronze Age and has already led to significant shifts in typochronology (Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008).

3.2.2 Problems with the previous typochronologies

The issues with the previous typochronologies do not stem solely from defining the boundaries for the Early Bronze Age.

A further problem is that the larger chronological framework for the prehistory of the Low Countries is assumed to correlate to changes in burial tradition (*e.g.* Van den Broeke, *et al.* 2005, 31, note 28). While the division between for example the Middle Bronze Age A and B might work for settlements (Arnoldussen 2008, 174-192), it does not for burial mounds (Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008). Specific elements of the grave ritual – such as post circles – have their own temporality which are not synchronous with other elements.

Essentially, typological arguments are assumed to overrule chronological evidence. There is for example an assumption that ring ditches are earlier than post circles, and that the latter succeeds the former. Yet most acknowledge that the radiocarbon dates of both overlap to a considerable extent (Lohof 1991, 43; Theunissen 1999, 63; Lanting and Van der Plicht 2003, 158). Nevertheless, the typological argument is used to attribute undated barrows encircled by ditches to the Middle Bronze Age A and mounds surrounded by post circles to the Middle Bronze Age B (Lohof 1991, 44; Theunissen 1999, 55; Lanting and Van der Plicht 2003, 158; Drenth and Lohof 2005, 440-442).

The radiocarbon evidence is effectively dismissed and superseded by typological arguments. This dismissal even continues up to the level of individual directly radiocarbon dated mounds. Lanting for example continuously dismisses dates on post circles prior to 3300 BP as 'too old' irrespective of the quality of the date. Similar radiocarbon dates on ring ditches however are never considered 'too old' (for several examples see Lanting and Van der Plicht 2003, 180-182).

A second problem is that chronological developments from one region are extrapolated onto developments in other regions. According to Lanting and Van der Plicht, the start of the Late Neolithic B and the transition to Bell Beaker pottery occurred no later than 2450 cal BC as '*around 2425 cal BC habitation in Swiss lake settlements stops*' (Lanting and Van der Plicht 2001, 36 [my translation]). The presence of two sherds of a maritime Bell Beaker in one of these settlements is then taken as an argument to date the earliest occurrence of this type of pottery in the Low Countries as '*between 2500 and 2450 cal BC*' (*ibid.*; for a similar argument concerning the Early Bronze Age see Lanting and Van der Plicht 2003, 153-155). Yet the presence of two (!) sherds in Switzerland tells us nothing about the development of maritime Bell Beakers and its correlation with Corded Ware in the Low Countries (Włodarczak 2009, 737).

The last, and perhaps the more significant problem, is that several of these typochronologies are based upon uncalibrated radiocarbon dates (*e.g.* Lohof 1991, 38; Lanting and Van der Plicht 2001; 2003; and implicitly Drenth and Lohof 2005). Such a chronology is based upon the assumption that '*enough radiocarbon dates*' allow for the comparison between different phases (Lanting and Van der Plicht 2001, 12). They assume that a radiocarbon date of, for example, 4200 BP is older than one of 4100 BP (see for several examples Lanting and Van der Plicht 2001, 74-75).

This, I would argue, is based upon a fallacy. Not using calibration will only create an artificial chronology, which does not take into account the limitations inherent to a chronology based upon radiocarbon dates (Włodarczak 2009, 739; Furholt 2003). Especially the effects of *wiggles* and plateaus in the calibration curve have a considerable impact on how a radiocarbon date is translated into a calendar age (Taylor and Aitken 1997, 76-78).

For the 3rd Millennium BC two plateaus have a considerable impact on the chronological resolution for the period (Furholt 2003, 15-18; Włodarczak 2009, 739-740). The first one is located between 2880 and 2580 cal BC; the second

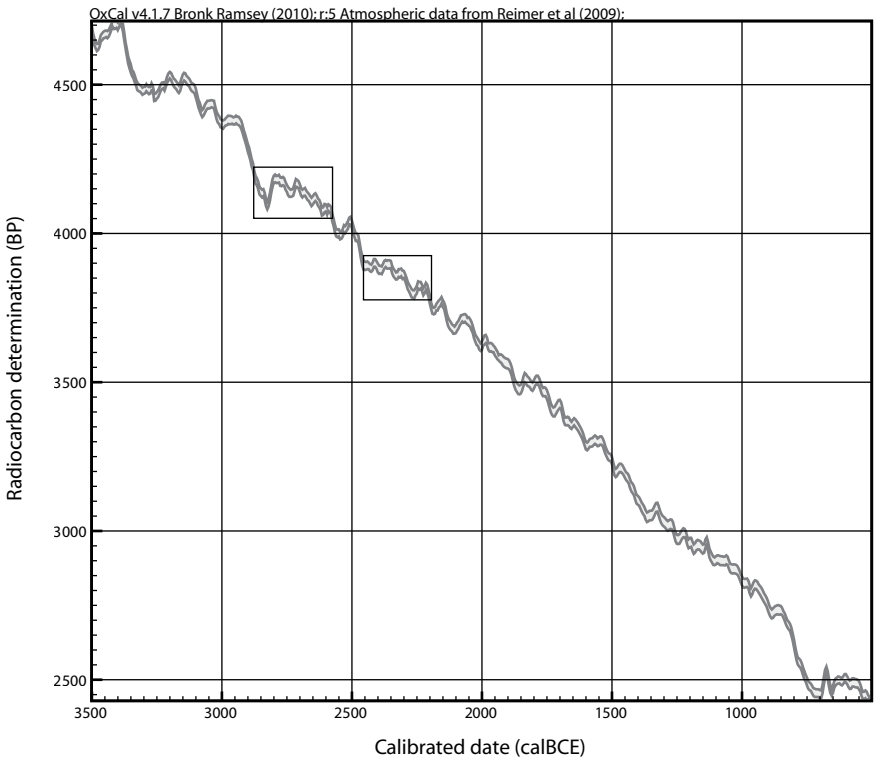


Fig. 3.2: The black rectangles indicate the two plateaus affecting calibration in the 3rd Millennium BC (the plateaus as defined by Włodarczak 2009, 741).

one between 2460-2200 cal BC (Fig. 3.2). In practical terms this means that a radiocarbon date with a calibration range that falls within such a *wiggle* will date to the time-span of the entire plateau.

To give an example, the first plateau which concerns barrow construction covers three centuries in the early 3rd Millennium BC. As a result, the calibration range for a radiocarbon date of 4200 BP with an average standard deviation of 50 years will have a considerable overlap with one of 4100 BP. The calibrated ranges for both radiocarbon dates translate into respectively 2900 – 2630 cal BC and 2870 – 2500 cal BC. There is in fact a considerable chance that the latter is older than the former.

This means for instance that a subdivision of the Late Neolithic A into four different phases (as suggested by Drenth and Lanting 1991; Lanting and Van der Plicht 2003, 35-36), is entirely untenable in the light of calibrated radiocarbon dates. The calibration curve simply does not allow for such a fine resolution. The relative position of each of the phases with respect to one another may well be valid, yet the absolute dates attached to them cannot be upheld. For all purposes they should thus be considered as contemporaneous.

3.2.3 The need for a revision

It should be clear from the discussion above that the existing chronology of the barrow ritual is in need for a revision. I would argue that we need to move away from a chronology based upon typological arguments and the pitfalls of circular reasoning that accompany it (*cf.* Wentink in prep.). Rather I would advocate the creation of a chronology based upon calibrated radiocarbon dates, provided these come from a reliable context directly associated with one or more constituent elements of a barrow (*cf.* Mook and Waterbolk 1985).

It is nevertheless important to note that a chronology based on radiocarbon dates is not without its own problems. Three significant issues can limit the value of any radiocarbon chronology. Firstly, problems of a reliable association between the radiocarbon date and the event one wishes to date, secondly issues of contamination and longevity of the dated samples and thirdly the impact of calibration. The first two problems are relatively straightforward and extensive discussion on these can be found elsewhere (for a general overview see Taylor and Aitken 1997; Mook and Waterbolk 1985; for an overview specific to Corded Ware and barrows see Furholt 2003, 13-20).

Issues of association should be self-evident to most archaeologists, and only directly associated radiocarbon dates were used in the chronology presented below. In the case of post circles, any radiocarbon dates come from either the post circle or the primary grave with which it is directly associated (where this can be established!).

Most of the radiocarbon dates in this chronology were obtained from charcoal or cremated remains. It should be noted that charcoal on the one hand can produce an age greater than the event we wish to date due to the *old wood effect* (Taylor and Aitken 1997), while on the other hand cremated remains may yield dates that are too young as a result of contamination (De Mulder 2011, 123-154; Van Strydonck, *et al.* 2009).

In contrast to the above-mentioned issues, the calibration of radiocarbon dates has a much more significant impact on chronology. On the one hand the precision with which we can convert radiocarbon dates into calendar years is determined by the standard deviation of the date itself, and on the other hand the nature of the calibration-curve.

The bigger the standard deviation of the date, the wider the chronological range. In general, most radiocarbon dates cover a time frame of approximately one or two centuries. Especially dates carried out in the last few years (with a low standard deviation) allow for a fine chronological resolution.

The structure of the calibration-curve however, determines the limits of the chronological resolution available for a specific time period. As I argued above, several plateaus in the calibration curve determine the highest chronological resolution we can obtain. For some periods this will result in a resolution of 300 years or more (Furholt 2003, 17-18). Even for other – smaller – wiggles, the temporal resolution is at its best one or two centuries. These are the temporal limits at which we must operate.

Fig. 3.3 (opposite page): Overview of all commonly occurring features in association with burial mounds in the Low Countries. The plan is a composition and adaptation of two different barrows: Harenermolen (Van Giffen 1930, 44-45) and Vaassen Tumulus II (Lanting and Van der Waals 1971b, Fig.7).

3.3 Barrow Jargon

Before we continue any further with the creation of a chronology I will first define some of the key concepts used in barrow archaeology. The terminology I employ is a jargon typical to Dutch barrows and their descriptions in the excavation reports. To avoid any ambiguity in how a specific term is used, I provide a definition of the most common terms (Fig. 3.3).

3.3.1 Primary barrows versus mound phases

Many barrows in the Low Countries are the culmination of several phases of activity. Once built they are subsequently increased in size on multiple occasions, new layers of sods are stacked on top of ancient barrows and new features are erected around them. In Dutch Archaeology each of these phases has been termed a mound phase (*heuvelperiode* in Dutch; Lohof 1991, 37; Theunissen 1999, 46-47). This also includes newly erected mounds as well as the stacking of an additional layer of sods on top of a pre-existing barrow.

Yet this equates the building of a new mound to the restoration of an ancient mound, which in my view are two fundamentally separate practices. The first creates a new place in the landscape while the second acknowledges and reinforces the presence of a pre-existing mound (I will return to this discussion in Chapter 7; *cf.* Gerritsen 2003, 236). Therefore I advocate to distinguish between the two and to call the former *primary barrow*s and the latter *secondary mound phases*.

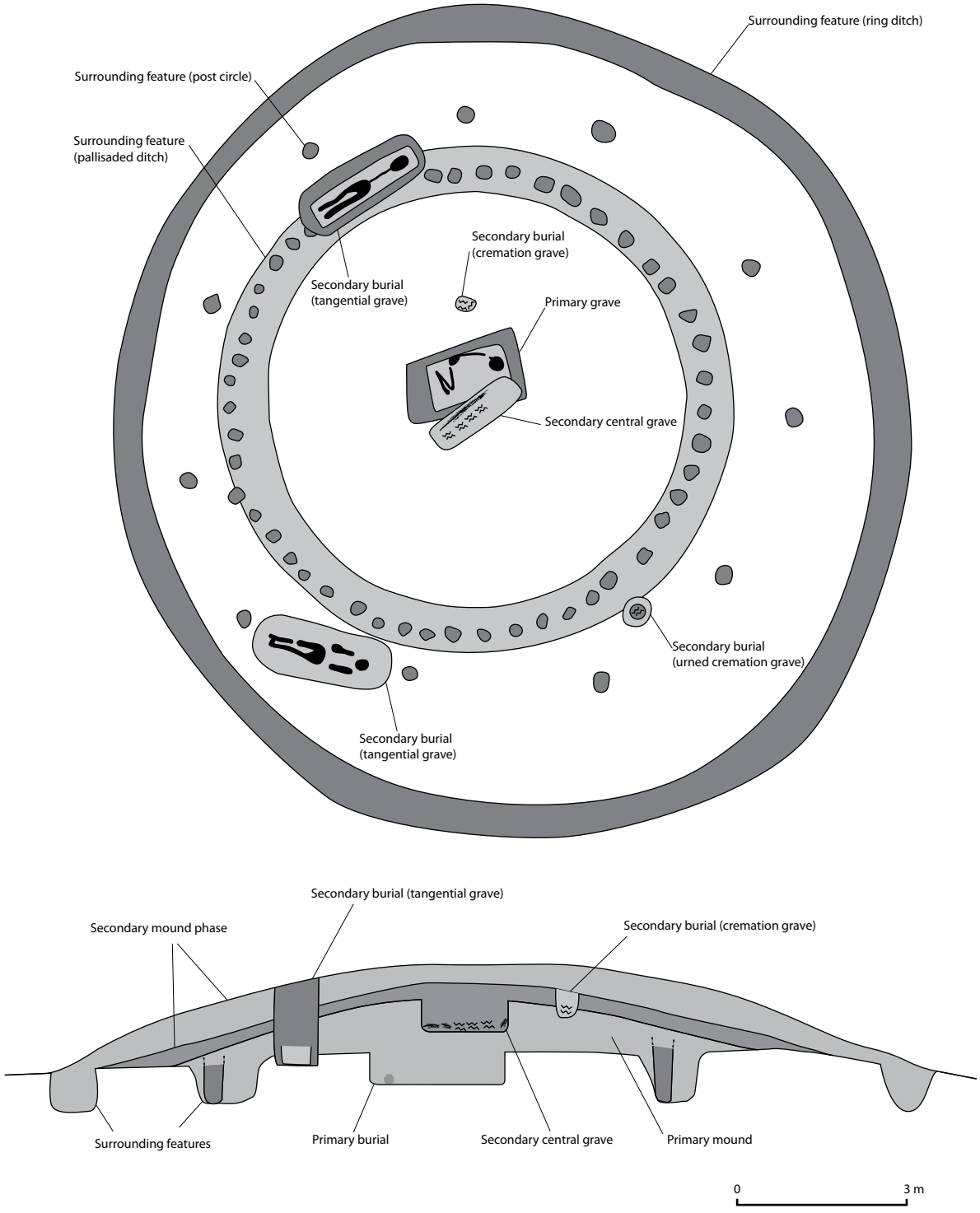
Thus a *primary barrow* is a barrow erected over a natural soil. It is by definition the first man-made elevation at a specific location. *Secondary mound phases* are additional layers of material (either sods or sand) covering an older barrow.

3.3.2 Surrounding features

Barrows in the Low Countries are frequently surrounded by anthropogenic features. These can be found at the foot of the mound, circumscribing the barrow itself. The most common surrounding features are ring ditches and post circles (see below). Surrounding features can be associated with both the primary mound or with secondary mound phases.

3.3.3 The distinction between primary and central graves

A lot of confusion originates from the use of the terms *primary* and *central* graves. Both are used to describe either a grave covered by a *primary* barrow *or* a grave centrally located, but dug *into* a barrow (*e.g.* Theunissen 1999, 91, Fig. 3.31 who



uses the term primary and Lohof 1994 who uses the term central grave for both). The lack of this distinction is based upon the assumption that centrality of a grave implies primacy and is tied into the mound phase concept (see above).

To avoid any confusion I use the term *primary* for all graves *covered* by the *primary* barrow *and* preceding its construction. I use the term *secondary central* grave for all burials dug into the centre of a pre-existing mound *and* directly covered with an additional layer of material.

3.3.4 Secondary graves

Secondary graves are all graves dug into a pre-existing barrow. They can be dug into the flanks of the mound or at the centre, but are *not* necessarily associated with a *secondary mound phase*.

3.3.5 Tangential graves

These are a specific type of *secondary graves*. They are oblong or rectangular pits which are dug into the flanks of a barrow. As the name already implies, they are positioned with their long side towards the centre of the barrow. Tangential graves can contain both cremation as well as inhumation remains.

3.4 A chronology of the barrow ritual

The chronology presented below is based on directly dated features of the barrow ritual. Here, only the features relating to the construction of the mound in the Late Neolithic and the Bronze Age as well as activities after construction of the mound have been considered. I will first discuss the construction of the mound itself and all surrounding features, followed by a discussion on relevant burial types.

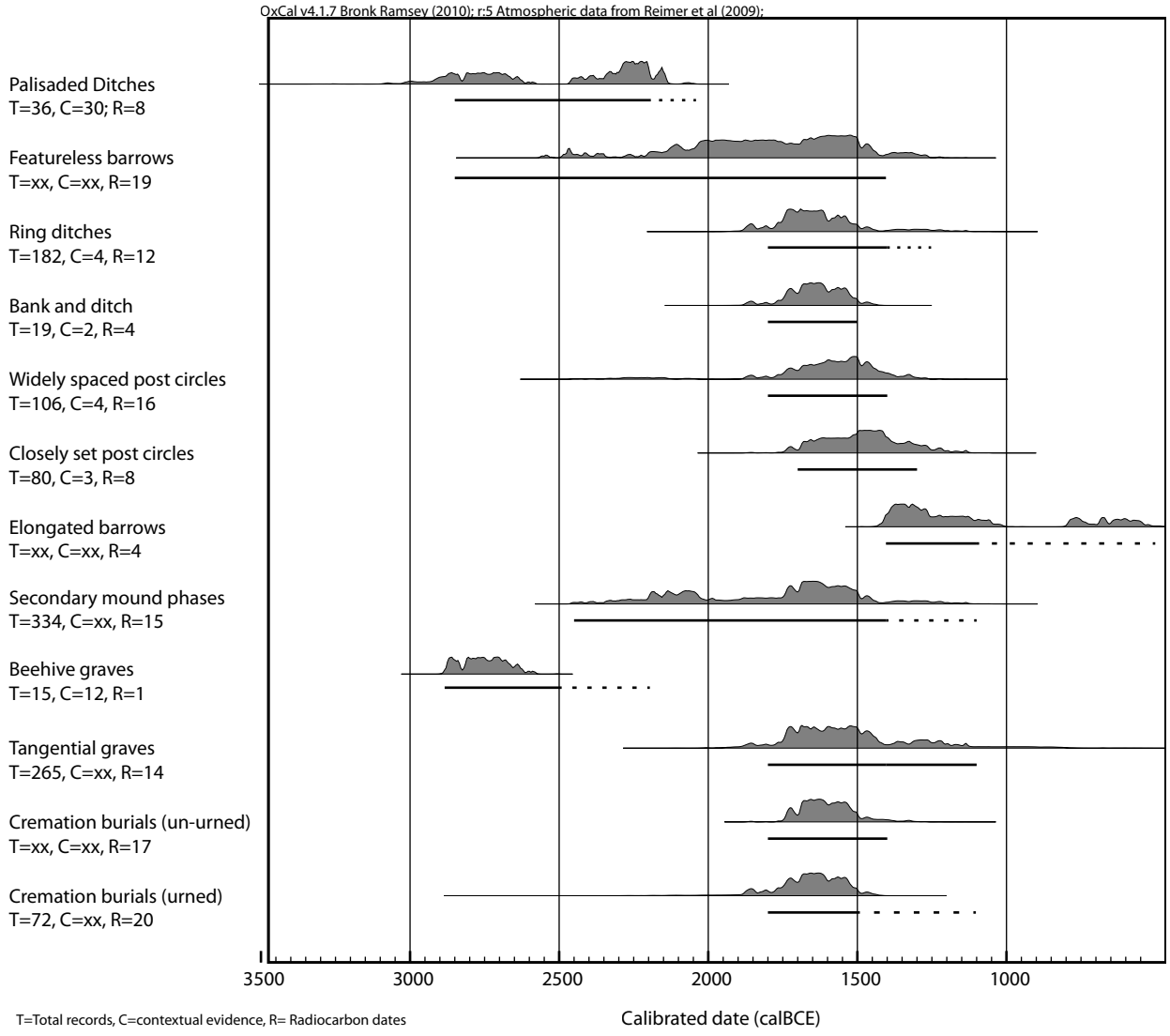


Fig. 3.4: An overview of all discussed features. Each dating range is composed of both the summed range of all directly associated radiocarbon dates (the grey histogram) and contextual evidence (indicated by the black line). An interrupted black line indicates sporadic evidence. All used radiocarbon dates can be found in Appendix C and all contextual evidence in Appendix D.

Both radiocarbon dates and datable artefacts have been considered. In Fig. 3.4 an overview of all radiocarbon dated elements in combination with other evidence is presented. All relevant data on the radiocarbon dates and their association with the barrow features can be found in Appendix C. The association between the features and datable artefacts in Appendix D. In total 132 individual radiocarbon dates form the basis of this chronology, with 80 having been obtained from cremated remains and 52 from charcoal. If both charcoal and cremated remains from the same context were radiocarbon dated, the preference was given to cremated remains as these are not affected by their own age (see above).

3.4.1 Barrow construction

In the Low Countries mounds were erected on top of burials from the early 3rd Millennium BC (Lanting and Van der Plicht 2001; Furholt 2003, 100) up to at least the early roman period (Hiddink 2003, 22; 2011). The copying and repetition of this practice suggests a long-term continuity of at least 3000 years.[3] The end-result of these millennia of copying resulted in a landscape filled with thousands of monuments.

At any given point in time however, the construction of a new monument is nevertheless considered to have been a rare event (Theunissen 1999, 72), with the construction of a new mound reserved for the burial place of a select few (Lohof 1994).

In the Low Countries the intensity of barrow construction waxes and wanes through time. It is generally assumed that barrow construction gradually picked up in intensity with more barrows being constructed in the Bronze Age as opposed to the Late Neolithic (Drenth and Lohof 2005, 453; Lohof 1994, 101-102; Theunissen 1999, 72). This is true if we consider both primary mounds as well as additional mound-phases (as both Drenth, Lohof as well as Theunissen have done; but see Gerritsen 2003, 236).[4]

Yet as I argued above these are two separate actions. If we consider only the primary barrows a different picture emerges (Fig. 3.5). Roughly as many burial mounds were constructed in the Late Neolithic as there were in the Bronze Age. Approximately 240 for the 3rd Millennium and an equal amount for the 2nd Millennium BC. The Late Neolithic barrows were mainly built in the period

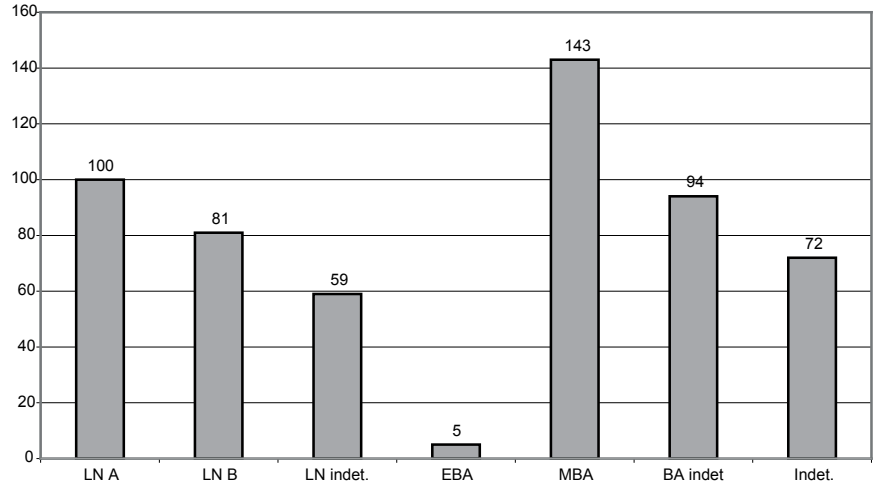


Fig. 3.5: Frequency of all primary barrows in the database.

3 In other regions of North-Western Europe the practice continued well into the Early Middle-Ages (*e.g.* Sopp 1999, 133; Gansum and Oestigaard 2004).

4 This is made explicit by Theunissen who only recognises practices of reuse between typochronological separate time-periods (1999, 102-103).

between 2800 and 2200 cal BC; whereas the Bronze Age barrows were built in the period between 1800 and 1400 cal BC. This is corroborated by all radiocarbon dates from primary mounds (Fig. 3.6), showing a similar trend.

There are however strong regional differences. In the Southern Netherlands for example there are only a few burial mounds dated to the Late Neolithic (Theunissen 1999, 57), and most mounds date to the Bronze Age. On the other hand in the Central Netherlands the majority can be dated to the Late Neolithic rather than to the Bronze Age. As I will argue in Chapter 4, this is partly due to an archaeological bias (see p.47-48). Recent excavations undertaken by our research group have revealed several Middle Bronze Age barrows in the Central Netherlands (Fontijn and Louwen in prep.; see below). It is nevertheless an archaeological reality that some areas have high densities of Neolithic barrows, contrasting with much lower densities elsewhere, perhaps reflecting specific historical events.

The overview presented here, differs from the previous typochronologies on two points. Firstly it suggests a decrease in barrow construction in the Early Bronze Age and secondly, another decrease in the Middle Bronze Age B. From approximately 2100 cal BC up till 1800 cal BC, only a few barrows were built. To illustrate, there is only one primary barrow dated to the period between 3650 and 3450 BP (Putten-Zuiderveld, GrN-6424, 3595±35 BP; see Appendix C). After this decline, barrow construction picks up pace again with an increase especially around 1800-1400 cal BC and again a sharp decline afterwards (Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008) until around 1100 – 1000 cal BC with the onset of urnfields

Palisaded ditches

Palisaded ditches (*standgreppel* in Dutch) are a specific type of ditch typical for the Late Neolithic (36 recorded in our database). These ditches surround the foot of the barrow with in these ditches a palisade of wooden posts encircling the mound (see Fig. 3.3). This definition is different than what is generally accepted in Dutch archaeology. Recognizing these ditches is difficult and subject to much debate. I will enter into this discussion in more detail in Chapter 6 (see p.118-124). Suffice to say here is that most Neolithic barrows were surrounded by such a construction (Lanting 2007/2008, 62-63; see Chapter 6).

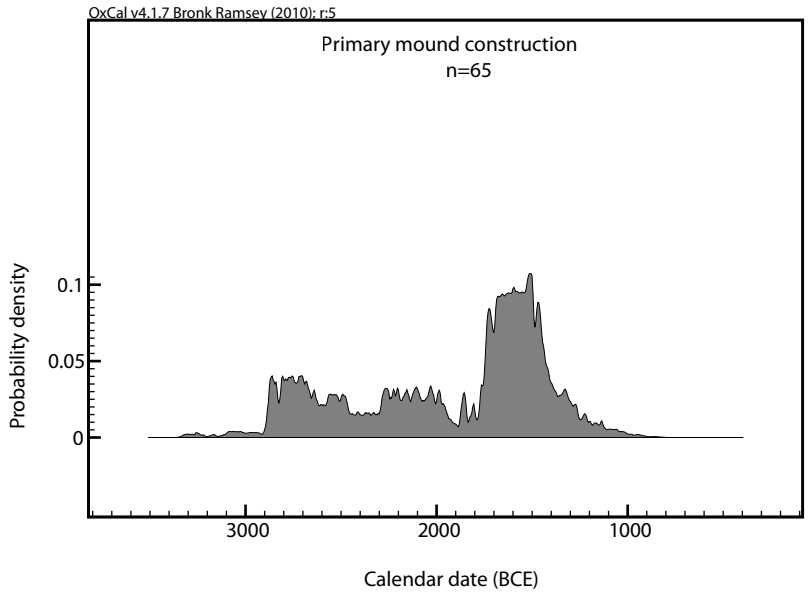


Fig. 3.6: The summed radiocarbon evidence of all directly radiocarbon dated primary barrows.

Radiocarbon evidence for this type of feature is rather limited (only six good associated dates), yet contextual evidence leaves little doubt. Almost all palisaded ditches are associated with Late Neolithic graves. Barrows surrounded by palisaded ditches are typically associated with Corded Ware, All Over Ornamented and Bell Beaker pottery. Radiocarbon dates suggest that palisaded ditches were no longer built after 2200 cal BC.

Featureless barrows

A problematic category are the barrows surrounded by no features, so called *structuurloze* or featureless barrows. They are sometimes considered typical for the Early Bronze Age (Lohof 1991, 31-40; Lanting and Van der Plicht 2003, 154; Drenth and Lohof 2005, 441). Two significant problems hamper the identification of featureless barrows as an independent category of the barrow ritual.

Firstly, in my opinion (having some field experience), it can be very difficult to properly identify surrounding features and they can be easily missed. During the excavation of a small Neolithic barrow on the Veluwe in 2008, we excavated the foot of a barrow by hand until we were well below the level of the old surface. It was not until we mechanically excavated a control level some 20 cm deeper that the reddish features of a palisaded ditch appeared as if out of nowhere (Fontijn and Louwen in prep.).

As most of the pre-World War II excavations rarely excavated any deeper than the presumed old surface, surrounding features were perhaps not always properly recognised as such. This problem is further aggravated by the effects of increased podsolisation at the foot of the mound (Waterbolk 1964; Modderman 1975; Runia and Buurman 1987). It is therefore interesting that almost all apparently 'featureless' barrows are either old excavations or partial excavations (and usually both).

A second problem is that many of the claimed 'featureless barrows' are in effect secondary mound phases (see above). The radiocarbon and contextual evidence in that sense should be considered with care. Indeed more than half of the radiocarbon dated graves, calibrated between 2100 and 1800 cal BC, are *secondary central* graves rather than *primary* graves (for a further discussion on the Early Bronze Age see Chapter 7).

Notwithstanding the above-mentioned problems, featureless barrows will certainly have existed, yet their identification should not be made carelessly. In general, featureless barrows occur throughout the time-period in which barrows are constructed.

Ring ditches

Ring ditches are without doubt one of the most common surrounding features of barrows in the Low Countries (182 recorded in our database). It is therefore surprising that only 12 directly associated radiocarbon dates are known. A further 22 radiocarbon dates are known, although these are not always reliably associated. In most cases, the dated materials are small concentrations of charcoal in the filling of the ditch itself. The directly dated ring-ditch barrows mainly occur in the period between 1800 and 1500 cal BC. Contextual evidence does suggest that the practice was more long-lived than this and occurred until at least 1400 cal BC. Ring ditches reappear again in the Late Bronze Age and Early Iron Age in urnfield contexts. In a few rare cases Neolithic barrows are also surrounded by a simple ditch at the foot of the mound (as opposed to a palisaded ditch, *e.g.* Louwe Kooijmans 1973).

Bank-and-ditch barrows

As a specific variant of the barrows surrounded by a ring ditch, bank-and-ditch barrows have a bank between the ditch and the mound proper (*ringwalheuvels* in Dutch; see Theunissen 1999, 59-60 for an extensive discussion). Bank-and-ditch barrows are usually found in the south of the Low Countries and are relatively rare (N=19). Radiocarbon evidence indicates they are largely contemporaneous with barrows surrounded by a ring ditch. This is corroborated by the contextual evidence. In general bank-and-ditch barrows date between 1800 and 1500 cal BC.

Widely spaced post circles

Glasbergen originally identified 9 different types of post circles (Glasbergen 1954b). Type 1 and 2 can respectively be translated into late Neolithic beehive and palisaded ditches (see above). Types 3 and 4 are widely spaced post circles and represent the most common type of post circles (106 recorded in our database). Even though Glasbergen seperates these two, in my opinion they are essentially the same. In both cases, the posts are separated by a few metres (on average 2 m) and beams were placed on top of them connecting the posts (Glasbergen 1954b, 153-154. This is evidenced in several cases for both types (see Chapter 6, Fig. 6.5). Radiocarbon evidence for the widely spaced post circles unequivocally dates them between 1800 and 1400 cal BC. This is supported by the few bronze artefacts which are associated with them.

Closely spaced post circles

The remainder of the post circles as defined by Glasbergen (types 5 to 8) can be combined into a series of single, double, triple and in rare cases even quadruple circles of very closely set posts (80 recorded in our database).[5]

The distance inbetween the posts is at the most half a metre and usually a very dense concentration of posts was erected around the mound itself. In some cases a vast forest of posts would almost surely have obscured visibility of the mound itself (for the visual impact of post circles see Chapter 6).

The radiocarbon evidence suggests a tendency for closely set post circles to date slightly later than widely spaced post circles. Nevertheless contextual evidence, as well as some directly dated cremated remains, demonstrates that both widely and closely spaced post circles were at least partially contemporaneous. It may be the case however that the closely spaced post circle gradually gained in popularity over the widely spaced post circle during the 15th Century BC. A combination of the radiocarbon evidence and contextual evidence dates most of them between 1700 and 1300 cal BC.

Oval and rectangular barrows

From the centuries following the peak of barrow construction (roughly between 1700 and 1400 cal BC) and prior to the emergence of urnfields (starting at around 1100-1000 cal BC; Hessing and Kooi 2005; Lanting and Van der Plicht 2003, 161-165) very few barrows are known. For at least three to four centuries almost no barrows were being built with the exception of a few elongated and rectangular barrows (Bourgeois and Fontijn 2008, 49-50; Delaruelle, *et al.* 2008).

5 The close set post circles group all of Glasbergen's post circles of type 5, 6, 7 and 8. All these post circles comprise of a circle of posts set ± 25 cm from one another with the only difference being the presence of one, two, three or four circles of close set posts.

While some of these elongated barrows certainly date to the Late Bronze Age or Early Iron Age and are part of an urnfield-tradition (so-called *langbedden*), some of them date to the period between 1400 and 1000 cal BC, as confirmed by the available radiocarbon evidence.

Secondary mound phases

The adding of new mound phases to already existing mounds was a common practice in the Low Countries. 230 barrows in our database have at least one additional mound phase. In total 334 secondary mound phases have been recorded. These usually consist of a simple layer of sods stacked on top of a primary barrow, and in some cases were also accompanied by a new ditch or post circle (for an extensive discussion see Chapter 7).

Fifteen radiocarbon dates are directly associated with these secondary phases. Two distinct activity phases can be evidenced from the radiocarbon dates. The practice of adding a new layer of material on top of primary mounds started off in the Late Neolithic B. The practice declined in the Early Bronze Age, but so did barrow construction in general, only to be revived again around 1800-1700 cal BC. The radiocarbon evidence indicates that the practice fell into disuse again after 1400 cal BC.

3.4.2 Burial types

Beehive graves

The definition of a beehive grave is a difficult one as it is subject to different interpretations and is tied with the discussion on palisaded ditches (see above and Chapter 6; under the strictest definition we have 15 beehive graves). Without going into too much detail, beehive graves are in essence small burial chambers, either lined with wickerwork or a small palisaded wall (for an extensive discussion on this type of grave, see Wentink in prep.). These constructions were subsequently covered by a barrow.

The contextual evidence dates beehive graves specifically to the Late Neolithic A. As far as we know, there are no beehive graves associated with Late Neolithic B material. The radiocarbon dating range is much older than what is generally accepted for the Late Neolithic A. This is probably due to the contamination of the two oldest samples (Hijkerveld grave I and Anloo grave E; Furholt 2003, 91; see Appendix C). If we disregard these two, beehive graves occur between 2850 and 2450 cal BC.

As reuse plays a significant role in the formation of the barrow landscape I will also discuss the three most common practices of reuse. First, so-called tangential graves. Secondly, small pits dug into a barrow containing urned and un-urned cremation remains. And thirdly, the stacking of an additional layer of sods on top of an older mound.

Tangential graves

A tangential grave is essentially a grave, dug into an already existing mound. They are positioned with their long side towards the centre of the barrow (hence the name tangential). This type of secondary burial is very common in the Low Countries (N=265) although they are more common in the north than in the south. They are assumed to be typical for the Middle Bronze Age B within so-called *family-barrows* (Drenth and Lohof 200, 451).

Fourteen radiocarbon dates are available. The sum of the radiocarbon dates demonstrates that most of the tangential graves are contemporaneous with the main increase of barrow construction during the Middle Bronze Age. There is some evidence however that would suggest that the practice of placing tangential graves in mounds continued after 1400 cal BC. This is corroborated by a few bronzes found within some of these graves (notably at Elp, Ballooërveld and Weerdinge, see Appendix D).

Generally speaking most tangential graves date to the period between 1800 and 1400 cal BC, although there are certainly some graves which can be dated to the centuries afterwards.

Cremation burials

The second most common type of secondary burial consists of cremated remains deposited in a simple pit. Without any grave goods or other datable artefacts (usually even lacking charcoal), this practice remained elusive and difficult to date. Prior to our excavations at the Wiesselse Weg, only two radiocarbon dates were available for this type of burial.

An exhaustive dating programme of all the cremation burials from the Wiesselse Weg has now allowed us to radiocarbon date this practice securely to the Middle Bronze Age. We should be careful of a bias however, as most radiocarbon dates come from a single site![6]

While running the risk of perhaps generalising too much, I would nevertheless argue that cremation burials commonly date to the period between 1800 and 1400 cal BC.

Cremation burials (urned)

Urned cremation burials are the third most common type of secondary grave found within mounds. In total 72 have been recorded in our database, with 20 having been radiocarbon dated. All of these can be dated between 1800 and 1500 cal BC with the apex between 1700 and 1500 cal BC. After approximately 1500 cal BC urned cremation burial in large vessels decreased in popularity. In the Northern Netherlands the practice continued sporadically with urned cremation burials in large Gasteren urns and in the Southern Netherlands occasionally in large undecorated and coarse vessels. In the Late Bronze Age and Early Iron Age urned burial within older mounds revived in urnfield contexts (*e.g.* Verwers 1972; Lanting and Van der Plicht 2003, 162-163).

3.5 A new chronology

I have summarized the chronological framework as I use it in Fig. 3.7. This chronology is based upon the elements described above and other elements discussed by my colleague K. Wentink (notably pottery styles and other artefacts in the Late Neolithic (Wentink in prep.).

The chronology I present here deviates from that of previous researchers on three significant points. The first is the notable decline in barrow construction which sets in at around 2100 cal BC and lasts until 1800 cal BC. The second point concerns the contemporaneity between post circles and ring ditches in the

6 Nevertheless, a similar radiocarbon programme dating all cremation graves from the barrows at Garderen Bergsham (excavated by Van Giffen 1937b, but not included here), corroborate this dating range. In total 29 un-urned cremation burials were radiocarbon dated and 27 date to the period between 1800 and 1400 cal BC, with only two dating slightly later between 1400 and 1200 cal BC.

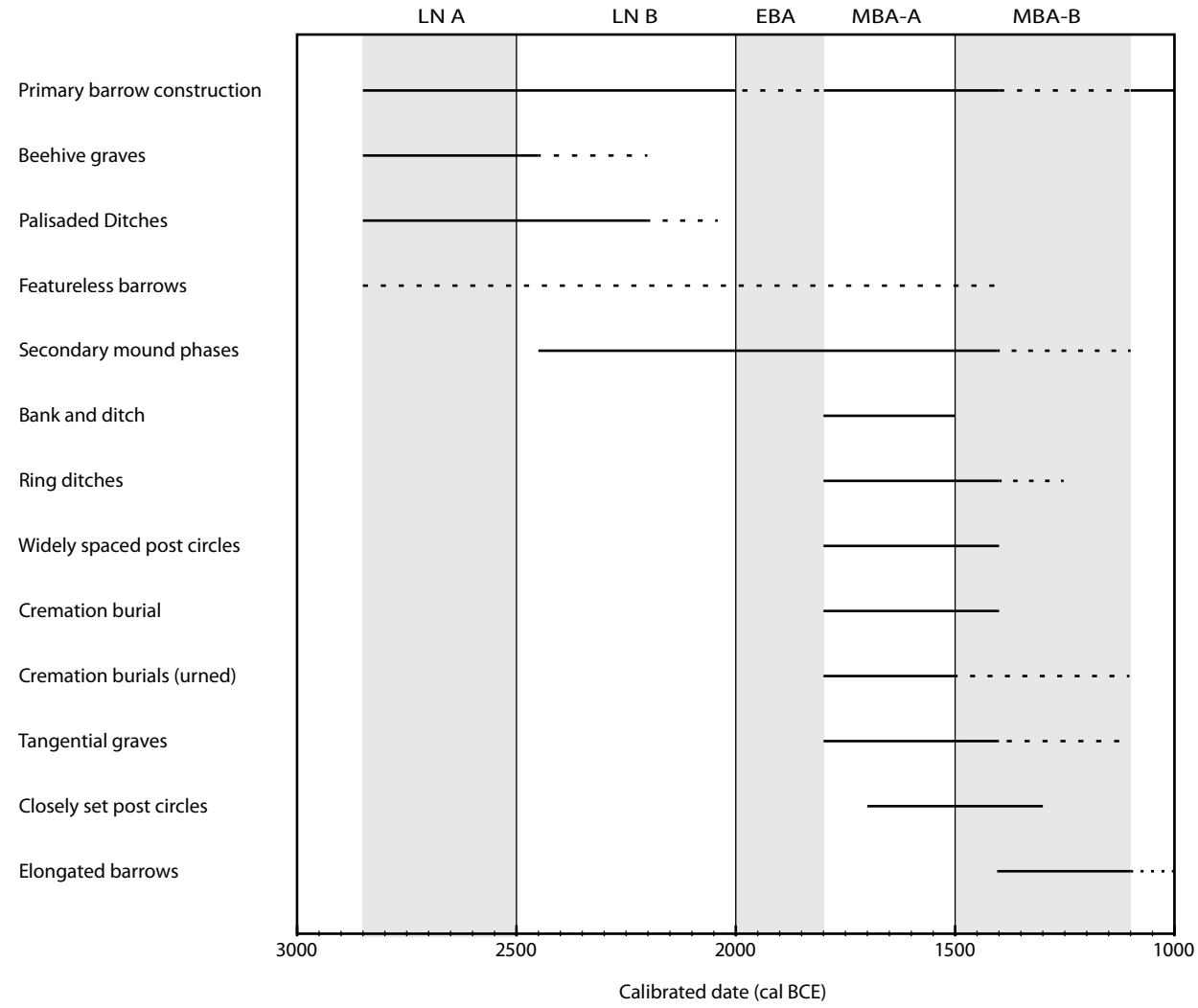


Fig. 3.7: Overview of all dating ranges for each element of the burial ritual mentioned in the text. The boundaries between different archaeological periods (shaded areas) are taken from Van den Broeke et al.*, 2005 and represents the classical subdivision of the later prehistory.*

Middle Bronze Age and their occurrence in the period between 1800 and 1400 cal BC. The third point concerns a second decline in barrow construction and reuse of older mounds after 1400 cal BC.

An overview of all radiocarbon dates together with contextual evidence, reveals a strong decline in both barrow construction and reuse of older barrows in the period between 2100 and 1800 cal BC. It appears as though towards the end of the Late Neolithic and before the Middle Bronze Age A, the practice of mounded burial decreased in frequency. It is important to note however that it did not disappear altogether, and that barrows certainly continued to play a role in Early Bronze Age communities (see Chapter 7).

Secondly, the surrounding features of the Middle Bronze Age, which were first considered to be sub-divided into two distinct phases, must instead be viewed as contemporaneous. On the basis of the radiocarbon evidence, one can only conclude that all these surrounding features were in use at the same time. There is a tendency for radiocarbon dates from closely set post circles to be slightly later than those of ring ditches and widely spaced post circles. Nevertheless, the considerable overlap, and the fact that some widely spaced post circles date *after* 1500 cal BC and that some closely spaced post circles date *before* 1500 cal BC, strongly suggests they were contemporaneous.

From approximately 1400 cal BC onwards, barrow construction was once again in decline. Considerably fewer barrows can be dated to this period. Reuse of older barrows continued sporadically (especially secondary burial), but certainly declined in frequency as well. As with the Early Bronze Age, the decline must not be seen as a full abandonment of the barrow ritual. There were still some barrows being built, yet on a much smaller scale than in the preceding period. It was not until the advent of the Late Bronze Age with its urnfields that the praxis of mounded burial picked up pace again.

As a final point I would like to emphasise that I refrain from creating a new periodisation, and that this chronology is only applicable to the tradition of barrow construction.

3.6 Concluding remarks

The typochronology I outlined above suggests that there were two distinct periods in which the frequency of barrow construction declined considerably: in the Early Bronze Age and the Middle Bronze Age B (from 1400 cal BC onwards). These gaps represent considerable periods of time, extending over multiple generations and they suggest that there was little continuity between these phases. In that light it is remarkable how easy it actually is to distinguish between a Neolithic and a Bronze Age barrow. A similar argument can be made concerning Middle Bronze Age barrows versus Late Bronze Age and Early Iron Age urnfields (see Gerritsen 2003, 124-125). This suggests fundamental changes in the burial ritual.

This then leads us to the following two questions: firstly, were these changes reflected in the structuring of the landscape; and secondly, how did people react to the earlier monuments in the subsequent phases (*i.e.* in the Middle Bronze Age A and the Late Bronze Age).

Chapter 4

Map Formation processes and the dataset: assessing what is left of the barrow landscape

4.1 Introduction

The barrow landscape as we can study it now is a palimpsest of five millennia of distorting and damaging factors. In the previous Chapter I established that barrows were constructed for at least three thousand years, and constant additions have since created an intricate and complex palimpsest of barrows.

Yet soon after the first barrows were constructed, erosive processes will also have started to destroy some of them. The barrows that survived through these five millennia underwent significant changes in land-use, vegetation was entirely different, rivers changed course, etc. Such processes have all contributed to the formation of the map (Fokkens 1998, 54-60).

In this Chapter I will examine the processes affecting barrows from the moment the first mounds were constructed. I will first try to establish what the total corpus of barrows must have been. Then I will evaluate all processes affecting the formation of the map, followed by an appraisal of specific research areas.

4.2 Putting barrows into perspective: the representativity of the dataset

The barrow landscape as we can study it today has only been partially preserved and has been subject to thousands of years of modifications and destructive processes. It is therefore imperative to understand the processes that contributed to the formation of the archaeological record (*e.g.* Schiffer 1976; Fokkens 1998).

An overview of all known barrows in the Low Countries displays a disparity in regions where burial monuments have been preserved (see Fig. 1.4). Large concentrations of burial monuments can be observed in Drenthe, on the *Veluwe* and *Utrechtse Heuvelrug*, in the *Kempen* and in sandy Flanders. In contrast the central river area, the sandy soils of western Noord-Brabant and Friesland are notably empty.

The differences between how the barrows of the Netherlands and Flanders have been recorded already demonstrates the discrepancy between the survival of barrows in certain areas. The Flemish barrows are almost invariably discovered through aerial photography (De Reu, *et al.* 2011b, 493), while the majority of the Dutch barrows are mounds that have physically survived into the 19th and 20th Century (or at least long enough to have been recorded).

It is very difficult to estimate how representative the distribution of known barrows is in comparison with the total number of barrows that were once built. There are approximately 4000 barrows recorded in the Low Countries (3058 barrows for the Netherlands, recorded in ARCHIS[7] and approximately 1000 in

7 As recorded on 07 May 2012.

Flanders, mostly recorded from aerial photographs; De Reu, *et al.* 2011, 493). Yet the recorded barrows are only those barrows that have survived in order to be included in the national database.

To put these numbers into perspective we can attempt to estimate how many barrows in total may have been constructed. Such estimates have been previously made for Danish megaliths. There are 2364 megaliths surviving out of 7287 recorded in Denmark (Midgley 2008, 31). It has been estimated that the preserved megaliths represent approximately 10% and the recorded megaliths approximately 30% of the 25.000 original monuments in Denmark (Ebbensen 1985 quoted in Scarre 2010, 180). Using these figures for an educated guess, Midgley estimates that 40.000 megaliths were built in northern Europe (Midgley 2008, 31).

If, for the sake of argument we assume barrows have the same survival rate into the archaeological record (roughly speaking 30%), we can estimate the total number of barrows constructed. There are at least 86.000 barrows recorded for Denmark (Johansen, *et al.* 2004, 34), with approximately 22.000 of them surviving in the present day landscape. A rough guesstimate of 200.000 barrows are then assumed to have been constructed in Denmark (M.Holst pers.comm.). Parker Pearson notes that for Britain 30.000 barrows are recorded (Parker Pearson 2005, 81), which equally suggests that hundreds of thousands of these mounds must have been constructed there in the past.

If we assume the same survival rate into the modern record for the Low Countries (thus 30%, without taking into account the significant differences in population density, agricultural intensity or urbanization between Denmark and the Low Countries!), we can calculate that the 4000 recorded barrows represent a minimum of 12.500 to 15.000 barrows.

Now I do not presume these numbers to be correct, but rather an indication of how many barrows we are actually missing (I am even of the conviction that less than 30% of the barrows ended up in the archaeological record). If anything, we can say that barrow construction was so ubiquitous that we should not wonder that these monuments have survived at all, but rather that *so many* of them have survived (Holtorf 1998, 27)!

The barrow landscape and its disparate distribution is first and foremost affected by the rate of survival of barrows and the different processes influencing and affecting them. Understanding these processes is therefore a prerequisite for any further research.

4.3 Map formation processes

The formation of the present day barrow landscape was subject to many influences both anthropogenic and natural (Schiffer 1976). These influences were usually detrimental to the preservation of barrows (Theunissen 1999, 48-54). If the estimates presented above are anywhere near the actual number of barrows constructed, we are missing thousands of barrows. Before we go any further we need to assess which processes had an effect on the formation of the map (Fokkens 1998, 54-60). Only then can we establish which part of the barrow landscape is suitable for research.

The description of these processes will focus on those affecting the Central and Southern Netherlands and only the effects influencing the preservation of burial mounds have been considered. Following Fokkens, three categories of formation processes are considered. Natural, anthropogenic and research factors all had their own particular influence on the way in which the barrow landscape has been preserved (for an extensive discussion of each of these factors see Fokkens 1998, 66-80).

4.3.1 Natural processes

The large scale geological processes affecting barrows can be subdivided into erosion and sedimentation caused by water on the one hand and wind on the other. Both have had a significant impact on the barrow landscapes, rivers have changed course and floodings have covered huge tracts of land with clay, silt and sand (Arnoldussen 2008, 29-63). At the same time the deposition and erosion of wind-blown sand has significantly impacted vast areas (*e.g.* Berendsen 2000b, 45-46).

The influence of water can, in some areas, be considered as small, while in others as significant. On the Pleistocene soils of sandy Brabant and on the ice-pushed ridges of the Veluwe and Utrechtse Heuvelrug, the influence was relatively small, while on the other hand the dynamic nature of the Rhine and Meuse basin fundamentally transformed the landscape through time (Berendsen and Southamer 2001; Arnoldussen 2008, 29-63).

The small streams running off the Veluwe in the Central Netherlands have had only a minimal and very local impact. Erosion and sedimentation caused by them has been minimal (*e.g.* STIBOKA 1973, 38). Most of the valleys were created during the previous ice-ages when the ice-cap covering the area melted away and the meltwater eroded the stream valleys. Solifluction of the top-soil further added to the erosion of the valleys (Berendsen 2000b, 44). It can be summarised that the present form of such valleys developed during the last ice-age, and that in the Holocene little or no large scale erosion took place in them. At the very most, not more than a couple of metres eroded from the edge of the stream banks.

As with the streams on the Veluwe, the stream valleys in the Southern Netherlands attained their present day form in the Weichselian. Erosion within these valleys is relatively limited, but the presence of long cover-sand ridges deposited during the Weichselian has influenced the course of these streams. They often shifted course at acute angles to the cover sand ridges until they could break through them. Additionally these ridges blocked the drainage in these valleys which enabled the formation of small lakes and fens (Berendsen 2000b, 30).

The large river systems of the Rhine and Meuse on the contrary have had a significant impact on the landscape. The Rhine for example eroded parts of the ice-pushed ridges of the Veluwe and is continuing to do so (STIBOKA 1973, 47; Berendsen 2000a, 43).

That this happened even after barrows were built, is evidenced by the erosion of a barrow just on the edge of the ice-pushed ridges (barrow 4535; see Chapter 5). Only a third of the barrow still remains, while the other two thirds of the barrow have eroded down a steep slope cut out by the Rhine. It is impossible to say how many barrows were destroyed in this way.

The dynamic nature and constant sedimentation and erosion in the central river area, means we know little of the barrows constructed there. From excavations in the Rhine-Meuse river area we know that people lived there during the Late Neolithic and the Bronze Age and that they constructed barrows (Arnoldussen 2008, 437-441; *e.g.* Meijlink and Kranendonk 2002; Bourgeois and Fontijn 2008, 51-54; Jongste and Van Wijngaarden 2002). Yet barrows are only infrequently encountered here. The distribution of barrows in these areas reflects the distribution of sporadic archaeological excavations and chance finds rather than the actual distribution of barrows.

Erosion and subsequent sedimentation of wind-blown sand can be considered relatively local but its impact on any barrows present in such areas severe. Many of the sand-dunes in the Central and Southern Netherlands are of Weichselian age (or at least pre-date the barrows as several are built on top of them, see Chapter 5; Berendsen 2000b, 44).

Yet drift-sand also occurred throughout later prehistoric times (Koster 2009, 100). During the excavations at the Zevenbergen near Oss, layers of drift-sand were recorded underneath and on top of Bronze Age mounds. Several of these layers were, on palynological grounds, dated to the Bronze Age (Fokkens, *et al.* 2009, 51).

Some of these drift-sands may well have been the result of the cutting of sods in the vicinity of the mounds (Bakels in prep.). Certainly these areas of drift-sand will have affected and destroyed barrows (they are, after all, made of sand as well). These drift-sands were usually rather local in nature and probably did not devastate entire areas, although there is a case to be made that the impact of these drift-sands increased in the Iron Age (Van Gijn and Waterbolk 1984).

Nevertheless, the majority of the large-scale drift sands probably originate in the late mediaeval period (Koster 2009, 100-103) and in some cases they impacted vast areas. The *Kootwijkerzand* on the Veluwe is such an example, until recently covering several square kilometres (Heidinga 1987; Koster 2009). Especially the large scale drift-sands of the latter areas have been detrimental to the barrow landscape. Partly through the erosion of these mounds and partly through the covering of them with sand dunes. In these rough sandy areas, very few barrows are recorded. Indeed, it can be said that the distribution of barrows is negatively correlated with the presence of Late Holocene drift sand (Fig. 4.1).

The area to the northwest of Ermelo, called the *Beekhuizer zand* is a case in point. Here an area of more than 10 km^2 is covered by drift-sand. Not a single barrow is known from this area, while just one kilometre to the south, on the *Ermelose heide*, dozens of barrows can be found. Several surface finds from the drift-sand area point to occupation from the Middle Neolithic up to the Middle Ages (Deeben 1989, 31-42), yet all traces of possible mounds will have been destroyed by the drift-sand.

A third factor influencing the archaeological record are geochemical processes. Most of the preserved barrows are located on relative acidic soils. While not necessarily detrimental to the burial mound itself, skeletal remains within them have almost invariably deteriorated to the point where only a discolouration in the soil remains visible (a so-called *lijksilhouet* in Dutch). Only in some rare cases have the remains been preserved to such an extent that any form of analysis such as sexing the individuals was possible (*e.g.* Bourgeois, *et al.* 2009).

Similarly, bioturbation and soil-formation processes have influenced the visibility of archaeological features. In most cases features were no longer visible and were homogenised to such an extent that they were indistinguishable from their matrix (Bourgeois and Fontijn 2010, 38; Fig. 4.2). These processes have influenced the archaeological record in two ways. Firstly, barrows significantly affected by these processes will be hard to interpret and many features will remain undetected. Secondly, unexcavated mounds, when inspected through corings, will be very hard to distinguish from non-anthropogenic sand dunes. Indeed, in several instances, a barrow was no longer considered a barrow at all but rather a natural dune on the basis of corings or a small trial trench. Yet in some cases, upon a second inspection, excavations produced cremated remains and charcoal (*e.g.* barrow 4541).

To summarize, the extent of the barrow distribution on the Pleistocene soils of the Central and Southern Netherlands is significantly influenced by natural processes. It can be concluded that the main natural erosive processes pertaining to barrows are essentially limited to drift-sand areas and the Rhine-Meuse delta.

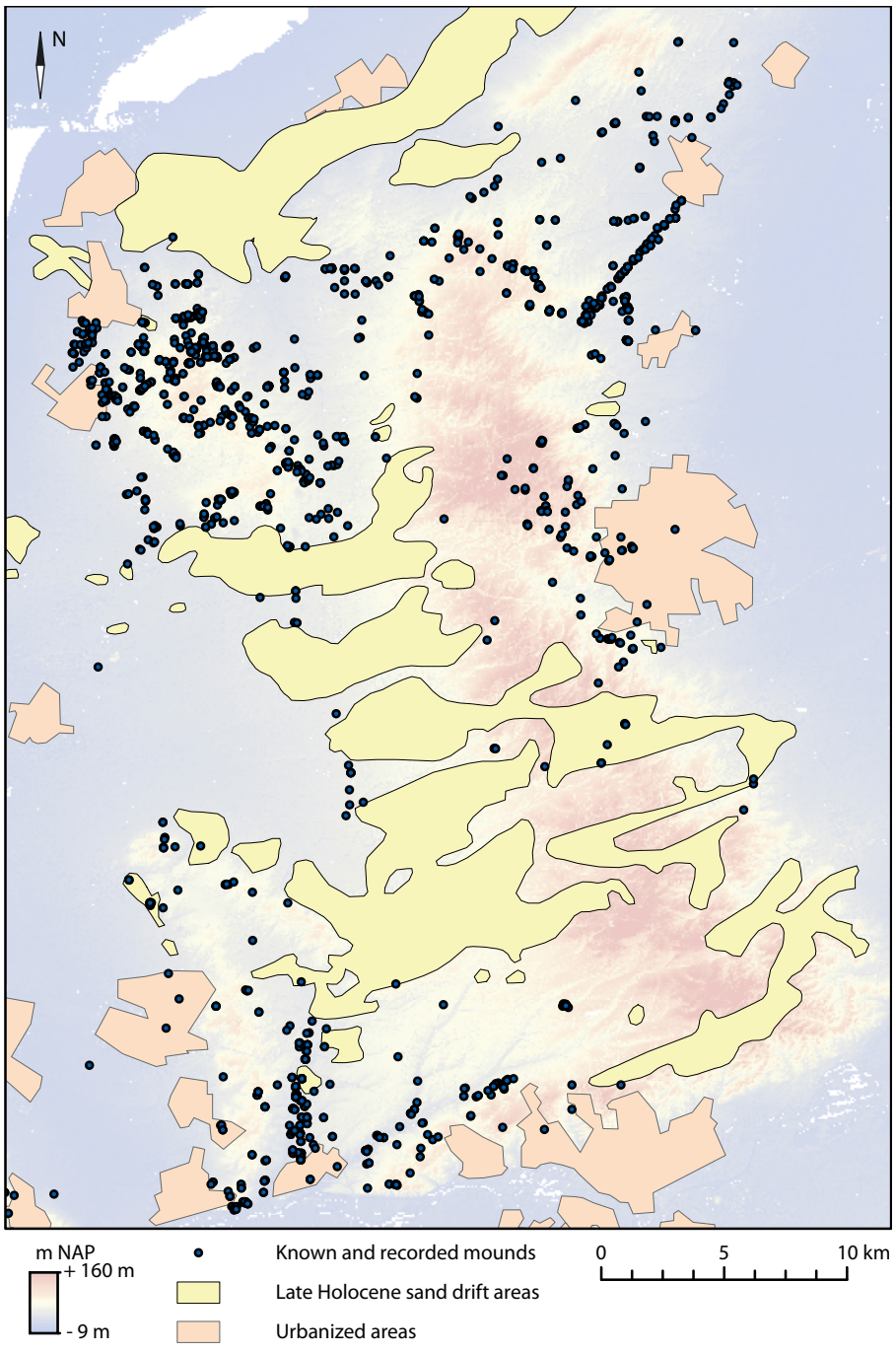


Fig. 4.1: The distribution of all known barrows on the Veluwe offset against Late Holocene drift sand and urbanized areas. There is an almost complete absence of recorded barrows within areas of drift sand (the extent of Late Holocene drift sand after Koster 2009, fig. 2a).

Fig. 4.2: Photograph of a profile through Mound 2 (centre of the mound is to the left) at the Wiesselse Weg, municipality of Apeldoorn. Just to the right of the centre of the photograph, a slightly greyish discolouration denotes the primary cremation burial. Any other features such as sods or secondary burials were invisible within the body of the mound itself. Even the level of the old surface cannot be recognised. Such a profile is typical for many barrows on the ice-pushed ridges of the Veluwe and the Utrechtse Heuvelrug (photograph by Q. Bourgeois, composition by J. van Donkersgoed).

4.3.2 Anthropogenic processes

While natural processes certainly influenced the preservation of barrows, human impact in the Low Countries is arguably as big, if not bigger. Agricultural activities, urbanization, afforestation programmes and heath-management have all had a profound impact on the visibility of the archaeological record.

The human influence on the barrow landscape can be divided into pre-19th Century and modern activities.

The majority of pre-19th Century agricultural activities are in evidence through the presence of *essen* or *plaggen* soils (Gerritsen 2003, 19-22). These soils are the consequence of a Late Mediaeval agricultural practice carried out over several centuries. This practice involved the cutting of sods from the surrounding lands, which were then placed in a byre. When they were soaked through with manure they were carried out into the fields. As a result of these practices the agricultural fields were gradually raised with layers of sods on top of the old prehistoric surface, in some cases more than a metre in thickness (Fokkens 1998, 59).

Prior to the establishment of the *essen*, all above-ground features were levelled (Gerritsen 2003, 21) meaning that any burial mounds underneath will now have disappeared. Extensive *essen* complexes surround many towns and hamlets, effectively blanketing any barrows underneath them. Only excavations in these *essen* complexes will reveal the sub-surface features of the barrows (*e.g.* Roymans and Tol 1993). There are no written records concerning barrows prior to the creation of these *essen* and all information on barrows underneath them is based solely upon excavations.

Outside of these *essen* complexes, extensive tracks of heathland were present until the 19th Century. The heathlands and the *essen* were part of the same agricultural system. The sods, used in the byres were collected from these heathlands (Gerritsen 2003, 19-23). This practice was recorded by one of the earliest chroniclers of prehistoric monuments in the Low Countries. In the 17th Century Johan Picardt noted how the cutting of sods was detrimental to burial monuments:

> *'t Is apparentlijck datse voortijts eens soo groot geweest zijn als ze nu zijn vermiths haer alle jaren De huydt af-gevilt wert met plaggen mayen.'* [It is apparent that [the barrows] were bigger in the past than they are now as every year their skin is flayed by the cutting of sods.] (Picardt 1660, 44).

While parts of the heathlands were kept as heath through the practice of sod-cutting, in mediaeval times large parts of the heathland were probably also maintained by flocks of grazing sheep (Modderman 1982, 7-8). It is in these heath-fields that many overground features were still visible and that the most significant concentrations of barrows have been preserved. In some cases barrows have even been indicated on Topographic Military Maps from the 19th Century (see Fig. 5.4).

As far as we can reconstruct from the distribution maps, most of the barrows in the Netherlands were located on pre-19th Century heathland. And although sheepherders frequently dug pits in the top of barrows in order to shelter them from bad weather (*e.g.* Goekoop-De Jongh 1912, 24), most of the barrows were relatively well preserved here. Such digging activities will often not have reached the primary grave, and the continuous human activity in the heathlands was on average much less destructive than on for example arable land. This does mean however, that in many cases the information on secondary burials is limited by the extent of the damage to the top of the mound.

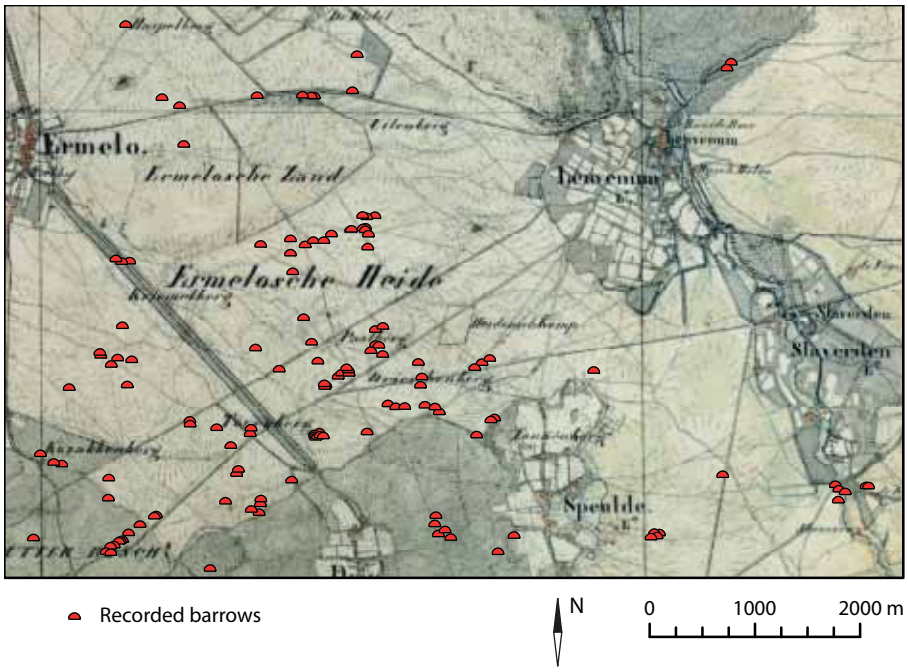


*Fig. 4.3: A Topographic Military Map, drawn in 1848. All known barrows within the area are located in heathland or in forested areas. Note how no barrows can be found in proximity of hamlets and towns in the area. Even around the smallest hamlets (*e.g. *Speulde), a zone of at least a kilometre is devoid of barrows.*

While agricultural activity had arguably the most significant influence on the formation of the map, the influence of settlements should not be forgotten either. The earliest examples date back as far as the Late Iron Age (Verwers and Van den Broeke 1985). As a slightly later example, dozens of barrows were levelled with the construction of the Roman fort at Nijmegen. They were only rediscovered during the excavation of the fort (Louwe Kooijmans 1973; Fontijn and Cuijpers 1999; 2002). As the discovery of such sites is dependent upon chance finds, it is difficult to quantify the extent of prehistoric and pre-modern occupation and the damage it may have caused to burial monuments.

To summarize, pre-19th Century human influence on the map formation processes can be considered significant. Essentially, mounds are only known from the heathlands outside of late mediaeval settlements and the arable lands surrounding them. Areas on 19th Century maps, indicated as arable land, pasture or as built-up area must be considered blind spots. Barrows within these areas can only be uncovered through excavations. Burial mounds were almost exclusively preserved in areas indicated as either forest or heath on those maps (Fig. 4.3).

Human influence on the landscape increased significantly from the 19th Century onwards. While the majority of the landscape still consisted of heathland around 1830, today only small fragments remain. The vast heathland still visible on the earliest maps, was quickly converted into either arable land or forest throughout the late 19th and early 20th Century (Gerritsen 2003, 23).

Where they were converted into agricultural fields, almost invariably barrows would have been levelled. This process was in full swing when Glasbergen started to excavate at the Toterfout Halve Mijl barrow group in 1948 (see Chapter 5), and indeed most of the barrows he excavated had already been levelled or were in danger of being levelled prior to the excavation (Glasbergen 1954a, 14-22). If not for the work of Glasbergen and his predecessors, many of the barrows now in the archaeological record would have silently vanished. It is however still the case that in modern agricultural fields mounds rarely survive. And if records exist, they invariably date from excavations before the 1960's.

Large tracts of heathland were also turned into forests. These afforestation practices are usually a blessing for barrows but sometimes a curse. In some cases large steam-ploughs were used (notably on the Crown Estates on the Veluwe; Bleumink and Neefjes 2010, 78-86) which caused great devastation (Fontijn and Louwen in prep.).

Generally speaking however, the planting of trees only obscured the monuments and did not necessarily destroy them. 72% of all recorded barrows on the ice-pushed ridges of Ede-Wageningen and Renkum (see Chapter 5) are located in forested areas, while only 28% are found in other types of terrain. Especially in the last decades many new barrows have been discovered in forests on the Veluwe. And with the availability of increasingly detailed Lidar-data it is only a matter of time until more will be uncovered (*e.g.* De Boer 2004; Fontijn and Louwen in prep.).

A last and significant anthropogenic process affecting the barrow landscape is modern urbanization. As an example, we can consider the town of Renkum on the Veluwe and its expansion most notably after World War II. The historic centre of Renkum was located on the southern tip of the ice-pushed ridges overlooking the Rhine. Gradually throughout the 19th and 20th Century the town expanded to the north and north-east. From its historic centre, which covered an area of only ± 0.15 km^2, it grew to approximately 3.5 km^2 in 2010 (Fig. 4.4). That this expansion must have destroyed many a barrow is evidenced by the rescue excavation of a barrow conducted by Van Giffen in 1958 in the town of Renkum (Van Giffen 1958, *66). Today the barrow would have been located in the centre of modern-day Renkum, but in 1958 it was located at the edge of the town. How many barrows were destroyed in the expansion of the town before and after this date is unknown. The barrow excavated by Van Giffen can be taken to represent several destroyed barrows. It is equally striking that to the north an alignment of barrows stops right at the edge of the modern town (see Chapter 5).

Modern human activities can certainly be considered as detrimental to the map formation processes. There is a significant difference to pre-19th Century activities however. From that period onward, barrows were excavated and described by many archaeologists, both amateur and professional. Whereas the pre-19th Century activities represent blind-spots on the map, modern activities distort rather than destroy the pattern. Barrows may be known from these areas, but it will often be difficult to estimate how many of them have effectively been destroyed.

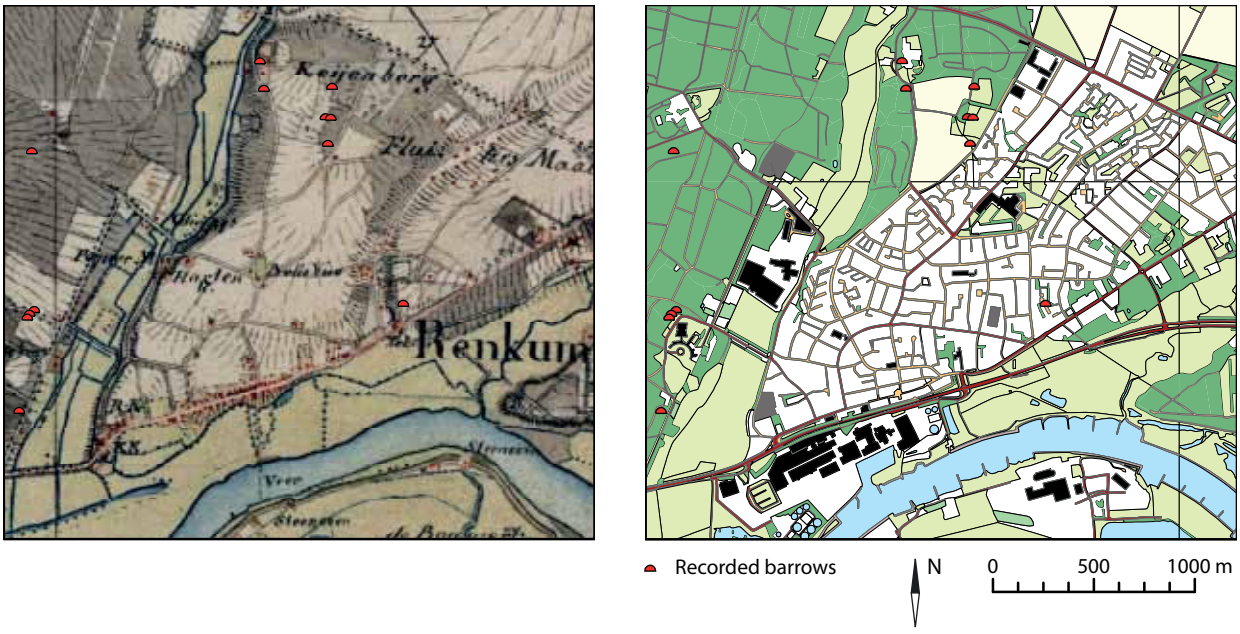


Fig. 4.4: A comparison between the Topographic Military Map on the left (drawn in 1845), and the modern topographical map (created in 2010). The heathland surrounding the small hamlet in 1845 (light brown area) is now fully urbanized (black and white areas). The distribution of recorded barrows stops at the edge of the modern town.

It can be safely concluded that there are few areas in the Low Countries where the human impact has not been detrimental to the preservation of burial monuments. The best chances for survival can be found in heathland and forested areas. Other regions are so extensively damaged by human activity that little to no barrows are known from them. In essence we are thus researching the *least damaged* remnants of the barrow landscape. It is therefore important to realize that we, out of necessity, can only study the barrow landscape in specific areas, such as nature reserves and large estates.

4.3.3 Research factors

A third and last major factor affecting the map formation process is the intensity of research for any given area. Both amateur and professional archaeologists will have certain interest areas where they dedicate most of their time and resources. This in turn is then reflected by varying densities of archaeological finds (Fokkens 1998, 59-60).

The high density of recorded barrows on the *Utrechtse Heuvelrug* for example, is due in major part to the never-relenting work of Ms Delfin-Van Mourik Broekman (Fontijn 2010, 19; Van Ginkel and Van Koeveringe 2010, 21). Similarly, Beex has been responsible for identifying the majority of barrows in the *Kempen* area of North-Brabant. In many cases he recorded barrows just as they were being destroyed by reclamation efforts (see Chapter 5).

At the same time, excavations by both amateur and professional archaeologists have also contributed to the formation of the map (Fokkens 1998, 59-60). The many finds uncovered by Captain Bellen on the *Ginkelse Heide* and close to the town of Renkum on the Veluwe have proved invaluable to the present research but also reflect his limited action radius and his focus on artefacts (see Chapter 5).

Professional archaeologists have also contributed to the map in a particular fashion. Successive generations of curators at the National Museum of Antiquities for example were especially active on the Veluwe. Through the work of Holwerda, Remouchamps and Bursch we can reconstruct and date parts of the barrow landscape with quite a lot of precision as they excavated more than 75 barrows on the Veluwe alone.[8] Van Giffen, while sporadically active in the Central (*e.g.* Van Giffen, *et al.* 1971) and Southern Netherlands (*e.g.* Van Giffen 1937a) was directly involved in the excavation of more than half of the known barrows in the Northern Netherlands. For the Southern Netherlands we can rely on the work of Glasbergen (Glasbergen 1954a; b) without forgetting to mention the considerable work of – at that time provincial archaeologist – Beex (Beex 1952a; b; 1954; 1957; 1958; Beex and Roosens 1962).

The differences between who excavated where and at what time has had a profound influence on the quality of the data available. For example, Holwerda and his successors rarely if ever distinguished multiple activity phases in burial mounds. The difference in secondary graves discovered by Modderman and Remouchamps is staggering. Modderman recorded no less than 77 secondary graves in 31 severely damaged barrows (Modderman 1954; see Table 5.4) while Remouchamps recorded none in his excavations of at least nine well-preserved barrows on the same heath (Remouchamps 1923).[9]

---

8 These are the excavations that we know of, usually the less 'interesting' barrows were not or only sparsely published. Bursch for example published his excavations of barrows 1, 7, 8 and 9 on the *Houtdorperveld* located near the hamlet of Speuld (Bursch 1933a, 45-50). The excavation plans of barrows 2 to 6 are present in the Archives of the National Museum of Antiquities, indicating that while he did excavate them he did not publish the plans.

9 Or at least he did not recognise them as such. Barrow 1b especially may contain more than one secondary grave (*cf.* Remouchamps 1923, 6; see Chapter 5).

Fig. 4.5: The selected case studies: a) Epe-Niersen; b) Renkum; c) Ermelo; d) Toterfout.

Such significant variations in the quality of the dataset mean that not all are suited for every type of research. Information on the reuse of barrow landscapes is very difficult to quantify in the older excavations. On the other hand, they are ideally suited to understand the genesis of barrow landscapes as they frequently provide information on the primary graves.

4.4 Selecting and assessing the Research Areas

There is no such thing as a perfectly preserved barrow landscape, they are all modified and deformed to a certain degree. As the processes affecting them vary from region to region, it follows that not every area is suited for a specific question. The selection of a specific research area is therefore dependent on weighing and evaluating all possible map formation processes and their effect on the data available.

Some regions are entirely unsuited to the research of barrow landscapes as they have been extensively modified by both natural and anthropogenic processes. Large scale sedimentation and erosion in the central river area has probably obscured hundreds of burial mounds. These can only be uncovered during excavations. As these are usually limited in scale, they will only unveil a small fragment of the barrow landscape.

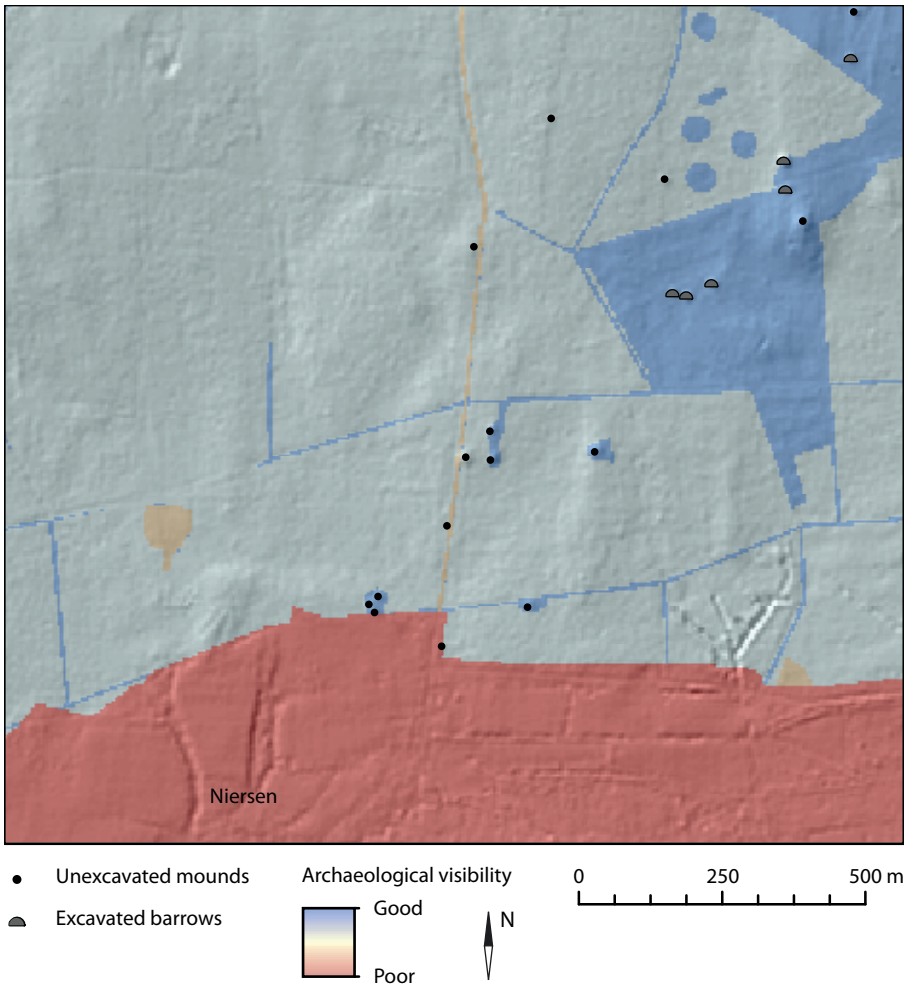


Fig. 4.6: An assessment of the map formation processes and their effect on archaeological visibility. Red colours indicate poor visibility, while blue colours indicate good visibility (see Fig. 5.3). Note how the distribution of barrows stops just on the edge of the essen *complex surrounding the hamlet of Niersen.*

The limited number of recorded barrows in western North-Brabant for example probably does not reflect their absence. 19th Century maps of the region, indicate that the landscape was much more intensively worked than in eastern North-Brabant, thus lessening the chance of barrows surviving to be recorded. Recent excavations have revealed several mounds there (Kranendonk, *et al.* 2006), yet the overall distribution is poorly known.

At the same time regions with large numbers of barrows may not be ideal either due to research processes. While dense concentrations of barrows are known from the Eastern Netherlands (notably on the ice-pushed ridges of Ootmarsum and Rijssen-Markelo), the research intensity here is extremely low (Van Beek 2009, 65). The same applies to the *Utrechtse Heuvelrug*: here approximately 150 barrows are known, yet only a handful have been excavated (Fontijn 2010, 15-16).

Conversely, areas with a high research intensity may be equally unsuited due to the nature of the research. As mentioned above, research on the reuse of barrow landscapes in places where Holwerda, Remouchamps or Bursch were particularly active will be difficult. Areas mainly inventoried by amateur archaeologists have similar limitations.

In order to answer the questions central to thisresearch – understanding the genesis and development of barrow landscapes – four representative research areas were selected. Three on the Veluwe and one in the Southern Netherlands (Fig. 4.5). Each of these regions conforms to three selection criteria. Firstly a high

Land-use and soil types	Archaeological visibility
Essen	--
Open water	--
Swamps and marches	--
19th Century urban area	--
Modern sand erosion	-
Roads	-
21st Century urban area	-
Arable land	-
Pasture	-
Forest	+
Heathland	++

Table 4.1: A qualitative assessment of land-use and its effect on the barrow landscape. A negative score indicates the land-use is detrimental to the preservation of barrows, while a positive score indicates it is benificial.

density of recorded barrows within a given area. Secondly a high (quality of) research intensity (where at least a third of the known barrows have been excavated). Thirdly a limited impact of both natural and anthropogenic processes.

The distribution of barrows was determined on the basis of known and recorded barrows. The national database of archaeological sites (ARCHIS) was used as a basis for all recorded barrows.

For each individual research area the map formation processes were weighed in order to assess what part of the barrow landscape was well preserved (Fig. 4.6). Each individual process that could be mapped was qualitatively evaluated, mainly on the basis of historical maps (notably the *Topografische Militaire Kaarten* or TMK) and modern-day land use. Each individual land-unit was given either a positive or negative score (*e.g.* modern-day heathland already present in the 19th Century received a ++ score, while *essen* surrounding a town received a -- score; see Table 4.1).

As a cautionary note, it is important to realise that the human impact on these areas is certainly significant. Even these research areas with their high densities of burial monuments consistently demonstrate that here too many barrows have disappeared over the centuries.

4.5 Conclusion

I have argued that the 4000 barrows in the Low Countries are only a fraction of the barrows that were once built and that several map formation processes significantly reduced the number of recorded barrows. The most significant of these is arguably the human impact and especially the pre-19th Century influence has been considerable. Agriculture and the construction of towns has destroyed thousands of barrows.

I have argued that the barrow distribution can only be reliably reconstructed in areas that were outside of the influence zones and *essen* complexes of Late Mediaeval hamlets and towns. Indeed, the majority of barrows are now only found in areas which, in the 19th Century were heathland or forests.

And even afterwards the human impact continued to reduce the barrow distribution to a large extent. Extensive barrow distributions are now only known from large estates such as the Crown Estates and landowners such as *Staatsbosbeheer*. Outside of these estates, we are dependent upon whether or not they survived long enough to be recorded by professional and amateur archaeologists. Fortunately such areas do exist, and it is to these that I will now turn in the next Chapter.

Chapter 5

The development of the barrow landscape: case studies from the Low Countries

5.1 Introduction

The development of the barrow landscape cannot be reconstructed for every region in the Netherlands. Limiting natural and anthropogenic factors constrain what elements of the barrow landscape can be reconstructed (see Chapter 4). Therefore I have selected four different research areas, where the extent of the barrow landscape can be reconstructed reliably, and equally important, where the research activities and subsequent documentation are high.

The selected research areas provide detailed information on the development of the barrow landscape. The Epe-Niersen case study is an example of a long alignment of barrows extending over several kilometres. Alignments are also found in the Renkum and Ermelo case studies, but at the same time dozens of barrows around them reflect the dispersed nature of the barrow landscape. All three these case studies have some of the oldest barrows known for the Low Countries. The Toterfout region, on the other hand is thought to be a unique Bronze Age barrow landscape, where no older barrows are present.

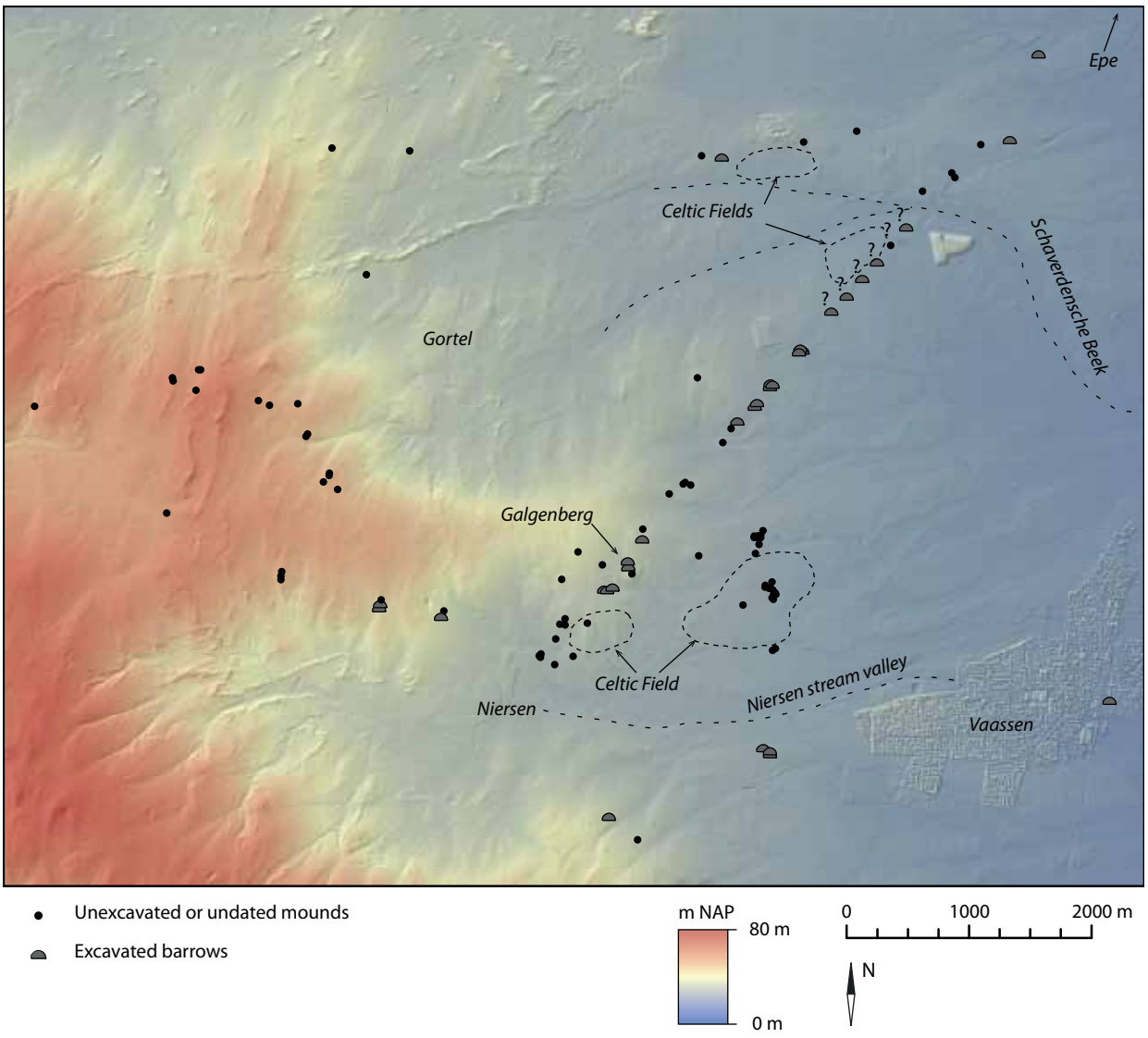
All four case studies were extensively excavated by several researchers. For each case study the map formation processes are summarized with an evaluation of how representative the actual archaeological information is. For the sake of readability the development of each barrow landscape has been kept as concise as possible. Each individual barrow mentioned in the text refers to the catalogue number (see Appendix B) where a summary of the available data is provided and, where possible, its chronological placement has been established. Most of the references to the specific excavation reports have been omitted from the text but can be found in the catalogue. If for some reason I have chosen to diverge from the original interpretation of the excavators I have specified these reasons under the specific record in the catalogue.

5.2 The Epe-Niersen barrow alignment

5.2.1 Introduction

One of the most peculiar formations regularly encountered in barrow landscapes are long alignments of barrows. In the Low Countries these are commonly found on the Veluwe. The best known example runs between the town of Epe and the hamlet of Niersen. In an area of 8 by 8 km, 110 barrows have been recorded, 46 of which are placed in a single 6 km long alignment (Fig. 5.1; Table 5.1).

The terrain on which the barrows are located is part of the Crown Estates. In the Early 20th Century Queen Wilhelmina invited Holwerda (then curator of prehistory at the National Museum of Antiquities) to excavate some of the



mounds on her lands (Bleumink and Neefjes 2010, 107-109). From 1907 to 1911 he excavated 28 barrows in the area, 22 of which were located on the alignment (Holwerda 1908; 1910b; 1911; Holwerda and Evelein 1911).

Further research was carried out by Modderman, who suggested the barrows may have been placed along a single road (Modderman 1955, 61). With a large scale survey carried out by Klok, many more barrows were (re-)identified and he argued the alignment was part of an intricate network of roads covering the Veluwe (Klok 1982). A similar argument was put forward by Bakker, who not only supported the idea of a road, but suggested many more roads running off from the main alignment (Bakker 1976, 77-79). Bakker revised his article in 2008 and included some 26 extra barrows in the road-system (Bakker 2008, 281-286).

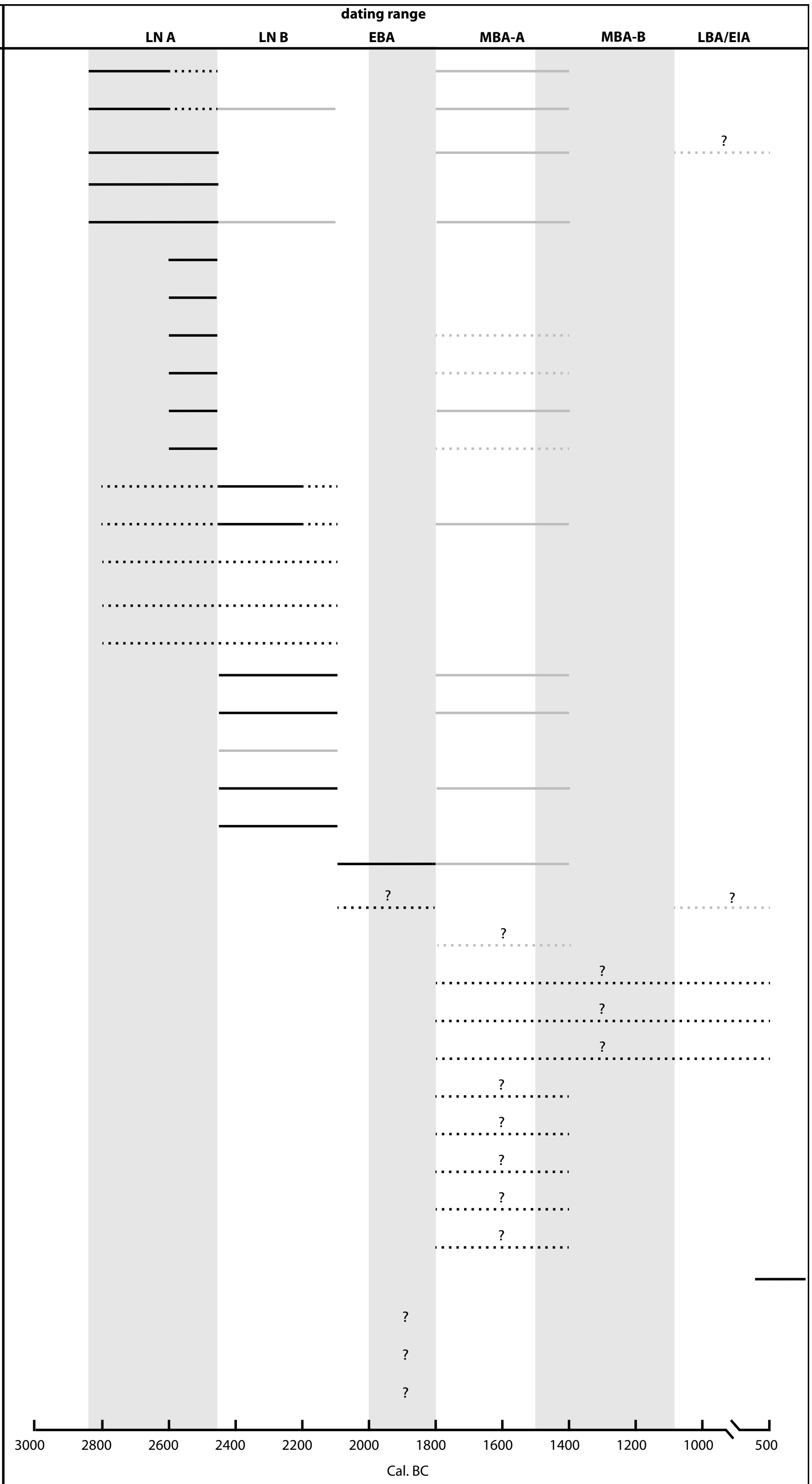
Fig. 5.1: All recorded barrows in the Epe-Niersen case study. The map was created with the AHN elevation data (copyright www.ahn.nl).

Table 5.1 (opposite page): Dating range for each excavated barrow within the Epe-Niersen area. Black lines indicate barrow construction. Grey lines indicate secondary graves or mound phases. Dotted lines are uncertain dates.

5.2.2 Geomorphology of the region

The Epe-Niersen barrows are located on the eastern flanks of the ice-pushed ridges of the Veluwe. The ridges themselves are up to 80 - 90 m high and overlook the wide valley of the river IJssel to the west. The ridges are scoured by wide East-West running valleys which were created through solifluction and erosion during the Weichselian glaciations (Eilander, *et al.* 1982, 18; Berendsen 2000b 44).

Sitename	Barrow number
Vaassen Tumulus I	273
Vaassen Tumulus III	275
Dobbe Gelle 4	642
Enkhout	313
Hanendorp III	309
Vaassen - Hafkamper Enk	644
Hertenkamp 1	620
Hertenkamp 4	623
Hertenkamp 5	624
Hertenkamp 8	627
Hanendorp II	308
Galgenberg 4	635
Galgenberg 5	636
Emst Heemhoeve	629
Hertenkamp 2	621
Hertenkamp 3	622
Vaassen Tumulus II	274
Epe Doppelhügel	443
Woeste Berg 1	630
Woeste Berg 2	631
Hanendorp IV	310
Hanendorp VI	312
Galgenberg 6	637
Galgenberg 7	638
Hertenkamp 6	625
Hertenkamp 7	626
Hertenkamp 9	628
Dobbe Gelle 2	640
Dobbe Gelle 3	641
Galgenberg 1	632
Galgenberg 2	633
Galgenberg 3	634
Hanendorp I	307
Dobbe Gelle 5	643
Dobbe Gelle 1	639
Hanendorp V	311



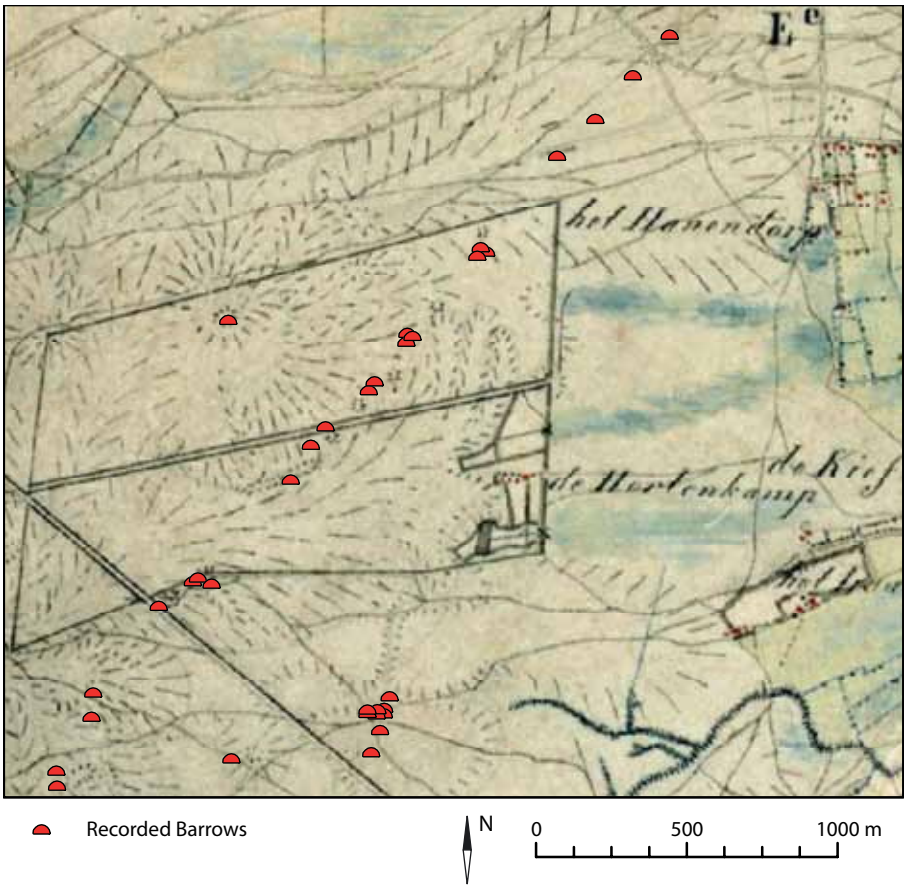


Fig. 5.2: Detail of the Topographic Military Map, drawn in 1847. The blue and green areas to the east of the barrow alignment indicate peat bogs and marshes. These areas have been drained since but are characterised by high groundwater tables even today.

The valleys are nowadays drained due to modern water management and the creation of channels to drain the soils (Eilander, *et al.* 1982, 31). In prehistory however, the lowest areas were filled with peats and alder brooks.[10] In two cases the peats and bogs reached higher up on the ice-pushed ridges (at Wenum and at Niersen), where they filled up the base of the solifluction valleys (Eilander, *et al.* 1982, 20, 43). Part of the peat is still preserved in these areas, and the bogs and marshes are still indicated on maps in the 19th Century (Fig. 5.2).

These peats and bogs encircled a wide, gently sloping plateau at the foot of the ice-pushed ridges. Most of the barrows are located either on this plateau or on the higher slopes of the ridges. The plateau is made up of slightly loamy coversand whereas the ridges consist of coarse sand and pebbles (Eilander, *et al.* 1982, 19).

5.2.3 Research history

Amateur finds

Amateur activity in the region has been relatively limited, in large part because the area was private property until 1959 and even today public presence is only allowed under strict conditions (Bleumink and Neefjes 2010, 10-11). Only barrows outside of the Crown Estate have been investigated by amateur archaeologists (*e.g.* barrows 630 and 631). There are some indications of grave robbing in the 19th Century or earlier (Holwerda 1908, 1) but no documentation of these activities has survived.

10 At least some of the peat still present is thought to date to the preboreal, the beginning of the Holocene (Eilander, *et al.* 1982, 20).

Professional archaeologists

The excavation campaign in the early 20th Century by Holwerda represents some of the first scientific barrow excavations in the Netherlands.[11] By invitation of Queen Wilhelmina he excavated at least 27 barrows over 4 different campaigns (Holwerda 1908; 1910b; 1911, Holwerda and Evelein 1911). Even though his work was groundbreaking at that time, it took place more than 100 years ago and the results now need to be re-interpreted in the light of our present day knowledge on barrows.

Especially the interpretation of several archaeological features by Holwerda must be regarded critically. It is important to note that he rarely recognised different mound phases, but rather interpreted mounds as the collapsed remains of beehive-like wooden constructions (*koepelgraven*) erected in a single phase. His interpretation was heavily influenced by the *tholos*-tombs at Mycenae, to which he often refers in his articles (*cf.* Holwerda 1910b, 28-30).

When re-examining his articles one must bear in mind that this hypothesis was not formed until his third campaign on the Crown estates (Holwerda 1910b, 21-30). His earlier observations are less biased, while in his later articles he interprets everything in the light of his *koepelgraven* hypothesis. We are thus dealing with a research bias in two directions. On the one hand his older articles are hampered by the fact that he was one of the first to scientifically excavate barrows in the Low Countries. He therefore had little foreknowledge of the different types of phenomena he might encounter in them (especially secondary mound phases). On the other hand one gets the impression that his later publications reflect his own interpretations of these barrows rather than the archaeological reality (see for example the difference between description and interpretation in Holwerda 1908 versus Holwerda and Evelein 1911).

These constraints on the excavations conducted by Holwerda have been addressed by re-investigating the excavated material kept at the National Museum of Antiquities in Leiden. Part of these results have already been published elsewhere (Bourgeois*, et al.* 2009).

5.2.4 The representativity of the dataset

Archaeological visibility in the research area

The research area can be divided into two parts (Fig. 5.3): a moderately damaged part in the west of the area and a heavily influenced area to the north and east with low archaeological visibility.

The agricultural fields and the built-up areas to the east of the main barrow concentration have a negative effect on archaeological visibility. Especially the towns of Epe and Vaassen have a significant impact. The entire area around them has been completely modified and incorporated in agricultural activities, without a doubt obscuring much of the archaeological record. Only a few barrows have been recorded from these areas.

Most of the region in the eastern half of the map, however, is depicted as an extensive swamp on historical maps (see Fig. 5.2). As these swamps were probably already present in prehistory (see above), it can be assumed that no barrows were constructed in these marshy areas.

---

11 Earlier excavations are known of, such as Jansen's excavation at the Uddelermeer (Holwerda 1909, 1). Holwerda's excavations however are the first in a long series of scientific excavations conducted by professional archaeologists such as Remouchamps, Bursch, Van Giffen, Modderman and Glasbergen. Even though he has been heavily criticized by later generations (*e.g.* Van Giffen 1930, 144-145), his work was nevertheless groundbreaking and conformed to the scientific standards of that time.

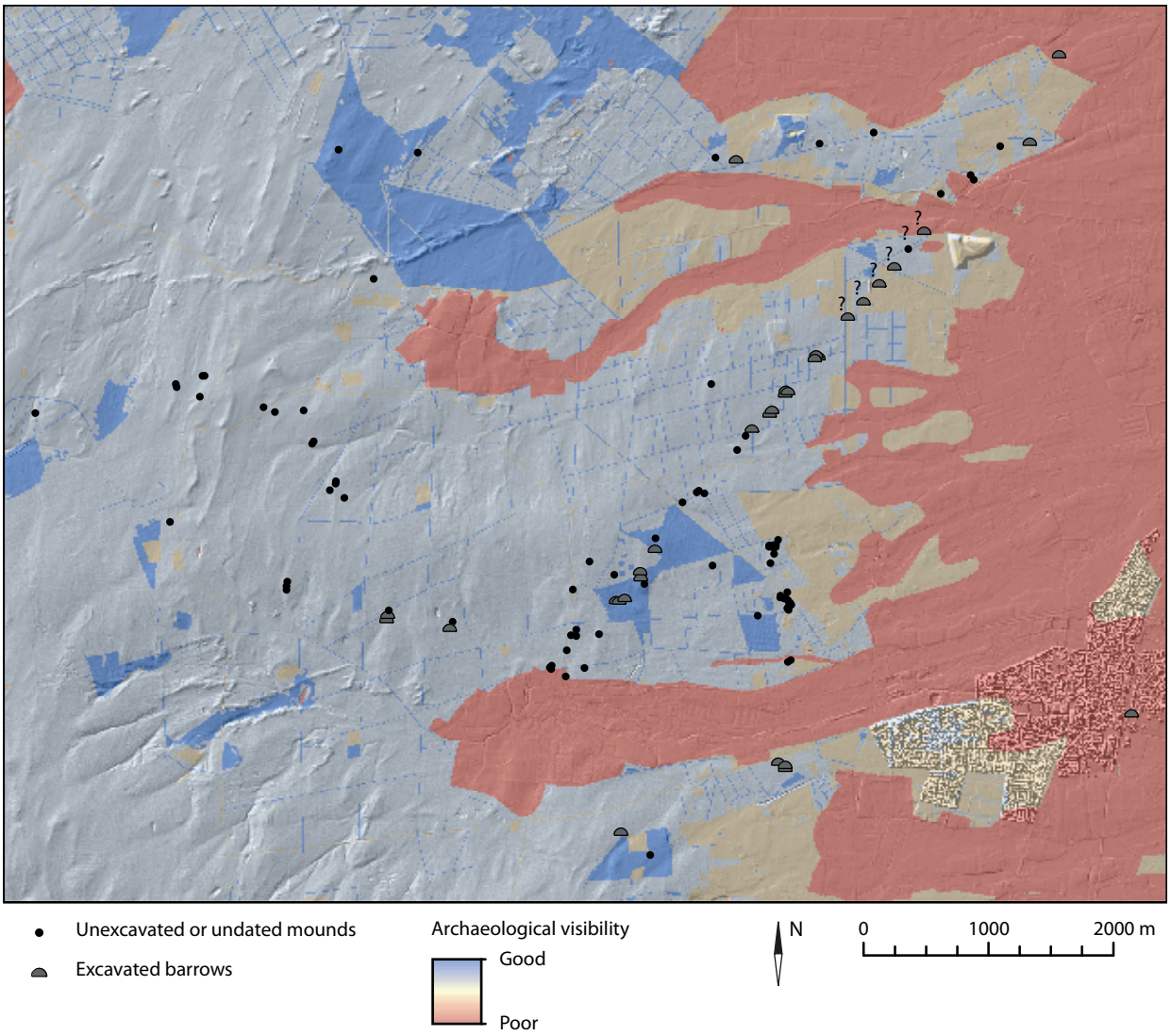


Fig. 5.3: Estimation of the map formation processes affecting the barrow distribution within the Epe-Niersen area. The map was created on the basis of 19th Century Topographic Military Maps and modern land-use.

The archaeological visibility in the western half of the map can be considered as high. A few relatively small areas have been covered by *essen*, most notably around the hamlets of Niersen and Gortel. The remaining area is either covered in heathland or forest, planted in the early 20th Century. Burial monuments have been extensively mapped in this area, and even though settlements and sub-surface features will be obscured by the forest, the barrows are well preserved in this area.

An important question concerning the Epe-Niersen case study is whether or not the alignment is an archaeological reality or a post-depositional construct. Several arguments suggest the former hypothesis.

A first argument is that the area surrounding the alignment is not significantly affected by map formation processes. Indeed many barrows are known on and around the alignment. The southern section of the alignment is especially well preserved. The northern section, by comparison has suffered more considerably.

A second argument is that the alignment itself is already indicated on the Topographical Military Maps of 1847 (Fig. 5.4).[12] Several small elevations, corresponding to burial monuments, are visible on the map. The exact coordinates do

12 Most of these small elevations are only included on the field-drawings and not on the so-called *nettekening* or published maps. Both maps are freely available on www.watwaswaar.nl.

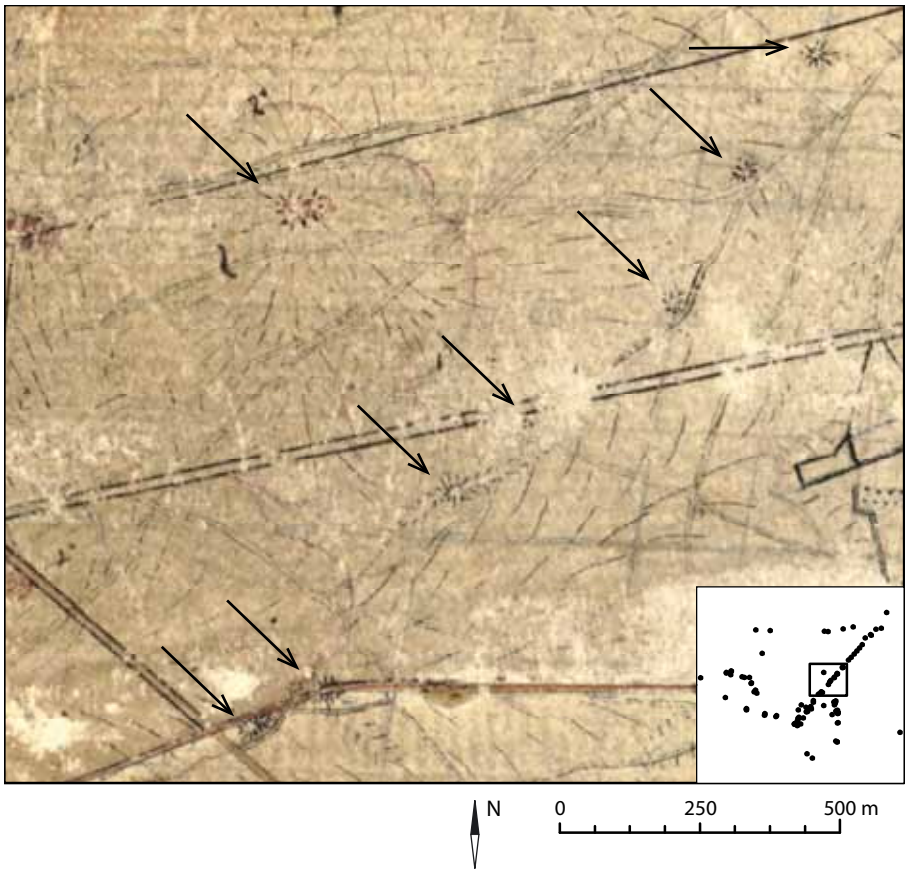


Fig. 5.4: Detail of the field-drawings created for the Topographic Military Maps, the arrows indicate the small elevations depicted on that map. The majority of the depicted elevations correspond to known barrows.

not match up entirely, but this is probably due to problems with georeferencing such old maps and the exactness and recognition of the features by the land-surveyors at the time.

Thirdly, Holwerda himself recognised the fact that he was excavating a barrow alignment. Apparently before the area was turned into a forest and at a time when the barrows were still lying amidst an extensive heath field, it must have been evident that they were lying in one continuous alignment (see below).

A further point to be made regarding the alignment is that the southern and northern extents of the alignment are limited by respectively the hamlet of Niersen and its extensive *essen* complex, and the town of Epe. Especially the town of Epe will have obscured part of the barrows in the area. The barrow alignment ends a few hundred metres before the outskirts of the modern town and the chance find of a battle axe in the centre of Epe might hint at a destroyed barrow (Anonymus 1987, 122). How much further the alignment might have extended is unknown, but it does not continue to the south of Niersen.

An additional problem with the alignment however is that the location of the barrows from Holwerda's last campaign were poorly documented.[13] Five of the barrows excavated by Holwerda have now disappeared and this section of the alignment cannot be reliably reconstructed.

13 In ARCHIS their position seems to have been determined randomly, with several barrows receiving the exact same coordinates, and some barrows 150 m off from the main alignment. It has not been documented why these barrows should be positioned there. Bakker published a different distribution map, without exactly mentioning how he obtained the coordinates (Bakker 1976).

Nevertheless, the position of these barrows on the main alignment is confirmed by the excavators, as they have made mention of the fact that all the barrows they investigated were part of a prehistoric barrow line and that they formed a single alignment with the barrows excavated the previous year:

> *'De reeks Van koepelgraf-heuvels, het vorige jaar in De Hertekamp onder Vaassen onderzocht […], wordt ook naar het Noorden, onder Emst, door een dergelijke praehistorische heuvelrij voortgezet […].'* [The series of 'beehive'-mounds, investigated last year at the Hertekamp near Vaassen […], is continued to the north, below Emst, by a similar prehistoric barrow-row [...]. (Holwerda and Evelein 1911, 18).

So even though we do not know the exact position of each individual barrow from Holwerda's 1911 campaign, from this observation, we can conclude that they are all an integral part of the same alignment.

In general, the barrow alignment can thus be considered a prehistoric reality, still visible in the heath fields in the 19th Century and the early 20th Century. The forests planted around it have not significantly damaged or altered the barrow landscape.

Representativity of the excavated barrows

In total 38 barrows have been excavated out of a total of 110 recorded barrows in the entire area, with 24 of the excavated barrows located on the alignment.

The initial construction phase of almost every barrow can be dated to the Late Neolithic. In the entire Epe-Niersen area not a single primary mound on record was unambiguously dated to the Bronze Age. This is partly due to the excavation methods employed by Holwerda and the inexperience of barrow researchers at that time. There is a distinct possibility that a few of the barrows excavated by Holwerda can be dated to the Middle Bronze Age (MBA) (*e.g.* barrows 632, 633 and 634). Furthermore Holwerda rarely recognised secondary mound phases although in several cases these could be identified through the descriptions he put on paper, and the photographs that were taken during the excavation (*e.g.* barrow 636; Holwerda 1908, PL.IIIa). Any information on the Bronze Age can therefore be considered as limited.

5.2.5 The development of the Epe-Niersen barrow landscape

The earliest barrows (2850-2500 cal BC)

During the Late Neolithic A (LN A) eleven barrows were constructed in the region. Two separate groups can be identified in this phase, on the one hand six barrows creating an alignment (nos. 308, 309, 620, 623, 624, 627) and on the other hand four (maybe five) additional barrows away from the main alignment (nos. 273, 275, 313, 642, 644; Fig. 5.5).

The origins of the main alignment can be traced back to this period. At least six barrows are placed along a single axis. All six were excavated by Holwerda in two separate campaigns (Holwerda 1910b; Holwerda 19,10b, Holwerda and Evelein 1911).

The alignment itself is orientated NE-SW (approximately 41° - 221°)[14] and the minimum total distance is 1,6 km. The four barrows that can be accurately located are placed along a single axis, running exactly through the center of barrows 620, 624 and 627, with barrow 623 just a few metres off-axis.

---

14 All azimuths have been measured from north over east.

This is the minimum extent of the alignment. It is possible that to the south and north several unexcavated barrows are also part of the earliest alignment. The alignment may extend beyond 1,6 km, especially if we consider that just to the south six unexcavated barrows can be found along the same axis. The same situation may apply to several unexcavated barrows on the other flank of the *Schaverden* stream valley. If the LN A alignment continues amongst these unexcavated barrows, the total distance would extend to approximately 3,4 km.

Dating the alignment is difficult. This is essentially due to the general poor quality of the excavations. Nevertheless the dating evidence in five out of six cases points to the second half of the LN A (ca. 2600 – 2500 cal BC). Three barrows can be associated with All Over Ornamented (AOO) pottery,[15] two with GP daggers. The sixth barrow – with a flint axe in the primary grave – must be dated to the entire LN A.

Some of the barrows on the alignment covered peculiar burials. Barrow 624 covered a grave pit dug at least two meters deep, on the bottom of which the remains of a sitting individual were discovered. The pelvis was the best visible element of the skeleton. Seated burials are rare in the Late Neolithic, the only other grave that I know of for which this practice has been suggested, would be the beehive-grave of Onnen dated to the LN A (Van Giffen 1930, 124-128).[16]

Furthermore, the only grave in which typical AOO-artefacts were found (barrow 308) yielded an AOO-beaker, a smaller beaker, a French dagger, a few flint artefacts and the skull of a cow (Wentink in prep.). It is interesting to note that even though the cow's skull was (partially) preserved and silhouettes of inhumations were uncovered elsewhere in the same mound (Holwerda and Evelein 1911, 19), no trace of a human skeleton could be identified in the primary grave (I will return to the role of cattle in Chapter 8).

There are four (maybe five) more barrows dating to the LN A within the Epe-Niersen region not located on the main alignment. Nevertheless three of these barrows may be part of other, minor alignments. Bakker, for example, includes all three of them in two additional 'roads' running off from the main alignment (Bakker 1976, 77-79; see Klok 1982 for a similar argument).

It is certainly true that barrow 642 is located on an east-west orientated alignment. Four groups of two or three barrows are spaced at equal distances covering a distance of 2 km. The other barrows however have been poorly excavated or not at all, so it remains unknown whether or not this alignment already originated in this period.

---

15 Van Giffen rightfully states that these sherds can only be placed in a secondary position in relation to the barrow, and should not be used to date the barrows directly (Van Giffen 1930, 144-154). But it is intriguing that both barrow 623 and 627 each have half a profile of a single AOO-beaker lodged between the primary mound-period and the subsequent capping. The position and condition of the sherds suggest they were not taken along with the sods of the primary mound. Instead they should be considered as part of the burial ritual (*cf.* Bourgeois and Fontijn 2010, 46-47). Parallels for this practice can be found at the barrow of Vaassen, where the profile of a Veluvian Bell Beaker was found on the surface of the primary mound (barrow 275, Lanting and Van der Waals 1971b, 114), and at one of the Hanendorp barrows excavated by Holwerda (barrow 310), where sherds from half a Veluvian Bell Beaker were found.

16 Both graves exhibit interesting similarities. They were both dug very deep into the sub-soil, at least 2 m deep and were not very large. The grave at Onnen was 1,5 by 1 m and at least 1,5 m deep, while the grave at Hertekamp was at least 2 m deep, and 1,5 by 1 m wide. The grave at Onnen contained two PF beakers, one placed outside the beehive as reconstructed by Van Giffen, and one placed inside (Van Giffen 1930, Abb.85).

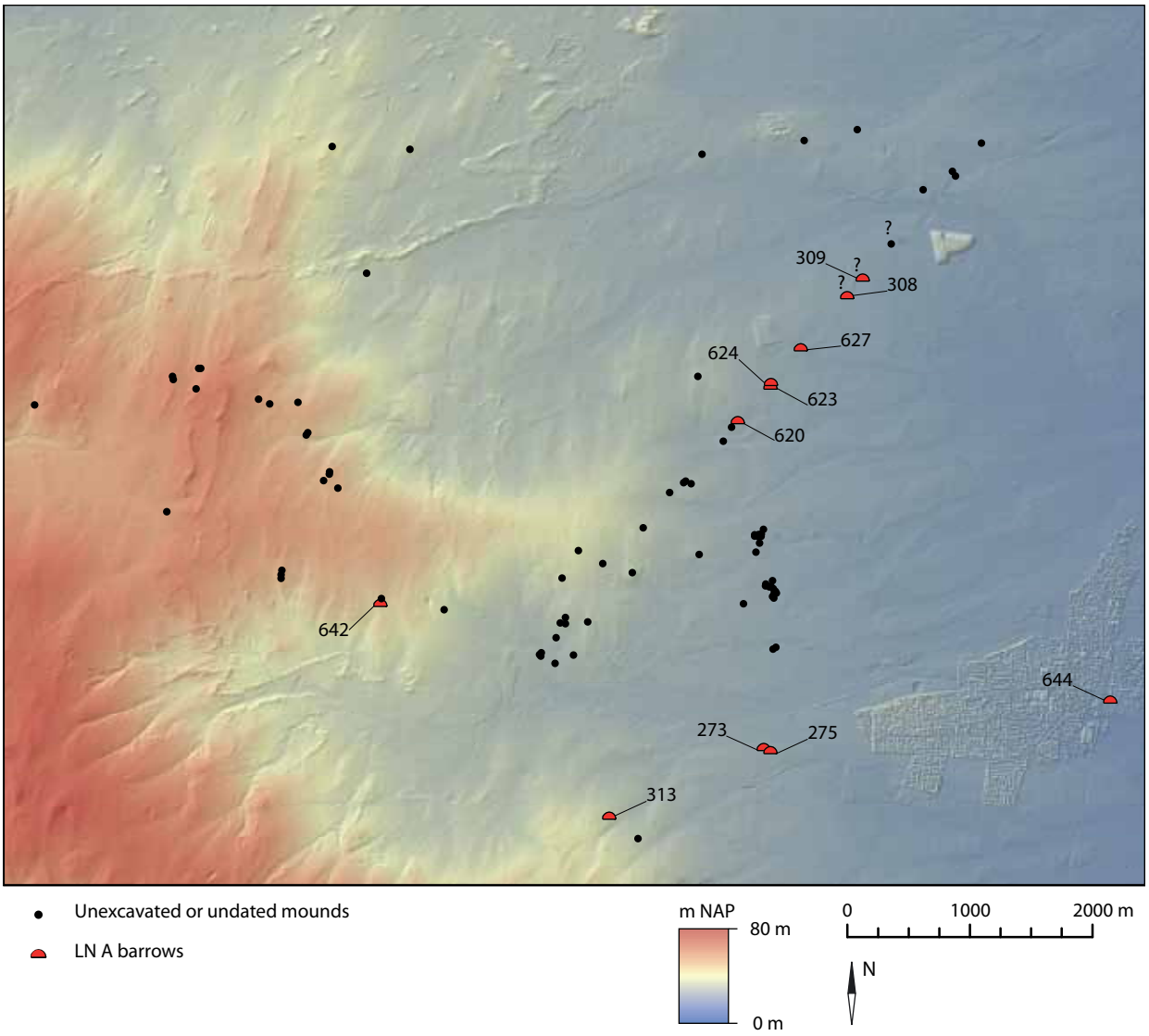


Fig. 5.5: Overview of all LN A barrows in the Epe-Niersen area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

The same applies to the two Vaassen barrows (273, 275). To the north of these two mounds, across the Niersen stream valley lies another possible alignment of barrows, partly integrated into the Celtic Field of Vaassen. Once again, these other mounds have not been excavated. As for barrows 313 and 644, there is no indication that they were placed along any kind of alignment (see Fig. 5.5).

There is no evidence for reuse of mounds during the LN A. No secondary graves could be dated to this period and no secondary mound phases could be attested.

To summarize, in the LN A, two groups of barrows can be identified. On the one hand an alignment of at least six barrows, most of which can be dated to the second half of the LN A. A second group of barrows encircling the Niersen stream valley, although three of these may be part of other (partial) unexcavated alignments.

Bell Beaker barrows (2500-2000 cal BC)

Nine other barrows in the region can be dated to the Late Neolithic (Fig. 5.6). Four of these date to the Bell Beaker phase (274, 310, 443 and 631), whereas the other five date to either the LN A or B (621, 622, 629, 635 and 636). In some cases directly datable artefacts are lacking and there is a distinct possibility that

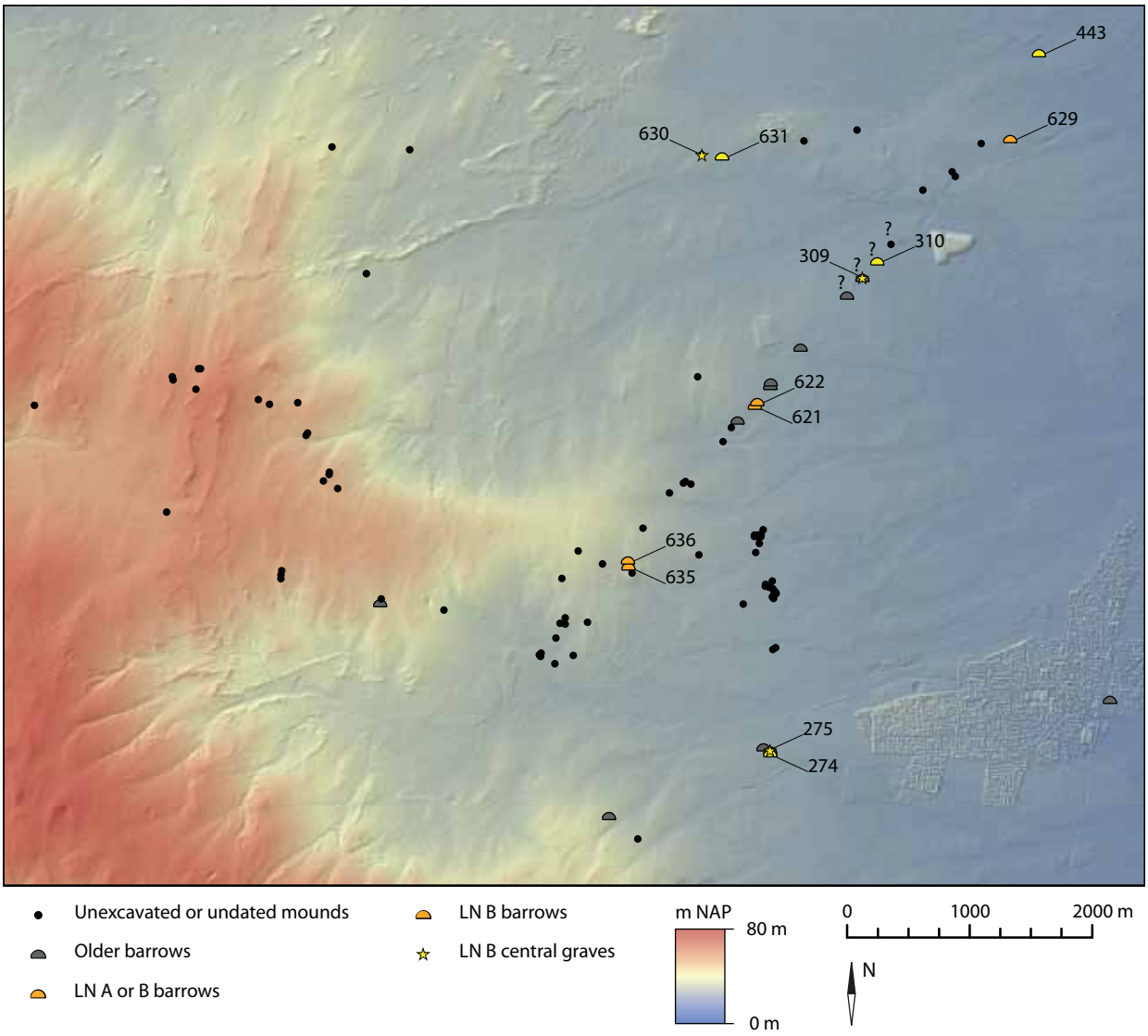


Fig. 5.6: Overview of all LN B in the Epe-Niersen area as well as all barrows that could not be exclusively dated to either the LN A or B. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

some of these mounds should rather be dated to the LN A (especially barrows 621 and 622). Nevertheless I will describe them here, while maintaining a level of uncertainty.

Five of these barrows were constructed on the main alignment and perhaps two more as well. Three barrows were placed in-between the already existing barrows (nos. 621, 622 and 310). Only one of these can be reliably dated to the Late Neolithic B (310). The other two, placed exactly in the middle of two older mounds, could also date to the LN A.

To the south the alignment was significantly extended towards the hill of the *Galgenberg* (gallows mound). Two barrows placed just next to the *Galgenberg* can probably be dated to the Bell Beaker phase (nos. 635 and 636; *cf.* Bourgeois*, et al.* 2009, 99-100).

There are some indications that the alignment continued to the north across the valley of the *Schaverdense beek*. Six barrows are known on this northern section, but only two of these were excavated. One can be dated to the Bell Beaker phase (443) and the other to the Late Neolithic (629).

The total length of the alignment as we can reconstruct it for this phase is approximately 3,5 km up to the Schaverden valley. If the six barrows on the northern side are included, the alignment extends to almost 5,4 km, from the Galgenberg barrows (nos. 635 and 636) to the Epe Emst barrow (no. 443).

To the south of the Galgenberg at least 13 more barrows are located on the alignment. Only three of these were excavated, yet the findings were inconclusive (barrows 632, 633 and 634). It might therefore be possible that the alignment continued to the south for at least another kilometre right up to the edge of the *essen* complex surrounding the Niersen hamlet. As far as we know no barrows have been discovered to the south of the Niersen hamlet.

The central section of the alignment would thus be the oldest part, already constructed around 2600 - 2500 cal BC. Several of the barrows I have described here, may also have been constructed during that period. Nevertheless, the alignment was certainly built upon and extended to both the north and the south in the Bell Beaker phase.

Two barrows were built away from the main alignment (nos. 274 and 631). One of these, which was built close to some of the oldest mounds in the region, covered a grave with a rich set of grave gifts. consisting of a Veluvian Bell Beaker and multiple amber ornaments (Lanting and Van der Waals 1971b).

In contrast with the preceding period, secondary burial in older monuments can now be documented in at least three cases (nos. 275, 309 and 630). In all these cases a grave was dug into an existing mound after which an additional layer of sods was stacked on top of the primary mound. One of these additions (no. 275) was dug into an ancient barrow located close to where a new mound was built during this period (no. 274, see above). The grave goods recovered from both these barrows are very similar to one another (see Chapter 8). Here, a Veluvian Bell Beaker, a copper tanged dagger and multiple amber ornaments were recovered.

The practice of placing (parts of) beakers on the top of old mounds continued and is recorded in at least three cases where fragments of Veluvian Bell Beakers were placed on top of an existing primary mound (nos. 275, 310 and 636). This would suggest that finding the remains of beakers on top of barrows is not incidental. It is also typical that in all such cases, several sherds from a single pot are found, and never small and weathered sherds from multiple pots as would be expected from settlement debris.

Whatever the exact dating of the barrows on the alignment and beyond, it is certain that the older mounds in the area were still recognised as such and that they were reincorporated into the barrow landscape of the LN B. This is not only attested to by their building mounds on the alignment and extending it, but also through as reburial and ritual activities on top of these older mounds.

The Early Bronze Age (2000-1800 cal BC)

Only two barrows in the region were constructed during the Early Bronze Age (EBA), both on the Neolithic alignment (Fig. 5.7). This is comparable with the rest of the Netherlands where barrow construction diminished in terms of frequency (see Chapter 3 and 7). In one barrow a beaker was smashed on what is probably the old surface underneath the mound (barrow 637). This is a recurring practice in the region, and is typical for the EBA in the Low Countries (Bourgeois and Fontijn 2010, 45-46). The other barrow covered a grave that contained a small Barbed Wire Beaker, while in the flank of the barrow a large Pot-Beaker had been placed.

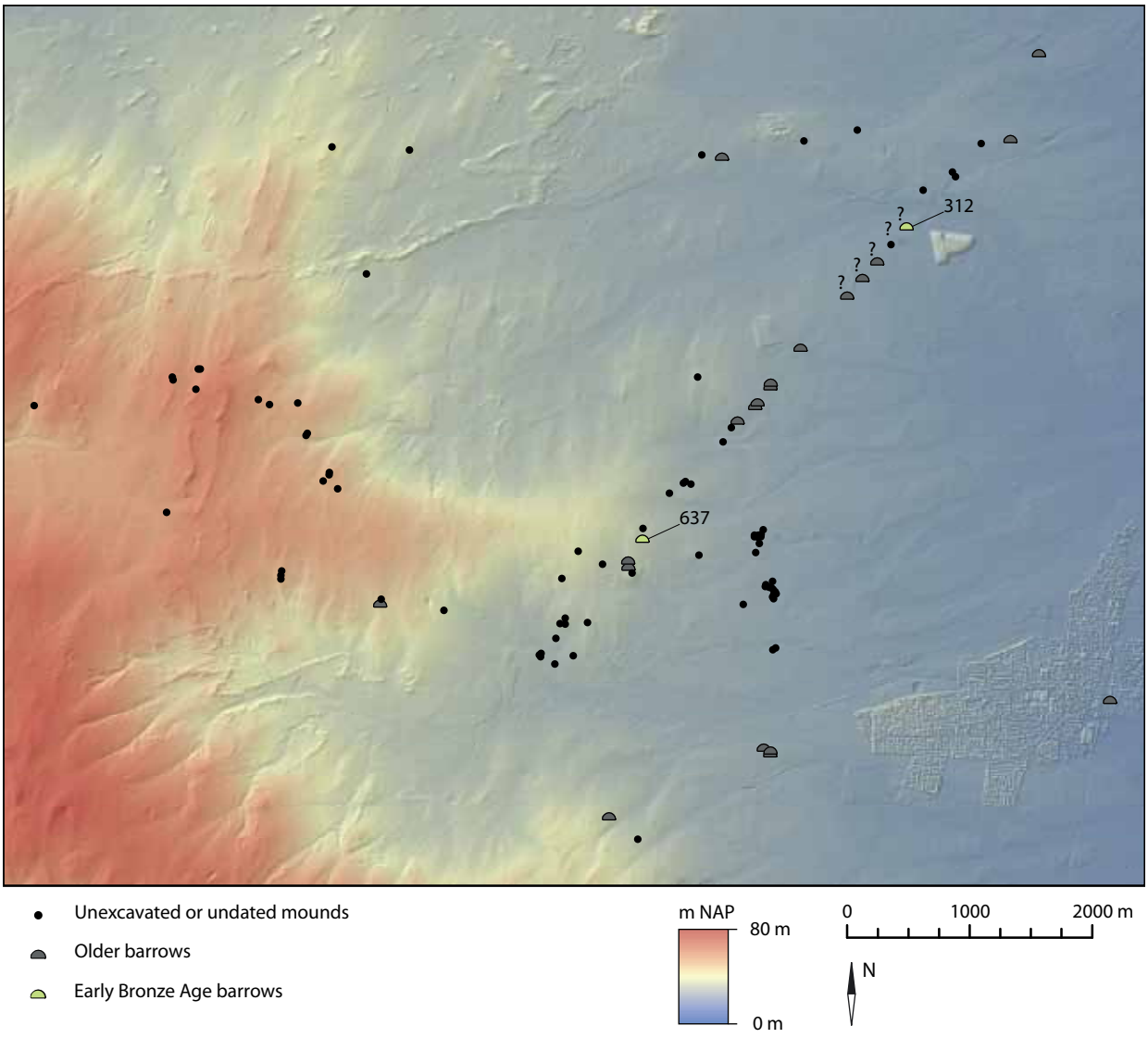


Fig. 5.7: Overview of all EBA barrows in the Epe-Niersen area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

The alignment, as set out around 2500 cal BC, was still recognised as such 500 years later. Another observation that can be made, is that there are many locations in the region where sherds with Barbed Wire decoration were found even though few barrows were constructed. During the excavation of part of the Vaassen Celtic Field a pit was discovered containing Barbed Wire Beakers. Charcoal recovered from the filling of the pit was radiocarbon dated to 2025 – 1770 cal BC (Brongers 1976). Surface finds elsewhere in the region confirm many activities in this period, yet barrow construction was relatively rare.

Middle Bronze Age barrows (1800-1400 cal BC)

Not a single primary barrow can be unambiguously dated to the MBA (Fig. 5.8). There is a distinct possibility that several barrows may date to this phase (nos. 625, 626, 628, 632, 633, 634 and 638), yet the description by Holwerda is so appalling that their exact attribution remains unclear.

Nevertheless all of these barrows are associated with urned and un-urned cremation burials, as well as scattered pyre-remains. The description by Holwerda does suggest these were similar to two MBA barrows excavated at the Wiesselse

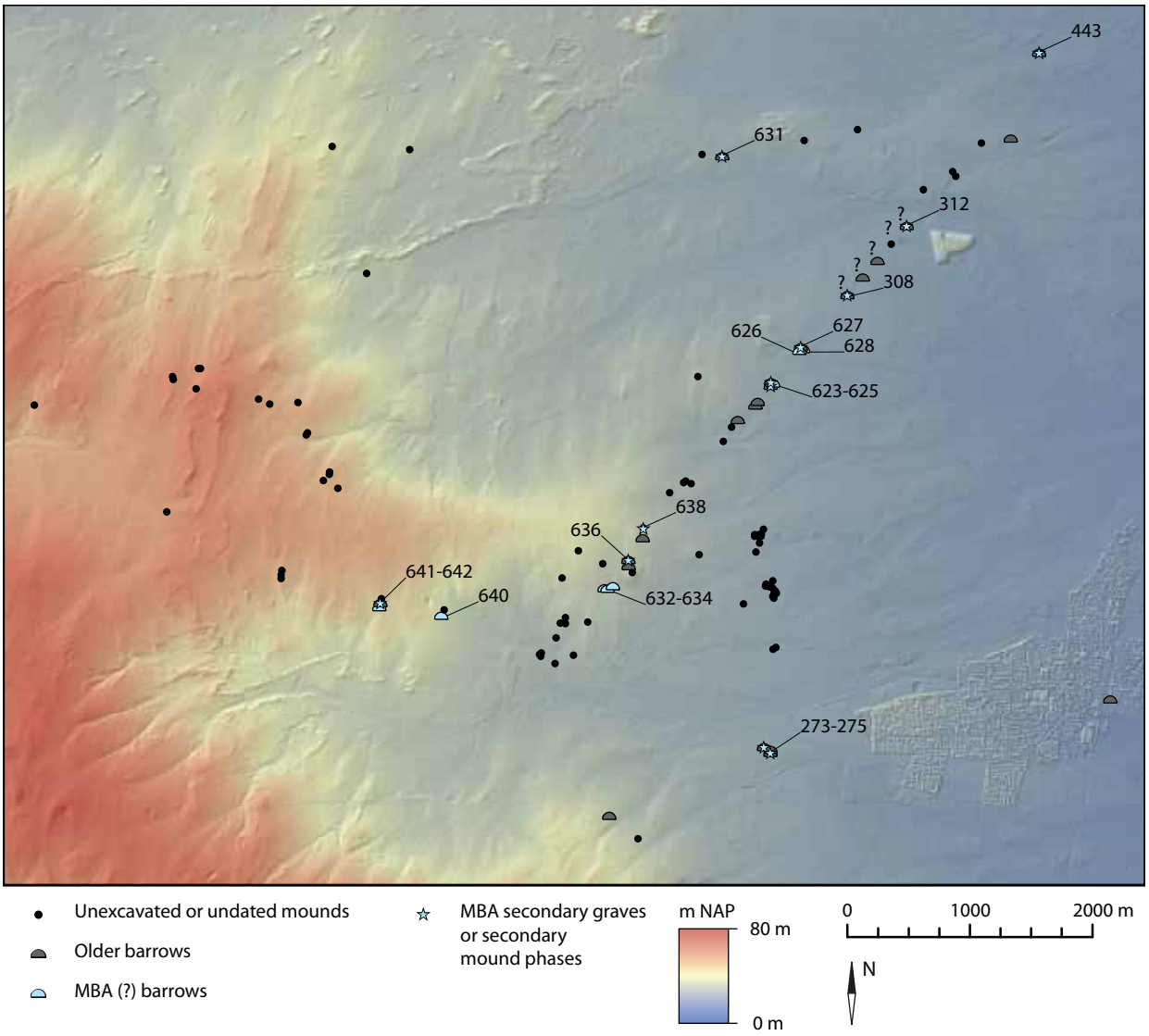


Fig. 5.8: Overview of all possible MBA barrows in the Epe-Niersen area as well as all barrows with secondary graves and mound phases. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

Weg (Fontijn and Louwen in prep.). We should remain cautious however, as cremation burial and the construction of mounds within the region continued throughout the Iron Age as well (*e.g.* Van der Linde and Fontijn 2011).

The reuse of older mounds on the other hand can be affirmed for almost every barrow in the region. And even though Holwerda had difficulties in recognising and separating these practices, almost all barrows have indications of at least one secondary grave or mound phase.

The barrow Dobbe Gelle 4 (no. 642), excavated by Holwerda provides some insight into the scale of secondary use during this period. In contrast to all his other excavated mounds, he did distinguish three separate construction phases here, and related specific graves to specific mound periods. Two separate categories of urns can be distinguished (Fig. 5.9). On the one hand MBA large coarse urns, associated with the second mound phase, while smaller and finer accompanying pottery was found in the third mound phase. In total at least 16 secondary graves were recorded. Attributing specific graves to specific periods is difficult, yet on the basis of parallels with other mounds in the Central Netherlands (see Chapter 3), the large coarse urns can be dated to the MBA.

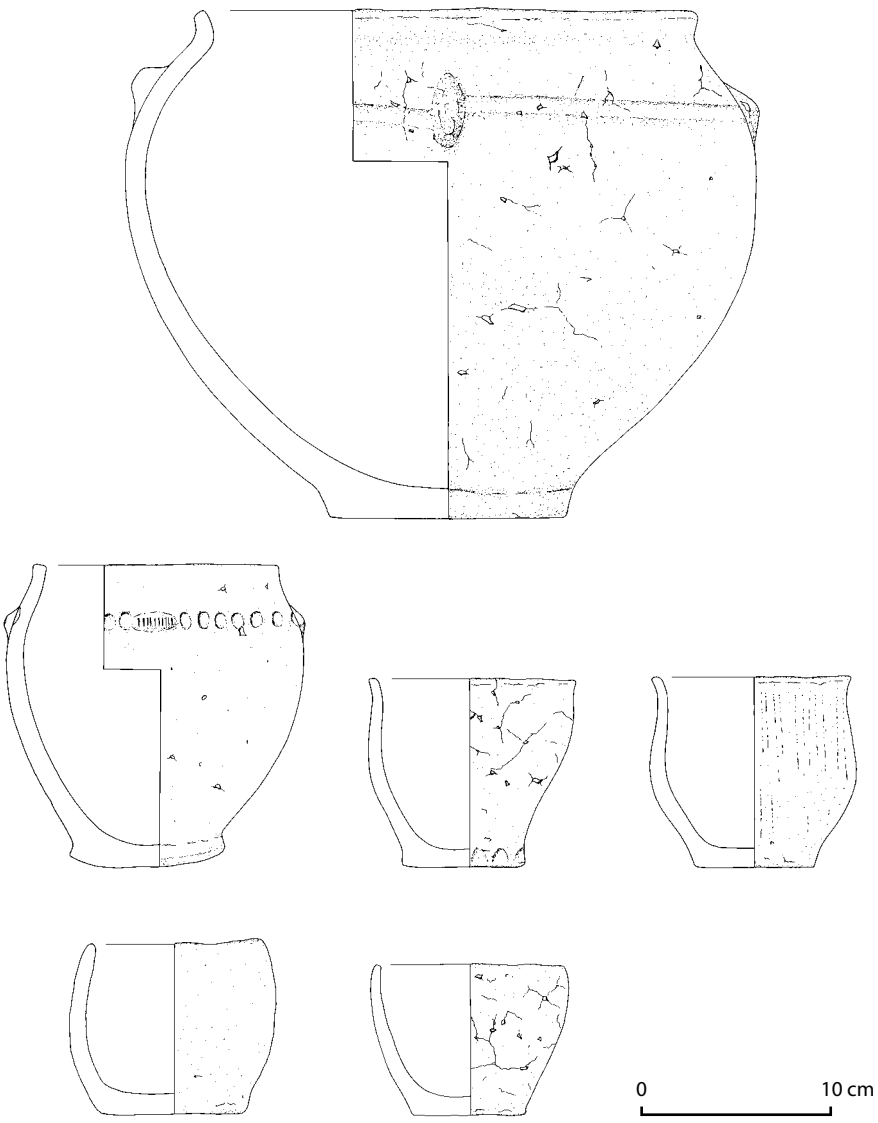


Fig. 5.9: A selection of the pottery found in association with several cremation burials in mound D4 (drawing by A.Louwen).

In several other barrows multiple secondary graves were recorded, and the three Vaassen barrows (nos. 273-275) corroborate this pattern of extensive reuse. In total at least 14 secondary graves were discovered in these three mounds, and one was increased in size by an additional layer of sods (274).

Later barrows (1400-500 cal BC)

Later barrows are difficult to recognise in the region (Fig. 5.10). At least one of the barrows on the alignment dates to the Middle Iron Age (no. 307). It was surrounded by a rectangular ditch and covered a cremation grave containing Iron Age pottery.

In addition to this isolated example, at least three urnfields were discovered in the region. Interestingly the oldest elements in each of these urnfields are Late Neolithic barrows. A fourth urnfield is located in the Vaassen Celtic Field (Brongers 1976).

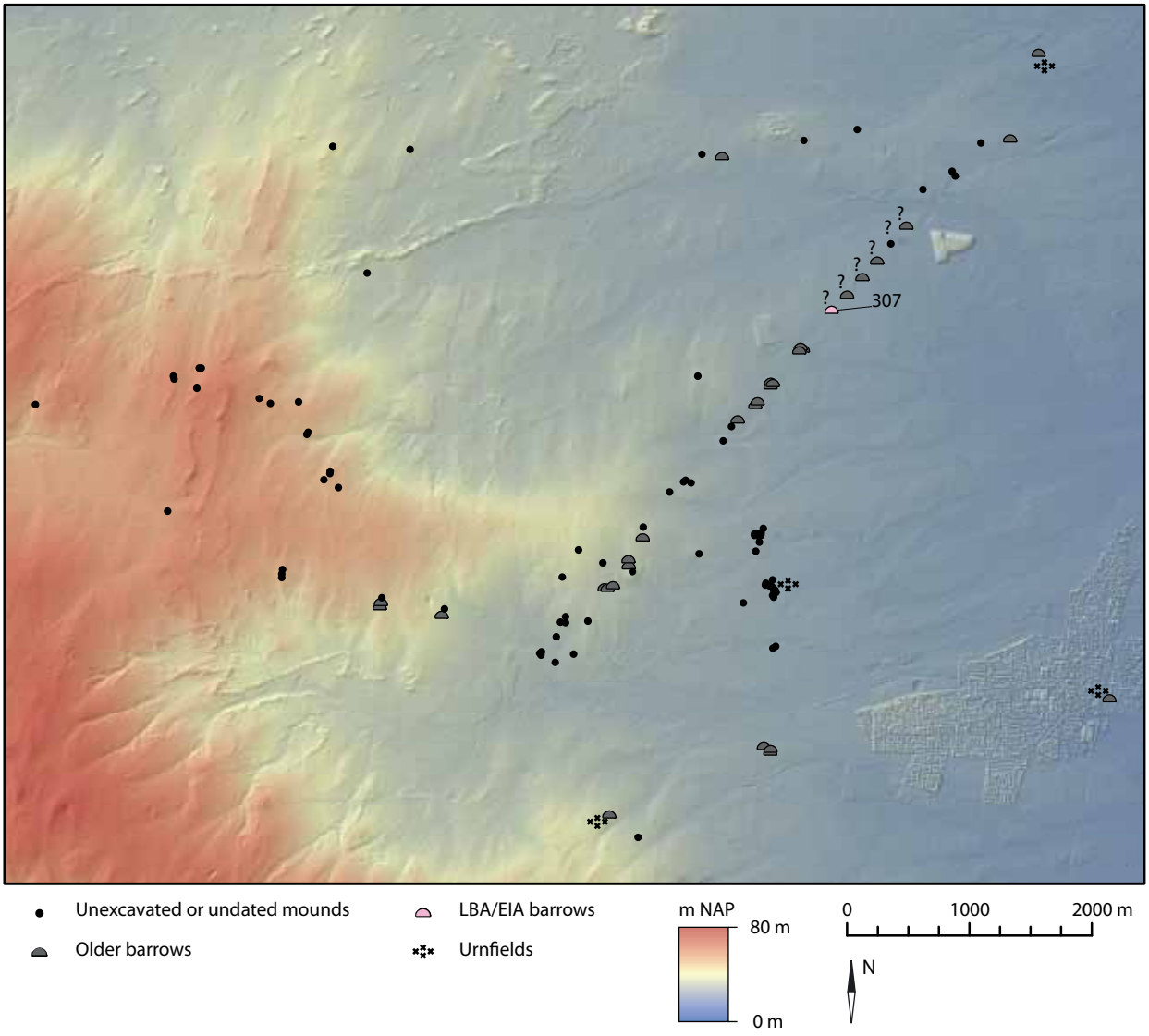


Fig. 5.10: Overview of all LBA and IA barrows and urnfields in the Epe-Niersen area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

5.2.6 Summary

The most striking feature in the Niersen-Epe case study is the alignment of 46 barrows. The roots of it can be traced back to the LN A, with at least six barrows constructed at around 2600 - 2500 cal BC.

Through time the alignment was respected and emphasised through the construction of new barrows. Especially in the Bell Beaker phase the alignment was extended and barrows were built in-between the older mounds. This practice of emphasising the alignment by constructing new burial mounds continued into the EBA up untill at least 1800 cal BC.

Whether or not MBA barrows were built amongst the Neolithic ones of the alignment is not well attested. Several mounds may have been built in this period, but conclusive evidence is lacking. Nevertheless the reuse of older mounds in the region can certainly be said to have increased in the MBA, with more than half of the barrows having at least one secondary mound phase or grave, dating to this period.

5.3 The Renkum stream valley

5.3.1 Introduction

To the north of the town of Renkum the flanks of a wide stream valley cutting through the ice-pushed ridge are dotted with at least 71 barrows. At first glance, the majority of barrows appear to be concentrated around the stream valley itself, while some are built higher up on the ice-pushed ridges. Almost all barrows in the area were excavated by amateur archaeologists. Subsequent research by professional archaeologists has allowed us to date 28 barrows (Fig. 5.11; Table 5.2).

5.3.2 Geomorphology of the region

The Renkum stream valley was created when glacial melt water broke through the ridge and drained into the Rhine-Meuse valley (Berendsen 2000b, 43). The active stream valley is now much smaller and has only a narrow course at the bottom of the valley.

The flanks of the valley are composed of glacio-fluvial deposits and they gently rise up until the highest points of the ice-pushed ridges (approximately 60 m NAP). They are cross-cut by east-west running dry-valleys which were created by solifluction and gelifluction during the last ice-age (STIBOKA 1973, 38).

To the north of the area, drift-sand created large parabolic sand dunes during the last Glacial (most notably on the Ginkelse heath; STIBOKA 1973, 38), although other sand dunes (more to the north and west) are younger and of human origin (Berendsen 2000b, 50).

The southern part of the research area is delimited by the river Rhine which has eroded part of the ice-pushed ridge.

5.3.3 Research history

Amateur finds

The majority of barrows in the Renkum area have been frequently investigated by several amateur archaeologists. One of the earliest known amateur archaeologists to have excavated in the region was Miss Goekoop-De Jongh (Goekoop-De Jongh 1912). Her colourful description of the excavation of two barrows reveals her rather dilettante approach to archaeology. Nevertheless her account gives us insight into the nature of the terrain prior to the several large afforestation attempts in the region (see below).

The most prolific of the amateur archaeologists was Captain Bellen. In the 1920's and early 30's he excavated at least eleven barrows in the Renkum valley. Discovering no less than eight LN A barrows and two LN B barrows, he is without doubt responsible for most of the knowledge on the barrows in the region.

In 1936 he sold his collection to the National Museum of Antiquities (Butler and Van der Waals 1966, 122). All finds were catalogued in the ledgers of the museum, ordered by find context. Unfortunately it would appear that a mix-up of finds occurred and the collection has caused a great deal of confusion (Butler and Van der Waals 1966, 122). The grave assemblages entered into the museum did not match with the photographs of the find assemblages at the *Biologisch-Archeologisch Instituut* in Groningen. Furthermore they did not match the description Captain Bellen gave in his personal diaries (later donated to the ROB and the *Gelderse Archeologische Stichting*). Unfortunately before this mix-up was noticed, Modderman had already used the incorrect museum inventory in his article on the distribution of Beaker Cultures on the Veluwe (Modderman 1962-1963, 8).

The incorrect association and localization of several of these artifacts has created a lot of confusion, especially since not only the incorrect associations but also the correct associations were entered into the national database of archaeological finds (ARCHIS). Many double records, incomplete records and double placements of identical grave assemblages had to be filtered out before an accurate barrow distribution could be created. Fortunately Lanting and Van der Waals have gone to great lengths in their attempts to identify the correct barrows, and aided by their direct access to Bellen's journals they were able to identify most of the mistakes (the results of which have been published in several small articles; Lanting and Van der Waals 1971a; 1972a; b). Here I followed the conclusions reached by them.

In addition to Bellen, several other amateur archaeologists have been active in the region, several of their finds were included in Modderman's inventory (Modderman 1962-1963). Even though the exact find-spot is not always entirely reliable, most have been included in the present study.

Table 5.2 (opposite page): Dating range for each excavated barrow within the Renkum area. Black lines indicate barrow construction. Grey lines indicate secondary graves or mound phases. Dotted lines are uncertain dates.

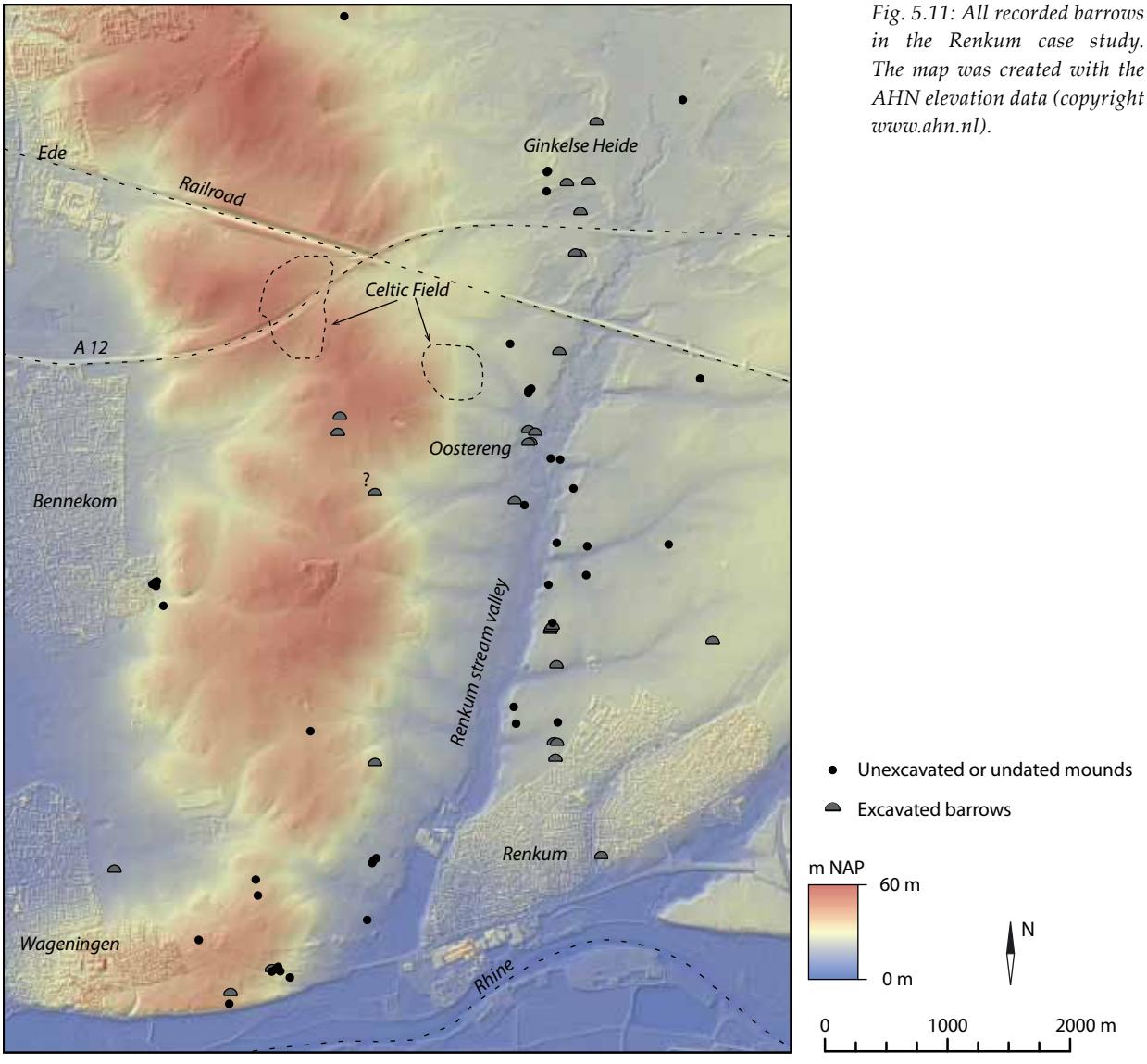


Fig. 5.11: All recorded barrows in the Renkum case study. The map was created with the AHN elevation data (copyright www.ahn.nl).

Sitename	Barrow number	Dating range: LN A	LN B	EBA	MBA-A	MBA-B	LBA/EIA
Ede Hotel Bosbeek Tumulus I	389						
Renkum Molenbeek 'Heuvel A'	4002						
Bennekom Oostereng Heuvel 4	425						
Bennekom Oostereng Heuvel 22	428						
Renkum Molenbeek 'Heuvel R'	4003						
Renkum Molenbeek 'Heuvel Q'	4106						
Renkum Molenbeek 'Heuvel S'	4107						
Renkum 'Fluitenberg'	4109						
Ede Ginkelse Heide (Bellen 1927)	4112						
Ede Ginkelse Heide (ROB barrow 78)	4113		?				
Ede Ginkelse Heide (Bellen 1936)	4114						?
Renkum 'De Keyenberg (West)'	4500						
Renkum 'De Keyenberg (East)'	4501						
Renkum Molenbeek 'Heuvel T'	4503	?					
Wageningen Oranje Nassua's Oord 5	398						
Bennekom Oostereng Heuvel 10	426						
Bennekom Oostereng (gold ornament)	272						
Bennekom Voormalige Buurtheide 1	278						
Bennekom Voormalige Buurtheide 2	279						
Bennekom Kwade Oord	322						
Wageningen Oranje Nassua's Oord 1	397						
Bennekom Oostereng Heuvel 12	427						
Bennekom 'Nol in 't Bosch'	429						
Wageningen Geertjesweg graf 224	445						
Ede Ginkelse Heide 'Girhen'	4010						
Ede Ginkelse Heide 'Amber'	4103						
Renkum (Goekoop-De Jongh 1912)	4517						
Renkum 'Ketsberg' De Lindelaan	4524						
Ede Ginkelse Heide (ROB barrow 79)	4518				?		
Ede Ginkelse Heide (ROB barrow 79)	4518						
Ede Hotel Bosbeek Tumulus II	390			?			

3000 2800 2600 2400 2200 2000 1800 1600 1400 1200 1000 500

Cal. BC

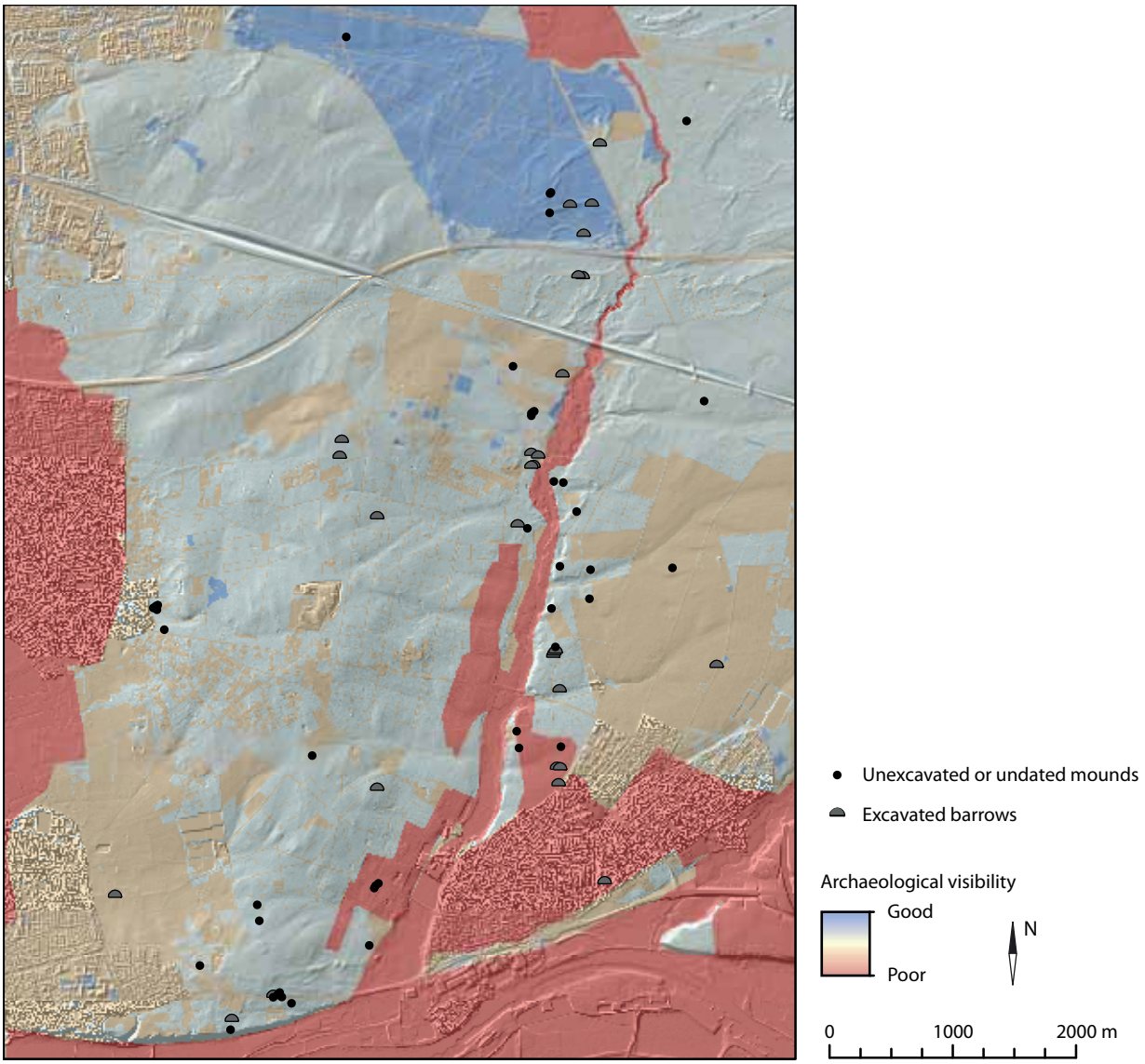


Fig. 5.12: Estimation of the map formation processes affecting the barrow distribution within the Renkum area. The map was created on the basis of 19th Century Topographic Military Maps and modern land-use.

Professional archaeologists

Several generations of archaeologists have investigated the region and their excavations reflect the development of archaeology as a scientific profession. The first excavations in the region were carried out from a purely scientific viewpoint (*e.g.* Holwerda 1910a, 54; Remouchamps 1928, 72-73; Bursch 1933b, 51-58; Van Giffen 1937b; 1954). Gradually the focus shifted to rescue archaeology limited to barrows threatened by town-expansion (*e.g.* Van Giffen 1958) or reclamation efforts (*e.g.* Modderman 1954, 41-44; Van Es 1964). Only limited inspections into already excavated barrows were made from the late 50's and 60's onwards (Lanting and Van der Waals 1971a; 1972a; b), although occasionally some barrows were still (partially) excavated (*e.g.* Casparie and Groenman-Van Waateringe 1980, 28-29).

After these last excavations, professional activities related to barrows in the Renkum area were restricted to inspections only (*e.g.* Deeben 1988). These inspections were mainly aimed at correctly identifying barrows and recording their exact position on the national grid.

5.3.4 Estimates of archaeological visibility

Research area

The archaeological visibility varies greatly within the research area (see Fig. 5.12). Especially the contrast between the eastern and western flank of the stream valley is striking. The arable fields on the east flank and the town of Renkum at the southern end of the valley have destroyed many barrows. That barrows were present in both these areas is evidenced by the excavations of Van Giffen and Miss Goekoop-De Jongh (barrows 4517 and 4524). However, these indicate how much we may be missing here and as such both mounds must be considered to represent many destroyed barrows.

In contrast the western flank is relatively well preserved, with little agricultural activity. Only a small *essen* complex close to the valley bottom will obscure any barrows there. In the north of the study area, the archaeological visibility is quite high as the large *Ginkelse heide* has remained relatively unchanged through the 19th and 20th centuries.

Representativity of the excavated barrows

The Renkum stream valley has one of the highest number of excavated barrows on the Veluwe. Especially the prolific amateur archaeologists in the region have provided us with a wealth of information on many barrows. Out of a total of 71 barrows, no less than 28 have been excavated of which 15 by amateur archaeologists and 14 by professional archaeologists. The representativity can be considered especially high for the Late Neolithic (almost 90% of the excavated barrows). However, as the nature of the amateur archaeologists' excavations does not allow for the recognition of later additions to already existing barrows, little is known on the reuse of the barrows in the Bronze Age and subsequent periods. Observations on the nature and development of the Bronze Age burial landscape in this region are therefore limited.

5.3.5 The development of the Renkum barrow landscape

The earliest barrows (2850-2500 cal BC)

The first phase of barrow construction in this region is characterized by one of the highest concentrations of early Late Neolithic barrows in the Netherlands. In total as many as 13 barrows can be unequivocally dated to this period (Fig. 5.13).[17] A variety of beaker types were recovered from the graves and at least two barrows were associated with what is thought to be early type 1a beakers (barrows 389 and 4106).

All LN A barrows were placed in two alignments separated by the stream valley. The first alignment is located on the eastern flank of the stream valley (nos. 425, 428, 389, 4112, 4113, 4114) and the second alignment on the western flank (4002, 4003, 4106, 4107, 4109, 4500, 4501). That these alignments are not a construct of post-depositional processes and selective preservation of barrows is supported by the earliest observations by (amateur) archaeologists in the region. Miss Goekoop De Jongh remarked in 1912 the barrows were placed:

---

17 At least one more barrow must be added to this total as Miss Goekoop-De Jongh excavated a barrow from which a Protruding Foot Beaker was recovered. Unfortunately this barrow could not be exactly relocated in the research area and has therefore been omitted from the present study. According to Miss Goekoop-De Jongh the barrow was located '*in one of the corners of the heath-field*' (Goekoop-De Jongh 1912, 27).

'[…] in opeenvolgende lijn, doch zonder verdere regelmaat […]', [...] in a consecutive line although without any further regularity [...] (Goekoop-De Jongh 1912, 24).

The first alignment covers a length of at least 1,1 km and encompasses at least nine barrows. Seven of these barrows can be dated to the LN A, while the other two barrows remain unexcavated. The alignment is orientated north-south (at 358-359°).

This first alignment may have extended both to the north and the south. To the south, the outskirts of the modern day town of Renkum lies only 30 m from the last barrow in the alignment. How much further the alignment would have extended into the present day town is unknown. To the north several unexcavated barrows are located on the same alignment, and as with the Epe-Niersen alignment, it is not inconceivable that some of these may also date to the LN A.

The second alignment lies on the western flank of the Renkum stream valley. Over a distance of almost 2 km six barrows lie in a straight line orientated at approximately 10°. Here, the distance in-between the barrows is greater than in the southern alignment, especially in the section to the south of the present day rail road and highway. It should be noted however, that here arable land and

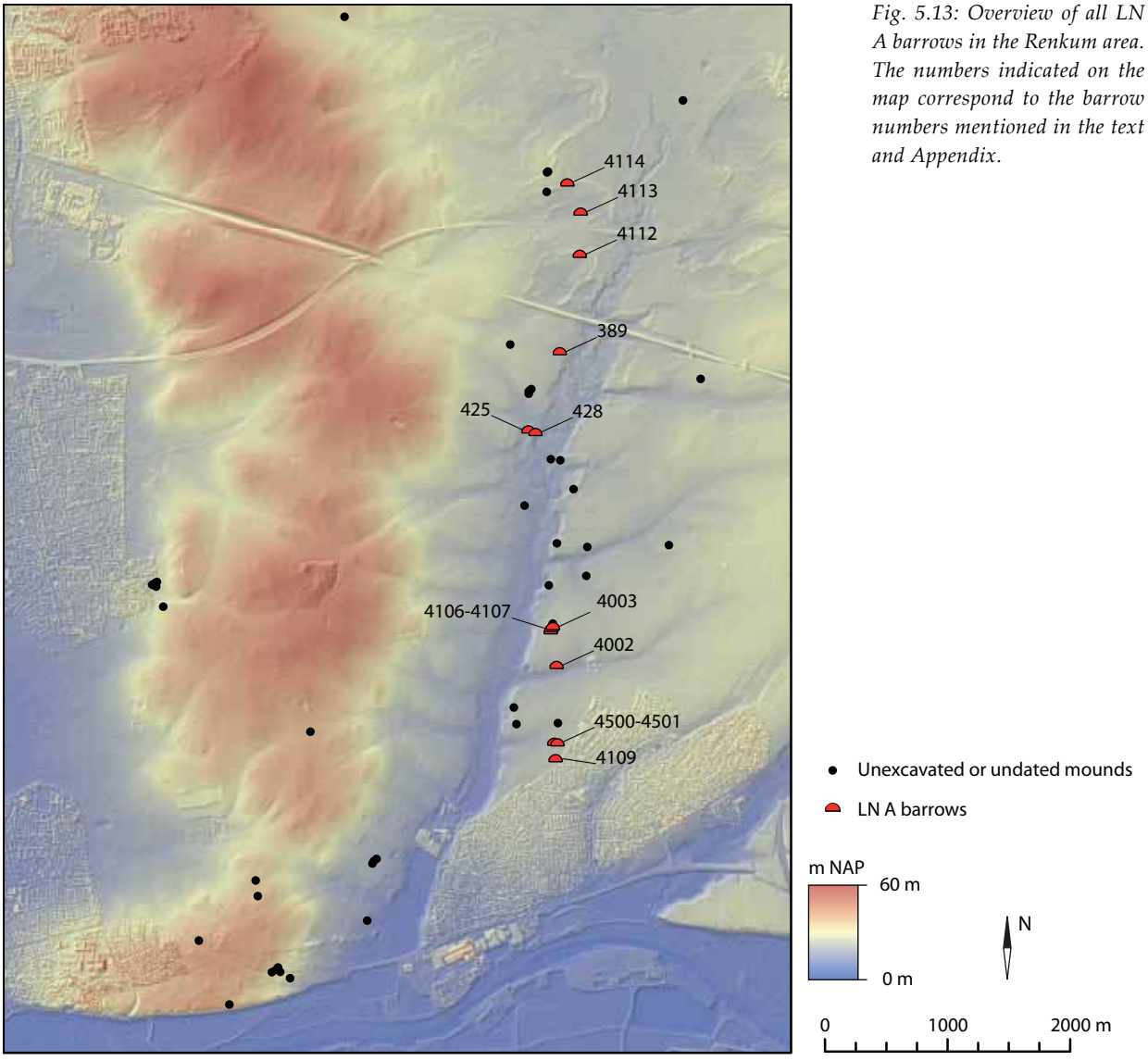


Fig. 5.13: Overview of all LN A barrows in the Renkum area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

the construction of railroads and highways might have destroyed a number of barrows. At least one barrow (barrow 389) on this alignment had already been completely ploughed out and leveled prior to its excavation (Modderman 1954, 41). Furthermore a group of four unexcavated barrows (barrows 4511 - 4514) situated in-between two LN A barrows (respectively 300 m and 400 m to the south and the north, barrows 425 and 389) may date to the same period.

Only the last barrow in the line is located slightly off axis compared to the main alignment (barrow 4114). This however, might be due to the misplacement of this barrow (see appendix). If we do not take into account the last barrow all barrows once again seem to be located on a single alignment. As with the southern alignment, the barrows are located on the configuration individually or in groups of two.

Both the northern and southern alignment can be reconstructed on the basis of excavated barrows. If we consider the unexcavated barrows in-between both alignments, it is striking that at least four or five barrows are located in-between the northern end of the first alignment and the southern tip of the second alignment. It is plausible that at least part of these barrows can be dated to the same period. Especially the barrows just north of the first alignment (nos. 4504 and 4507)

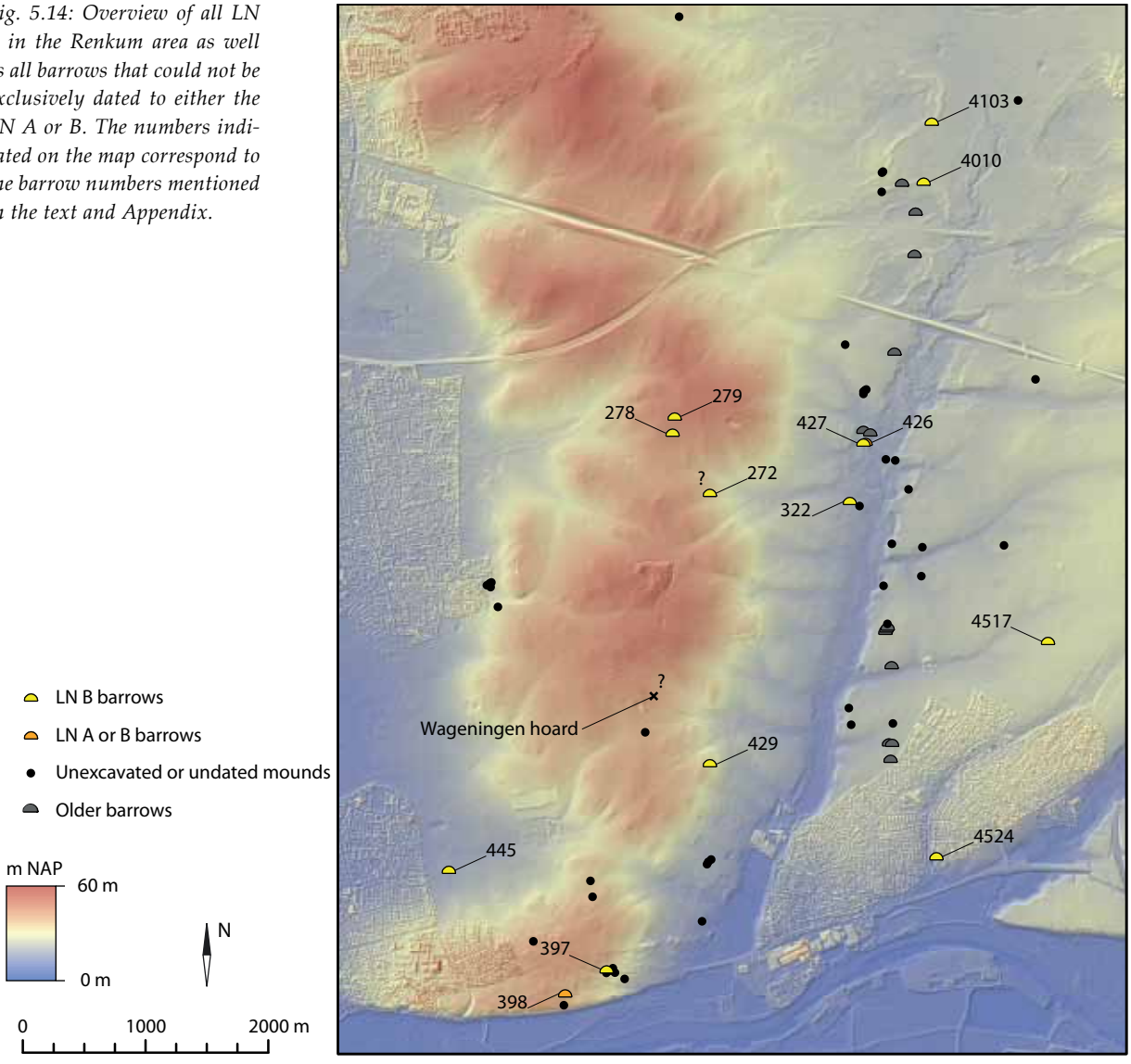


Fig. 5.14: Overview of all LN B in the Renkum area as well as all barrows that could not be exclusively dated to either the LN A or B. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

appear to be spaced according to the same distance as the confirmed LN A barrows. On the basis of the evidence, it is very plausible that the unexcavated barrows in-between them would date to the same period.

So if we accept that the southern alignment might extend to the north, it would in effect link up with the northern alignment and would thus form one continuous alignment stretching over at least 4,5 km. The southern section would then comprise at least 13 or 14 barrows and cover 2,5 km. At its northern tip, the alignment would then cross the stream valley and continue for another 2 km. This reconstruction of one single long alignment is, however, tenuous at best and needs more supporting data.

How quickly the alignment attained its full extent is difficult to estimate, yet two barrows are associated with type 1a-beakers (barrows 4106 and 389). These can probably be dated to the first half of the LN A (Wentink in prep.; but see Furholt 2003). Whether or not the concept and the idea of the alignment was already implied in the earliest phase of the LN A is unknown. All other graves cannot be dated more reliably than to the entire phase. It is therefore impossible to say whether the alignment was built in quick succession or took two or three centuries to form.

That these alignment(s) reflect an archaeological reality is also supported by the fact that not a single LN A barrow was found beyond these alignments, whereas in contrast LN B barrows, as well as being placed close to older barrows (such as in the Oostereng group, barrows 426 and 427), occupy other areas as well (see below). Notably the higher western flank of the stream valley, where no LN A barrows are known, is covered with LN B barrows.

Bell Beaker barrows (2500-2000 cal BC)

The barrows built in this phase can be split into two groups, the ones that are on the alignment, and those that are not (Fig. 5.14). The first group extends the northern alignment to the north and south (nos. 322, 426, 427, 4010, 4103), while the other group is constructed on the higher grounds of the ice-pushed ridges (nos. 272, 278, 279, 397, 445,429, 4517, 4524), most notably on the western flank of the Renkum stream valley.

The first group consists of five barrows, two on the northern side of the alignment and three on the southern side. The first two barrows were excavated by Bellen and both are placed on Pleistocene parabolic sand dunes and yielded rich Bell Beaker graves (barrows 4010 and 4103). Both barrows were placed on the same axis as the LN A alignment. This suggests that the people building these barrows recognized the alignment and wanted to add to it. They also added barrows to the southern end of the alignment. Two barrows (nos. 426 and 427) were built some 100 m from the closest barrow, at the Oostereng barrow group (barrow 428). The last barrow was added some 500 m to the south (barrow 322). These additional barrows would now extend the alignment to a little over 3 km.

The second group of barrows belonging to this phase were built higher up on the plateaus and flanks of the ice-pushed ridge. Especially on the western flank of the stream valley the difference with the preceding LN A is striking. Not a single barrow dating to the first period was uncovered on the higher slopes, and all excavated barrows could be dated to the LN B.

The barrows are distributed, almost evenly, over the ±13 km^2 west flank of the Renkum stream valley. The barrows do not cluster and only two barrows were built relatively close (150 m) to one another (nos. 278 and 279).

The same distribution pattern might be suggested for the eastern flank of the Renkumse stream valley even though only two barrows can be reliably dated on that flank. As mentioned above, the post-depositional processes on that flank were significantly more destructive. Both the barrow excavated by Miss Goekoop-De Jongh, yielding a Veluvian Bell Beaker (no. 4517) and the barrow excavated in Renkum by Van Giffen (no. 4524) demonstrate that here too, the LN B barrows expanded onto higher grounds.

The contrast between the distribution of LN A and B barrows is well illustrated by the fact that the former covered an area of roughly 3 km^2, whereas the latter an area of roughly 25 km^2. This is all the more striking if we take into consideration that more LN A than LN B barrows are known (13 vs. 12).

In addition the LN A barrows were located within a maximum of 500 m from the stream valley, whereas the LN B barrows were built up to 1.5 to 2 km from the stream valley. Apparently a much larger terrain was deemed suitable for burial in this phase than in the previous one.

That this area was not only used for burial is illustrated by the discovery of the famous Wageningen hoard in close proximity to the Bell Beaker barrows (Fontijn 2002, 72-73).[18]

The Early Bronze Age (2000-1800 cal BC)

Little or no burial activities are in evidence for this period. It has been suggested that at least two of the four mound phases capping a Late Neolithic barrow can be dated to the EBA (barrow nr. 322; Van Giffen 1954). Yet these mound phases were dated on the basis of pollen and no artefacts or radiocarbon dates are available to confirm this. Reviewing the publication and the stratigraphy of the finds, it is more likely that the secondary mound phases of this barrow can be dated to the next phase, the MBA A.

Middle Bronze Age barrows (1800-1400 cal BC)

The evidence for primary Bronze Age mounds in the region is limited. Only one barrow may have been constructed in this period (no. 4518, Fig. 5.15). Yet as was the case in the Epe-Niersen area, the evidence suggests most barrows were reused in the Bronze Age.

At Oostereng Bursch excavated a barrow in which a total of four secondary inhumation graves were documented (Bursch 1933b, 52). In addition, all other barrows in the Oostereng group have indications of secondary mound phases. Either through multiple surrounding features or visible in the rudimentary profiles. A completely leveled barrow excavated by Modderman (Modderman 1954, 44) was surrounded by a widely spaced post circle comprised of eight post holes, a typical surrounding feature for the MBA (see Chapter 3). A similar activity phase was visible in the excavation by Van Giffen at Bennekom. Three secondary mound phases were added to a Bell Beaker barrow. In-between the phases at least four tangential graves were added to the mound (Van Giffen 1954).

Here too, it can be concluded that reuse of the older monuments was extensive. The lack of primary mounds on the other hand can rather be attributed to the nature of the research in the region. Especially barrows without any grave goods, as is typical for the MBA, will not have been interesting to the amateur archaeologists.

---

18 Although a direct relation between these two cannot be established and its location could only be determined approximately.

Later barrows (1400-500 cal BC)

At two locations urnfields could be determined (Fig. 5.16). The most extensively researched urnfield is the one excavated by Bursch in 1930 at Bennekom Oostereng (Bursch 1933b), where he partially excavated some 30 small barrows and four Neolithic barrows already discussed above. One of the older monuments (barrow 427) forms the focal point around which the rest of the urnfield developed.

One more urnfield is known in the region, yet details are lacking. Pleyte discusses this urnfield close to the edge of Bennekom where at least one Schräghalsurn was found (Pleyte 1877-1903, 51). Apparently many more urns were recovered at the urnfield, yet little is known of them. Holwerda also excavated here albeit with little results (Holwerda 1910a, 54). Whether or not older barrows were located at the site is also unclear.

Secondary burial in pre-existing barrows is attested only once in the region. A Kerbschnitt urn was discovered in the top of a mound prior to it being levelled (barrow 389; Modderman 1954, 44).

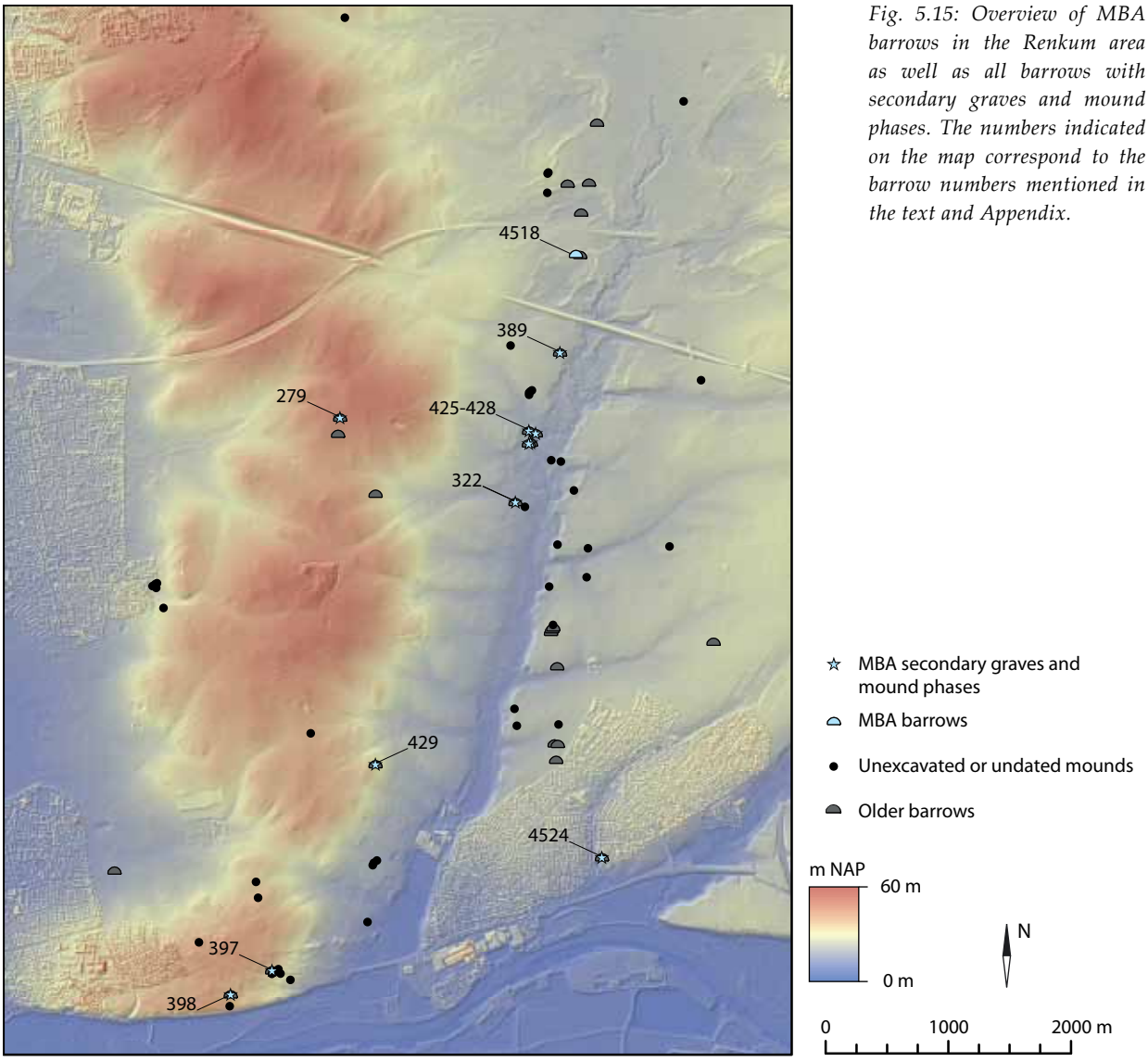


Fig. 5.15: Overview of MBA barrows in the Renkum area as well as all barrows with secondary graves and mound phases. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

5.3.6 Summary

Within the Renkum stream-valley two alignments (or possibly a single long one) can be identified. Almost every barrow on the alignments was constructed in the LN A, from 2900 – 2500 cal BC. The alignment is built relatively close to the stream valley and may at one point cross it.

As with the Epe-Niersen alignment new barrows were added to the alignment during the LN B. Most of the Bell Beaker mounds have, however, been found higher up the flanks of the ice-pushed ridges and much further away from the stream-valley than in the preceding period.

The development of the barrow landscape in the Bronze Age is poorly understood. We know of only one Bronze Age barrow constructed in this region. Reuse of older barrows however was common, and even with the generally poor quality of excavation, multiple secondary graves and mound phases could be identified.

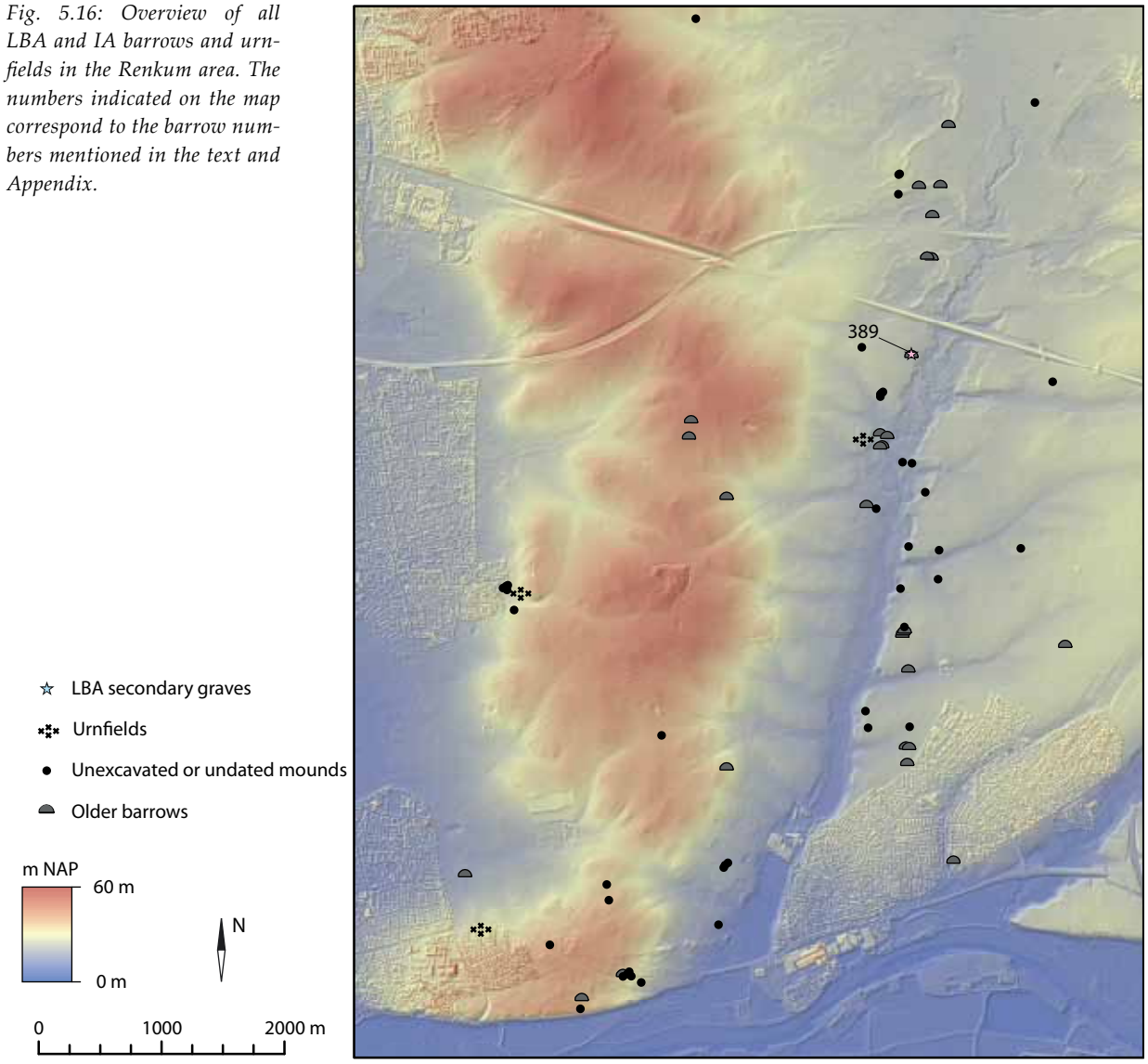


Fig. 5.16: Overview of all LBA and IA barrows and urnfields in the Renkum area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

5.4 The Ermelo Barrow Landscape

5.4.1 Introduction

On the northern slope of the Garderen ice-pushed ridge we find one of the largest concentrations of still existing barrows in the entire Low Countries. In this research area alone 134 barrows are known, of which several have been discovered recently (Fig. 5.17; Table 5.3).

As the area was subject to the single biggest barrow excavation campaign in the Netherlands we have information on more than a third of these barrows (52 mounds). Modderman's campaign, with 34 barrows excavated in five (!) months (Modderman 1954, 7), accounts for more than two thirds of these, while the other barrows were excavated by Remouchamps and amateur archaeologists.

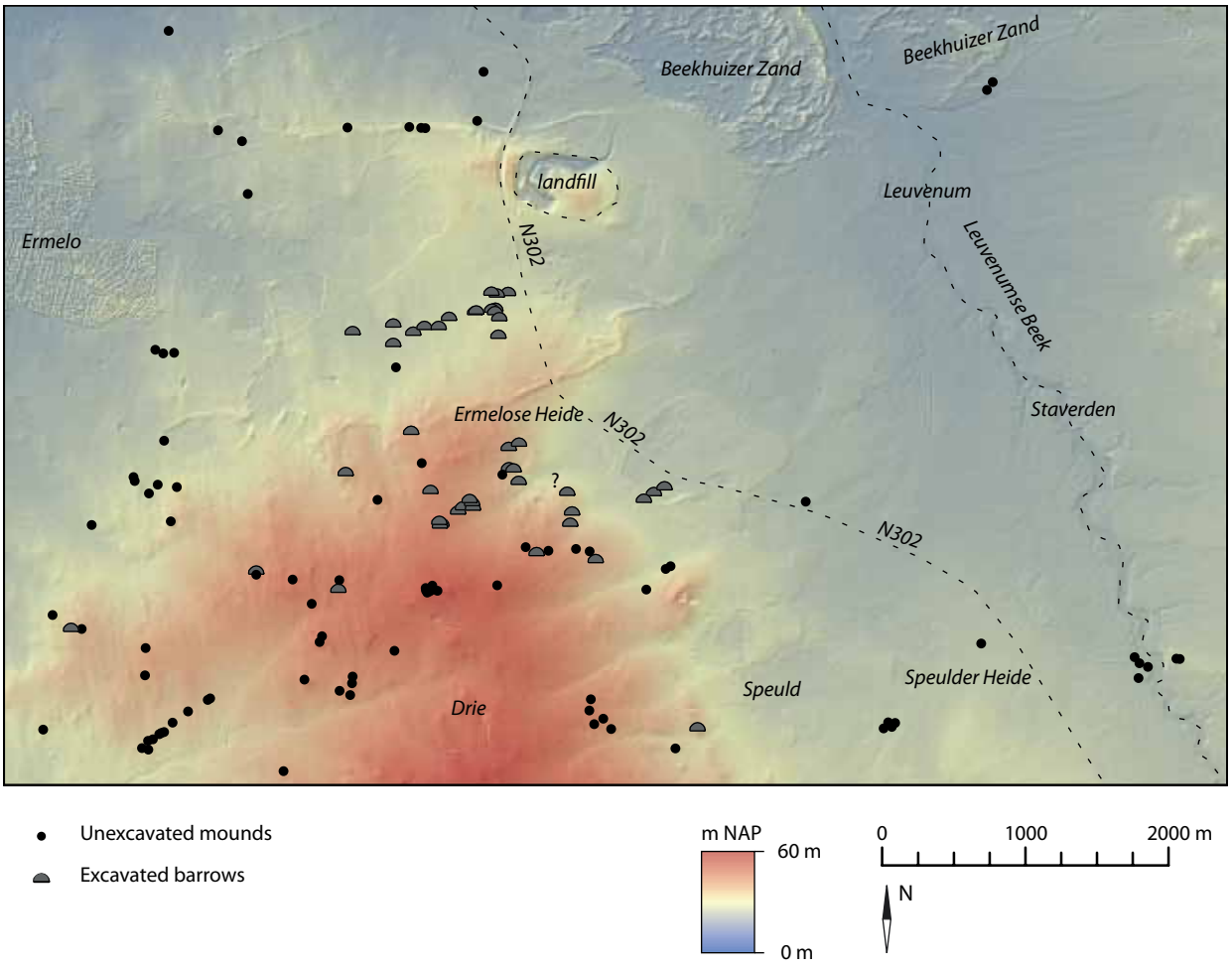
Table 5.3 (opposite page): Dating range for each excavated barrow within the Ermelo area. Black lines indicate barrow construction. Grey lines indicate secondary graves or mound phases. Dotted lines are uncertain dates.

5.4.2 Geomorphology of the region

The barrows are located on the northern slope of the ice-pushed ridge of Garderen. The eastern flank of the ice-pushed ridge is delimited by the *Leuvenumse* stream valley. It is one of the only streams on the Veluwe to permanently carry water. The valley and the lower lying areas around it were filled with peat and swamps up until the 19th Century and to this day remains a poorly drained area (Berendsen 2000b, 50).

The barrows can be found higher up, from the foot of the ridge up to its highest point. Two very high and long sand dunes divide the terrain into three distinct parts. They run east-west and probably formed after the Allerød-interstadial

Fig. 5.17: All recorded barrows in the Ermelo case study. The map was created with the AHN elevation data (copyright www.ahn.nl).



Sitename	Barrow number	Dating range: LN A	LN B	EBA	MBA-A	MBA-B	LBA/EIA
Ermelose heide Tumulus VII	330						
Ermelose heide Tumulus XXVIII	352						
Ermelo (ROB barrow 140)	4625						
Ermelo (ROB barrow 142)	4626						
Speulder Bosch Heuvel 2	4634						
Ermelo (ROB barrow 53 or 55)	4651						
Ermelose Heide	4685						
Ermelose heide Tumulus I	324						
Ermelose heide Tumulus II	325						
Ermelose heide Tumulus III	326						
Ermelose heide Tumulus VI	329						
Ermelose heide Tumulus XVI	340						
Ermelose heide heuvel 2	354						
Ermelose heide heuvel 3	355						
Ermelose heide Tumulus XXIV	348						
Speulder Veld heuvel II	363						
Ermelose heide Tumulus XX	344						
Ermelose heide Tumulus XXVII	351						
Ermelose heide heuvel 1	353						
Ermelose heide heuvel 4	356						
Ermelose heide heuvel 5	357						
Ermelose heide heuvel 6	358						
Ermelo Driesche Berg	444						
Ermelose heide Tumulus XIX	343						
Ermelo (ROB barrow 44, 45 or 47)	4654						
Ermelose heide Tumulus IV	327						
Ermelose heide Tumulus V	328						
Ermelose heide Tumulus IX	332						
Ermelose heide Tumulus XIII	336						
Ermelose heide Tumulus XIVa	337						
Ermelose heide Tumulus XIVb	338						
Ermelose heide Tumulus XV	339						
Ermelose heide Tumulus XVIII	342						
Speulder Veld heuvel III	364						
Speulder Veld heuvel V	366						
Ermelose heide Tumulus VIII	331						
Ermelose heide heuvel 1b	360						
Kozakkenberg heuvel 1	4671						
Ermelose heide Tumulus XXV	349						
Speulder Veld heuvel I	362						
Ermelose heide Tumulus X	333						
Ermelose heide Tumulus XXII	346						
Ermelo (ROB barrow 207)	4601						
Harderwijk (ROB barrow 3)	4605						
Ermelose heide Tumulus XI	334			?			
Ermelose heide Tumulus XII	335			?			
Ermelose heide Tumulus XVII	341			?			
Ermelose heide Tumulus XXI	345			?			
Ermelose heide Tumulus XXIII	347			?			
Ermelose heide Tumulus XXVI	350			?			
Ermelose heide heuvel 1a	359			?			
Speulder Veld heuvel IV	365			?			

3000 2800 2600 2400 2200 2000 1800 1600 1400 1200 1000 500

Cal. BC

(Berendsen 2000b, 44). The northern half of the study area is covered in modern sand dunes and little to no information is known for this region. The central area represents a saddle-shaped valley with at its bottom an alignment of barrows. The southern area is scoured by several dry-valleys draining off to the east and west. The barrows in this area are placed on the flanks and at the heads of these dry-valleys.

5.4.3 Research history

Amateur finds

Relatively few amateur finds are known from the region, especially when compared to the case study of Renkum. Only the activities of two amateur archaeologists can be identified in the area. One of these was Mr. Kortlang who investigated at least three barrows in the area (4634, 4651 and possibly 4652). Kortlang's collection was inventoried after World War II, but due to the many years in-between his excavations and the inventory by Modderman and Van der Waals errors may have occurred (Modderman 1962-1963, 8). Similarly several finds made by Mr. Bezaan (barrows 4625, 4626 and 4685) could not be located with 100% accuracy (*ibid.*, 8).

In contrast to the low number of recorded finds, grave robbing in the area can be considered as very high. Almost every barrow excavated by Modderman had been previously dug into. Especially the central parts of the barrows were almost completely destroyed. Apparently grave robbers had started digging in every single barrow on the heath in the years after Remouchamps' excavations (Modderman 1982, 14; see for example barrow 444). Indeed when comparing the number of primary graves discovered by Remouchamps with those discovered by Modderman it is obvious that in just 25 years almost every barrow on the heath was robbed (respectively 6 primary graves out of 9 excavated barrows and 6 primary graves out of 33 excavated barrows; Deeben 1989, 13)!

That these barrows were thoroughly ravaged can be demonstrated by barrow 328, where a pit measuring at least 6 by 7 m was dug into its centre. Reaching to a depth of at least 2 m, the pit destroyed every single possible remnant of central or primary graves. Almost no information is available on what was found in these robbed mounds.

Professional archaeologists

The oldest recorded excavation in the area was conducted by Pleyte in 1877, who excavated two barrows south of the town of Epe (Pleyte 1877-1903, 74). Little to no relevant information could be obtained from this excavation. The excavations by Remouchamps provided a little more detail, even though the overall quality of the documentation was still minimal (Remouchamps 1923). The last excavation campaign in the region was conducted by Modderman in 1952. Modderman excavated a total of 34 barrows in one single campaign, respectively 29 on the *Ermelose heide* in the centre of the research area and 5 on the *Speulder heide* some 3 km to the southeast (Modderman 1954).

5.4.4 Estimates of archaeological visibility

Research area

A clear distinction in the distribution of the barrows can be seen between the south-west and the north-east of the research area (Fig. 5.18). The northeastern part of the map is almost empty while the southwestern half is covered in barrows.

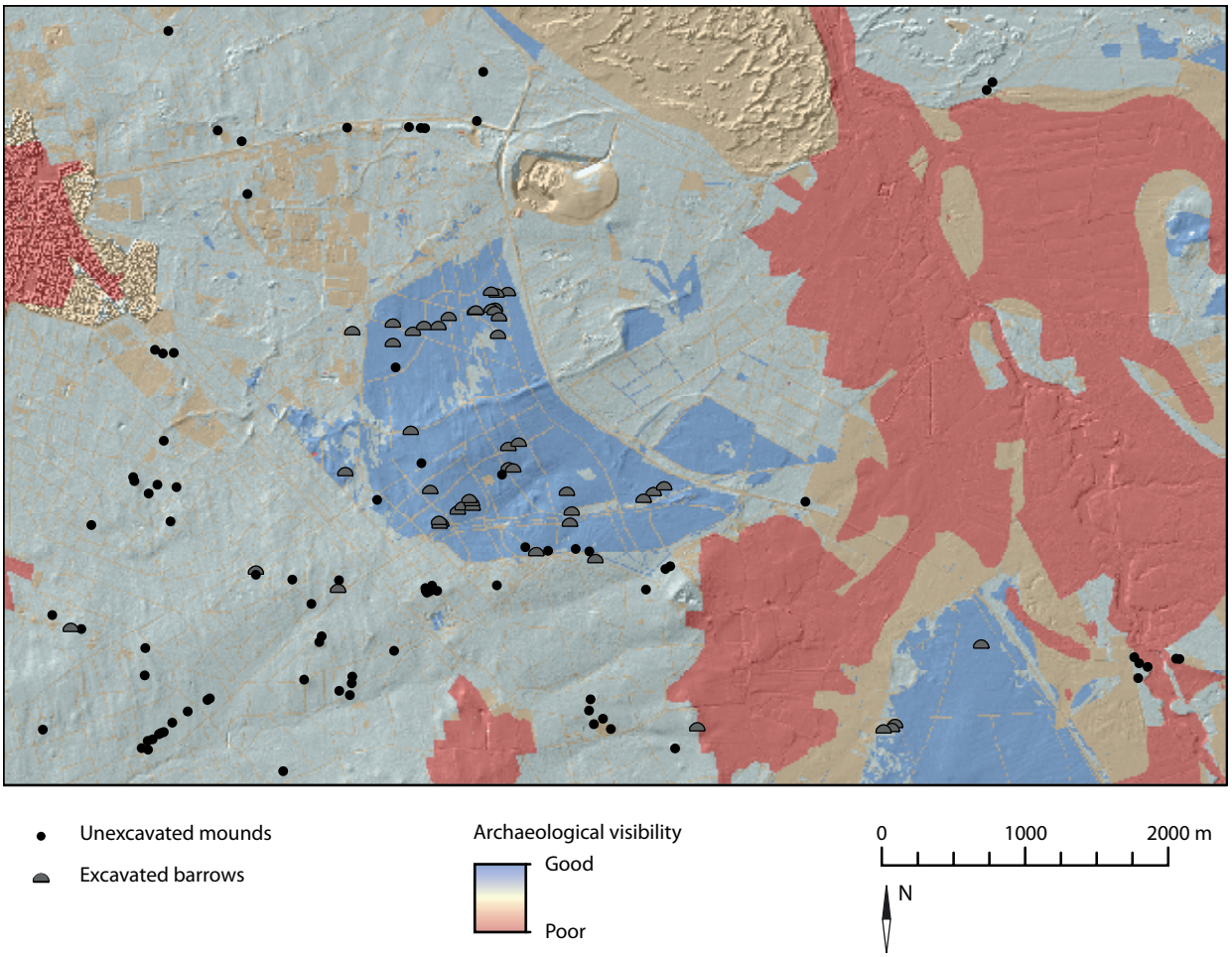


Fig. 5.18: Estimation of the map formation processes affecting the barrow distribution within the Ermelo area. The map was created on the basis of 19th Century Topographic Military Maps and modern land-use.

The border between these two zones is formed by a provincial road (N302). More than 95% of the barrows in the research area can be found to the west of this road. To the east barrows are only found on the other flank of the stream valley.

Several reasons can be put forward for this peculiar distribution. The wind-erosion on the wastelands of the *Beekhuizer zand* will have destroyed any traces of barrows in the northern part of the area. Similarly the *essen* surrounding the hamlets of Leuvenum and Speuld will have obscured any barrows on the west bank of the stream valley, while the large swamps around them, still visible on the maps from 1848 will not have been favoured locations for barrow construction.

Another reason that can be put forward for the biased distribution is that the area to the east of the provincial road has been in private property since the 1920's and has never been extensively researched by amateur and professional archaeologists.

In some cases discovery of 'flatgraves' by amateurs in the area may indicate leveled barrows. The amateur archaeologist Kortlang discovered three PF Beakers to the east of the provincial road (Modderman 1962-1963, 13). These finds have not been included in the present study as the nature of their find context remains unclear.

Representativity of the excavated barrows

More than a third of the barrows in the area have been excavated yielding some level of information on in total 52 barrows. Of 44 barrows the initial construction phase could be identified, while for 8 barrows the extent of the excavation was so limited or the mound so damaged that little information was available.

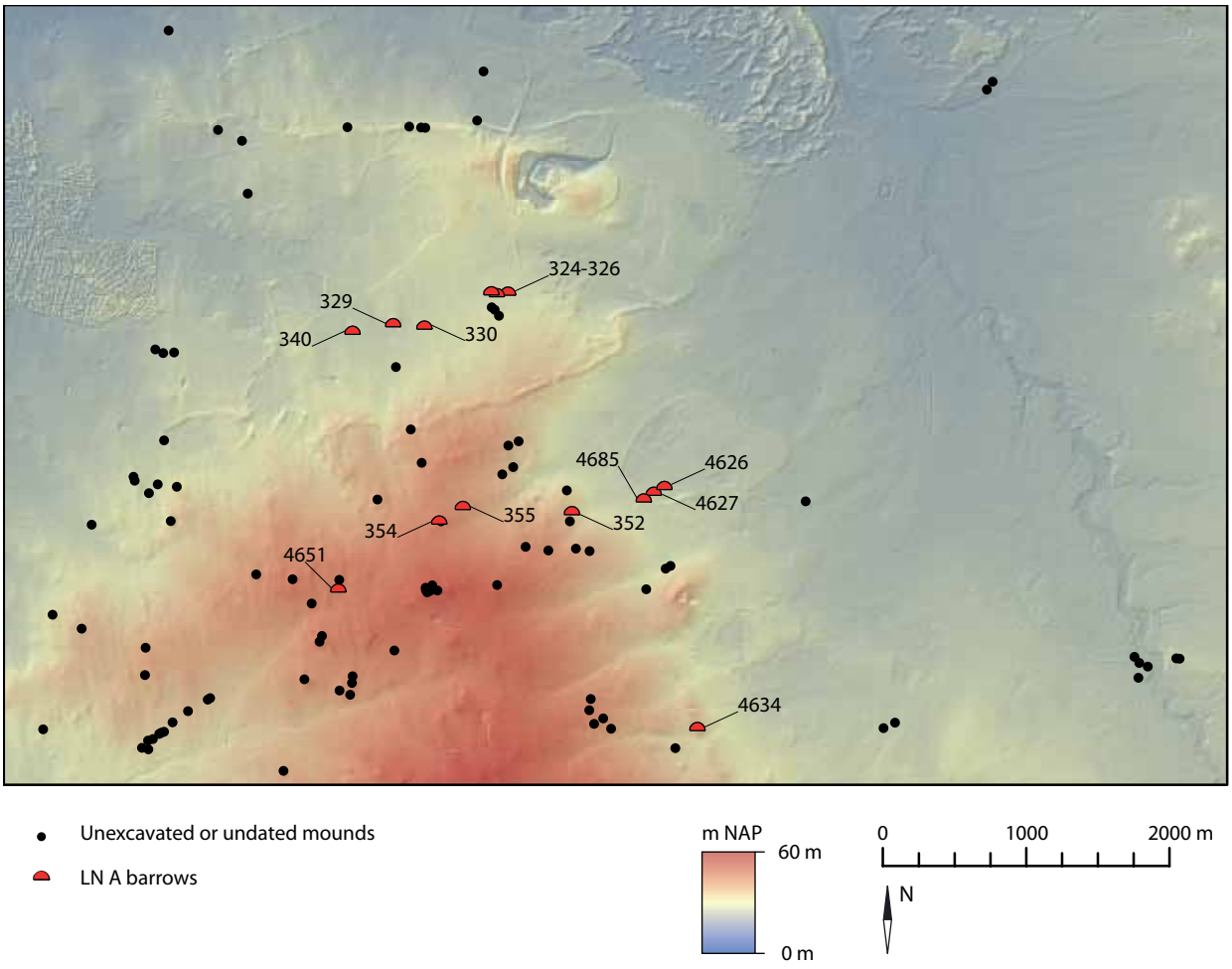


Fig. 5.19: Overview of all LN A barrows in the Ermelo area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

Furthermore the excavations by Remouchamps and Modderman have tended to focus on the large Ermelo heath, resulting in an archaeological map with a bias towards the centre of the research area.

5.4.5 The development of the Ermelo Barrow Landscape

The earliest barrows (2850-2500 cal BC)

Fifteen barrows can be reliably attributed to the initial phase of barrow construction (Fig. 5.19). Two main concentrations of barrows can be identified. On the one hand an alignment of six barrows to the north (nos. 324, 325, 326, 329, 330, 340) and on the other a second group of nine barrows to the south (348, 349, 352, 354, 355, 4625, 4626, 4634, 4651, 4685).

A first alignment of six barrows covers 1,6 km on a gently sloping plain hemmed in to the north and south by two long Pleistocene sand dunes. The alignment is less regular than those from Vaassen and Renkum, but can be said to be roughly orientated at 75°. As far as we know no other barrows can be identified further away from the alignment. To the west no barrows have been identified on the axis of the alignment, even though barrows are known from that general area. To the east of the alignment the barrow distribution is not well known (see above) and there is a possibility that additional barrows may have been present to the east of the provincial road.

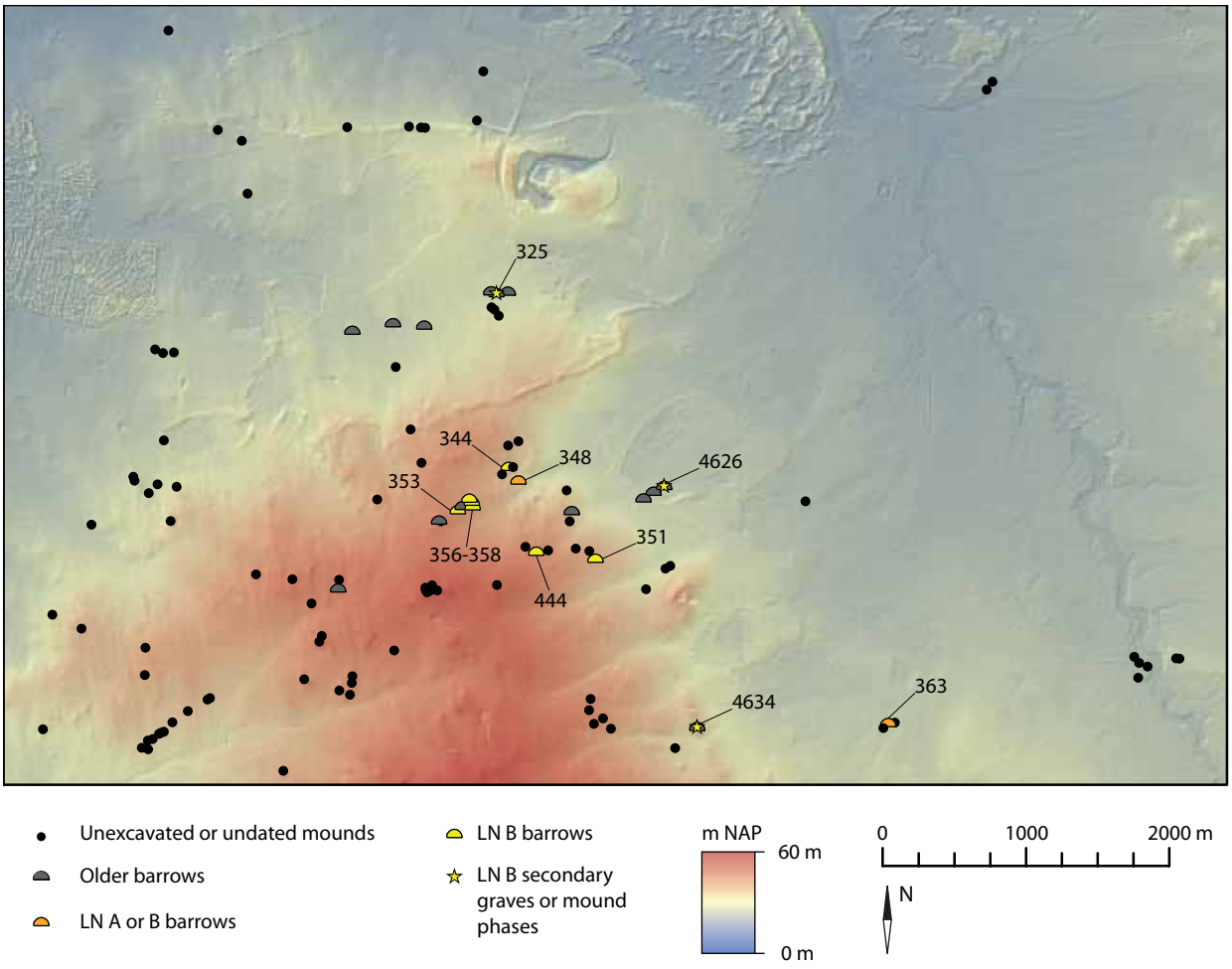


Fig. 5.20: Overview of all LN B in the Ermelo area as well as all barrows that could not be exclusively dated to either the LN A or B. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

All barrows on the alignment are either associated with PF or AOO beakers. Both barrows 325 and 326 cover a grave containing two PF Beakers and a flint blade. Graves with more than one beaker are generally considered to date to the second half of the LN A (Wentink in prep.). Additionally the similarities between the grave goods would suggest they were built within a relative short time of one another (I will discuss these two barrows in more detail in Chapter 8). The three other barrows cannot be dated more precisely than to the LN A.

At first glance several of the barrows of the second group appear to be part of at least two linear arrangements (one of three, 4625, 4626, 4685; the other of four barrows, 354, 355, 4651 and possibly 348), yet conclusive evidence that these date to the LN A is lacking. Only the small alignment of three barrows can be said to conclusively date to this period. Three mounds are placed along a single axis 80 and 85 m from one another over a total distance of 180 m and an orientation at 59°. No other barrows are located in the area and it must be assumed that these three barrows make up a small alignment.

The other alignment is poorly excavated and cannot be reliably dated. The alignment is spaced irregularly and especially the mounds excavated by Remouchamps are difficult to interpret, let alone date. Therefore I will not dwell any further upon this possible alignment.

Bell Beaker barrows (2500-2000 cal BC)

Barrow construction in this period restricts itself to a single group of eight or nine barrows on both flanks of a dry valley (nos. 344, 351, 353, 356, 357, 358, 444 and possibly 348; Fig. 5.20). The new barrows are added to the older southern group as identified above, but they are placed more to the west of the main LN A concentration, higher up the dry valley. There is a possibility that one barrow, may date to the LN A (no. 355).

The barrow group, almost in its entirety excavated by Remouchamps (Remouchamps 1923), is difficult to date. The six barrows on the northern flank of the dry valley (nos. 344, 353, 354, 356, 357, 358 and possibly 355) are not associated with any burial gifts. The graves however all show a similar construction not seen in any of the other barrows in the region. The burial pit is lined with burnt planks and in some cases a wooden construction is found on the bottom of the rectangular pits. Each grave contained traces of inhumation. Especially barrows 356, 357 and 358 cover almost identical burial pits (Fig. 5.21). The three barrows are built close to one another with the foot of each barrow almost touching the next one. All three burial pits are lined with burnt planks on three sides, with an opening towards the east or northeast, possibly forming small burial chambers.[19] In two cases more than one individual had probably been buried in the same grave (barrows 356 and 358).

The three other barrows in the group also cover a similar burial type although Remouchamps' description of these is more difficult to follow. The similarities between these six barrows suggest that they may have been built in quick succession or even as part of one single event. It is however difficult to pinpoint exactly where during this phase these barrows were constructed. Both the associated sherds and the flint arrowhead found in some of the graves can be dated to the LN B (or possibly the beginning of the EBA), as well as the (palisaded) ditches surrounding the barrows.

On the southern flank of the dry valley two other barrows can be added to this phase (nos. 351 and 444). They form part of an alignment of at least six barrows,

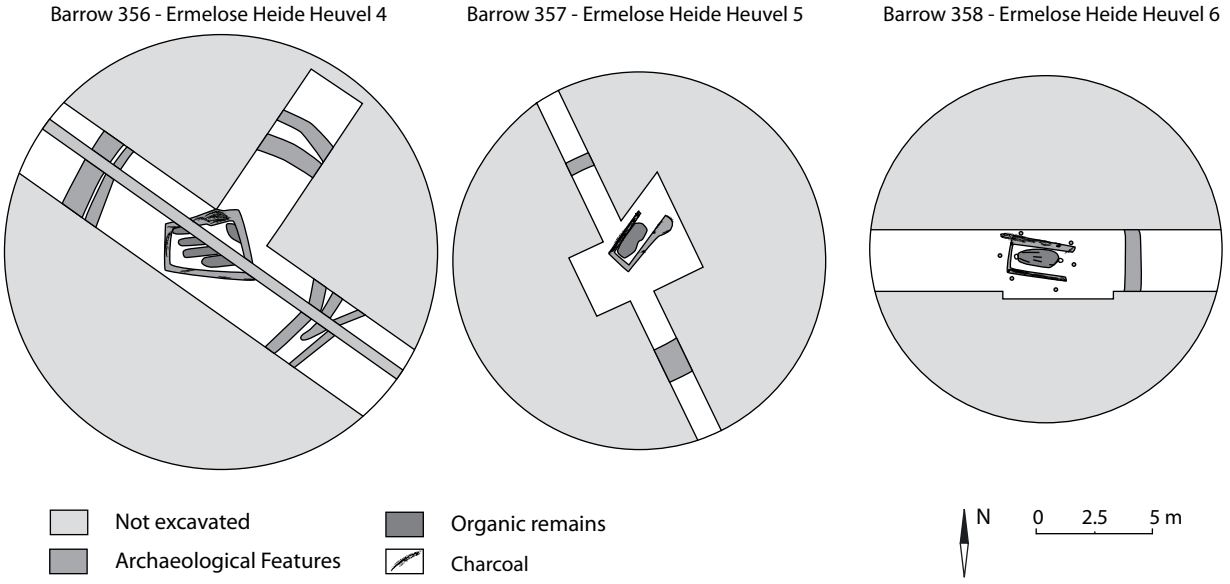


Fig. 5.21: Barrows 356-358 excavated by Remouchamps (redrawn after Remouchamps 1923, Fig. 1; courtesey of the National Museum of Antiquities (RMO)).

19 Several parallels for wooden burial chambers in the LN B can be found. For an overview see Bourgeois, *et al.* 2009.

which is orientated at roughly 98° and covers 500 m. All barrows are evenly spaced with 60 to 80 m in-between them. Only these two barrows were investigated and nothing is known for the other barrows on the alignment. In one of these barrows, the top half of a Veluvian Bell Beaker was placed upside down in the palisaded ditch (no. 351). In the other barrow, a grave was found (containing a Veluvian Bell Beaker, a V-perforated button and two amber beads), but its position in relation to the mound is unknown. It could be either a secondary central or a primary grave.

Reuse of older barrows for burial is evidenced in several cases. No new barrows were added to the northern alignment of LN A barrows, but in at least two barrows a central grave was dug into the old mound and each was then aggrandized with an additional mound capping (nos. 325 and 330) in the LN B. One of the mounds of the small alignment in the southern group also had a secondary grave added to it but whether or not an additional mound capping covered the primary mound is unknown (no. 4626).

The Early Bronze Age (2000-1800 cal BC)

EBA activity in the region was, as in other regions, limited (Fig. 5.22). From the evidence only one primary barrow can be attributed to this period (see barrow no. 4654).

Nevertheless sherds of Barbed Wire Beakers occur frequently in the excavated barrows, usually in a secondary position in relation to the mound. From the foot of the secondary mound phase of barrow 325 for example, fragments of a very big pot decorated with a Barbed Wire stamp were recovered (Modderman 1954, 23).

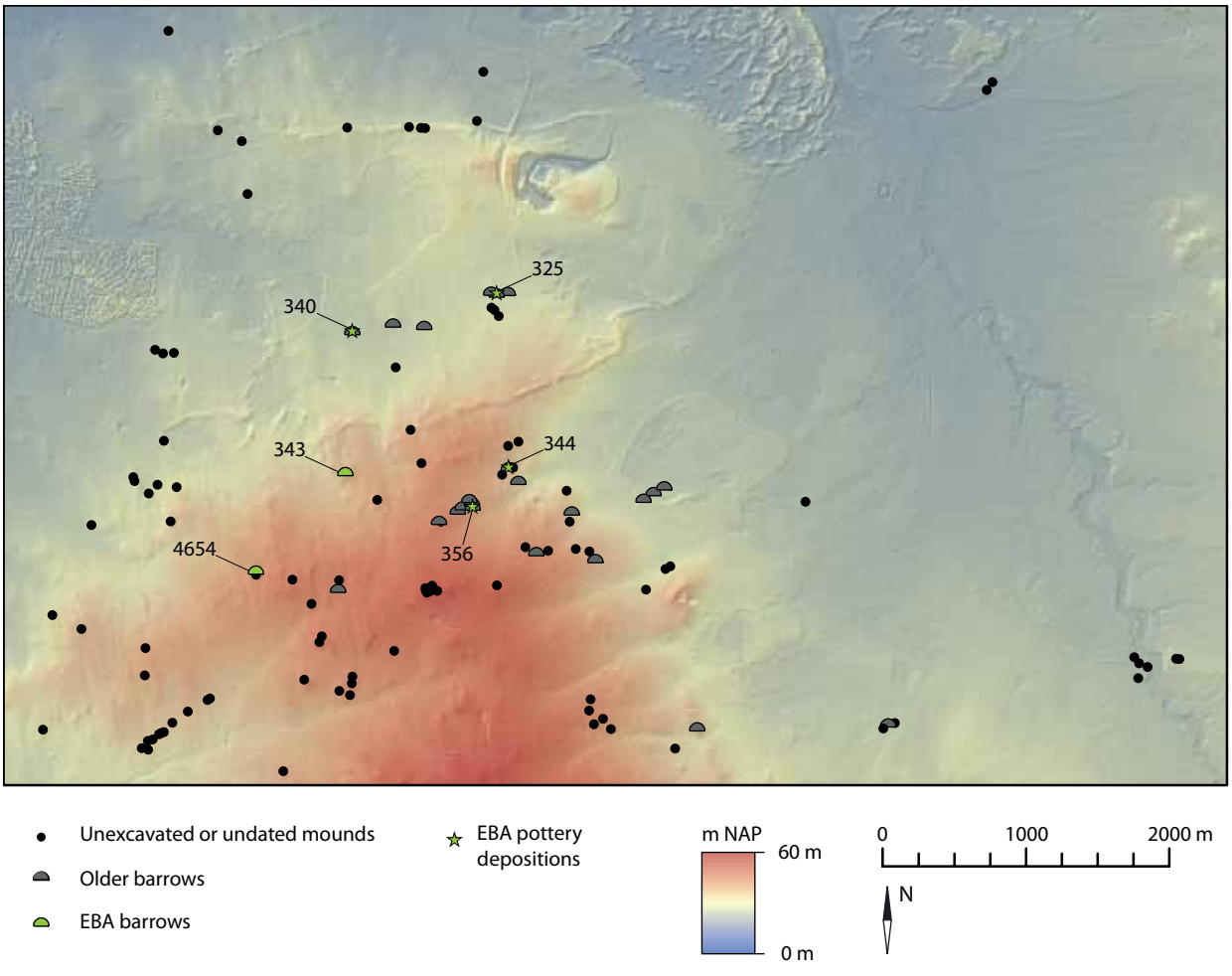


Fig. 5.22: Overview of all EBA barrows in the Ermelo area as well as pottery depositions within mounds. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

Similarly small fragments of Barbed Wire Beakers were found in several of the barrows described above. It is impossible to tie these sherds and beakers, placed in the flanks of older mounds, to any actual graves.

Middle Bronze Age barrows (1800-1400 cal BC)

In stark contrast with the two other case studies on the Veluwe, many primary barrows of the Ermelo group can be dated to the MBA. In total 16 new barrows were constructed during this phase (Fig. 5.23). Especially the northern alignment of barrows, established in the LN A, which is expanded with an additional eleven barrows (nos. 327, 328 and 331 to 339).

During the MBA, eleven new barrows were constructed on a new alignment, running parallel to the LN A alignment constructed some 1000 years earlier. This new alignment is approximately 750 m long and is located some 100 m to the south of the older alignment. The barrows are all made up of a core of sods with a capping of sand (Modderman 1954, 27). They stand out from the Late Neolithic barrows by the fact that they are almost invariably higher than 80 cm whereas all Late Neolithic barrows are small low barrows that are at the most 50 cm in height. Some of these barrows must originally have attained a maximum height of more than 1,5 to 2 m.[20] In addition these Bronze Age barrows were erected in

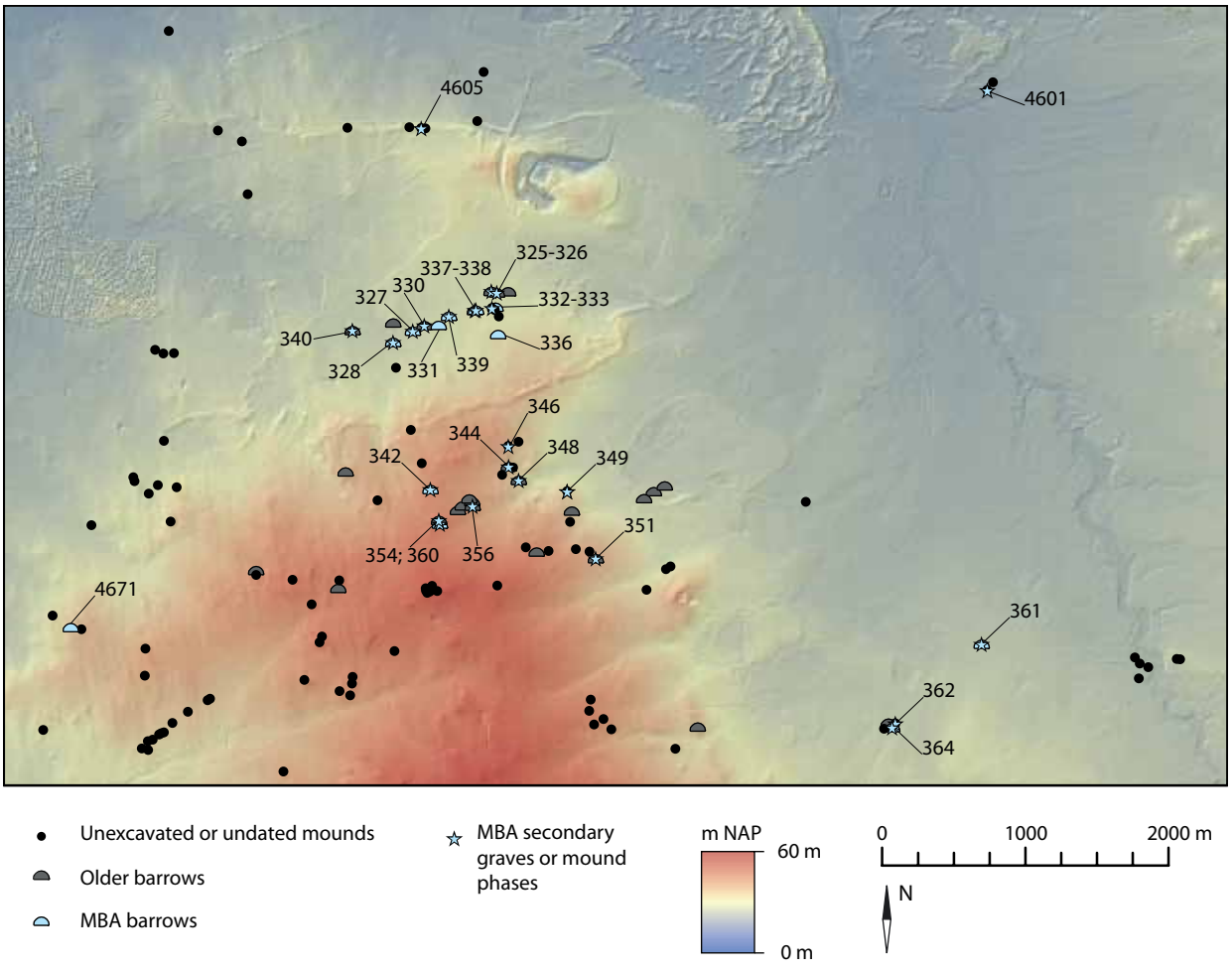


Fig. 5.23: Overview of MBA barrows in the Ermelo area as well as all barrows with secondary graves and mound phases. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

20 Recent disturbances in the top of the barrows and taphonomic processes (*i.e.* tanks) will have significantly lowered the barrows.

two phases, with a distinct core visible in most cases. Since no new soil profile developed on top of these cores, it must be assumed that not much time had passed between these two events (see for example barrow 331). Unfortunately most of the primary graves underneath these barrows have been destroyed. For the few graves that remain, however, we know that some contained cremation remains, while others were filled only with fragments of charcoal.

Four new barrows were constructed within the southern group (342, 350, 359, 360). Little information is available on these barrows, other than that they do not diverge much from the barrows of the northern group. A single barrow was excavated by Pleyte in 1877 (Pleyte 1877-1903, 74; barrow 4671), little more can be said about this barrow, however, beyond that it was probably built during the Bronze Age.

As with the other case studies on the Veluwe reburial within and reuse of older barrows during this period was wide-spread. Only one or two barrows in the entire research area were not enlarged or had no secondary graves placed in them (*cf.* barrow 324; Table 5.4). All other barrows had secondary graves placed in their flanks, which some cases numbered up to twelve. Especially some of the Bronze

Barrows Ermelose Heide	Barrow ID	Secondary graves	Secondary mound phase	Heavily disturbed / partially excavated
Ermelose Heide Tumulus I	324	0	0	.
Ermelose Heide Tumulus II	325	5	> 4	x
Ermelose Heide Tumulus III	326	2	1	.
Ermelose Heide Tumulus IV	327	4	1 (?)	.
Ermelose Heide Tumulus V	328	13	1	.
Ermelose Heide Tumulus VI	329	0	.	x
Ermelose Heide Tumulus VII	330	8	2	.
Ermelose Heide Tumulus VIII	331	3	1 (?)	.
Ermelose Heide Tumulus IX	332	4	1 (?)	.
Ermelose Heide Tumulus X	333	0	1 (?)	.
Ermelose Heide Tumulus XI	334	0	.	x
Ermelose Heide Tumulus XII	335	1	.	x
Ermelose Heide Tumulus XIII	336	0	0	.
Ermelose Heide Tumulus XIVa	337 and 338	5	1	.
Ermelose Heide Tumulus XV	339	4	1	.
Ermelose Heide Tumulus XVI	340	5	> 3	.
Ermelose Heide Tumulus XVII	341	0	.	x
Ermelose Heide Tumulus XVIII	342	1	2	x
Ermelose Heide Tumulus XIX	343	1	.	x
Ermelose Heide Tumulus XX	344	1	2	.
Ermelose Heide Tumulus XXI	345	0	1	x
Ermelose Heide Tumulus XXII	346	1	1	x
Ermelose Heide Tumulus XXIII	347	0	.	x
Ermelose Heide Tumulus XXIV	348	1	2	.
Ermelose Heide Tumulus XXV	349	0	2	.
Ermelose Heide Tumulus XXVI	350	0	.	x
Ermelose Heide Tumulus XXVII	351	0	.	x
Ermelose Heide Tumulus XXVIII	352	0	.	x
Speulder Veld Tumulus I	362	12	1	x
Speulder Veld Tumulus II	363	3	> 1	x
Speulder Veld Tumulus III	364	> 1	> 2	x
Speulder Veld Tumulus V	366	3	1	x

Table 5.4: The number of secondary graves and additional mound phases recorded in the excavations by Modderman. The heavily damaged barrows are those barrows where more than half of the mound was destroyed prior to excavation.

Age barrows from the northern group mentioned above were extensively reused for reburial. Two types of burial seem to have been selected for these secondary graves, on the one hand inhumation graves in burial pits placed tangentially to the center (*e.g.* barrow 328) and on the other cremation graves in small pits (*e.g.* barrow 330).

The reuse of barrows was not limited to secondary graves however, as several barrows were also enlarged with secondary mound phases. The majority of the barrows were heightened only once but interestingly four LN A barrows, already more than a thousand years old, were heightened two or even three times during the bronze age. There are indications that at least some of the mound cappings were added to the barrows in the Late Neolithic (especially barrow 325), but most date to the Bronze Age. The additional mound phases and the secondary burial points to large scale reappropriation of the, by that time, ancient barrows.

The reuse of older barrows appears to have been selective and only specific barrows were eligible for specific secondary activities (I will return to this in Chapter 7). Three Neolithic barrows of the northern group are a case in point (Tumuli I, II and III excavated by Modderman, respectively nos. 324, 325 and 326; see Fig. 7.13). All three barrows were originally small low barrows, constructed at approximately the same time. Only barrows II and III were reused, while barrow I was left alone. Tumulus III was refurbished once and two secondary graves were placed in its flanks. Tumulus II was increased in size at least three times[21] and at least five secondary burials were added to it (note that only half of the mound was excavated). For some reason Tumulus I was left neglected while the other two were not.

Similarly other LN barrows were selected for reburial or secondary mound phases, while others were not.

Later barrows (1400-500 cal BC)

No urnfields or related activities are known from the area. In all other regions reuse of older barrows probably continued in this period, that this would not have been the case for the Ermelo area is unlikely. Direct evidence for this reuse is lacking however.

5.4.6 Summary

At Ermelo once again one (or possibly two) alignment can be identified although these are not as recognizable as the Renkum and Epe-Niersen alignments. Here too the origin of the alignment can be placed in the LN A. During the Bell Beaker phase the alignment was not extended. Secondary graves in existing mounds do occur however, and several new barrows were built away from the alignments.

In contrast with the preceding case studies MBA barrows are well represented. The alignment set out in the Late Neolithic is copied and reproduced some 100 m to the south of the original one. Next to the construction of new barrows reuse was wide-spread and especially the refurbishment of ancient barrows was frequent in the Ermelo region.

21 Modderman claims that this barrow was heightened in at least seven distinct phases (Modderman 1954), but Waterbolk argued for only four distinct mound phases (Waterbolk 1964) which was later followed by Modderman himself (Modderman 1975).

5.5 The Toterfout barrow group

5.5.1 Introduction

The barrows of Toterfout[22] represent one of the most extensively researched barrow landscapes in the Netherlands. The almost exclusively Bronze Age burial landscape was excavated in several major campaigns (Braat 1936; Beex 1952a; Hijszeler 1952; Glasbergen 1954a; b). In total 55 barrows can be found on the higher cover-sand ridges encircling what was once a large lake, the now-drained *Postelse Weijer* (Fig. 5.24; Table 5.5). 47 Of these were excavated and every single one of them can be dated to the Bronze Age. Especially the barrows excavated by Glasbergen have been the subject of several new studies (Theunissen 1993, Theunissen 1995; Bourgeois and Fontijn 2012).

5.5.2 Geomorphology of the region

The area southwest of Eindhoven is characterised by large east-west running cover-sand ridges cross cut with small fens and lakes (Berendsen 2000b, 30). The Toterfout barrows are located on such ridges and they encircled a large lake. The lake now no longer exists due to canalisation and improved drainage but is still depicted on 19th Century maps (Glasbergen 1954a, 17). It was drained by a small stream valley which cuts through the northern cover-sand ridge.

In-between the barrows of Toterfout three smaller fens were present until the 1950's. Similarly, the Huismeer barrows were built on an elevated cover-sand ridge on the eastern bank of a now disappeared small fen. While peat will have been present in the past no trace of it now remains as all fens and the lake have been drained and subsequently turned into pasture and arable land (Glasbergen 1954a, 17).

5.5.3 Research history

Amateur finds

The earliest archaeological activities that we know of in the region were conducted by Panken in the middle of the 19th Century. During several excursions along the heath he recorded and investigated many barrows (Glasbergen 1954a, 4). The barrow group of Toterfout was investigated in 1845 (Meurkens 1993; Glasbergen 1954a, 14). From his descriptions it is clear that digging into barrows was commonplace in the region, and many of the barrows he described have since disappeared (*cf.* Barrows 115 and 107).

Little relevant information could be inferred from the excavations by Panken and his contemporaries. It would seem that only coarse pottery, cremation remains and charcoal were uncovered. It is difficult to date these barrows as the stratigraphic position of the graves is unknown and in general all finds have since disappeared, yet it can be argued that most of them reflect MBA barrows (Glasbergen 1954a, 2).

Professional archaeologists

The first MBA barrows were discovered by Braat during the excavation of an urnfield (Braat 1936). Subsequently Glasbergen excavated in the region from 1948 until 1951 (Glasbergen 1954a, 23) and uncovered 34 MBA barrows and parts of

22 Note that I use the term Toterfout for all the barrows in the research area. These include the barrows at the hamlets of Toterfout, Halve Mijl, Knegsel and Huismeer.

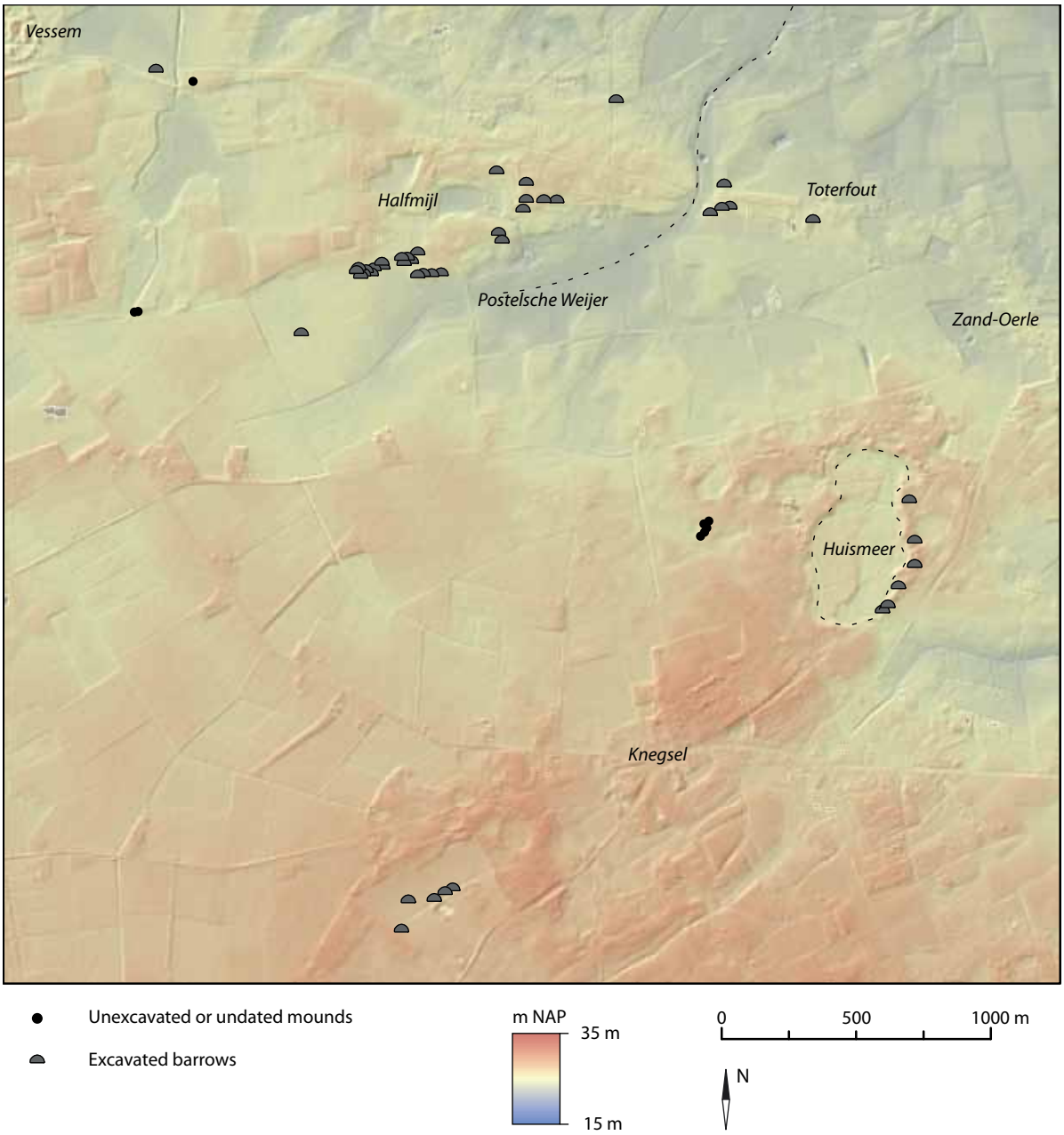


Fig. 5.24: All recorded barrows in the Toterfout case study. The map was created with the AHN elevation data (copyright www.ahn.nl).

an urnfield. A year later, Beex and Hijszeler excavated six or seven barrows situated around a small fen (Beex 1952a; Hijszeler 1952). The last barrow to be excavated in the region was investigated by Beex and Modderman (Beex 1952b; Modderman 1953). Especially the work of Glasbergen is one of the utmost quality and was conducted to the highest scientific standard of those days, perhaps even those of today.

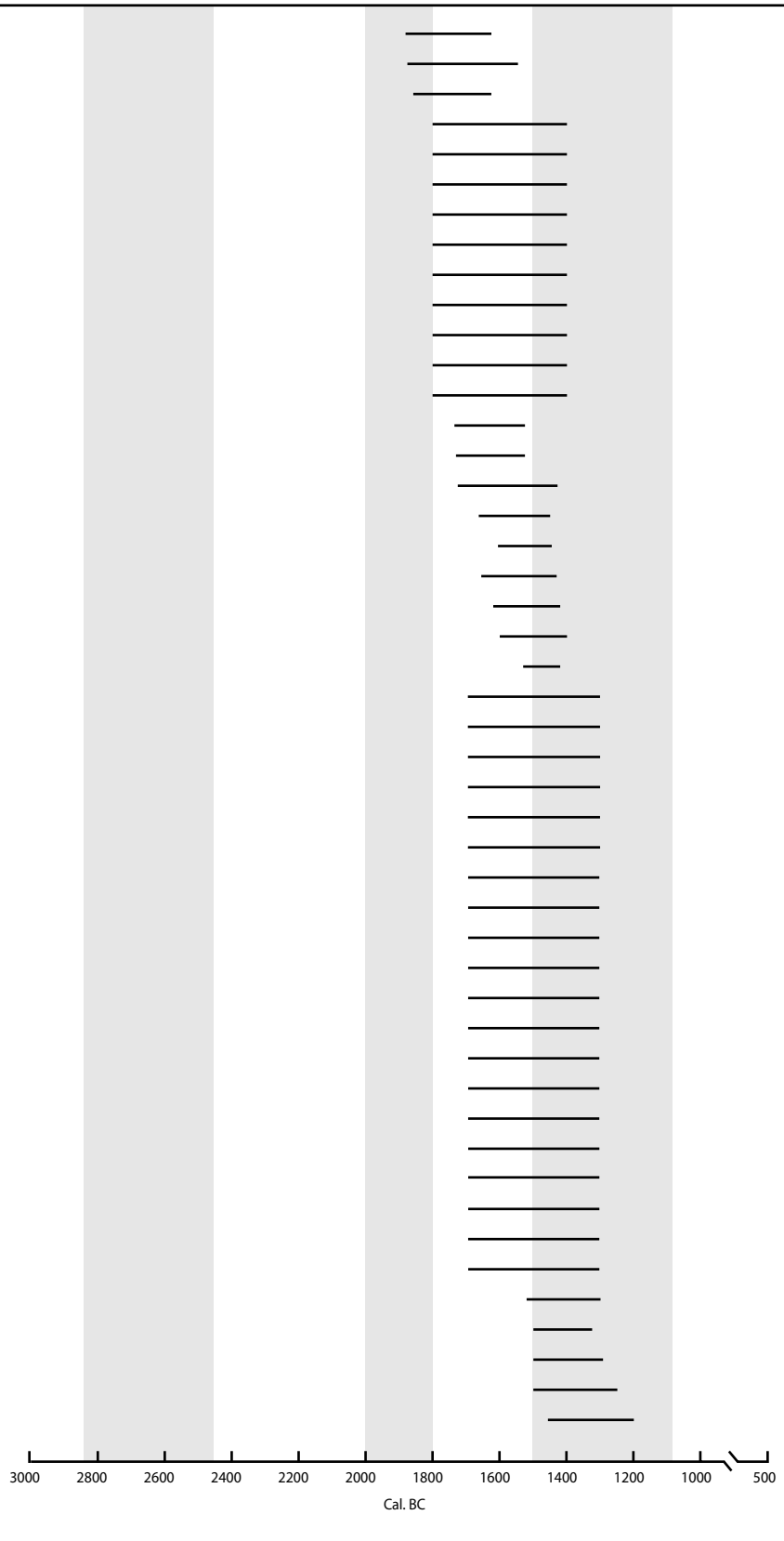
5.5.4 Estimates of archaeological visibility

Research area

Archaeological visibility in the area varies (Fig. 5.25). From the southwestern corner of the research area, for example no barrows are known. Even though indicated as heath-land in the 19th Century, it was quickly converted into arable land during the first half of the 20th Century. There are some indications that barrows were present in the area, even though their exact location and the nature of the finds is largely unknown (Beex 1952a, 16-17).

Table 5.5 (opposite page): Dating range for each excavated barrow within the Toterfout area. Black lines indicate barrow construction. Grey lines indicate secondary graves or mound phases. Dotted lines are uncertain dates.

Sitename	Barrow number
Toterfout Tumulus 14	23
Toterfout Tumulus 4	646
Toterfout Tumulus 1b	10
Toterfout Tumulus 1a	9
Toterfout Tumulus 6	14
Toterfout Tumulus 7	15
Toterfout Tumulus 11	20
Toterfout Tumulus 13	22
Toterfout Tumulus 20	29
Toterfout Tumulus 21	30
Toterfout Tumulus 29	39
Huismeer Heuvel VI	131
Huismeer Heuvel VII	132
Toterfout Tumulus 3	12
Toterfout Tumulus 9	18
Toterfout Tumulus 10	19
Toterfout Tumulus 1	645
Toterfout Tumulus 5	13
Toterfout Tumulus 16	25
Toterfout Tumulus 18	27
Toterfout Tumulus 2	11
Toterfout Tumulus 19	28
Toterfout Tumulus 8A	17
Toterfout Tumulus 22	31
Toterfout Tumulus 22A	32
Toterfout Tumulus 23	33
Toterfout Tumulus 24	34
Toterfout Tumulus 25	35
Toterfout Tumulus 26	36
Toterfout Tumulus 27	37
Toterfout Tumulus 28	38
Toterfout Tumulus 30	40
Huismeer Heuvel I	126
Huismeer Heuvel II	127
Huismeer Heuvel III	128
Huismeer Heuvel IV	129
Huismeer Heuvel V	130
Knegsel Palisadeheuvel B	75
Knegsel Palisadeheuvel C	76
Knegsel Palisadeheuvel D	77
Knegsel Tumulus F	79
Vessem 'De Lillen'	97
Toterfout Tumulus 8	16
Toterfout Tumulus 17	26
Toterfout Tumulus 15	24
Toterfout Tumulus 12	21
Knegsel Tumulus E	78



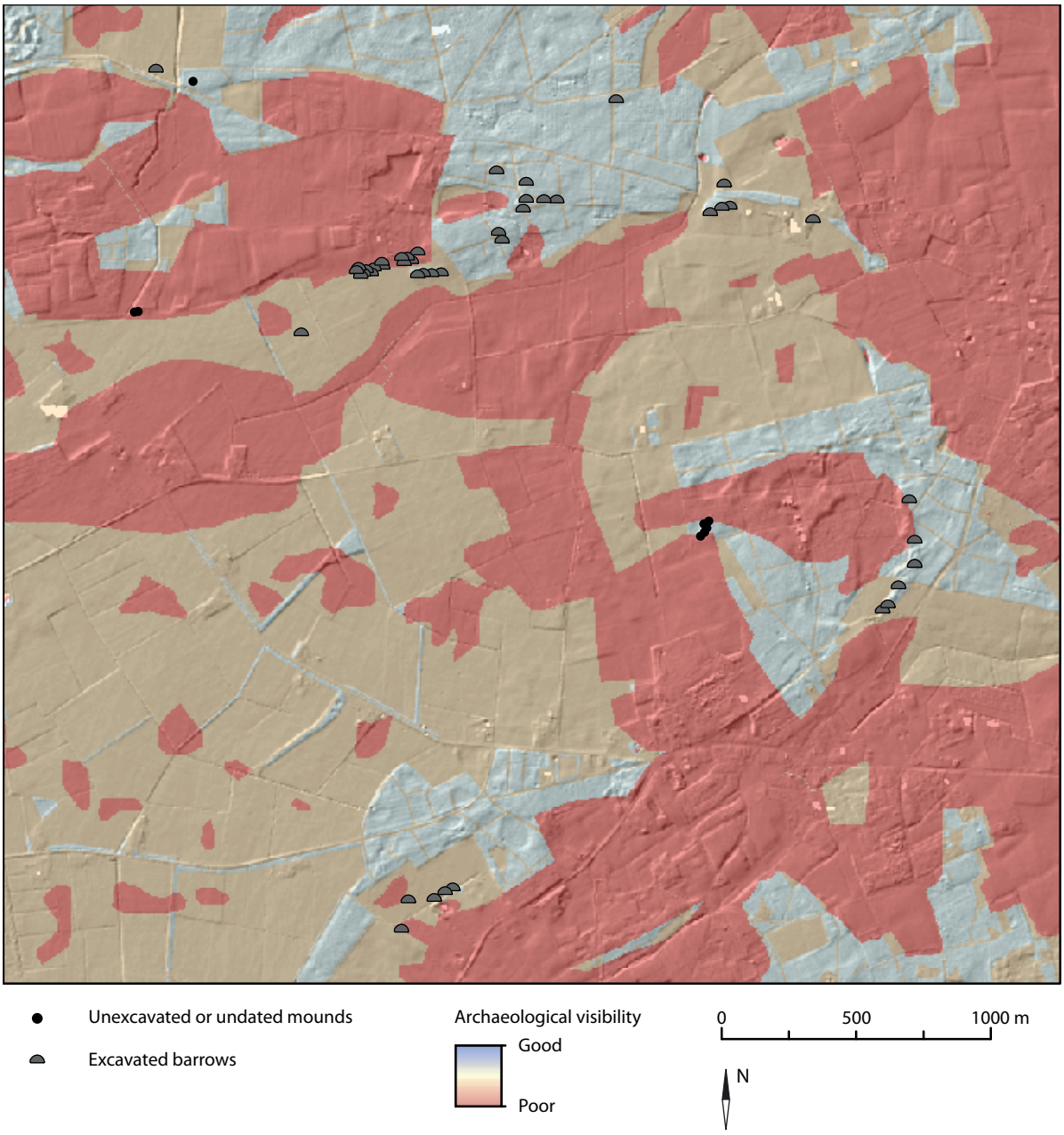


Fig. 5.25: Estimation of the map formation processes affecting the barrow distribution within the Toterfout area. The map was created on the basis of 19th Century Topographic Military Maps and modern land-use.

In the north-western corner of the research area a similar situation exists. We know of a few barrows, but only one was excavated during the reclamation of the heath (Modderman 1953). It is unknown how many other barrows have been destroyed.

The archaeological visibility is highest in the eastern half of the map, and while several barrows will undoubtedly have disappeared in this area, the majority is well documented.

Representativity of the excavated barrows

The representativity of excavated barrows versus unexcavated barrows is extremely high. 85% of all barrows in the area have been excavated (47 out of 55), and in contrast to many other areas in the Netherlands, most were properly documented and subsequently published. This means that we have a wealth of information, not only on the primary grave and its burial gifts, but also on the surrounding features, the build-up of the barrow and secondary mound activities.

The excavated barrows all date to the MBA and it would appear that no barrows were built in the Late Neolithic (however see barrow 22). This indicates that the barrow landscape investigated in this case study is a uniquely Bronze Age burial landscape.

Late Neolithic barrows from the wider region are known (*e.g.* the barrow at Bergeijk Witrijt some 20 km to the southwest; Beex 1957) but for some reason the area of Toterfout was not used for burial. This is all the more puzzling as prehistoric activity preceding the barrows has been attested. On several locations features such as fences and pottery found close or underneath the mounds suggests the existence of a Middle or Late Neolithic settlement (Glasbergen 1954a, 98-99; Beek 1977, 43-54; Verwers 1990, 33).

5.5.5 The development of the Toterfout barrow landscape

Late Neolithic barrows (2850-2000 cal BC)

Not a single excavated barrow can be unequivocally dated to the Late Neolithic.[23] The only barrow which may date to this period is Tumulus 13 (barrow 22). The ditch encircling this barrow may in effect be a palisaded ditch. No traces of the posts themselves were discovered, but the diameter and depth of the ditch differs from the other barrows surrounded by a ringditch. The ditch itself is only 30 to 40 cm wide and at least 50 to 60 cm deep and in profile resembles a posthole.[24] If this were indeed a pallisaded ditch, then this would be the only barrow to date to the Late Neolithic (A or B). Glasbergen left the profile-baulks standing and reconstructed the barrow afterwards (Glasbergen 1954a, 64), so there is a possibility that any grave gifts deposited on the old surface may have been left *in situ* in these baulks.

If we disregard the barrow above not a single barrow can be dated to this period. Furthermore, considering the intensity with which barrows have been excavated, it is very unlikely that one of the eight barrows left unexcavated in the research area would date to the Late Neolithic. This lack of Neolithic burial monuments in the region is at odds with other barrow landscapes in the Low Countries.

The Early Bronze Age (2000–1800 cal BC)

A few barrows may be attributed to the EBA (specifically three of the barrows with the earliest radiocarbon dates, see below), yet their exact dating cannot be correlated to either the EBA or the early part of the MBA A. Their radiocarbon ranges extend from 1900 to 1700 cal BC. As none of these barrows were associated with Barbed Wire pottery, and had typical features also seen in other barrows which were exclusively dated to the period between 1800 and 1600 cal BC, I have grouped them together with the other MBA barrows (see below).

Middle Bronze Age barrows (1800–1400 cal BC)

The development of the Toterfout barrow group can be reconstructed in detail. In particular the abundance of radiocarbon dates has greatly facilitated this reconstruction. In total 40 radiocarbon dates are available from a total of 18 barrows, all excavated by Glasbergen.

---

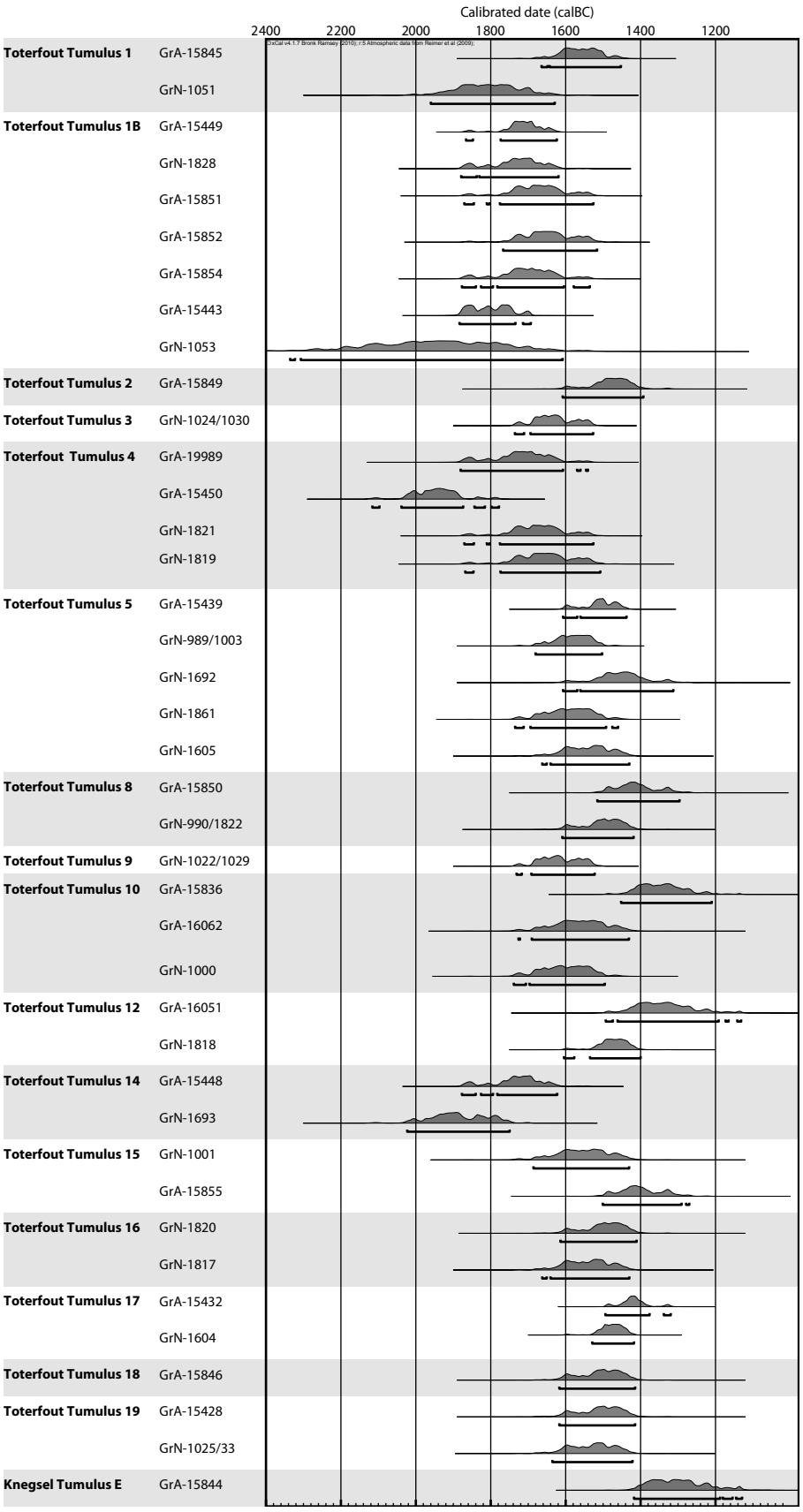
23 According to Glasbergen both Tumulus 4 and Tumulus 2 of his group (barrows 646 and 11) could be dated to the Neolithic. In both cases radiocarbon dating of the primary graves has disproved this (Lanting and Van der Plicht 2003). Both barrows date to the MBA, respectively the early and later phase (see below).

24 All other barrows with ring ditches in the region have a diameter of at least 80 – 100 cm wide, are less deep than they are wide and are V-shaped in section. Only one other barrow has a ditch of an equally small size (barrow 29), but this barrow has only been partially excavated.

Table 5.6: All radiocarbon dates from the Toterfout area and a short description of their context.

Barrow	Radiocarbon Date		Sampled Material	Context
Toterfout Tumulus 1	GrA-15845	3280±40 BP	cremation	primary grave
	GrN-1051	3480±65 BP	charcoal	Tangential grave in the eastern flank of the mound
Toterfout Tumulus 1B	GrA-15449	3410±30 BP	cremation	primary grave, urn 74
	GrN-1828	3420±45 BP	charcoal	primary grave, urn 74
	GrA-15851	3380±50 BP	cremation	secondary grave, urn 60
	GrA-15852	3360±50 BP	cremation	secondary grave, urn 61
	GrA-15854	3400±50 BP	cremation	secondary grave, urn 62
	GrA-15443	3470±30 BP	cremation	secondary grave, urn 66
	GrN-1053	3580±130 BP	charcoal	secondary grave, urn 66
Toterfout Tumulus 2	GrA-15849	3200±50 BP	cremation	one of two patches in the centre of the mound
Toterfout Tumulus 3	GrN-1024/1030	3345±35 BP	charcoal	concentration on the old surface
Toterfout Tumulus 4	GrA-19989	3410±50 BP	cremation	primary grave (re-date of the first sample, GrA-15450)
	GrA-15450	3590±40 BP	cremation	primary grave
	GrN-1821	3380±50 BP	charcoal	primary grave
	GrN-1819	3365±55 BP	charcoal	concentration on the old surface
Toterfout Tumulus 5	GrA-15439	3240±30 BP	cremation	primary grave
	GrN-989/1003	3305±35 BP	charcoal	primary grave
	GrN-1692	3175±60 BP	charcoal	concentration in the mound (SW-quadrant)
	GrN-1861	3310±50 BP	charcoal	concentration in the mound (SE-quadrant)
	GrN-1605	3260±50 BP	charcoal	tangential grave (burnt coffin)
Toterfout Tumulus 8	GrA-15850	3140±50 BP	cremation	primary grave
	GrN-990/1822	3225±45 BP	charcoal	primary grave
Toterfout Tumulus 9	GrN-1022/1029	3335±35 BP	charcoal	primary grave
Toterfout Tumulus 10	GrA-15836	3080±50 BP	cremation	primary grave, according to Lanting and Van der Plicht the date should be 'two standarddeviations older'
	GrA-16062	3280±60 BP	cremation	primary grave, cremated skull fragments to the south side of the primary grave
	GrN-1000	3320±50 BP	charcoal	primary grave (burnt coffin)
Toterfout Tumulus 12	GrA-16051	3080±60 BP	cremation	primary grave
	GrN-1818	3200±40 BP	charcoal	primary grave
Toterfout Tumulus 14	GrA-15448	3420±40 BP	cremation	primary grave
	GrN-1693	3550±50 BP	charcoal	primary grave
Toterfout Tumulus 15	GrN-1001	3270±60 BP	charcoal	pyre remains on the old surface
	GrA-15855	3130±50 BP	cremation	secondary grave in the mid-eastern profile
Toterfout Tumulus 16	GrN-1820	3220±50 BP	charcoal	primary grave
	GrN-1817	3260±50 BP	charcoal	concentration on the old surface
Toterfout Tumulus 17	GrA-15432	3140±30 BP	cremation	primary grave
	GrN-1604	3230±50 BP	charcoal	primary grave
Toterfout Tumulus 18	GrA-15846	3230±50 BP	cremation	primary grave
Toterfout Tumulus 19	GrA-15428	3210±30 BP	cremation	primary grave
	GrN-1025/33	3250±50 BP	charcoal	primary grave
Knegsel Tumulus E	GrA-15844	3040±50 BP	cremation	primary grave, within a large Laren-urn

Fig. 5.26: All calibrated dating ranges for the Toterfout radiocarbon dates.



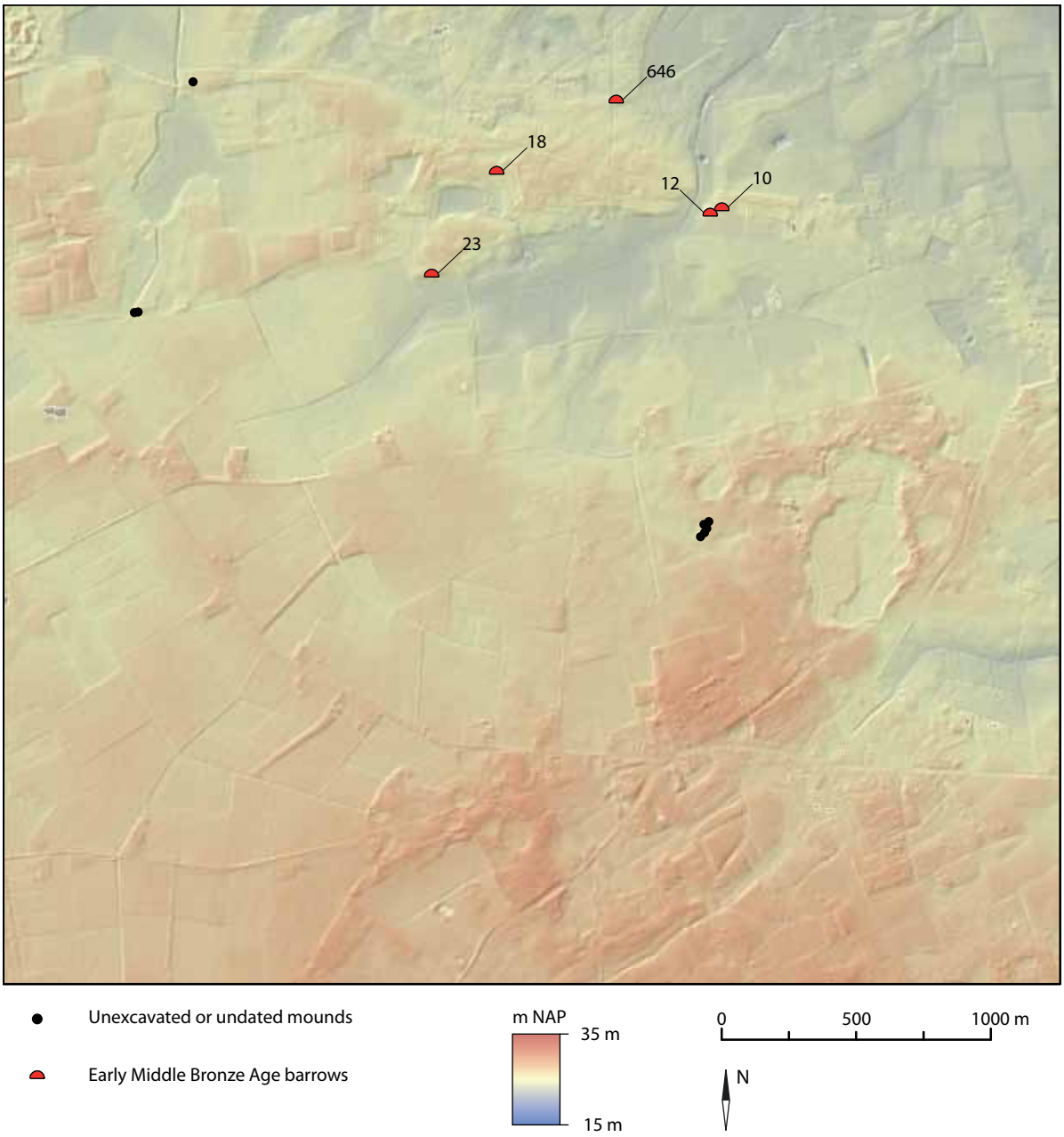


Fig. 5.27: Overview of the early MBA barrows in the Toterfout area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

The radiocarbon dates suggest barrow construction was continuous for four to five hundred years. The earliest barrows were built at around 1800 cal BC, the latest at around 1300 cal BC. In conjunction with typo-chronological dating ranges for the other barrows a detailed chronology can be created for the entire group (Table 5.6; Fig. 5.26).

This new chronology diverges significantly from Glasbergen's relative chronology of the barrow group. His chronology was largely based upon the palynological evidence by Waterbolk (Glasbergen 1954b, 174-176; Waterbolk 1954). The numerous radiocarbon dates available have completely overthrown this chronology and barrows considered early by them have now been dated as late (*e.g.* barrow 11) and vice versa (*e.g.* barrow 23).

To facilitate the discussion I will first address the earliest barrows built between approximately 1800 and 1600 cal BC, followed by those constructed between 1600 and 1400 cal BC.

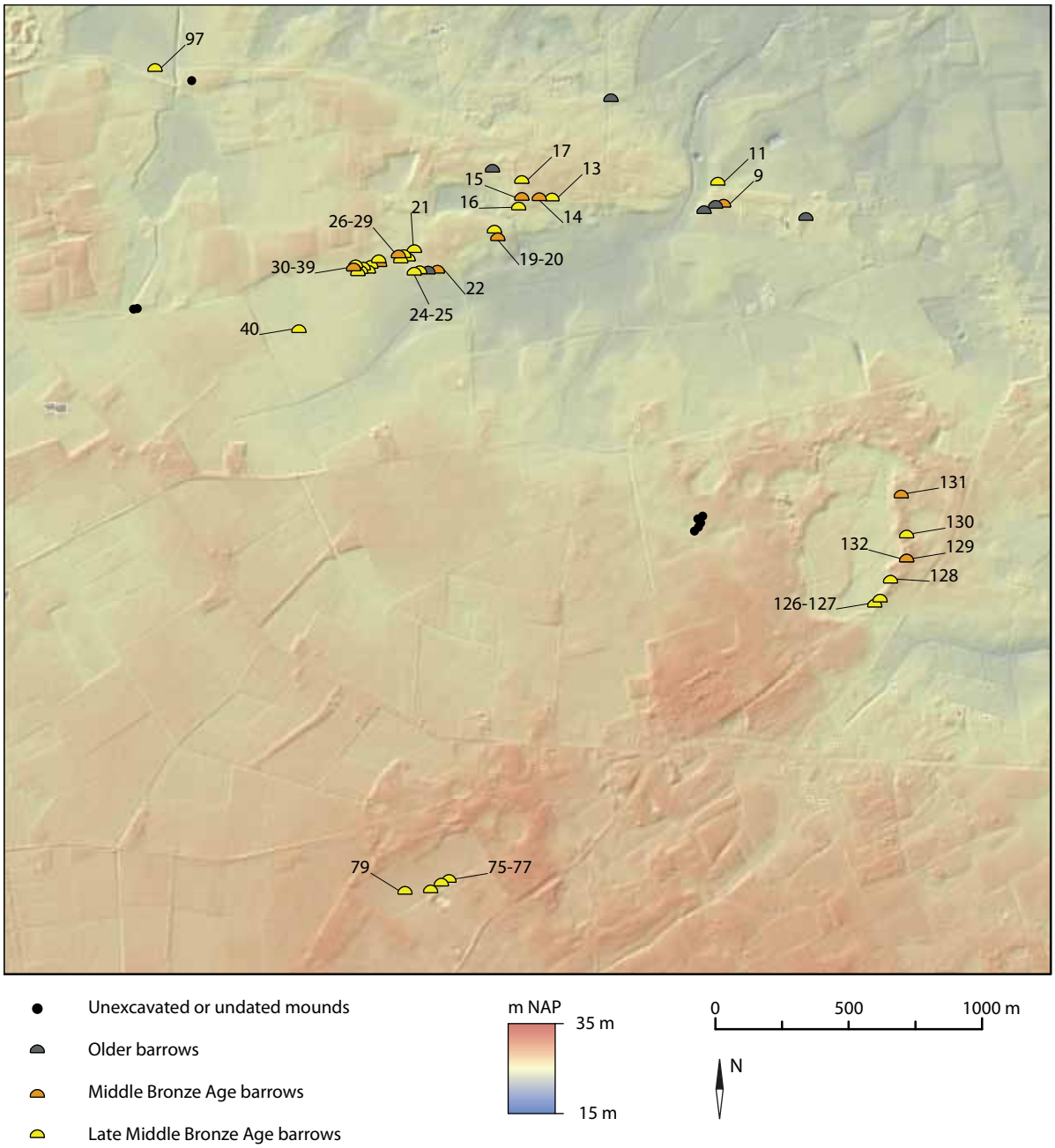


Fig. 5.28: Overview of the late MBA barrows in the Toterfout area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

The earliest barrows were built exclusively on the northern cover-sand ridge (Fig. 5.27). At least six barrows can be attributed to this period, and perhaps nine other may also date to this phase. The mounds are scattered throughout the ridge and are placed in relative isolation. Groups of two or three barrows may have formed, but not more.

Thirty barrows can be attributed to the second phase, and especially around 1500 cal BC the number of barrows increases considerably (Fig. 5.28). This is in part because a few typical features that surround the barrows in this region, such as the close set post circles, can be dated to the later phase of the MBA (see Chapter 3). Again, nine barrows cannot be attributed any more reliably than to the MBA.

Whereas the barrows in the previous period were spread out over the cover sand ridges, now a few distinct clusters have formed. Nevertheless the generally dispersed nature of the barrow distribution is maintained (*e.g.* barrow 40).

In this phase two distinct types of post circles were erected around the mounds: widely spaced post circles with on average 14 posts placed at equal distance (± 1 – 2 m) set out from a common central point on the one hand; and close set post circles, where dozens and even hundreds of posts are used to create a close set screen of upright timbers on the other. Some of these densely placed post circles contained more than 500 posts encircling a single barrow, effectively obscuring the enclosed barrow from view.

The visual effect of either type of surrounding features will have been entirely different and the visual signal they emit will have been distinctively different to the people at that time as well (see Fig. 6.5; Chapter 6). The post circles themselves will have had an important meaning to the people building the barrows, especially if we consider the special attention given to the closing of openings left in the post circles at Toterfout (Glasbergen 1954b, 153-154; for a further discussion on the role of post circles see Chapter 6).

There is no distinction to be made between the barrows in terms of individuals buried in each group (Theunissen 1993, 32) nor in the way they were buried.

Two scenarios of the development of this barrow group can be suggested. Both developments focus on the surrounding features associated with these barrows, notably the widely spaced post circles and the close set post circles. Even though some barrows with widely spaced post circles also date to the earlier phase, most certainly date to the later phase (*cf.* barrows 13 and 16).

The first scenario is based upon a short chronology. Radiocarbon dates only allow for a temporal resolution of the development of the barrow group over two centuries at best. There is a distinct possibility that the two groups we see associated with either type of post circles actually reflect a very short shift in preference. And the use of the two types of post circles may have changed within the time span of little more than a generation. The widely spaced post circle would then be superseded by the close set post circle over a very short time period. The temporal resolution of radiocarbon dates would not be able to distinguish between both groups and radiocarbon dates would provide the same age.

There are some arguments that can be put forward to support this scenario. Firstly the earliest widely set post circles are older than the oldest close set post circles. At least two barrows surrounded by such post circles were already built in the area around 1800 or 1700 cal BC (nos. 23 and 12). The barrows surrounded by widely set post circles would then be built right up untill around 1500 when they were quickly superseded by close set post circles. This is supported by Tumulus 8 (barrow 16), whose primary mound was originally surrounded by a widely spaced post circle and which was in a later period aggrandized with an additional mound capping and a close set post circle. There are no instances known in the area where a widely spaced post circle overcuts a close set post circle.

The second scenario assumes that the post circles were partly contemporaneous. There is certainly some evidence for this since radiocarbon dates for both types of post circles overlap to a great extent. There is a distinct chance that Tumulus 5 – surrounded by a widely set post circle (barrow 13) – is at least 100 years younger than the oldest closely set post circle Tumulus 19 (barrow 28).

Next to that, the geographic distribution of the barrows into specific groups might also suggest contemporaneity (Fig. 5.29). Widely set post circles are only present in the northeastern part of the research area and closely set post circles are only found to the south and west of them. The distribution might thus hint at a northeastern group of people encircling their barrows with widely set post circles and a southwestern group encircling their barrows with closely set post circles. I will return to this discussion in Chapter 8 and 9.

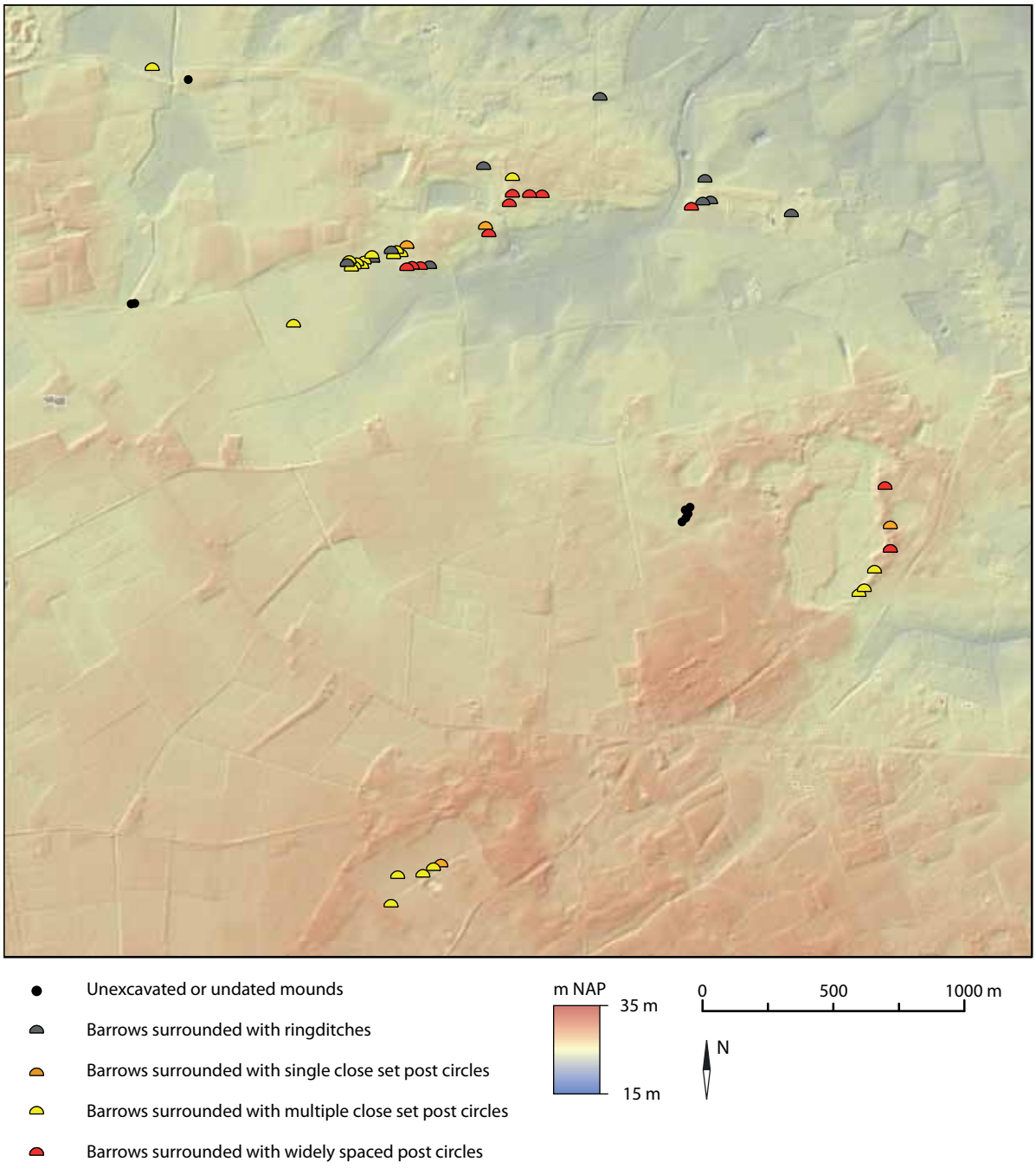


Fig. 5.29: Overview of all surrounding features surrounding each barrow in the Toterfout area.

MBA reuse of primary mounds in the region is attested on multiple occasions (Table 5.7). Almost half of all barrows in the research area have at least one secondary grave or mound phase (22 out of 47). Now naturally traces of reuse are affected by the extent of the damage to the mound body. Therefore, if we only consider the well-excavated and relatively undamaged barrows, two thirds has at least one of both (16 out of 24). At the same time it is very rare for a barrow to have more than a few secondary graves. The maximum number of secondary graves is 8 and the average is only 1,25 per barrow.

Later barrows (1400-500 cal BC)

Following the prolific period of barrow construction, which continued up to 1400 cal BC, relatively few barrows were erected afterwards (Fig. 5.30). There are some indications that barrows were built in the MBA B (*e.g.* barrow 78). At the

Original Publication Name	Barrow ID	N secondary graves	N secondary mound phases	Heavily damaged / partially excavated
Tumulus 1	645	4	0	.
Tumulus 1a	9	0	0	x
Tumulus 1b	10	5	1?	.
Tumulus 2	11	0	0	x
Tumulus 3	12	0	0	.
Tumulus 4	646	0	0	x
Tumulus 5	13	2	1	.
Tumulus 6	14	1?	0	.
Tumulus 7	15	1	0	.
Tumulus 8	16	0	1	.
Tumulus 8A	17	8	1	x
Tumulus 9	18	0	0	x
Tumulus 10	19	0	0	.
Tumulus 11	20	1	1	.
Tumulus 12	21	1?	0	x
Tumulus 13	22	0	0	.
Tumulus 14	23	0	0	.
Tumulus 15	24	1	0	.
Tumulus 16	25	2	1	.
Tumulus 17	26	1?	1	.
Tumulus 18	27	0	0	.
Tumulus 19	28	2?	1	x
Tumulus 20	29	0	0	x
Tumulus 21	30	0	0	.
Tumulus 22	31	0	2	x
Tumulus 22a	32	0	0	x
Tumulus 23	33	0	1?	x
Tumulus 24	34	0	0	x
Tumulus 25	35	0	0	x
Tumulus 26	36	1	1	x
Tumulus 27	37	0	0	x
Tumulus 28	38	0	0	x
Tumulus 29	39	0	0	x
Tumulus 30	40	0	0	.
Heuvel I	126	4?	1	.
Heuvel II	127	3	1?	.
Heuvel III	128	0	0	x
Heuvel IV	129	2?	1	.
Heuvel V	130	?	1	.
Heuvel VI	131	0	0	x
Heuvel VII	132	0	0	x
Vessem De Lillen	97	3	1	x

Table 5.7: The number of secondary graves and additional mound phases recorded in the Toterfout Research area. The heavily damaged barrows are those barrows where more than half of the mound was destroyed prior to excavation.

Huismeer group an older barrow was extended with an oval or rectangular post setting (barrow 126). Although a rare type of burial monument, more barrows of this type are known in the Low Countries (see Chapter 3; Bourgeois and Fontijn 2008; Delaruelle, *et al.* 2008, 35-37). The presence of this barrow (and possibly also barrow 32) demonstrates that the area was not abandoned but that barrow construction decreased in intensity for at least a few centuries until it picked up again around 1000 BC with the advent of urnfields.

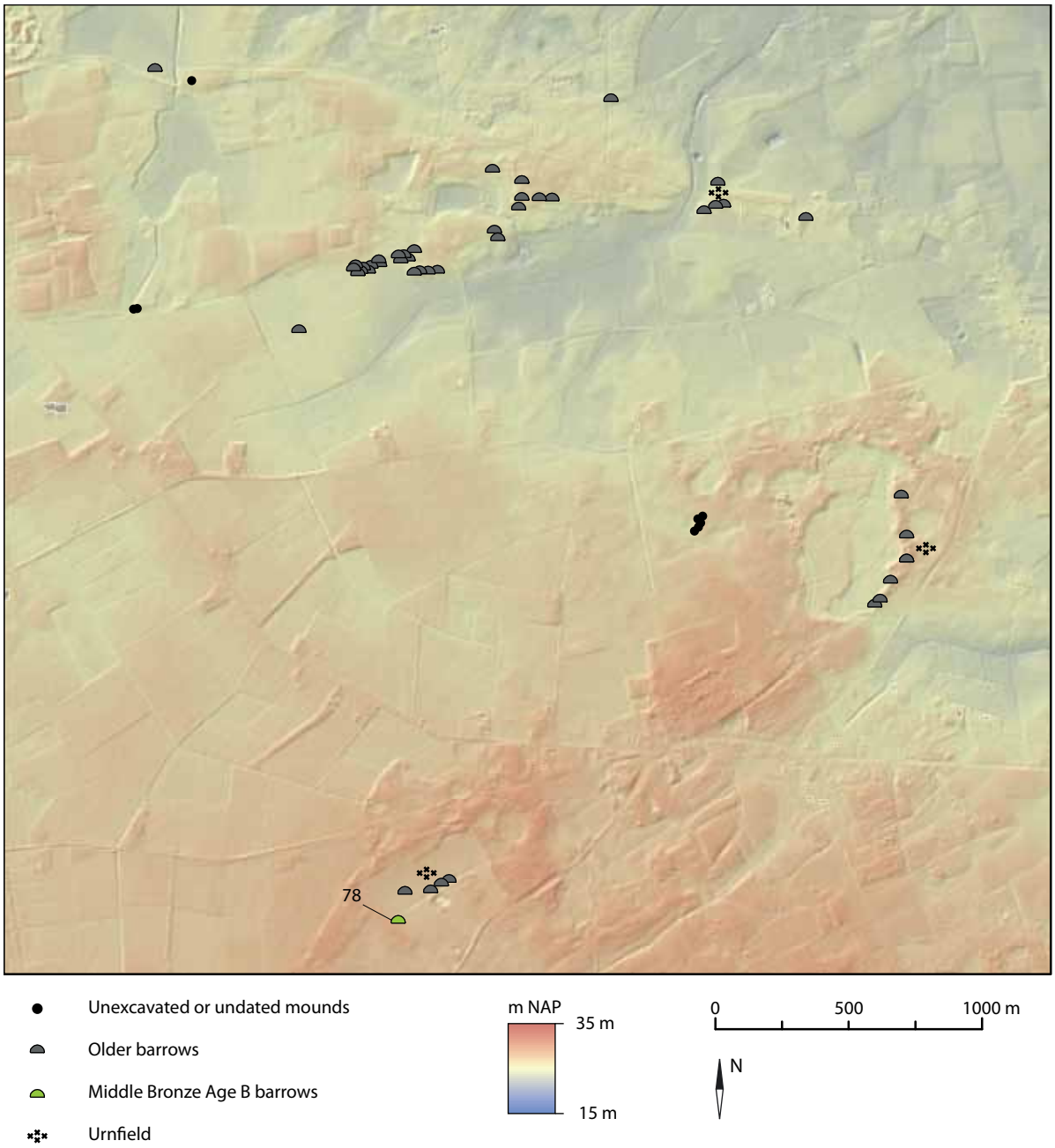


Fig. 5.30: Overview of all LBA and EIA barrows and urnfields in the Toterfout area. The numbers indicated on the map correspond to the barrow numbers mentioned in the text and Appendix.

Several urnfields are known in the region and two were extensively excavated (Braat 1936; Glasbergen 1954a, 95-97). Both urnfields are built close to and in-between the older burial mounds of the MBA. With the urnfield excavated by Braat the older mounds were even completely reworked into the urnfield itself. Ditches cut through the older mounds and *langbedden* were built against or over the older barrows. This reappropriation of the older burial mounds is – as far as we can tell – only limited to these two urnfields (and maybe a third partly excavated at the Huismeer group). There are no clear indications of burial mounds in the Toterfout group that have been reused for secondary burial during this period. Burial in the Late Bronze Age (LBA) or Early Iron Age (EIA) was restricted to certain locations and the extensive barrow groups of the MBA were not reused.

5.5.6 Summary

The Toterfout barrow group is set apart by the lack of Late Neolithic barrows in the area. The entire barrow group can be dated to two phases in the MBA. The first phase, from 1800 to 1600 cal BC, is a good example of an extensively dispersed barrow group (see Chapter 1), with no apparent clustering visible. Several of these older barrows then went on to form focal points for later barrow construction.

The second phase, from 1600 to 1400 cal BC, suggests an exponential increase in barrow construction, with extensive use of complex post-circles. Two distinct sets of barrows, one encircled by close set posts and the other encircled by widely spaced posts occupy respectively the eastern part and the western part of a cover sand ridge.

5.6 Conclusion

The development of each individual barrow group has highlighted several congruencies between them:

1. In three case studies, long alignments of barrows were identified. While all of these alignments are fragmentary in nature, it can nevertheless be concluded that they are not a product of map formation processes, but rather that they were implied from the onset. All of these alignments have their origin in the LN A, and are part of the earliest phase of barrow construction. The alignments share the same characteristics in terms of length and distance in-between the mounds. This suggests that the concept of an alignment was shared amongst communities in the LN A.
2. During the Bell Beaker phase the alignments, already set out in the previous phase, are extended upon and emphasised through the construction of new barrows. This suggests the alignments were recognised and respected as such. Nevertheless many new barrows were also constructed in different areas, which previously had not been incorporated into the barrow landscape. Especially in the Renkum case study, the expansion onto the higher parts of the ice-pushed ridges stands in contrast to the preceding period. It is in this phase that we see the initial development of extensively dispersed barrow groups.
3. Within all research areas, barrow construction decreases in the EBA. At the most two or three mounds can be dated to this phase within each respective case study. Nevertheless, the practice of pottery depositions within mounds indicate that the older monuments remained important elements within the landscape.
4. In all four case studies, barrow construction and reuse of older monuments increases significantly in the MBA. Both the Ermelo and the Toterfout case display an intensive phase of barrow construction, and even though the extent of newly built barrows is poorly understood for the Renkum and Epe-Niersen cases, it can be argued that here too several mounds may date to the Bronze Age as well. As in the LN B, barrows are extensively dispersed. At the same time, almost every single barrow within the barrow landscape is reused and reincorporated. The addition of new mound phases and secondary burial within, by that time ancient, mounds is recorded for almost every fully excavated barrow within all four case studies. This reuse is not restricted to Neolithic mounds but occurs in Bronze Age barrows as well.

5. From approximately 1400 cal BC barrow construction decreases dramatically and new mounds are built only sporadically. It is not until around 1100 cal BC that we see a resurgence in barrow construction. The main difference now however, is that barrow construction is strictly limited to specific places within the landscape. These areas will go on to develop into proper urnfields and are sometimes centred around older mounds.

The reconstruction and the unravelling of each case study has revealed several activity phases where the barrow landscape was added upon and modified to a significant extent. Yet we are now left with understanding why these changes took place in the way they did.

The primary point which then needs to be addressed is the visual nature of the barrow. As I already argued in Chapter 2, each barrow visually alters and modifies the landscape and as such the barrow landscape is essentially a visual landscape. Yet what was the visual role of the barrow and how can we research this? This will be the focus of the next Chapter.

Chapter 6

The visual characteristics of a barrow

6.1 Introduction

The previous Chapters dealt with the geographical and temporal scale of the barrow landscape. As I argued in Chapter 3, the practice of barrow construction lasted for at least two millennia in the Low Countries. The formation process of the barrow landscape resulted in elaborate and complex barrow groups within a single region, sometimes forming extensive dispersed groups and at other times long alignments. Each new barrow was carefully placed amongst many others and each created a visual marker within the landscape. Each added to a phenomenal landscape where the choice to build each new barrow specifically on *that* spot was carefully deliberated.

Explanations for the location of new barrows are abundant in the archaeological literature, although almost every theory has in common that a visual relation played a role in its placement. Indeed, few people would disagree that visibility is important in relation to burial monuments and it is arguably the most common explanation as to why a barrow was built in a specific place. Remarks of this nature were already made as early as the beginning of the 18th Century when Stukeley toured the Stonehenge area:

> *'I observe the barrows upon the Hakpen Hill and others are set with great art not upon the very highest part of the hills but upon so much of the declivity or edge as that they make app[earance] as above to those in the valley'* (quoted in Ashbee 1960, 18).

Even though the visual nature of a barrow is not disputed, different interpretations are given to the visual aspects. Three main positions can be distinguished. Firstly, and perhaps most commonly, it has been argued that barrows were meant to be seen, demarcating boundaries between territories (Field 1998, 316; Renfrew 1976; Woodward and Woodward 1996, 277). Implicit in this is that a barrow has to be highly visible in order for such a goal to be accomplished. A highly visible barrow would then indicate claims to land, ancestral presence and the final resting place of important deceased individuals (Hanks 2008, 271; Field 1998, 316; Last 2007, 5).

This aspect was highlighted during visits to the barrow groups described in Chapter 5. On the Ermelo heath field for example a small group of Neolithic barrows (barrows 356-358) are inconspicuous when approached from higher ground. They almost blend in with the background vegetation. But when approached from a specific angle, walking upslope from the lower lying river valley, at a certain point the barrows present themselves as majestic mounds cresting the horizon (Fig. 6.1). This deliberate positioning and increased visibility would then be interpreted as signalling territorial claims over land.

Secondly, the view from a barrow has also been argued to be important, once again explained in terms of territoriality and claims over specific areas (Lagerås 2002; Thrane 1998, 275). This position has sometimes been expanded upon with

Fig. 6.1: Three barrows on the Ermelo heath, excavated by Remouchamps. Each mound crests the horizon from this particular perspective.

a specific view from a barrow towards specific areas within the landscape, such as views of the sea (Cummings and Whittle 2004, 82), or of meaningful places (Woodward 2000, 140-142; Cummings and Whittle 2004, 84; Tilley 2004b, 185). The view from the barrow is then assumed to 'control' or 'dominate' the landscape (Tilley 2004b, 197).

Once again, walking on the Ermelo heath, it is not uncommon to see hikers standing on top of a barrow and overlooking the region. This would suggest that at least some barrows do have a commanding view of the surrounding landscape. Indeed when standing on top of specific barrows within that heath field, specific prominent landscape features can be easily distinguished. For example, the lower lying Leuvenumse stream valley was entirely visible from one of these high vantage points.

Thirdly, patterns of intervisibility between barrows and groups of barrows have been assumed to create networks of hierarchy or encompassing cosmological landscapes (Tilley 2004b, 197; Kristiansen and Larsson 2005, 355; Needham, *et al.* 2006, 72; Criado Boado and Villoch Vazquez 2000; Beck, *et al.* 2007, 838).

This can be illustrated with the same Ermelo example as above; the northern barrow alignment is almost completely invisible when overlooked from one of the (higher) cover sand ridges. But when walking down to the alignment and standing close to one of the easternmost barrows several other barrows become easily identifiable as the eye gets drawn into the alignment.[25] Similarly, when walking along the Epe-Niersen alignment, standing on top of specific barrows will immediately reveal the next barrow (group) on the alignment. In this way intervisibility in-between the burial mounds seems to have been actively manipulated in order to direct the traveller along the alignment, perhaps guiding him to important places.

The role of visibility thus pervades every aspect of explanations of the placement of new barrows. With each of these different interpretations of visibility a different ideological background determined the site location. Chronological differences may also have played a role: people building barrows during the Late Neolithic for example may not have concerned themselves with making them highly visible. Whereas people in the Bronze Age actively sought out highly visible locations for their burial monuments (as has been suggested for Denmark; *cf.* Kristiansen 1998, 288).

Whatever visual aspect was important to the people building the mound, the visual characteristics of a barrow are intrinsically linked with its specific location. The cresting of barrows on the horizon can only be achieved when building them exactly on the horizon as seen from a specific viewpoint. The ideal location for a good viewing platform must fulfil certain requirements, especially if the objective

25 A characteristic of barrow alignments already observed by Müller (1904).

is to have a good view of a specific place within the landscape (*cf.* Cummings and Whittle 2004, 84). The question of why a burial mound was built in a specific location is thus intimately linked to its visual relation with the wider landscape.

In this Chapter I will explore how a barrow structures and manipulates visual relations within the landscape. I will first discuss whether or not visibility mattered in Prehistory, followed by a discussion on how we should study visibility. In the second half of the Chapter I will develop a methodology using GIS and apply it to two case studies discussed in Chapter 5, Ermelo and Epe-Niersen. The purpose of the second half of the Chapter is to explore visibility patterns within these two case studies.

6.2 The importance of visibility in Prehistory

Most archaeological studies on visibility in relation to barrows rarely question whether visibility was intentional. For example Thrane mentions that '*anyone standing on a barrow will notice that he sees so much more from this vantage point than by staying at ground level*' (Thrane 1998, 275). This quote, and there are many others, implies intentionality in the placement and height of the barrow, a conception shared with the phenomenological approach (see below). It is certainly relevant to investigate what evidence there is that people in Prehistory manipulated visibility intentionally.

6.2.1 Monumental mounds

The strongest evidence for the role of visibility can be found in the monumentality of the burial mound itself. There are certainly indications that by building a mound, people in prehistory manipulated visibility and modified the inherent visual structure of the landscape (Llobera 2007b, 53). This is in evidence through the construction of the mound itself, but also through the post circles which were at times erected around some of them (see below). The overall visibility of that space is increased through the simple stacking of sods and the placing of posts around the mound. As I argued in Chapter 2, this transformed a locality into a meaningful place (see p.11).

Yet at the same time, as can be seen in Fig. 6.1, they also manipulated visibility by carefully determining where they constructed their mounds. Barrows sometimes crest the horizon, in such a way that they are 'sticking out'. This frequently reported quality (*e.g.* Field 1998, 315; Ogburn 2006, 407) ensures that the mounds were visible from long distances.

Multiple examples of this manipulation can be found, in all three case studies on the Veluwe barrows were placed on small hills or Pleistocene sand dunes. It may well be that this was done in order to increase their inherent visibility.

So, both the creation of a mound as well as its placement within the landscape strongly suggests that a view of the mound was important to the people building it.

6.2.2 Barrows as ritual platforms?

Our perception of a barrow is that of a round mound with gently sloping flanks. While this is certainly valid for many mounds, taphonomical processes and subsequent active modifications to the mound will have changed their shape. There are indications that some mounds were used as viewing platforms and indeed had a flat top from which rituals could be performed (*e.g.* Lawson 2007, 168; Thrane 1998, 275).

During large scale reconstruction projects in the Netherlands many barrows were reconstructed to what was thought to be their actual size and shape (*i.e.* a convex mound). At the Echoput on the ice-pushed ridges of the Veluwe for example, a large barrow was restored in this way (Fontijn, *et al.* 2011). Several cubic metres of white restoration sand were added on top of a large mound as it was thought that the barrow was heavily destroyed and its top had been recently flattened. The resulting reconstructed barrow now had a nice round shape.

In 2007, an excavation of the restored barrow took place and it was revealed that the barrow never had such a round shape, the (Iron Age) barrow was not destroyed and indeed had an intentionally created flat top (Van der Linde and Fontijn 2011, 40-41). From the top, not long after the barrow was constructed, a small pit was dug into the mound in which cremated remains were deposited. Next to it the remains of what may have been a pyre were discovered with immediately adjacent a posthole. Other examples of flat topped mounds also exist elsewhere (*e.g.* Van Giffen 1954).

There are several more other indications that suggest specific activities took place on the top of mounds. In the case of a number of Neolithic mounds (fragments of) beakers were deposited by people in Prehistory. A similar case can be made for at least a few barrows where large amounts of charcoal were found on top of the mound (*cf.* Holwerda 1908). All this suggests that some barrows were used as platforms on which rituals took place.

Both interpretations of the visual role these mounds played, appear equally valid. The monumentality of the mound itself as well as its position within the landscape certainly suggests an increased visibility was desired. The converse position of seeing *from* that mound may have been equally important. By elevating a specific place, they marked it out. Yet by creating an elevated place, they also created a vantage point. Regardless, both these interpretations provide us with an entry point into researching the visual effect of a burial mound.

6.3 Visibility studies within archaeology

Visibility within archaeology has been especially researched since the early 1990's and can be divided into two main positions; on the one hand phenomenological studies and on the other hand GIS-based approaches. Both have strong proponents although little dialogue has taken place between the two approaches (Lake 2007, 1; Barrett and Ko 2009, 276).[26]

6.3.1 Phenomenology and barrow landscapes

Phenomenology traces its origins to philosophy and involves the study of how we as humans experience and make sense of the material world (Brück 2005, 46; Tilley 2005, 201; Barrett and Ko 2009, 276). It aims to describe the world as it is experienced by humans as precise as possible (Tilley 2004a, 1) and involves all the senses (Tilley 2005, 202). Within archaeology the application of phenomenology is narrower and usually restricted to the way people experience and interact with the landscape (Barrett and Ko 2009, 276; Cummings and Whittle 2004, 8-9).[27] It is seen as a corporeal and sensuous encounter with the landscape (Tilley 1994,

26 Even though phenomenology has mostly focused on the Neolithic and megalithic monuments, the same principles are also applied to round barrows (*e.g.* Tilley 2004b).

27 For a recent overview and critique of phenomenology in all its aspects within archaeology see Brück 2005 or Barrett and Ko 2009.

11-14; Tilley 2004b, 185; Cummings and Whittle 2004, 8-9), although within archaeology it is primarily focused on seeing to the exclusion of most other senses (Cummings 2008, 286).

Central to the phenomenological approach stands the embodied experience. Walking through the landscape and experiencing the differences in visibility can only be appreciated through experiences firmly rooted on the ground. The changing vistas, the manipulation and interplay of visible and invisible places, and the entire structuring of the landscape with meaningful places are insights which cannot be gleaned from the classical two dimensional distribution maps. These maps represent a landscape from a viewpoint several km above the surface of the earth (the so-called outsiders view of the world; Cosgrove 1984). This detached viewpoint was not the viewpoint people in Prehistory had when encountering burial monuments on the ground (Bender 1999). These points of critique were initially raised to target Cartesian positivism and the role of (distribution) maps within archaeology (Thomas 1996) but have quickly developed into their own discourse (*e.g.* Tilley 1994).

In recent years the phenomenological approach within archaeology has become the centre of a polemical debate (Fleming 1999; 2005; 2006; Tilley 2004b; Brück 2005; Barrett and Ko 2009). The main critique is aimed at its methodology: modern observations ('participant observation', Tilley 2005, 203) are taken as evidence for past experiences. According to Tilley, '*the phenomenologist his or her body and the experience of this body is the essential research tool*' (Tilley 2005, 203) as '*all modern human beings […] have the same kinds of bodies and perceive and experience the world in similar human ways at a basic biological level. This is what links past and present, me and you, us and the people who constructed an ancient monument or made a pot*' (Tilley 2005, 203). By walking through the landscape, and gathering knowledge about that landscape, one can come to a better understanding of how people in the past experienced the landscape as our own experiences provide a proxy for the past experiences (Tilley 1994, 73-75; Tilley 2004b, 185; Barrett and Ko 2009, 283).

This position towards the past landscape is highly problematic. Tilley's proposition that erosion of the past landscape was limited (Tilley 2004b, 202), can be considered at best a little naive. As Fleming has demonstrated on several occasions, the past landscape was significantly altered in most cases (Fleming 2006, 274). Rivers may have changed their course and coast-lines shifted (Wheatley and Gillings 2000, 5); vegetation was entirely different and may have obstructed significant views (Chapman and Gearey 2000); erosion and sedimentation over the past few thousand years may have obstructed or on the contrary enabled lines of sight which were not possible in the past. And all this without even mentioning the human impact on the landscape!

Returning to the case studies of Chapter 5, we know that the present day landscape of the Veluwe and the Southern Netherlands is entirely different from that of 4000 years ago. The large afforestations of the 19th and early 20th Century have completely modified visual relations within the landscape in such a way that participant observation is almost futile. Pine trees were almost absent in the region during Prehistory, while nowadays they dominate the vegetation. Heath landscapes are reduced to tiny preserved patches and probably do not equate to the heaths present during at least part of Prehistory (Doorenbosch in prep.). Many barrows are now located in re-forested environments (notably those in nature reserves, Fig. 6.2), while others are now located in partially or fully urbanized landscapes. Trying to establish visual relationships between barrows on the ground is almost impossible, and one can wonder if any results obtained in the phenomenologists fashion are not just misleading.

Fig. 6.2: The excavation of two barrows on the Veluwe. The modern vegetation surrounding these two mounds consists of oak and pine-trees. Pollen samples from underneath the barrows indicate that at the time of construction the mounds were surrounded by a vast heathland (Doorenbosch 2011).

A second line of critique is aimed at the rather casual way in which the phenomenological studies present their findings (*cf.* Brück 2005, 51-52; Fleming 2006; Barrett and Ko 2009, 276). Barrows are said to *'[…] have been 'fitted' into the local landscape so that a range of symbolic places could be referenced'* (Cummings and Whittle 2004, 87-88), although the way in which they reference is diverse and extremely flexible (Fleming 2005, 922-923). Views from the barrows themselves form the basis for this referencing, yet it is never clear from where this view should be established.

Additionally, and perhaps much more importantly, it is never questioned whether these relationships were intentional (DeBoer 2004, 200; Fleming 2005, 923). The extensive views available from certain barrows for example may be the unintended result of people building barrows on the higher parts of the landscape (Wheatley and Gillings 2002, 209).

Lagerås suggests for example that views of the sea, and then especially specific areas of the sea were important (Lagerås 2002, 186-188). Along a similar vein, Cummings and Whittle argue that in Wales, views of natural features were important. In particular views of mount Snowdon in Wales are considered as an important feature as one has a view of mount Snowdon from two thirds of all monuments (Cummings and Whittle 2004, 84).

Yet the question should rather be how *difficult* it is to achieve this view. It is not very hard to imagine that a view of mount Snowdon is easy to achieve if it represents the highest point in the entire research area. Equally with a view of the sea, if a monument is located on elevated terrain in close proximity of the sea, how hard is it to see the sea? Are there only select areas from where one can achieve this or is it almost impossible to *not* see the sea? That is not to say views of particular areas were not important, yet demonstrating a causal relationship between the monument and the area of interest is not so straightforward.

As a more general point of critique it can be said that the phenomenologist's observations are not verifiable or cannot be reproduced (*cf.* Fleming 1999) and therefore lose much of their scientific credibility.

It has also been suggested that the phenomenologist's source of knowledge, the archaeologists' encounter with past monuments, provides more insight into the views of the archaeologist himself than into the role of the monuments in the landscape (Brück 2005, 57; Chadwick 2004, 22). In a sense the application of phenomenology can be seen as a very individualistic practice which attempts to conflate the experiences of past people into one single encounter.

A more fundamental point of critique, which lies at the heart of the matter, is that the phenomenological approach as it has been used in archaeology implicitly assumes that the entire barrow landscape was pre-planned (Barrett and Ko 2009, 283). Tilley for example suggests barrows '*differentially reference the significance of these places metaphorically through a combination of their specific locations*' (Tilley 2004b, 185). He thus assumes that the entire barrow landscape must be seen as a single monument (Tilley 2004b, 198). But this in effect de-historicises the landscape and compresses the entire barrow landscape into a single logic (Garwood 2007, 44; Fleming 2006, 274; see Chapter 2).

The implications of these critiques can be demonstrated through the Ermelo case study and its northernmost alignment. The individual encounter with the alignment as described in the introduction certainly demonstrates how visibility was manipulated in such a way that standing at the beginning of the alignment allowed one to see almost the entire alignment from specific points. Yet as has been demonstrated in Chapter 5, this alignment consists of a first line of 6 Neolithic barrows which was expanded upon by 11 barrows more than a millennium later. The first alignment is more removed in time from the second alignment than we are from the Early Middle Ages!

Additionally the size of the Neolithic barrows was increased through time to such an extent that they are now significantly higher than they were originally. The height of most barrows at the time of excavation by Modderman was the result of a Bronze Age activity phase in which they refurbished most barrows in the region (see Chapter 5; Modderman 1954). Furthermore the initial destruction of the mounds through military activities and the subsequent restoration in the second half of the 20th Century dramatically changed the shape and form of these barrows.

Therefore, trying to establish visual relations in a modern day landscape between the barrows would result in grossly overstating the importance of the visual relations as intended by the first barrow builders.

Phenomenology is not without its merits though. The role of the senses and the experiencing of the landscape firmly rooted on the ground are concepts which certainly have had their impact on any further interpretations involving the role of barrows within the landscape (see Chapter 7). Nevertheless its methodology is fundamentally flawed and a different approach must be developed to overcome these flaws. If we attempt to research the visual relation within a barrow landscape, we need to reconstruct and visualise at least part of the barrow landscape several millennia ago. We should try to account for (most) of the changes through time or at least try to acknowledge their impact. An important tool which might help us to attain this goal is GIS.

6.3.2 GIS and viewshed maps

Roughly at the same time as the phenomenological discourse within archaeology developed, the use of GIS or *Geographical Information Systems* within archaeology boomed (Lock and Harris 2000). GIS is difficult to define and encompasses many disciplines (Wheatley and Gillings 2002, 9). In general GIS can be considered as

'computer systems whose main purpose is to store, manipulate and present information about geographic space' (Wheatley and Gillings 2002, 9). However, this definition is not without its critique and concerns on the deterministic nature of GIS are well founded (Thomas 2004, 201; Conolly and Lake 2006, 9). In recent years many attempts have been made to alleviate these concerns (*e.g.* Wheatley and Gillings 2000; Llobera 2007b).

Most commonly visual relations are researched through some form of the viewshed map (Conolly and Lake 2006, 226-227), essentially a two-dimensional representation of what can be seen from a specific viewpoint. On the basis of a Digital Elevation Model (DEM) a line of sight is calculated from a specific viewpoint to each individual cell of the DEM.[28] If a direct line of sight is possible then a 1 is stored in the visible cell, if not a 0 is recorded (Fig. 6.3). This process is repeated for each individual cell and creates a binary map where each map cell is assigned the value of 0 or 1. A new viewshed can then be created for alternative viewpoints. Multiple viewshed maps can be summed to create what is called a cumulative viewshed (Wheatley 1995). Each individual cell then records how many viewpoints can see that specific cell. It is even possible, given enough computational power, to create a total viewshed where a viewshed map is calculated for each individual cell on the raster and which is then summed (Llobera 2003). Derivatives such as viewshed area and intervisibility can all be calculated with the viewshed map as the basis.

The technique is straightforward and relatively easy. Most GIS software packages contain basic functions which enable the user to create a viewshed map. From both a theoretical and a practical viewpoint many problems must be addressed before we can make use of viewshed maps.[29] Practical issues arise with the correct use of a DEM (Wheatley and Gillings 2000, 10), edge effects (Van Leusen 1999), the role of different types of algorithms and the binary nature of a viewshed with its reduction into in- and out-of-view maps (Llobera 2003, 29).

Theoretical problems arise with the focus on visualism (Wheatley and Gillings 2000, 13). Even though some other senses have been modelled within GIS (*e.g.* Mlekuz 2004), most studies researching burial monuments only investigate their visual aspect (Conolly and Lake 2006, 225; Llobera 2007b, 51-53). This focus on visualism is considered to be a particular Western approach (Bender 1999) and it is certainly true that focussing on visibility creates an impoverished surrogate for real life perception.

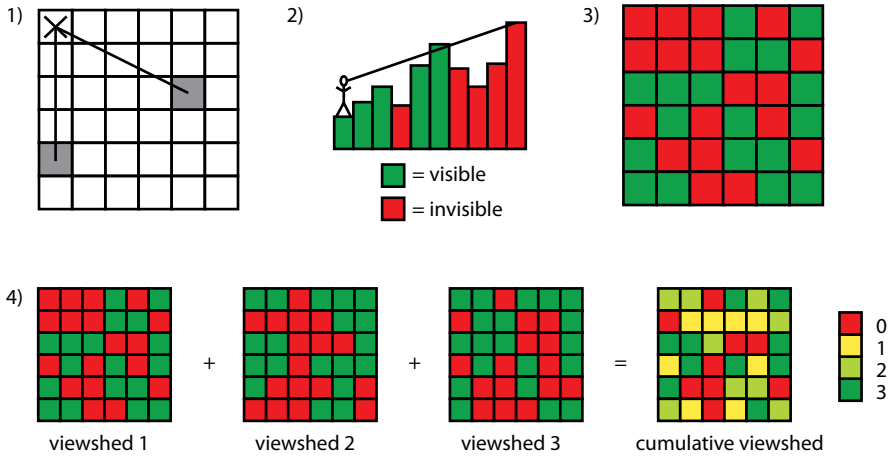


Fig. 6.3: The steps involved in the creation of a cumulative viewshed map. 1) A Line of sight is drawn from a viewpoint to each individual cell of the DEM; 2) If the target cell is visible a 1 is stored, if not a 0; 3) The end-result creates a map indicating which cells are visible from the viewpoint. 4) multiple viewshed maps are then summed creating a cumulative viewshed map.

28 Although viewsheds are also possible on a Triangulated Irregular Network (TIN) these are much less common (Wheatley and Gillings 2000, 10).

29 For an overview of the risks and problems associated with the use of viewsheds see Wheatly and Gillings 2000 and Van Leusen 1999.

That is not to say we should abandon researching visibility altogether (Llobera 2007b, 52). As has been noted by many authors, from the field of phenomenology (*e.g.* Tilley 2004b, 197; Cummings and Whittle 2004, 87) as well as GIS (Llobera 2007b, 57; Wheatley 1995, 174-175), barrows were used by people in the past to visually structure and modify space and to create or visualise meaningful places. This reason in and of itself is already enough justification for visibility to be researched. It must be realised, however, that this is only part of the entire experience which was lived by the people in the past (Van Leusen 1999, 220).

The critique on the role of the map put forward by the phenomenological approach has recently also been expanded to the use of GIS (Thomas 2004; Cummings and Whittle 2004, 22). It is argued that perception is reduced to a two dimensional sheet of paper. A simple viewshed map cannot be interpreted directly as a visible/invisible map. The simple binary representation does not account for errors inherent in the generation of a DEM (Wheatley and Gillings 2002, 209-210). Therefore it is possible that a place within the landscape which appears visible on the viewshed map is in reality not visible and vice versa (Cummings and Whittle 2004, 22). Furthermore the viewshed assumes perfect vision as well as perfect visibility. It does not account for poor eyesight, a gloomy rainy day or more fundamentally whether or not the object (in this case a burial monument) can be distinguished from the background (Wheatley and Gillings 2000, 6; Llobera 2003, 29). To overcome these problems the use of probabilistic, Higuchi and fuzzy viewsheds have been suggested (Wheatley and Gillings 2000; Wheatley 2004).

While the critique is certainly true for a simple viewshed map, the potential of cumulative and total viewshed maps is much greater. A total viewshed map is a map where for each cell of the DEM a viewshed has been created. Each individual viewshed is then summed to create a single map. Every cell within this map then records the value of how often it was visible from each other individual cell. The value stored in that cell can then be likened to the visual magnitude of that specific location (Llobera 2003).

A total viewshed map for example provides insight into the general potential visibility within a region.[30] As it is based on thousands of observations this equates to standing on almost every possible location within that landscape and recording what might be seen from that spot. A feat which is difficult, if not impossible, to achieve in the field.

The resulting map suggests locations within the landscape which may be highly visible (or not at all) and may therefore have been targeted by people to build their barrows. A 3D visualisation of such a map (Fig. 6.4) does not create a representation of the physical reality of the landscape but rather provides insight into the visual impact landscape features have on the viewer (Llobera 2003, 39). It visualises which locations may potentially stand out within a landscape, something which can not always be ascertained from a DEM.

GIS also has the potential to recreate fragments of the past landscape which have now disappeared. Notably prehistoric vegetation can be modelled onto the DEM (Gearey and Chapman 2006). The so-called 'tree problem' has been frequently noted in relation to visibility studies (Wheatley 1995, 182) although it has rarely been implemented in GIS studies. It is arguably very difficult to reconstruct prehistoric vegetation, let alone prehistoric vegetation at different times.

30 The same may be attained with a cumulative viewshed map on the basis of thousands of randomly created viewpoints. If enough viewpoints within a map are generated, the resulting map will approach the potential visibility within such a landscape (see below).

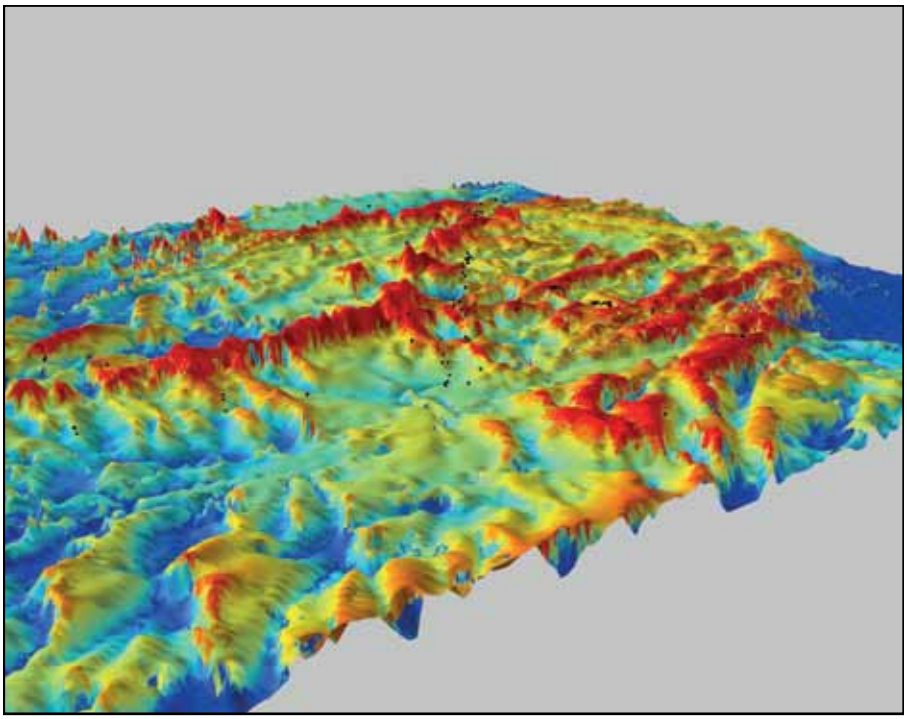


Fig. 6.4: A 3D representation of the visual structure of the landscape. The red areas indicate high visual prominence, the blue and yellow areas low visual prominence.

However, when enough proxies for the prehistoric vegetation are available a general model for the prehistoric vegetation can be created (Gearey and Chapman 2006; Bourgeois in press; see below).

GIS is a powerful tool and can certainly help in interpreting the choice of location for barrows within the landscape. Its potential to create different alternative representations of the same landscape, its potential to create derivative maps which go beyond a simple representation of the landscape and its potential to statistically test these results can be considered as valuable additions to the archaeologists' toolbox. Nevertheless it should be realised that with any use of GIS, a model is being created. This model should be considered for what it really is – only a model – and any results obtained from this model should be considered as probabilities to be researched further and substantiated by the archaeologist (*cf.* Wheatley 1995, 182-184).

An additional problem associated with the viewshed models and indeed with most GIS use, is that they generate static images and reduce temporally separate events to what has been called 'thin Cartesian slices' (Thomas 1996). In generalising barrow landscapes and conflating what is temporally separate, GIS based studies fall victim to the same pitfalls as mentioned for phenomenology.

6.3.3 Temporality and visibility

The role of time within barrow landscapes and indeed in every form of engagement with the landscape has already been addressed in Chapter 2. As with the study of barrow landscapes in general, the temporal aspect in relation to visibility studies is of fundamental importance (Wheatley and Gillings 2000, 8). There are two distinct ways in which the concept of temporality affects the study of visibility.

Firstly, as has already been mentioned before, we as archaeologists tend to reduce the complex interplay of diachronic events into one single seemingly synchronous layer. Compressing the entire barrow landscape into a single layer and then explaining the formation process from a single logic perspective is common

in most approaches to barrow landscapes (see above and Chapter 2). Inherent to the limitations of archaeology and the lack of a fine chronology, this problem, in most cases, cannot be overcome.

The Epe-Niersen barrow alignment is a case in point. It came into existence through at least two thousand years of barrow construction. As has been shown in Chapter 5, the earliest barrows on the alignment date back to the early 3rd Millennium BC. But even the Late Neolithic A origins of the alignment already represent a reduction of multiple decisions and events separated through time. We do not know which of the six Late Neolithic A barrows came first. Were they all erected during a single large event, or was each built separately after several generations? What exactly are we studying then? What we, out of necessity, must conflate is actually the result of people making individual decisions to locate a new barrow on that exact spot (Wheatley and Gillings 2000, 8). The resulting pattern that we are studying are the *'sedimented activit[ies] of an entire community, over many generations*' (Ingold 1993, 167).

This implies that from a practical viewpoint we cannot study the choice for an individual site location of a barrow but only the result of dozens of such decisions. It is impossible to get behind the individual barrow narrative, instead we must confine ourselves to studying the repeated choices and the resulting distinguishable activity phases within the barrow landscape.

That these activity phases are idiosyncratic to each region is demonstrated by the different case studies. The Ermelo case study for example exhibits a complex phase of activity and barrow construction around 1500 cal BC, which cannot be identified at all in the Renkum or the Vaassen case studies. The Toterfout case study on the other hand demonstrates that if a (more) detailed chronology is available, (subtle) differences can be distinguished and studied.

A practical approach would therefore be to create a diachronous development of synchronous activity phases for each case study, each with their own idiosyncratic temporality. From an interpretative viewpoint these synchronous activity layers must be considered as the results of generation upon generation manipulating and changing these barrow landscapes. I will return to this discussion in Chapter 9.

The second aspect of temporality in relation to visibility studies is more subtle. The temporality of a landscape not only affects the entire landscape and its diachronous development but also the viewer. As Ingold noted, when walking from point A to B, it is not the distance which has an impact on the viewer. Rather moving through a landscape is accompanied by constantly changing vistas (Ingold 1993, 154) and it are these changing vistas which significantly impact the perception of and the dwelling within a landscape. The sequence of the encounters we have with the landscape determines how we perceive those encounters (Llobera 2005, 181-182).

The static viewshed maps do little to reflect the effect of walking along the alignment of the Vaassen case study for example. Some barrows will readily be visible irrespective from where one stands, while other burial monuments are revealed in a specific sequence when walking along the alignment.

Both these aspects of temporality must be addressed if we wish to bridge the gap between phenomenological approaches and GIS studies. Studies that approach the barrow landscape as a diachronous development are rare, from both the phenomenological and GIS approaches. Attempts at including movement into visibility studies have been equally limited (see however Bell and Lock 2000; Llobera 2000; Lock and Pouncett 2010; Eckardt, *et al.* 2009).

In my opinion it is only through the use of GIS that we can provide the tools to answer this question. The potential of GIS to eliminate modern and subsequently model past vegetation and investigate the impact of that vegetation on

visibility is invaluable in this research. It is equally capable of addressing questions on intentionality and causality. Through the use of GIS, an archaeologist can, for example, investigate whether or not barrows were built on highly visible points.

Nevertheless uncritical use of GIS can quickly lead to misidentifications and to potentially misleading results (*cf.* Van Leusen 1999; Wheatley 1995, 180). To continue with the example, if a positive association is found between barrows and high visible points, it should be further investigated whether or not this may have a different cause, such as barrows being built on the highest points in the landscape.

6.4 Visualising prehistoric landscapes

Whether one approaches the visual role of the barrow from the perspective of phenomenology or GIS, the reconstruction of the past, and the visualisation of that past, plays an important role. Two problems stand central to this reconstruction and must first be dealt with before we can continue any further. Firstly, it is important to realise that the visible burial place is not the ruined and overgrown (and usually restored) monument as we now encounter it. Secondly, most barrows are no longer surrounded by the vegetation present at the time of its construction (Barrett 2004, 199). Both these points combined influence the visual character of the prehistoric landscape and must be taken into account to some extent.

If visibility was important, then it is worthwhile to investigate how we should visualize these barrow landscapes. Most archaeological studies involving burial monuments do little to consider their original forms, shapes and landscape setting. The present day barrow landscape is incomplete and ruined. The barrows are now the partial, collapsed, decayed and overgrown remnants of what was once overground architecture.

When investigating the visual elements of the prehistoric landscape, we must realize that many of those elements have now disappeared. Postholes recovered around many barrows in reality created elaborate wooden constructions. Visibility of those barrows at the moment of their construction will have been significantly higher than it is now. If visibility (in whatever form) was the desired outcome of a barrow we should first try to recreate how these burial monuments may have looked like when newly created.

6.4.1 Colourful mounds

As already mentioned in the introduction to this Chapter, barrows in present day landscapes sometimes seem to disappear and blend into the background. The vegetation growing on top of those barrows is similar to the vegetation growing around it, usually grasses or heather shrubs. But a burial monument, especially when freshly built, would have contrasted with the surrounding vegetation.

Firstly, large tracts of land were stripped of sods needed for the construction of the mound, destroying the top-soil. These tracts will initially have remained bare, and it is assumed that it took a long time before heath vegetation returned to its original density. Especially when the sods were cut deep enough, as they were in the Low Countries, the recovery would have taken at least 20 years (Doorenbosch 2011, 120). This means that tracts of stripped soil close to the mound, and perhaps surrounding the barrow, were coloured differently to the vegetation around it (Bender 1992, 747; Thrane 1998, 271).

Equally the mound itself had a different hue than the surrounding vegetation. In the construction of a mound the sods were usually stacked upside down. If the last layer of sods was also stacked upside down, the outer layer of the mound

would have been made up of relatively brown soil mixed with the roots of heather shrubs and grasses. Different types of soil have different colours and there are some indications that people manipulated these different colours to create differently coloured segments (Holst, *et al.* 2004). For at least a few years, until vegetation grew back, the mound will have been easy to distinguish from the background.

In the Stonehenge area the same effect was achieved by covering the mounds with an outer layer of fresh chalk (Ashbee 1960, 45; Lawson 2007, 52). Instead of the gently sloping green hills we now see, we should visualise bright white or brown/orange coloured mounds, depending on the subsoil. And even when vegetation returned to the mounds and started to grow on top of it, the type of vegetation will initially have been entirely different from what surrounded it.

Irrespective of any other attempt to enhance the visibility of a barrow, this in itself would already have enhanced the contrast of a barrow against the natural background and will therefore have improved the long-distance visibility of a barrow (Llobera 2007b, 57-58). Whether or not this was intentional is secondary, the end-result will have been the same. A barrow, when freshly built, will have contrasted with the surrounding vegetation.

6.4.2 Post circles, ditches and palisaded ditches

While the mound is one element of the burial architecture, features surrounding the mound also form part of the monument as a whole. Although most of these features have disappeared through time, with the posts rotting away and the ditches filling up, at the moment of their creation these architectural features will have made a significant visual impact.

Post circles, common during the Bronze Age (see Chapter 3), represent the most obvious way to enhance the visibility of a mound (Lohof 1994, 111; Theunissen 1999, 101). And, as I argued in Chapter 5, distinct types of post circles were used to differentiate specific groups of barrows (notably in the Toterfout case, see p. 98).

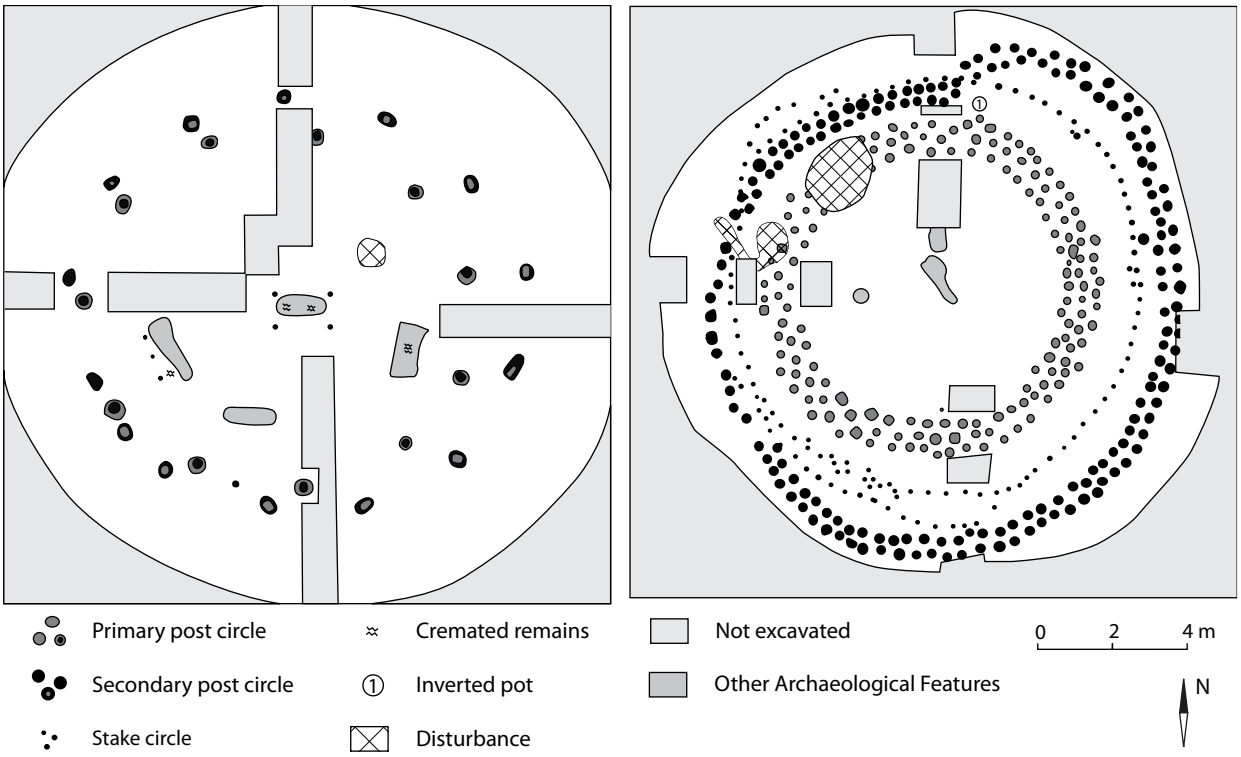
In most cases the posts seem to have been fairly substantial (20 - 30 cm in diameter). While it is impossible to say how high the posts will have been, their maximum obtainable height was approximately 3 - 4 m.[31] Some postholes were dug so deep that they would have been capable of sustaining posts of up to 5 - 6 m in height (*e.g.* Tumulus 5 at Toterfout Halve Mijl; Glasbergen 1954a, 45). The resulting post circles would have had a clear visual impact on the landscape.

The post circles can be divided into two distinct groups (see Chapter 3). The first group of widely spaced post circles, may have had more elaborate architectural elements above the surface. Some of these post circles show a pairing of posts which suggests transverse baulks may have been placed on top of them (*e.g.* Tumulus 5 and 11 at the Toterfout cemetery). Several post circles also suggest entrances indicative of elaborate overground architecture (Glasbergen 1954b, 154). It may even be possible that the posts themselves were brightly coloured or decorated with woodcarvings.[32]

---

31 Based on the depth of the post-holes we can calculate the maximum height of a post before it would have no longer been able to support itself. Huijts (1992, 41) suggests that the depth of a posthole equates to 1/5 to 1/6th of the maximum length of a post. Of course in reality the post itself may have been lower in height, but it nevertheless suggests how high such a post *may* have been.

32 The actual posts surrounding the barrows have never been preserved, but drawing on parallells from water-logged conditions suggests that wood carvings were certainly not uncommon. At the small Bronze Age temple of Barger Oosterveld, the four corner posts were all decorated with cattle horns (Waterbolk and Van Zeist 1961), while in Danish bogs large wooden posts have been found, displaying anthropomorphic figurines (Glob 2004 [1965]).



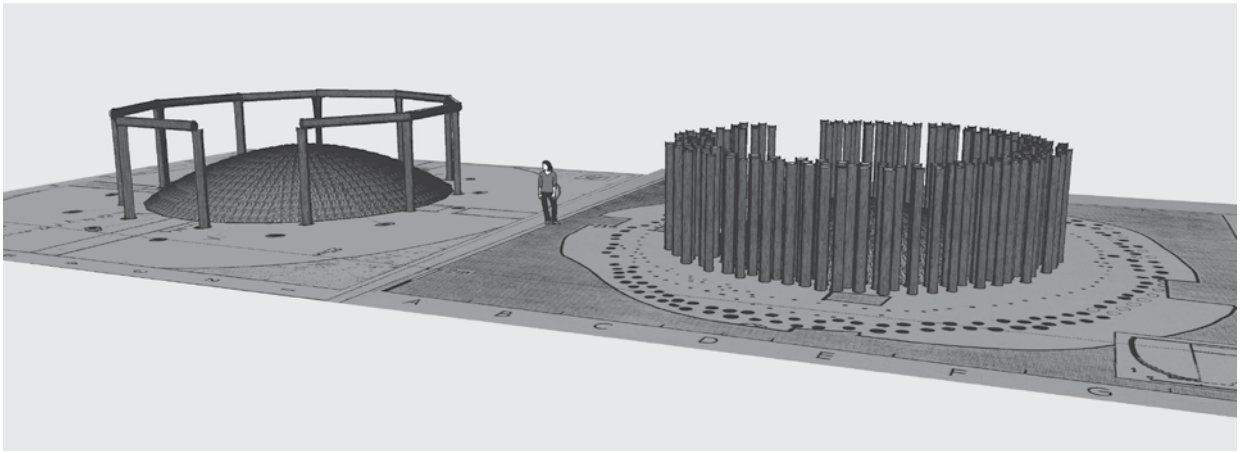


Fig. 6.5: Top: excavation plans of a widely and a closely set post circle; to the left Tumulus 5 of Toterfout Halve Mijl (redrawn after Glasbergen 1954a, Fig. 13); to the right Rechte Heide (redrawn after Glasbergen 1954b, Fig. 51). Bottom: a 3D reconstruction of the post circles on the basis of the primary post circles (created with Google Sketch-Up).

Conversely, the second group of closely spaced post circles would have obstructed visibility of the mound itself. This construction would have created a wooden cylinder that encircled the mound. These post circles will have created two visually distinct groups (Fig. 6.5; see Chapter 5). In some exceptional cases the entrances to post circles were extended to create long allées towards the centre of the barrow (*e.g.* Van Giffen 1949b; Wilhelmi 1986).

The outward visual impact of post circles will certainly not have been its only function. It has been suggested that the regularity in spacing indicates they were oriented to the cardinal points as well as the midwinter and midsummer solstices (Harsema 2001). The cordoning off of the burial space and the creation of a delimited space (perhaps even pre-mound construction) will have been equally important (Theunissen 1999, 92).

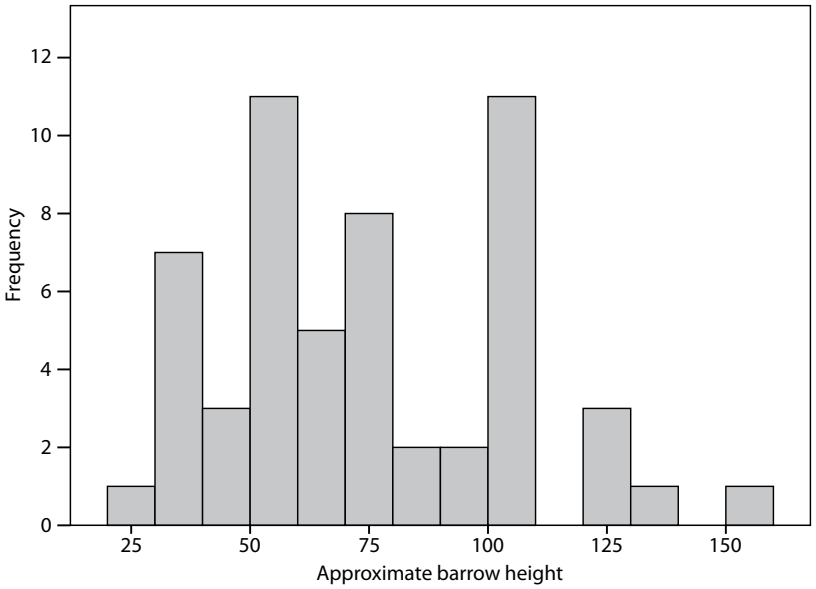


Fig. 6.6: The approximate height of all Neolithic barrows upon excavation (where this could be reliably determined; N=55).

Nevertheless, the resulting effect of the post circles left to decay in the landscape will also have been a visual one (*cf.* Gibson 1992; Theunissen 1999, 101; Lohof 1994, 111). The visual effect of a barrow would not have been that of a low gently sloping mound such as we can see today, but rather of elaborate wooden structures in varying degrees of decay.

Barrows surrounded by a ring ditch or a bank and ditch may not have shared this visual concern. The ditch delineated the burial monument and created a liminal space, but its long-range effect on visibility can be considered limited. At close range, however, the ring ditch did create the optical illusion of a bigger monument. A bank and ditch barrow will have achieved the same effect.

The material from the ditches was in some cases thrown on top of the mound, in other cases it was covered by sods. When the excavated material was thrown on top of the mound it will have created a differently coloured mound, increasing its contrast and thus its long-range visibility. The frequent re-digging of ditches and surrounding barrows with new ditches during the Bronze Age may have served the function to refurbish the mound and to increase its visibility.

Both types of surrounding features are typical for the Bronze Age (Theunissen 1999, 57-67; Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008; see Chapter 3). Late Neolithic mounds have a slightly different burial architecture. As in other regions in North-Western Europe (*e.g.* Lawson 2007, 158; Ashbee 1960, 148-149), Neolithic mounds in the Low Countries were usually not very prominent. While not necessarily small, most were relatively low and are rarely higher than 1 m (average of 70 cm; Fig. 6.6). The visual impact of the mound itself will have been limited.

Most barrows from this period are surrounded by palisaded ditches. Reliably identifying palisades within the ditches surrounding Neolithic barrows is only possible for the better documented excavations. Especially excavations undertaken before 1940 do not always allow the distinction between a 'normal' ditch and a palisaded ditch.

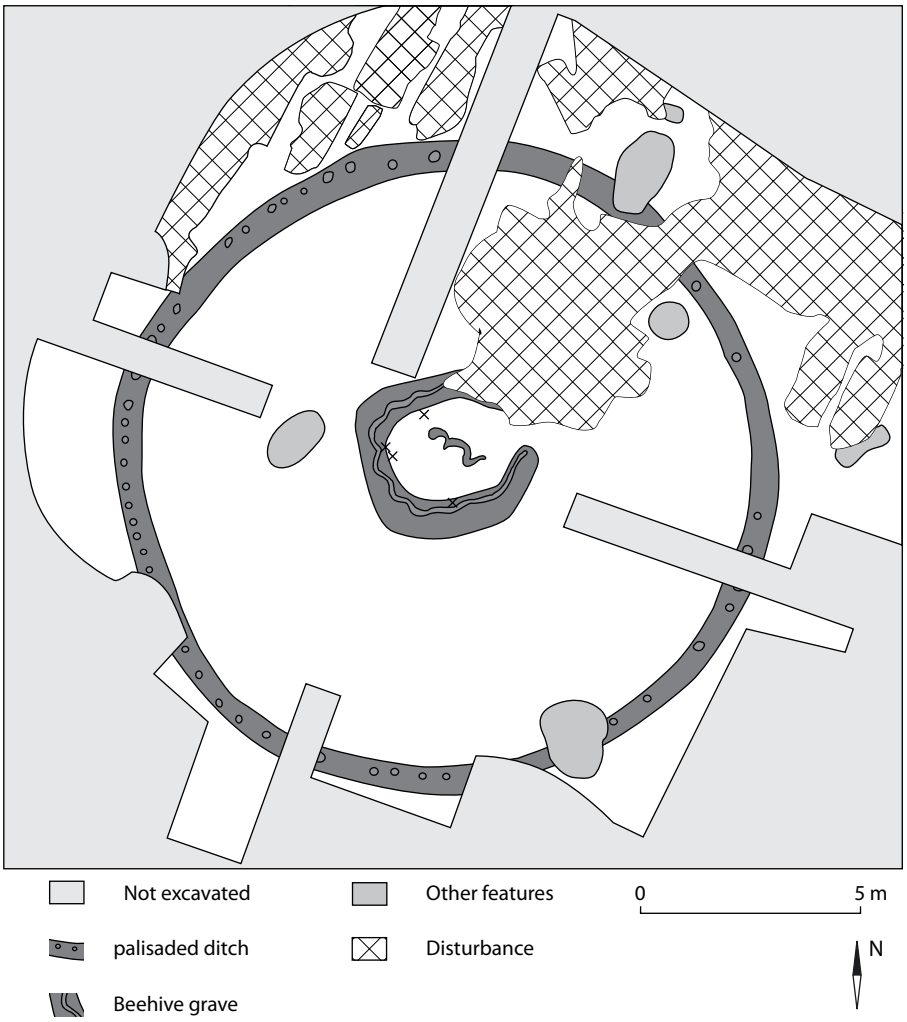


Fig. 6.7: The excavation plan of the Putten barrow (redrawn after Van Giffen et al. *1971, Fig. 2).*

Nevertheless almost every ditch surrounding a Neolithic barrow can be considered palisaded (Lanting 2007/2008, 62),[33] even if no traces of posts were recognised. Where sections of these ditches are available, a double filling can generally be identified in the ditch, which should be interpreted as the remains of an organic construction placed in the ditch and left to decay. A barrow excavated by Bursch at Maarsbergen makes a good example (barrow nr. 276). While the original excavation plan does not depict any posts within the ditch, sections of that ditch display several distinct post-shadows visible within the fill of the ditch (Lanting and Van der Waals 1971b, 118).

There is, especially in Dutch literature, considerable debate as to the function of these palisaded ditches (*cf.* Modderman 1984; Lanting 2007/2008, 62-63; for a similar discussion on Bohemian and Moravian Neolithic barrows see Turek 2006). Much of the debate and confusion stems from the fact that palisaded ditches appear both close around the grave and at, or slightly under, the foot of the mound. Both have been interpreted as having the same function (Lanting 2007/2008, 62).

Since some of these ditches appear to have been covered by a mound, they are interpreted as being temporary and are considered to have been removed prior to the building of the mound (Lanting and Van der Waals 1976, 43; Drenth and

33 To my knowledge only two or three Neolithic barrows have a 'normal' ditch. At the Hunerberg the ditches documented are V-shaped in profile and do not show any trace of posts (Louwe Kooijmans 1973).

Lohof 2005, 440; Lanting 2007/2008, 62). If we follow this interpretation, all palisaded ditches documented in the Low Countries, should be viewed as temporary screens demarcating the site of the future barrow.

Several aspects of this interpretation are difficult to reconcile with the evidence however. On the one hand some palisaded ditches form an integral part of the grave pit. Finds were placed right up to the edge of the palisaded ditch and the entire area it enclosed was deepened. On the other hand some ditches do not relate to the burial pit at all, but rather are associated with the edge of the mound. The division into two groups is supported by the fact that in several cases a palisaded ditch around the grave is found together with a palisaded ditch around the foot of the mound (*e.g.* Lanting and Van der Waals 1971b; Van Giffen, *et al.* 1971; Fig. 6.7) suggesting that both ditches served a different function.

Together with my colleague K. Wentink, I set out to understand the relation of these ditches with the mound and how to reconstruct them. We started with an inventory of all ditches found underneath or in association with Neolithic barrows (Appendix D). For each ditch, we tried to ascertain its stratigraphical relation to the mound, especially noting whether it was covered by the mound or whether it was placed at the foot of it.

A total of 113 Neolithic barrows are associated with ditches. The stratigraphical relation between the barrow and the ditch could not be determined in 77 cases.

Fifteen of these ditches were certainly covered by the mound and all are without question part of the burial chamber, later covered by the mound. While I would argue that the term 'beehive' is perhaps not entirely in line with how these burial chambers should be reconstructed, I nevertheless would suggest to keep this now common-place term. As these chambers are subsequently covered by the barrow I will not discuss them here any further. For an extensive discussion of these graves I refer to my colleague (Wentink in prep.).

Twenty-one ditches were situated at the foot of the mound and were not or only partly covered by the foot of the mound. These must be considered as palisaded ditches encircling the mound. They are common during both the Late Neolithic A and B (see Chapter 3). The way in which these palisaded ditches are reconstructed is of great relevance to the visibility of the burial mound. As stated above, most if not all of these ditches were palisaded. The documented depth of these trenches (an average of 72,5 cm; Table 6.1) and the width of the observed traces of posts suggest we are dealing with substantial beams. Their maximum height may have been as much as 4 to 5m[34] with an average diameter of roughly 15 – 30 cm. The posts are usually closely set within the ditch leaving little space in-between the posts (*e.g.* Harenermolen, Van Giffen 1930; Bennekom Tumulus I, Van Giffen 1954). The posts decayed *in situ* and created a wooden screen enclosing the burial.

In most cases the burial mound was constructed within this wooden screen and in several instances the mound itself was constricted by the wooden palisade (Modderman 1984, 62; *contra* Lanting 2007/2008, 62). This is supported by the fact that when sods have been recognised in Neolithic mounds, they always appear inside the confines of the ditch and never outside of it (*e.g.* Hijszeler 1945). The parts of the mound which are found to be covering and sometimes extending beyond the ditch can be considered slope wash. The subsequent decay of the posts would allow the mound to settle outwards. The colluvial deposits to the sides of the mound would then gradually cover over the ditch.

This process can be observed in several profiles (Fig. 6.8). This is supported by the fact that the distance from the foot of the mound to the ditch is in almost every case less than 1 metre (Fig. 6.9). In well documented profiles this colluvial

34 Once again based on the formula by Huijts (1992, 41); see note 31.

Sitename	Barrow ID	Distance barrowfoot to surrounding structure	Diameter of the barrow	Diameter of the surrounding feature	Height of the mound	Depth of the surrounding feature	Remarks
Heerde Koerberg Heuvel 2	392	100	425	350	25	50	.
Hijken Hooghalen Tumulus 17	472	150	1100	550	75	90	.
Ermelose Heide heuvel III	326	80	760	600	80	90	.
Maarsbergen heuvel 1	276	125	900	700	60	65	in drawing the posts appear to run through the mound body.
Nutterveld Tumulus II	4410	100	1000	710	60	35	8m sod core untill center of ditch, outside ditch lighter colour sand.
Harenermolen	456	50	980	720	90	65	51 posts (15-20 cm diameter), ditch fill contained a BB sherd.
Holten Tumulus IV	4011	85	1050	725	100	55	.
Oosterwolde Galgenberg	558	50	.	750	.	.	4 posts visible in ditch (diam posts 10-25 cm)
Lunteren 'De Vlooienpol'	4038	.	.	750	.	.	6 posts visible (diameter 25 cm)
Vaassen Heuvel 3	275	.	.	750	30	75	.
Swalmen bosheide Heuvel 1	48	.	.	750		125	.
Niersen Galgenberg G4	635	.	.	775			.
Exloo doppelkreisgrabenhugel	556	25	1000	800	75	75	17 posts visible, originally about 50-60
Hilversumsche heide heuvel 7	297	150	1000	800	.	65	.
Vaassen Heuvel 1	273		1300	850	100	75	.
Schipborg heuvel d	496	100	1300	900		75	.
Ermelo Groevenbeekse Heide	301	0		900	50	50	.
Meerlo Tumulus I	145	0	900	900	50	80	Foot of mound slopes into ditch
Eext visplas/pingoruïne	521	100	1350	1050	125	25	52 posts visible with ca. 6 to 7 missing. Approx. 50 cm inbetween posts (diameter 20-30 cm)
Bennekom Quadenoord heuvel 1	322	0	1300	1300	100	100	65 posts visible with approx. 20 missing. All posts approx. 30 cm in diameter with 10 cm inbetween each post
Putten	409	0	1500	1400	100	110	42 posts visible with approx. 40 missing. All posts approx. 20-30 cm in diameter spaced around 20-30 cm from one another.

Table 6.1: Palisaded ditches surrounding Neolithic mounds; (values in cm). The references to these monuments can be found in the database (Appendix A).

deposit outside of the ditch is differently coloured and textured than the mound on the inside of the ditch and in some cases a steep slope outwards is also indicated (*e.g.* Van Giffen 1954).

Modderman's suggestion of cylindrical mounds (1982, 62) would thus be in line with the evidence as we observe it. There are however barrows which seem to defy this classification and where it is difficult to distinguish between palisaded ditches and burial structures.[35] Palisaded mounds are not restricted to the Low Countries (see Turek 2006 for several central European examples and Hübner 2005 for Danish ones). It has also been suggested for a Neolithic barrow in England, where the excavators reconstructed the original form of the mound as a drum-shaped monument (Lawson 2007, 168).

The exact shape and form of a Neolithic mound will remain difficult to reconstruct. In some cases we see that the mound within the palisaded ditch was relatively flat as opposed to the more convex mounds of the Bronze Age (*e.g.* Van Giffen 1954). Two different reconstructions are depicted in Fig. 6.10. As with the post circles of the Bronze Age, any overground reconstruction is pure conjecture. The palisade may have been brightly coloured or not, it may have been 1,5 m or

35 Notably Hijken Hijkerveld Tumulus 17 (Van der Veen and Lanting 1991).

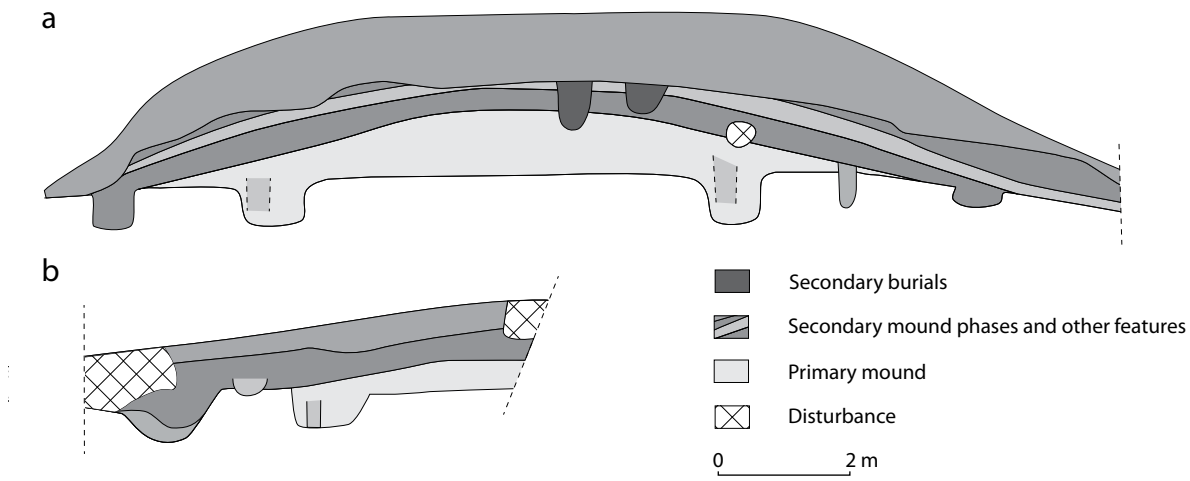


Fig. 6.8: Profiles of two Neolithic mounds surrounded by palisaded ditches. Note the traces of the posts at the edge of the primary mounds. The top profile (a) is from the Harenermolen barrow (Van Giffen 1930, T.33); the bottom profile (b) from Bennekom Quadenoord (Van Giffen 1954, pl.II).

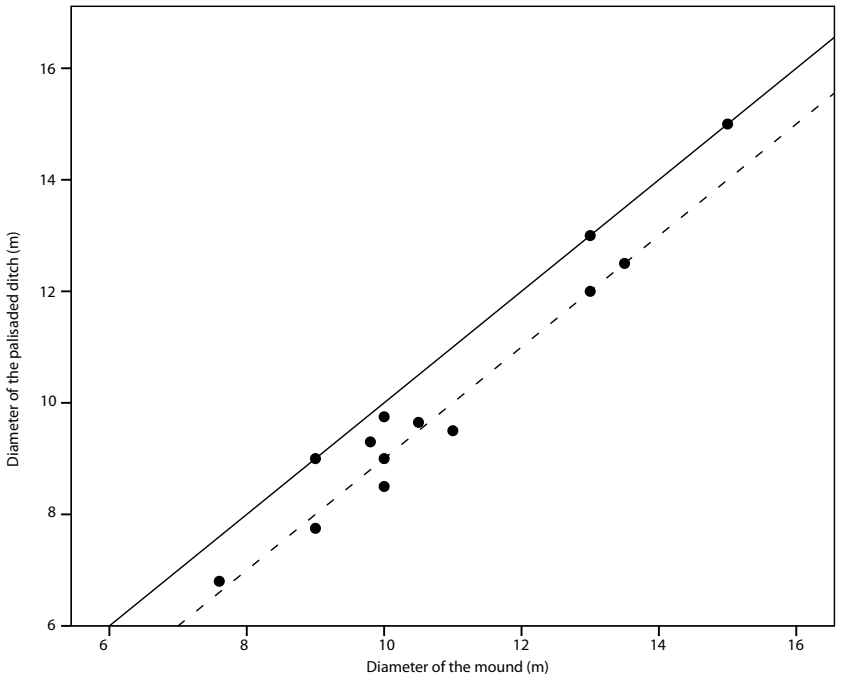


Fig. 6.9: A scatterplot of the relation between the palisaded ditch and the foot of the mound. In most cases the palisaded ditch is located at the edge of the mound (solid black line) or within 1 m of it (interrupted line).

3 m high, the posts may have been decorated or something may have been placed on the top of (some of) the posts. Whatever the case may be, the form and shape of a Neolithic mound was decidedly different than the relative low mounds we see today. With their surrounding palisades we must rather reconstruct them as cylindrical monuments (*cf.* Modderman 1984, 58).

The original function and meaning of Bronze Age post circles and Neolithic palisaded ditches may be difficult to reconstruct, but the effect they achieved was similar. In both cases they significantly altered the visibility of a small low mound and created clearly distinguishable man-made constructions. The impact on wider visibility within the landscape of those specific points was significantly increased, albeit only temporarily. Perhaps what may also be important is the interplay between barrows with a low visibility signature, such as those surrounded by ditches or no features, in contrast to barrows with a high visibility signature, such as those surrounded by palisades or post circles. Observing a barrow group still in

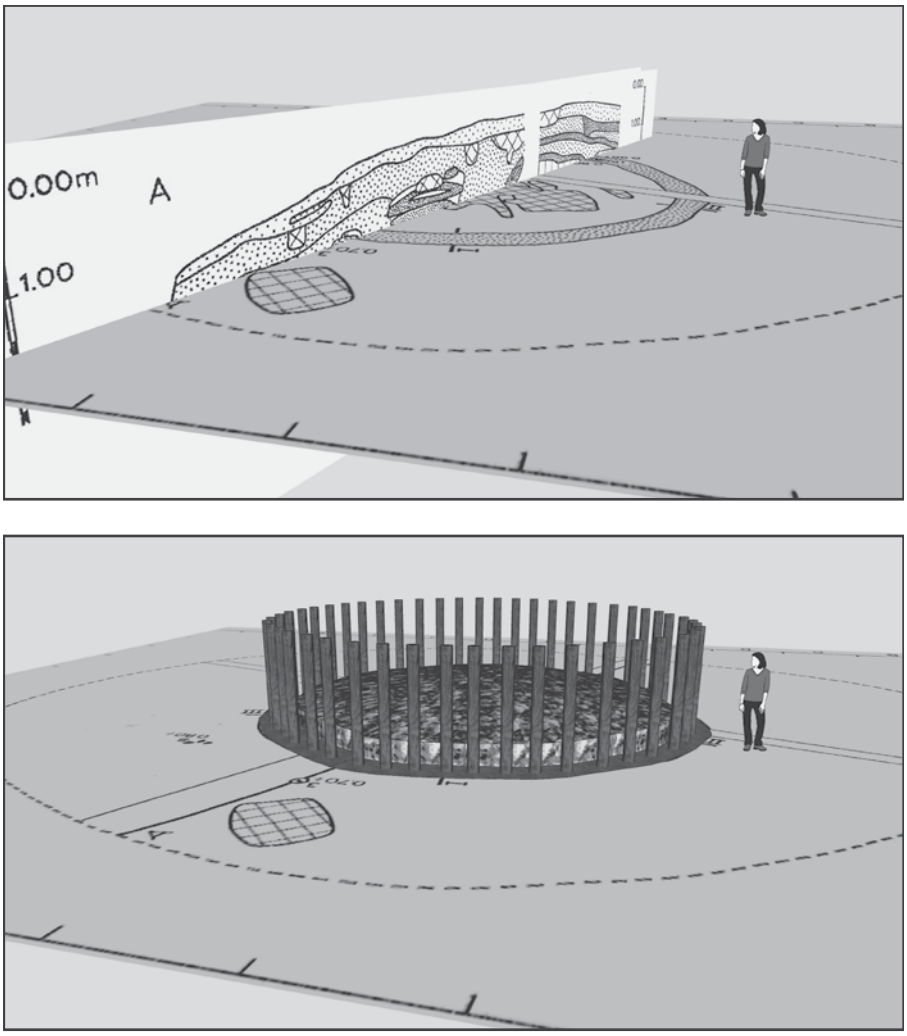


Fig. 6.10: A 3D reconstruction of the palisaded ditch surrounding a primary mound at Maarsbergen (Lanting and Van der Waals 1971b, Fig. 13a and b; courtesy of the National Museum of Antiquities (RMO)).

use would have revealed barrows in varying degree of decay, from newly finished mounds surrounded by fresh post circles to almost completely ruined and decayed post circles encircling a completely overgrown mound.

6.4.3 Vegetation reconstructions

Visualising and reconstructing prehistoric barrow landscapes would be incomplete without attempting to reconstruct (part of) the vegetation (Chapman and Gearey 2000). When trying to research visibility patterns, standing on top of a hill or barrow trying to look towards a specific point, it is important to realise what type of vegetation would have been standing between the observer and the target. A small copse of trees, rightly positioned, can already block any possible line of sight and lead to false conclusions. Both the role of modern-day vegetation and the role of prehistoric vegetation has to be taken into account.

Modern-day vegetation on the Veluwe is significantly different from what was present in the past. While some burial mounds are now located in heath fields, most are located in very small clearings within modern planned forests. Three quarters of the Epe-Niersen alignment is now located in a pine-forest planted by prince Hendrik in the early 20th Century (Bleumink and Neefjes 2010, 150-154). Trying to establish visual relationships in the field between monuments on this alignment would be impossible as the evergreen trees enclose almost every individual barrow on all sides.

Fortunately the modern-day vegetation can be removed within a GIS. The DEM which often forms the basis for visibility studies is effectively stripped of any vegetation (Wheatley and Gillings 2002, 6). This surface is sometimes referred to as a *'bare earth surface or barren landscape'* (Tschan, *et al.* 2000, 29). These DEMs offer views unimpeded by modern vegetation and (most) buildings.

While it is fortunate that modern day vegetation can be removed, it does not take into account the prehistoric vegetation. Viewshed studies carried out on these bare earth surfaces are much more likely to overstate the importance of visibility than studies that do account for vegetation (Tschan, *et al.* 2000, 34-35). From the early advent of viewshed studies, this so-called tree-problem has been acknowledged (*e.g.* Wheatley 1995, 182), although it has rarely been dealt with.

The first step which must be taken in order to visualise past barrow landscapes is reconstructing what type of vegetation surrounded these barrows in Prehistory. It is admittedly difficult to model where an individual tree would have been standing and the lack of solid vegetation proxies limits the possibilities and extent of reconstructions. And when these proxies are present, it is often difficult to say where exactly the pollen-producing vegetation would have been located (Gearey and Chapman 2006, 171) or what the extent of it would have been (Cummings and Whittle 2003, 268).

Fortunately for the Low Countries we have quite a lot of information on past vegetation. The case studies presented in Chapter 5 all have multiple barrows that were sampled for pollen remains, allowing us to reconstruct the vegetation (development) around the barrows in relative detail. Those mounds were all built on heaths, and indeed all barrows sampled for pollen in the entire Low Countries indicate the presence of heathland (118 out of 119; Casparie and Groenman-Van Waateringe 1980; Groenman-Van Waateringe 2005; Doorenbosch in prep.).

From these vegetation proxies we can certainly suggest that almost every barrow was built in an open heath/grass field (Doorenbosch in prep.) which appears to have been managed and kept as heathland for millennia to follow (*cf.* Doorenbosch 2011). Even the earliest barrows on the Veluwe were built in open heath fields (Casparie and Groenman-Van Waateringe 1980). The heath itself is composed of grasses and heather plants, which will have had a limited impact on visibility.

Next to this open vegetation, all pollen spectra indicate that alder fen woodland as well as a mixed oak forest was present close by. The impact this vegetation will have had on visibility was much more profound than the low shrubs of heath and grasses. Both zones would have presented visual barriers which will have made visibility of the landscape behind it difficult although not necessarily impossible (Chapman and Gearey 2000; Cummings and Whittle 2004, 22).

So in Prehistory, people standing close by a barrow would have been standing in a heath interspersed with grasses. Low shrubs of heather and patches of grass and the occasional birch tree would make up the immediate environment of the barrow.

In the lower lying river valleys and bogs, dense vegetation of alder and willow trees was present. The height of this vegetation was substantially higher, with the alder trees reaching altitudes of 15 to 20 m (Stortelder, *et al.* 1999, 189-210). Dense vegetation, low shrubs and reeds, would have impeded any view through this area.

The third component in the pollen spectra is a mixed oak forest, which surrounded the heath on all sides. The oak and lime trees would in general have reached heights of 20 to 40 m while the edges of the forest were rimmed with hazel trees and shrubs (Van der Meijden 2005, 405). While it may have been possible to view through the trees (Cummings and Whittle 2003, 260; Llobera 2007a), the hazel trees on the edge of the forest represented dense vegetation and

undergrowth, with visibility unlikely to have ranged far beyond the edge of the forest. Even in winter, the massed tree-trunks would still block visibility beyond more than 50 m (Fleming 2005, 926). This mixed oak forest will have formed a significant visual barrier and would have blocked most if not all views beyond it.

Admittedly generalizing, this reconstruction of the vegetation surrounding a barrow is nevertheless valid for almost the entire Prehistory from 3000 BC onward (Casparie and Groenman-Van Waateringe 1980; Doorenbosch in prep.). The size of the heath will have increased gradually through time (although in some cases perhaps also decreased?), but the composition of the vegetation remained the same. The heaths were permanently managed (Doorenbosch 2011), either through burning, sod cutting or grazing. Once established the heaths never disappeared throughout the 3rd and 2nd Millenium BC (Doorenbosch in prep.), remaining a staple part of the landscape in the Low Countries. We should thus visualise the barrows in an open heathland with at a distance the forest edge.

More problematic is the exact size of the heaths. Estimates vary from a few hundred metres to more than a kilometre in diameter (Doorenbosch in prep.). This may have varied from burial mound to burial mound or through time (De Kort 2007), although how this should be translated in the actual extent of the heath is difficult to quantify.

If we assume a radius of 500 m, the resulting open heathland will increase dramatically. Conversely a radius of just 100 m will reduce the heathlands to small patches within a vast forest. In either case, with a radius of 500, 250 or 100 m, the burial mounds will have been enclosed on all sides by the forest edge. Especially in a relatively flat landscape as in the Low Countries visibility will have been severely restricted beyond anything more than a few hundred metres (*cf.* Doorenbosch in prep.).

The visual impact of the vegetation on a barrow landscape can therefore be considered significant. The effect of the mixed oak forest on the observer will have created a sense of visual enclosure (Llobera 2005, 187), with the burial mounds forming important visual foci on the small heaths (Bourgeois in press). Emerging onto a heath, the burial mounds will almost immediately have been located at a distance relatively close to the observer (Llobera 2007b, 58). Their visual impact, especially when the mounds were freshly built with the posts still standing, will have been very high, yet their long-distance visibility can be questioned. Views extending beyond anything than a few hundred metres will have been especially difficult.

It is only in specific cases that we can be fairly certain that larger heath fields were in existence. Especially with the alignments on the Veluwe, we can argue for the existence of bigger heaths. If we assent that all barrows on the alignment of Epe-Niersen were built within a heath field, each individual heath links up to form one elongated stretch of heath enclosing the entire alignment (Fig. 6.11).

These relatively large heathlands must already be reconstructed for the earliest phase of barrow construction. As was argued in Chapter 5, most burial mounds on the alignments were already constructed in the Late Neolithic A. If we reconstruct even moderate heaths (250 m in radius) around each individual barrow, they link up to create a minimum of several square kilometres of heathland around each alignment. It is only in these regions that we, with a certain measure of certainty, can substantiate long-distance views (Bourgeois in press).

6.4.4 Combining the elements: an impression

Having set the stage we can now attempt to combine the different elements into a reconstruction of the barrow landscape roughly 4500 years ago. Once again walking up to the Neolithic barrows of the Ermelo barrow group, the experience we try to recreate now starts to become entirely different. Walking up from the boggy

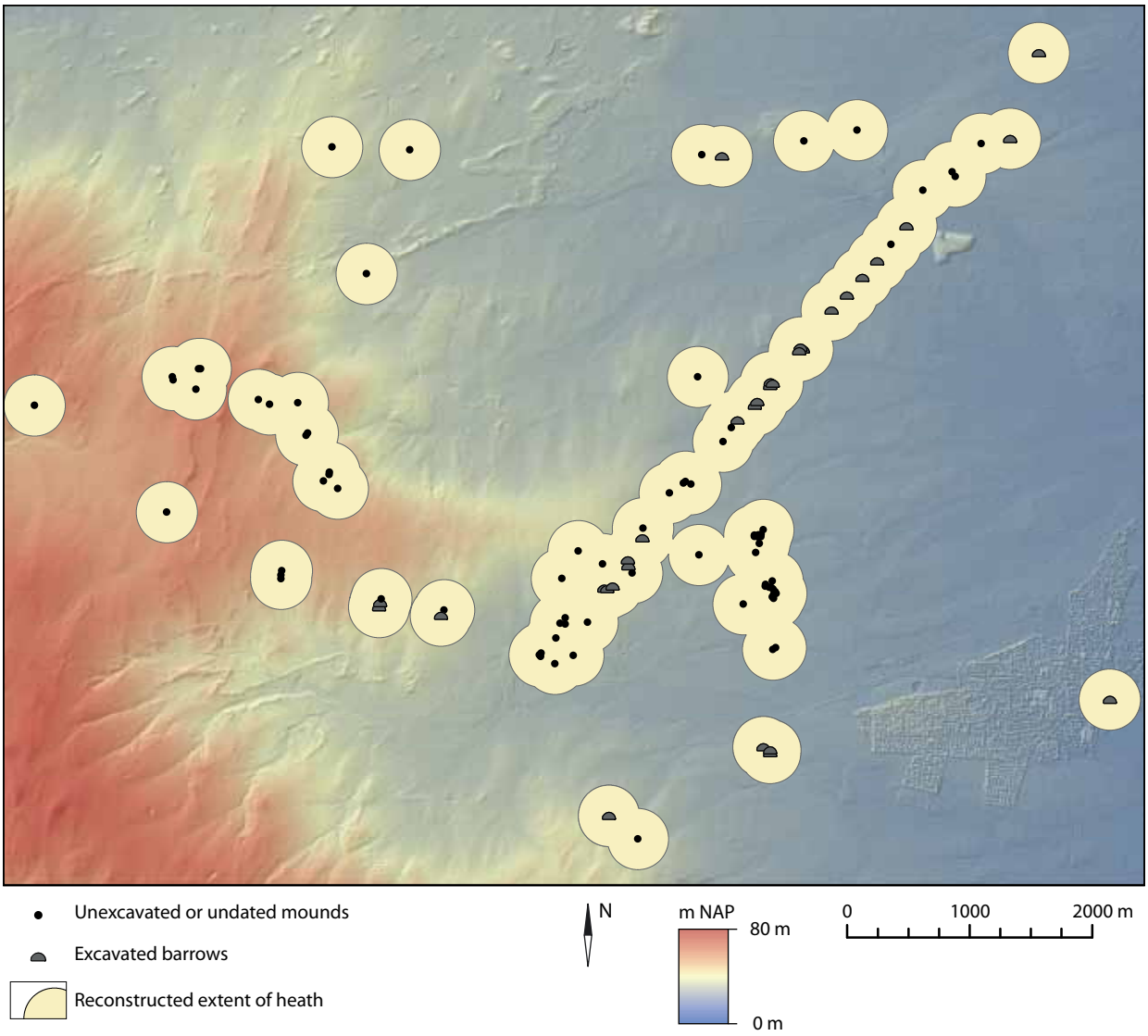


Fig. 6.11: A reconstruction of the size of the heath on the basis of the distribution of the barrows.

river valley with its alder brook forests we emerge onto a heath. On the horizon we see three wooden palisades enclosing small burial mounds. Two of the mounds are surrounded by the half decayed wooden posts, while the third mound, recently constructed is enclosed by a freshly built palisade. Moving closer to the mounds reveals more palisaded burial monuments, built in line with the first three, further off in the distance, with one built right on top of a hillock. The burial mounds are built in a long stretch of heath field enclosed by a mixed oak forest on all sides.

If we were to approach the same group from the same direction a millennium later we would see two large mounds, freshly refurbished and a barely perceptible low mound right next to these. The colour of the two large mounds contrasts with the surrounding vegetation and with the overgrown smaller low mound. Moving towards these two barrows a long line of barrows would come into view. Most barrows were either recently erected or refurbished, and the strips of barren soil close to these mounds are still clearly visible. To the north and south of the alignment, a few hundred metres out from the barrows, the forest encircles the heath.

This impression and the attempt to recreate the barrow landscape demonstrates how differently we must visualise these landscapes. But even more so it shows how limited an experience in the modern day landscape would be. It is imperative to research the past landscape through a reconstruction of all its constituent ele-

ments. While for some elements this is easier, such as the form of the mound, for others this is much more difficult. For example, the impression presented above is now notably devoid of people. The human presence in the landscape, through settlements, is now almost impossible to reconstruct as a result of an archaeological bias.

6.5 Researching visibility patterns

Let us return to the question at the heart of this Chapter. How does a barrow structure and manipulate visual relations within the landscape? As I argued in the introduction to this Chapter, the role of visibility permeates all explanations concerning the choice of location for a barrow. Yet how we should interpret and understand the role and specific articulation of visibility varies significantly. Using the case studies of Ermelo and Epe-Niersen I will explore what visual relations these barrows had with the rest of the landscape.

Now of course each type of visual relation is articulated differently. In essence we must break down the question central to this Chapter into five sub-questions and develop a methodology for each of these:

1. Was a view *from* a barrow important? And a view of towards what parts of the landscape?
2. Was a barrow meant to be seen (and from what distance)? And does a barrow have a higher increased visual signature than its immediate surroundings?
3. Which barrows are in view of which other mounds? And does the position of each barrow create networks of intervisibility?
4. Were barrows built on locations of high visibility? And did they manipulate this in order to increase the visibility of the barrows (*i.e.* cresting a hill)?
5. Was visibility manipulated in such a way as to reveal a sequence of views?

These questions reflect the differing opinions outlined in the introduction to this Chapter. Within a GIS environment these different positions can be explored and a methodology can be developed for each. Below I will first outline the technical details and constraints followed by a reconstruction of the vegetation on the DEM. Then I will discuss a methodology for each question, followed by its application to the Ermelo and Epe-Niersen case studies.

6.5.1 The visibility analyses: some technical details and constraints

The visibility analyses described below all use a viewshed or a Line of Sight (LOS) as a basis. All viewsheds and LOS have been calculated using ArcGIS 10 and the Viewshed, Skyline or LOS tool within its 3D analyst extension.

All observers used for the viewpoint have been given an observer height of 1,7 m, reflecting the assumed average height of people in Prehistory. In cases where the visibility of the barrow itself was important, the observed target height has been increased by 0,5 m. This will result in the target barrows being 0,5 m higher, reflecting a freshly constructed barrow. All viewsheds were calculated using earth curvature.

All viewsheds were calculated on the basis of a Digital Elevation Model (DEM). All DEM's were created using an *Inverse Distance Weighing* (IDW) interpolation from Lidar-imagery (the *Actueel Hoogtebestand Nederland*, AHN). The raw data (though with the vegetation already filtered out) of the AHN was used and there is at least one point every 5 x 5 m with a standard deviation of 15 cm on the elevation value (Van Heerd, *et al.* 2000).

The IDW allows for an as accurate representation of the actual observations as possible and ensures that the small scale variability of the landscape is represented in the DEM (Conolly and Lake 2006, 94-97). The interpolation was created using ArcGIS and the IDW tool of the 3D analyst module.

There are several important limitations and constraints which need to be addressed prior to the viewshed analyses. Firstly, the importance of the quality of the DEM. Secondly, the edge-effect within viewshed studies. Thirdly, we need to determine the distance at which a barrow can still be seen

The quality of the DEM is of primary importance to viewshed analyses (Wheatley and Gillings 2000, 9-10). The resolution of the DEM used in this research is 5 x 5 m. This means that the raster is made up of 5 by 5 m wide cells with a single elevation value. The real landscape is of course much more variable. This means that any results obtained from the DEM should be considered as probable results based upon that *model* of the landscape.

In specific cases the so-called edge effect can also have a significant influence on the validity of viewshed studies (Van Leusen 1999, 218-219; Van Leusen 2002, Chapter 16). Cells located towards the edge of the DEM have increasingly low values as the viewpoints which are outside of the boundaries of the DEM are not included in the analysis. If the target research area is 10 x 10 km and viewsheds have a radius of 2 km, only the inner 8 x 8 km area will have values which are correct.

In order to compensate for this, the DEM was increased in size, not only to include the research area, but also to extend beyond it by one time the extent of the viewshed. In practical terms, this means that the DEM, and the area in which random points are located is extended by 2 km beyond the boundary of the research area (Fig. 6.12).

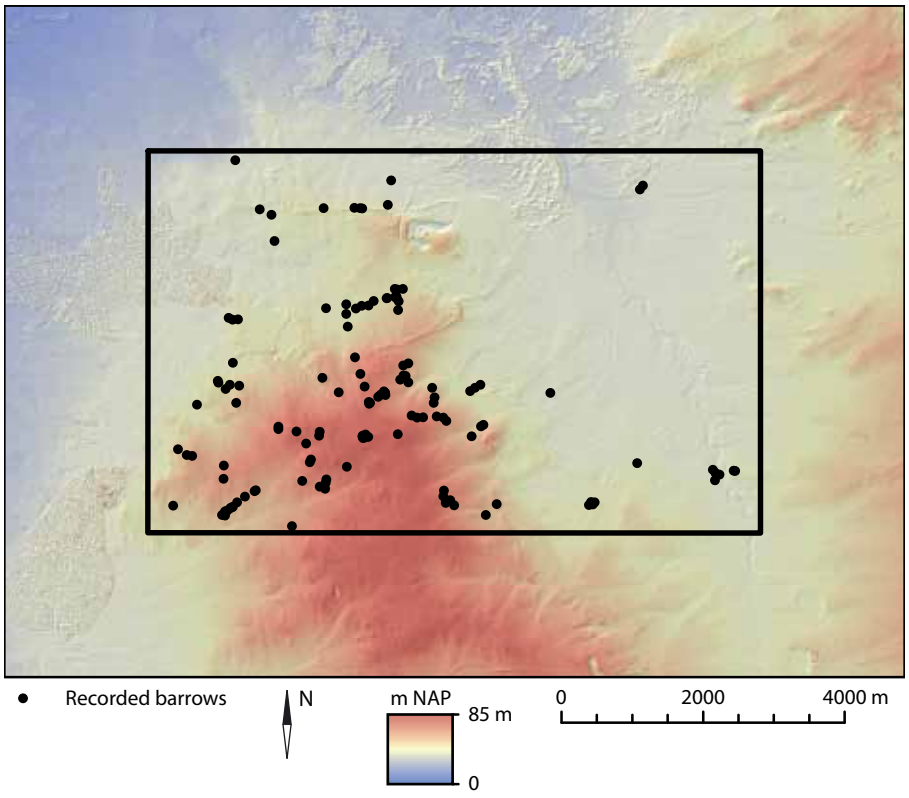


Fig. 6.12: The extent of the DEM, accounting for the edge-effect. Here, an additional 2 km buffer is included in the viewshed analyses.

Fig. 6.13: Photograph of several mounds on the Ermelo heath. The photograph was taken from the top of barrow 327. Visible in the photograph are: a) barrow 330; b) barrow 331; c) barrow 325; d) barrow 326; e) either barrow 332 or 333. Several of the barrows in between barrows 330 and 325 were not visible (i.e. barrows 337-339). The distance between the point where the photograph was taken and the furthest barrow is just under 700 m. Both barrows 325 and 326 remained visible over longer distances. For an overview of all barrows mentioned see Fig. 5.19 and Fig. 5.23.

Once the DEM is constructed, viewshed maps can be generated. From a viewshed map individual values for each burial mound can be obtained, indicating their visual exposure, area of view etc.

Within a GIS environment, we can restrict how far we should be looking. Yet we should be aware that the extent of the viewshed radius significantly influences what locations are emphasised (Ogburn 2006, 405). If the viewshed radius is unconstrained, it will reinforce the visual magnitude of high locations such as hilltops (Van Leusen 2002). On the other hand if a small viewshed radius is chosen, local elevation differences will be accentuated. A similar process is described by Llobera on topographical prominence (Llobera 2001).

Central to this problem is the question at what distance we can still resolve a burial mound. Is it of much use to create a viewshed with a radius extending beyond multiple kilometres if it is impossible to distinguish the target under study (Van Leusen 1999, 220)?

Personal experience on several heath fields suggests that the burial mounds will not have been clearly visible beyond more than a kilometre. Even with (reconstructed) post circles it is very hard to distinguish the individual burial mound, and only at specific positions were they clearly visible.

To get an estimation of these distances, I visited several heathfields and determined at which point I could still see individual mounds. On a relatively flat stretch of heath called the *Rechte heide*, to the south of the town of Tilburg, lies an alignment of seven mounds. After having been excavated by Van Giffen all of them were fully reconstructed (complete with post-circles; see Fig. 2.1; Van Giffen 1937a). Yet I could only distinguish a few of the barrows when just over one kilometre away, and even then with great difficulty. Similar tests in the Ermelo-heath field suggest the same approximate distances (Fig. 6.13).

This suggests that long-distance visibility patterns which can be generated through viewshed analysis should be evaluated carefully. The visibility of a burial mound will only rarely extend beyond a kilometre. It is only in specific cases where the visibility of the individual mound is increased that longer viewing distances can be supported. In the case of false-cresting, the contrast of the burial mound offset against the horizon will enable the mound to be perceived from greater distances than if it were located at the foot of a hill.

In cases where the view *of* a mound is important, I constrained the viewshed radius to a maximum of 2 km. This represents the extreme maximum range at which a burial mound may still have been visible. Beyond this distance, a barrow will no longer be distinguishable from the background (modified after Llobera 2007b, 57-58).[36]

Values obtained for archaeological features are however, meaningless if they are not compared with expected values. These can be obtained from a random sample within the same area. Such a sample can be constructed using a Monte Carlo technique (Conolly and Lake 2006, 161-162). With this technique multiple sets of n randomly located points are created, where n is the number of points under study (for example the number of barrows in the region) and the number of sets determines the confidence level (in this study 99 sets have been used, with a confidence level of 0,01).

The background sample can then be compared with the values obtained from the barrows. The hypothesis is proven to be correct if the values of barrows are significantly higher than the values of random points. The significance is tested with a Kolmogorov-Smirnov (or K-S) test (Wheatley 1995, 173-174; Wheatley and Gillings 2002, 215; Conolly and Lake 2006, 130-133) commonly available with most statistics software.

The technical limitations of the visibility analysis are not limited to the technicalities of the GIS used. The DEM used in these studies is a representation of the modern day landscape. These modern landscapes also include modern features such as highways, urban centres and raised causeways for highways or railroads. These modern features are then included into the DEM and will severely impact the results of the visibility studies.

For some areas this impact is much more severe than others. The Renkum research area for example is less suited to visibility research because of the close proximity of the urban centre to the barrows as well as the impact of raised levees of highways and railroads crossing the research area. Any patterns of intervisibility or visual magnitude of specific points will be severely limited by these features. The visibility studies discussed in this Chapter will mainly focus on the Ermelo barrow groups and the Epe-Niersen alignment as these research areas are less influenced by modern-day features.

6.5.2 Modelling vegetation within a GIS

Before we attempt to construct methodologies and interpret the results we must first address a problem touched upon before: the impact of vegetation on visibility. While running the danger of generalising, it can nevertheless be said that barrows in the Low Countries were built in heathland, while at the same time wooded areas were in abundance nearby.

Not incorporating these trees in visibility studies would render any obtained results almost meaningless or at least difficult to substantiate (Bourgeois in press). We must therefore model the vegetation within a GIS environment (*cf.* Llobera 2007a).

As I argued above, three vegetation units can be identified within the pollen record underneath barrows. These are heathland, alder carr and mixed oak forest. I made three assumptions prior to modelling these vegetation units onto the DEM.

36 Note that these estimates are for barrows of on average 15 m in diameter and 1,5 to 2 m high, the average Dutch barrow.

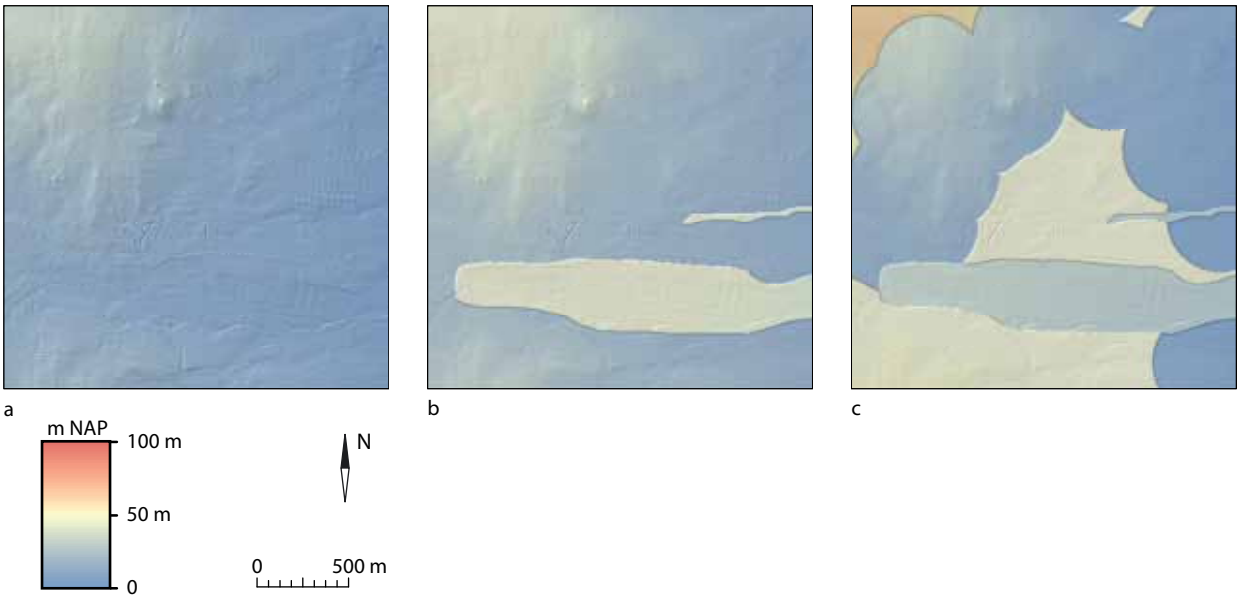


Fig. 6.14: a) a bare earth DEM; b) DEM with alder brooks modelled; c) DEM with both alder brooks and a mixed oak forest.

The first assumption is that all barrows were located in heathland of moderate size. On the basis of preliminary work by my colleague M. Doorenbosch (see Doorenbosch in prep.), I have assumed the heaths to have a radius of on average 250 m around each individual barrow.

Another major element of the vegetation record are alder trees. Found in all pollen records, these alder trees represent alder carr in the lower-lying stream valleys or areas with high ground-water tables. Two sources have been used to model the alder carr on the DEM. On the one hand areas with high ground-water (within 20 - 40 cm or less) were selected from the modern ground-water tables. However, modern use of ground-water combined with the canalisation of the many small stream valleys running of the Veluwe have significantly lowered the ground water (*e.g.* Eilander, *et al.* 1982, 31). The Militaire Topografische Kaarten of 1830-1850 were used to compensate for this and the swamps and boggy areas indicated on those maps have been added to the high-ground water areas. The assumption is that both sources reflect the general extent and location of the alder carr in Prehistory.

The third element of the vegetation was a combination of oak, lime, hazel, beech and to a lesser extent pine and fir trees. The percentages of these trees remain relatively constant throughout Prehistory although they decrease somewhat in the Bronze Age (Doorenbosch in prep.). The assumption is that the pollen of all these trees represent an extensive mixed oak forest which constituted a major part of the landscape and covered large parts of the Veluwe.[37]

These three vegetation units were then modelled onto a DEM. As mentioned above, a DEM represents the surface of the earth without any vegetation, a so-called barren landscape (Tschan, *et al.* 2000, 29). The original DEM was thus modified to account for the presence of the alder carr and the mixed oak forest (*cf.* Tschan, *et al.* 2000; Chapman 2000; Gearey and Chapman 2006).

Surrounding each individual barrow a buffer was created with a radius of 250 m. The elevation values within this 250 m radius were kept at the original elevation values with the exception of areas covered in alder carr. The elevation values

37 I acknowledge that an individual oak tree, isolated on an extensive heath may equally produce large quantities of oak pollen (*cf.* Cummings and Whittle 2003, 259). Nevertheless the combination of all these different types of trees suggest a more extensive tree cover rather than individual isolated trees.

of areas which represent the alder carr were then increased by 15 metres, representing its average height (Stortelder, *et al.* 1999, 189-210). Beyond the extent of these open places and not covered by alder trees the DEM was increased in altitude by 30 m, representing the average height of mature oak trees (Van der Meijden 2005, 405). The resulting Vegetation DEM creates distinct blocks of vegetation with different altitudes (Fig. 6.14).

Now of course the vegetation model as presented here is artificial and will only partially reflect the actual vegetation cover in Prehistory. First and foremost, the perfectly round heathfields surrounding the barrows are obviously artificial and do not reflect the complex mosaic of vegetation. At the same time it is very difficult to extrapolate the vegetation beyond the extent of the barrows and the model only represents the vegetation in close proximity of these mounds.[38]

Second, the vegetation reconstructions are notably devoid of settlements, an archaeological bias typical for the Late Neolithic (Whittle 1996, 227; Drenth, *et al.* 2008) and the Middle Bronze Age A (Arnoldussen and Fontijn 2007).

6.5.3 To see …

Methodology

The first question that will be dealt with involves the view available from a barrow. As posited by multiple authors, the view available from a barrow would be the prime motivation for the construction of a barrow on a specific place. Was this the case in the Ermelo and Epe-Niersen area?

It is relatively straightforward to demonstrate that a barrow has a wider view than other points in the landscape. By simply elevating a certain location one already obtains a better view of its surroundings. It is not even necessary to argue this through a GIS. Of course we are left with a question of causality; is the wide view an unwanted consequence of the mound or is it the desired outcome (DeBoer 2004, 200)?

I would argue that it is better to rephrase the question and ask what one was meant to look at. It has been frequently argued that from a barrow one could view specific (natural) places within the landscape (*e.g.* Tilley 2004b; Thrane 1998; Cummings and Whittle 2004). This can be tested within a GIS.

The vistas available from barrows can be offset against a background sample drawn from the entire research area. A cumulative viewshed from barrows would then highlight which areas are in view from the mounds (Fig. 6.15a). This can then be compared with the average cumulative viewshed created on the basis of a randomized set of samples (Fig. 6.15b). Differences between the two would suggest a preferential view of specific areas from the barrows.

Yet the method described above suffers from the fact that barrows are sometimes located in close proximity of one another. Their grouping together ensures that many of them have views towards the same points. These similar views will be reinforced in the cumulative viewshed and therefore introduce a bias.

If we take the northern alignment at Ermelo as an example, all 6 Late Neolithic A burial mounds are located in the same local environment. A comparison between points randomly placed within the entire research area versus the barrows, will automatically yield differences as the close proximity of the mounds will reinforce common areas of visibility.

---

38 I would like to emphasise that the only purpose of this vegetation model is to investigate its impact on visibility and does *not* represent the actual vegetation cover at that time, particularly not beyond the extent of the barrow distribution!

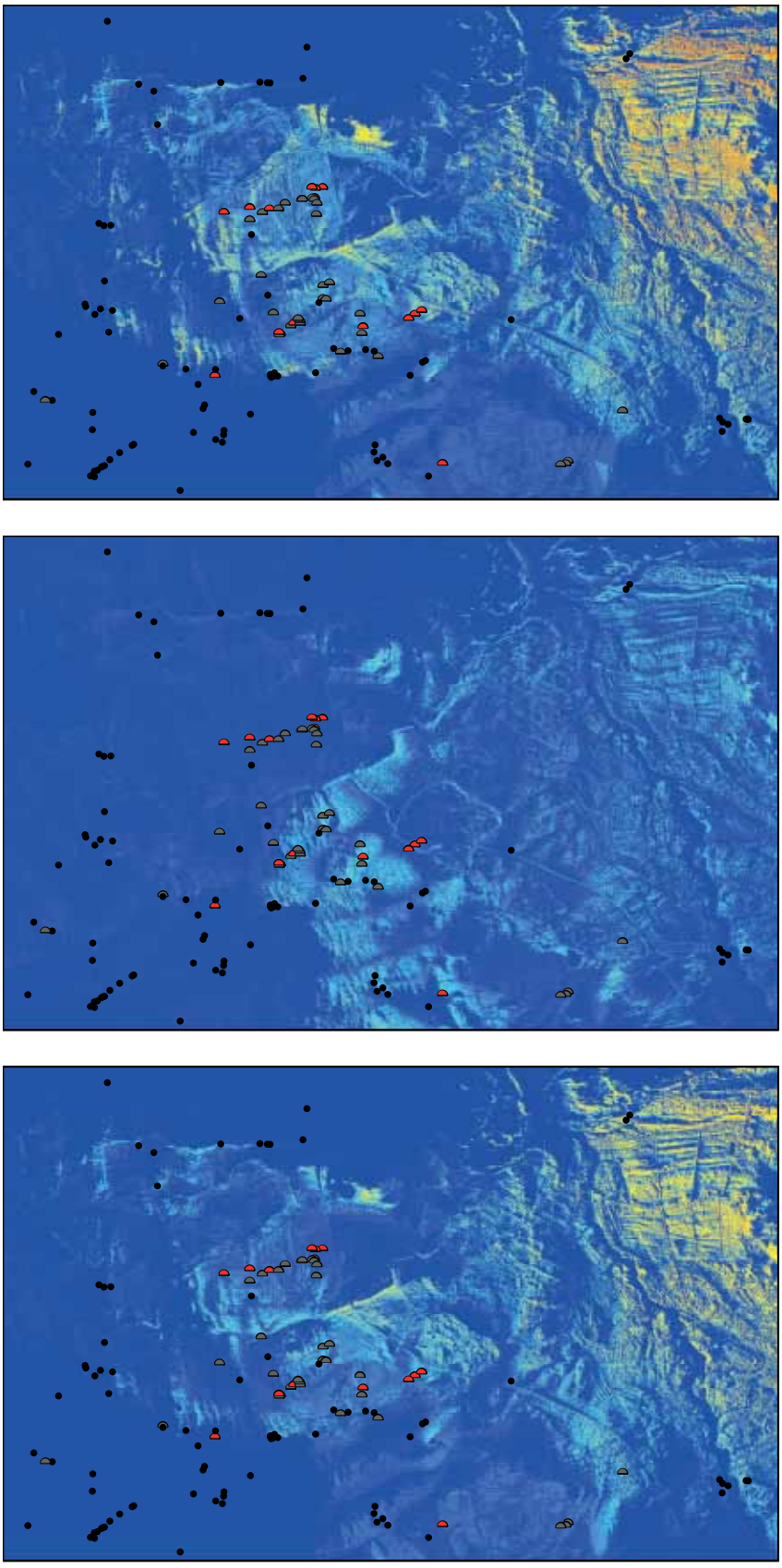


Fig. 6.15: a) A cumulative viewshed map with 14 Late Neolithic A barrows as viewpoints in the Ermelo region; b) Average cumulative viewshed on the basis of 99 sets of 14 randomly located points; c) Average cumulative viewshed on the basis of 99 restricted sets of 14 randomly located points.

Yet it may well be that local elevation differences may significantly change what may be visible from certain locations. Therefore it may be possible that each individual barrow was 'fitted just so' in the landscape as to enable certain views (Cummings and Whittle 2004, 88). To investigate this, we can restrict the random sample to an area close around the burial mounds (Fig. 6.15c). Randomly placed points in close proximity of the burial mounds will have the same general background as the burial mounds do. Here too a comparison of both can then highlight the areas which are preferentially in view of the burial mounds and not influenced by the local environment.

Ermelo

Firstly a cumulative viewshed map was created with the Late Neolithic A barrows as a starting point (Fig. 6.15a). In this way, we can explore what views were available from the two largely contemporaneous groups of burial mounds located in the centre of the map. The map indicates how the *Leuvenumse* stream valley was frequently in view from the burial monuments. Especially an area in the centre right of the map shows the highest values and it can be said that from almost every burial mound one had a view of that area.

Now comparing this map with the unrestricted background population (Fig. 6.15b), it becomes obvious that almost every randomly located point within the entire region has a good view of this stream valley. This is not surprising as it is the lowest point in the landscape and good visibility of this area is easily achieved. The conclusion drawn from the previous map should thus be seen in the light of this background population. Apparently it is not very difficult to achieve high visibility of the stream valley and it can then be questioned whether a view towards this stream valley was intentional.

The third map supports this conclusion (Fig. 6.15c). While there are several differences between the first two maps (a and b), the differences between the first map (a) and the third map (c) are negligible. There is, on the basis of these maps, no reason to assume that burial mounds were positioned *just so* in order to enable specific views.

Rather, the views they have are views available from any randomly located point within the research area, and especially to any point surrounding the burial mounds. This does not imply that specific views may not have been meaningful. It may well be that a view of the stream valley was important, yet it cannot be proven on the basis of these maps.

The same exercise was repeated on a DEM including vegetation, although only with a restricted random sample for obvious reasons (Fig. 6.16a and b). Once again the differences between both maps are negligible, and both barrows and random points have views of the same places. The second conclusion we can draw, is that if we include vegetation, views of anything beyond the reconstructed heathlands are impossible. The trees around the heathfields effectively form barriers beyond which most of the landscape was hidden.

The maps of later periods are not included here. They only reiterate the same viewshed-patterns as the Late Neolithic A mounds, since they are located in proximity of these.

Epe-Niersen

The same approach was used with Epe-Niersen. The differences between the first two maps (Fig. 6.17a and b), suggests that all barrows have a good view of the area around the alignment. There are certainly significant differences between the

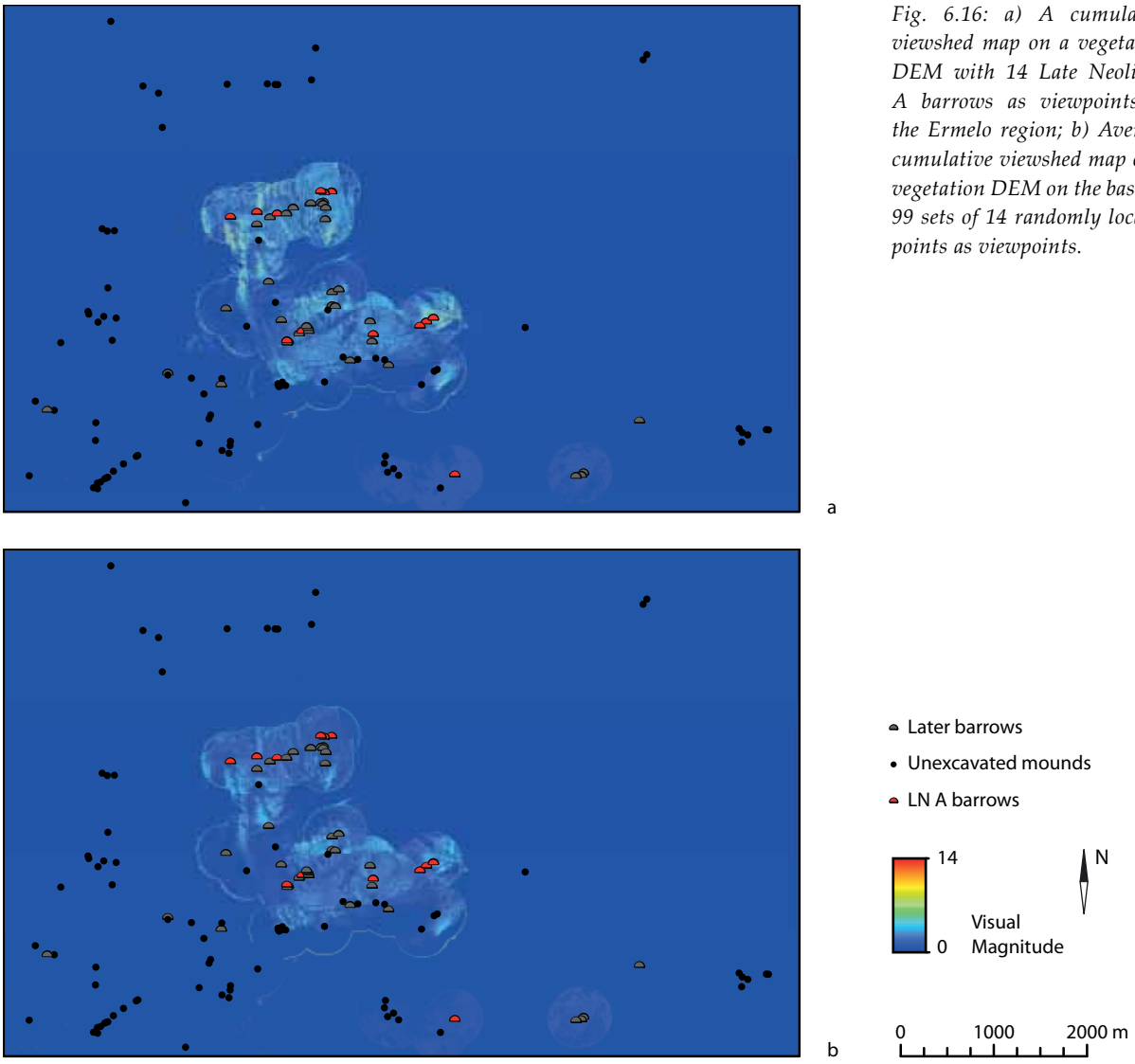


Fig. 6.16: a) A cumulative viewshed map on a vegetation DEM with 14 Late Neolithic A barrows as viewpoints in the Ermelo region; b) Average cumulative viewshed map on a vegetation DEM on the basis of 99 sets of 14 randomly located points as viewpoints.

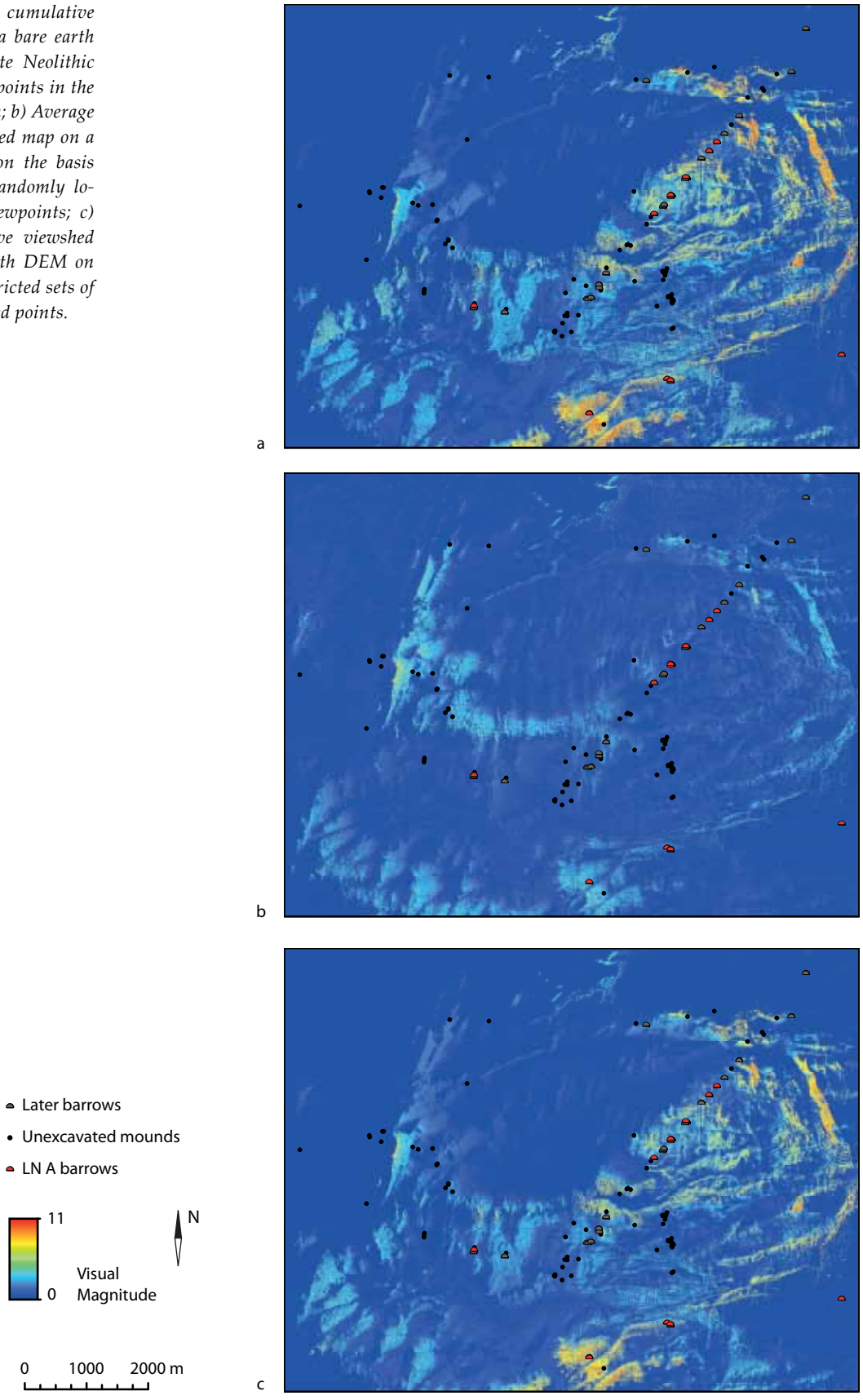
two maps. Yet the comparison with a restricted background sample (Fig. 6.17c), once again suggests that this is more likely a consequence of the mounds on the alignment being located on a gently sloping plain.

The differences between the two maps created on a vegetation DEM are negligible (Fig. 6.18a and b). Interestingly, the area of the alignment has consistent high values throughout all sets of maps.

Interpretation

Summarizing, a view from a barrow within both regions may well have been important, yet substantiating this position is very difficult and dependant on many unknown variables. There is no evidence that barrows have a better view of specific areas within the region as opposed to randomly located points. Especially the restricted random samples have almost identical cumulative viewshed maps. That is not to say that a view from one of the Ermelo or Epe-Niersen mounds may not have been important, or that views of specific parts of the landscape may not have been meaningful, yet it cannot be proven on the basis of these maps.

Fig. 6.17: a) A cumulative viewshed map on a bare earth DEM with 11 Late Neolithic A barrows as viewpoints in the Epe-Niersen region; b) Average cumulative viewshed map on a bare earth DEM on the basis of 99 sets of 11 randomly located points as viewpoints; c) Average cumulative viewshed map on a bare earth DEM on the basis of 99 restricted sets of 11 randomly located points.



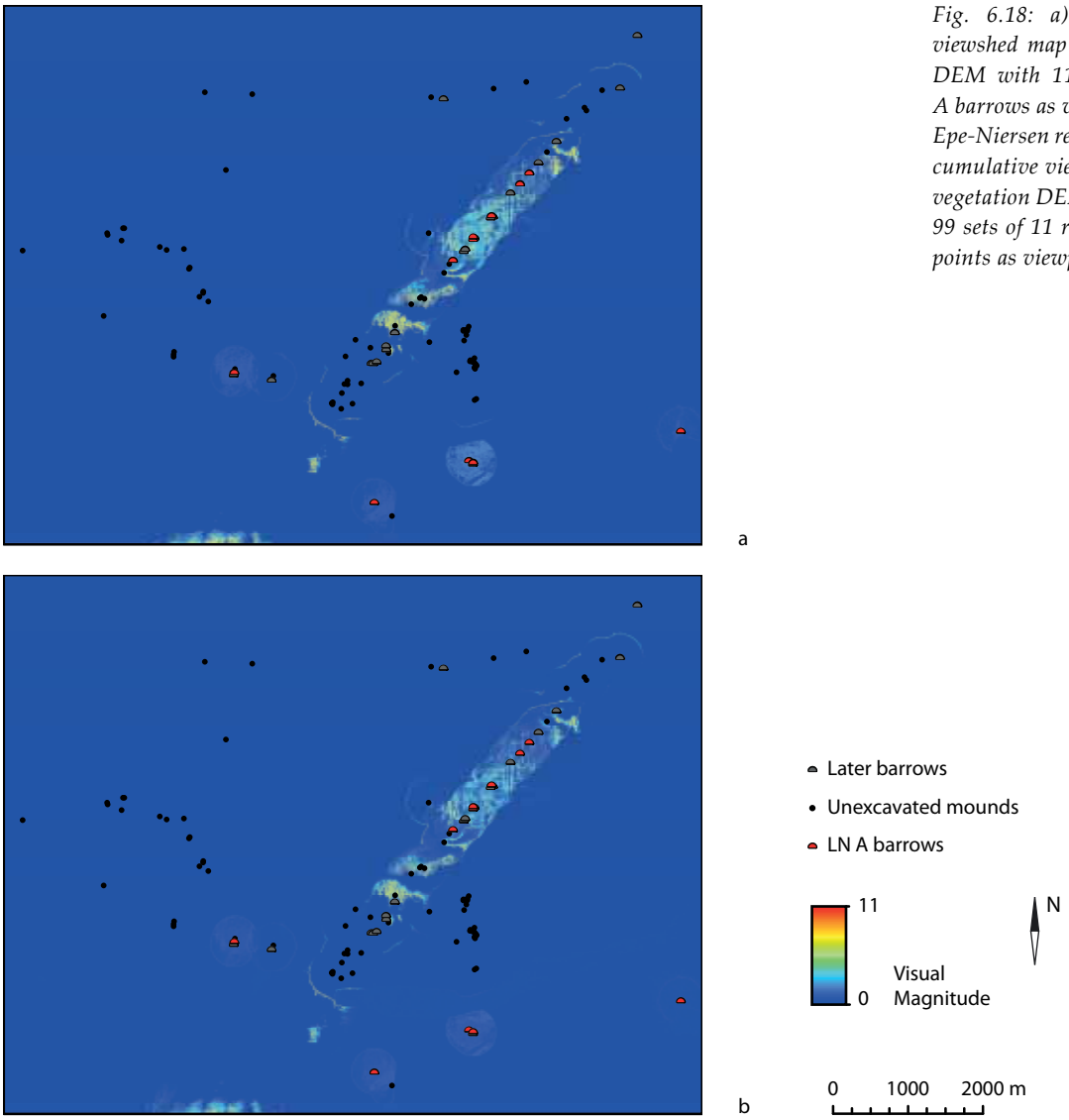


Fig. 6.18: a) A cumulative viewshed map on a vegetation DEM with 11 Late Neolithic A barrows as viewpoints in the Epe-Niersen region; b) Average cumulative viewshed map on a vegetation DEM on the basis of 99 sets of 11 randomly located points as viewpoints.

6.5.4 … or to be seen

Methodology

The converse position towards burial mounds has also been suggested. Was a barrow meant to be seen? Does a barrow have a higher increased visual signature? As a first step we could create a map indicating which points are highly visible and which are not. In theory this can be visualised in a total viewshed map (Llobera, *et al.* 2010). In such a map a viewshed is calculated from each individual point or cell of the map. All individual viewsheds are then summed into a single map. The resulting map then displays the visual magnitude of each individual cell (Llobera 2003).

Creating such a map demands high computational resources however and takes weeks if not months to generate (Llobera, *et al.* 2010). If we take into account that the Epe-Niersen and Ermelo DEM's have respectively 7.8 and 6 million cells, and that a conventional computer needs 2 to 3 seconds per individual viewshed, we would need several hundreds of days to generate such a map.

As a work-around we can create a cumulative viewshed map based on an Monte Carlo sampling of cells or viewpoints (Llobera 2006, 150). The resulting map then approaches the values of the total viewshed map with a high degree of

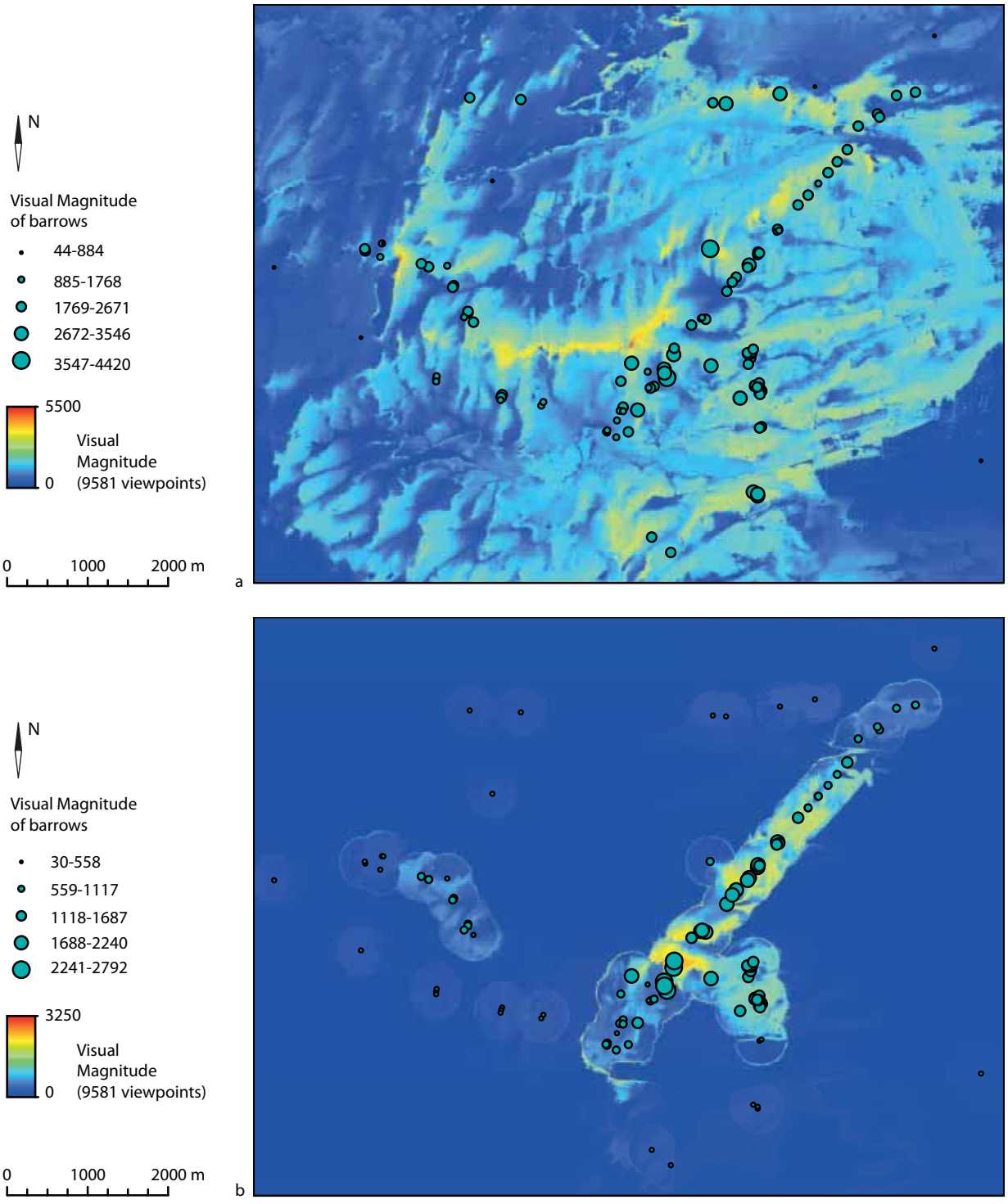


Fig. 6.19: a) Cumulative viewshed map on the basis of 10890 randomly located points on a bare earth DEM at Epe-Niersen; b) Cumulative viewshed map on the basis of 10890 randomly located points on a vegetation DEM. The size of the symbol for each barrow represents its visual magnitude.

confidence and indicates the visual magnitude of each individual cell in the map (Llobera 2003). The following step is then to compare the visual magnitude of barrows against the visual magnitude of a random sample of points.

Two maps were created for both case studies. On the one hand a map without vegetation cover, and on the other a map accounting for vegetation. Both maps are used to create a cumulative viewshed map on the basis of randomly located points. The resulting visual prominence maps then display how visible each individual cell is.

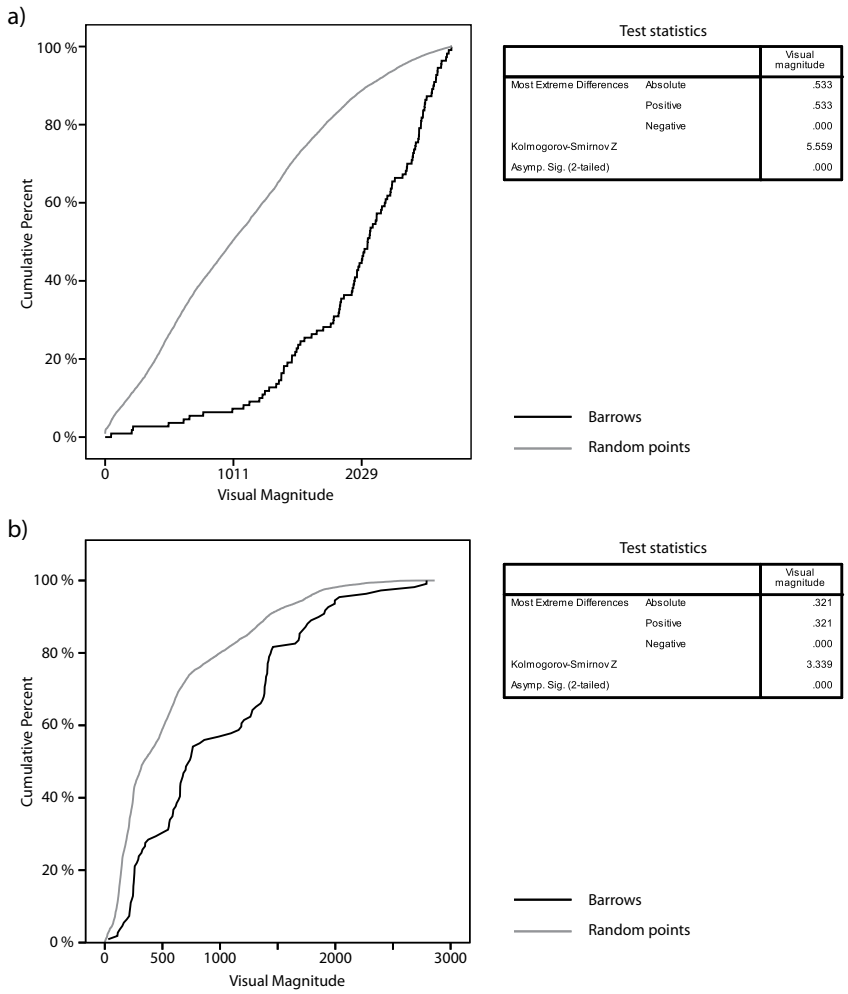


Fig. 6.20: a) Cumulative percentage comparing the visual magnitude of 10890 random points versus barrows on a bare earth DEM at Epe-Niersen. The K-S statistics suggests that barrows have a significantly higher visual magnitude than the random points. b) Cumulative percentage comparing the visual magnitude of 10890 random points versus barrows on a vegetation DEM. The K-S statistic suggests that barrows have a significantly higher visual magnitude than the random points.

Epe-Niersen

The visual prominence map of Epe-Niersen (Fig. 6.19a) indicates that the entire alignment is in an area of high visibility. Equally the burial mounds of the Celtic Field and three Neolithic barrows (273 – 275) close to the town of Vaassen are in areas of high visibility. A comparison of visual prominence between randomly located points and the burial mounds displays a significant difference between both sets (Fig. 6.20a).

The second map, accounting for vegetation, is entirely different (Fig. 6.19b). A comparison of visual prominence between randomly located points and the burial mounds still displays a significant difference between both sets, although the difference is slightly less pronounced (Fig. 6.20b). The major shift however is in which burial mounds are now highly visible. Whereas in the previous map, the burial mounds located in the Celtic Field of Vaassen and the three Neolithic mounds were visually the most prominent, this has shifted to a few specific burial mounds on the southern end of the alignment (notably 635, 636 and 4700).

Ermelo

The first visual prominence map (Fig. 6.21a) of the Ermelo region suggests that the most visually prominent points in the landscape are within the stream valley of the *Leuvenumse beek*. A few burial mounds located on elevated areas also have high values of visual prominence, but the highest values can be found in the stream valley.

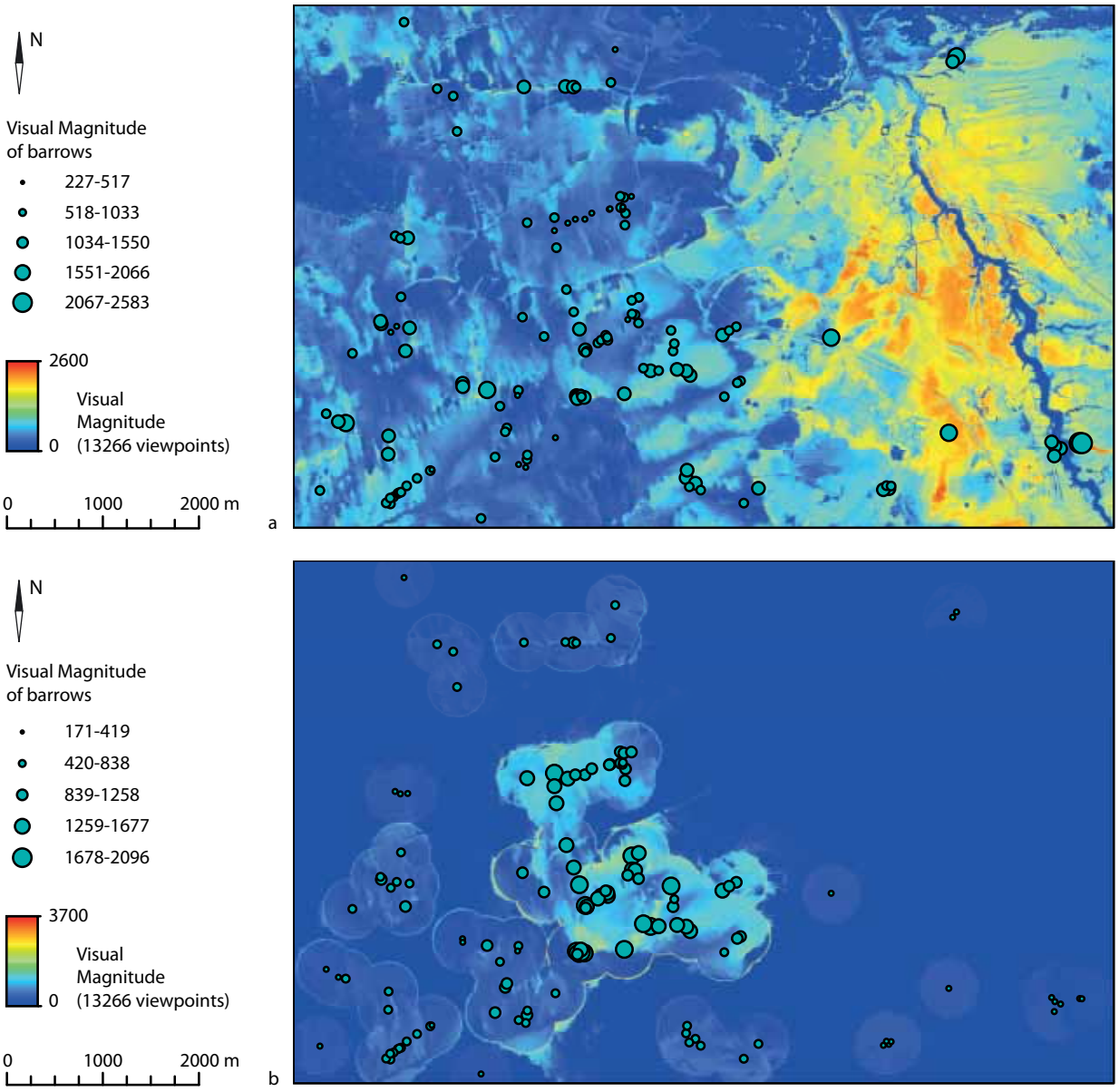
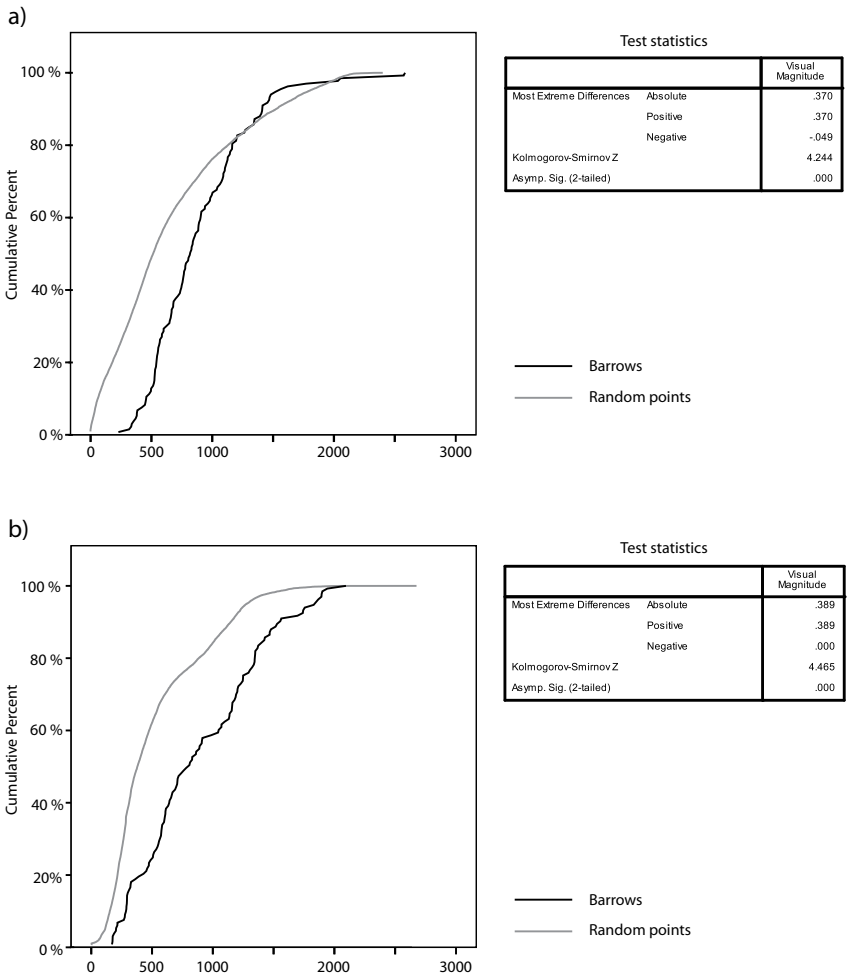


Fig. 6.21: a) Cumulative viewshed map on the basis of 13266 randomly located points on a bare earth DEM at Ermelo; b) Cumulative viewshed map on the basis of 13266 randomly located points on a vegetation DEM. The size of the symbol for each barrow represents its visual magnitude. The bigger the symbol the greater its visual magnitude.

A K-S test indicates that burial mounds have significantly higher values than randomly located points, although this difference is most notable in the lower half of the graph (Fig. 6.22a). This suggests that although burial mounds were not built in areas of very low visibility, they were not necessarily built in areas of very high visibility either.

The second visual prominence map (Fig. 6.21b) accounts for vegetation. The differences between both maps are striking. Where previously only a few burial mounds in the stream valley and on a few prominent points had high visibility values, the reverse now seems to be true. Especially the burial mounds on the *Ermelose Heide* in the centre of the map have high visual prominence. The difference in visual prominence between randomly located points and barrows is still significant (Fig. 6.22b), although the graph now indicates a marked difference between randomly located points and burial mounds. A K-S test of both distributions once again suggests barrows have a significantly higher visual prominence than randomly located points.



Test statistics

		Visual Magnitude
Most Extreme Differences	Absolute	.370
	Positive	.370
	Negative	-.049
Kolmogorov-Smirnov Z		4.244
Asymp. Sig. (2-tailed)		.000

Test statistics

		Visual Magnitude
Most Extreme Differences	Absolute	.389
	Positive	.389
	Negative	.000
Kolmogorov-Smirnov Z		4.465
Asymp. Sig. (2-tailed)		.000

Fig. 6.22: a) Cumulative percentage comparing the visual magnitude of 13266 random points versus barrows on a bare earth DEM at Ermelo. The K-S statistics suggests that barrows have a significantly higher visual magnitude than the random points. b) Cumulative percentage comparing the visual magnitude of 13266 random points versus barrows on a vegetation DEM. The K-S statistic suggests that barrows have a significantly higher visual magnitude than the random points.

Interpretation

Both case studies display similar results. There are three points which can be made. Firstly, barrows are consistently better visible than randomly located points. This conclusion is perhaps not the most significant result from these studies. Rather it is to be expected as the construction of the mound already suggests this to be the case.

Secondly, barrows are consistently the highest visible points on the reconstructed heathlands throughout both vegetation DEM's. This suggests that when standing within a small heath field, a barrow represented a highly conspicuous site and immediately stood out from its surroundings (Fig. 6.23). But also, that long-distance visibility of these mounds becomes increasingly unfeasible.

Thirdly, it is important to note that not all barrows are equally well visible. Strong differences exist between barrows, and this appears to be irrespective of their dating (Fig. 6.24). Rather, the values hint at a visual hierarchy, with some mounds taking up very prominent positions and others not.

6.5.5 To see each other?

Methodology

Does the position of each barrow create networks of intervisibility? Which barrows are capable of seeing which other mounds?

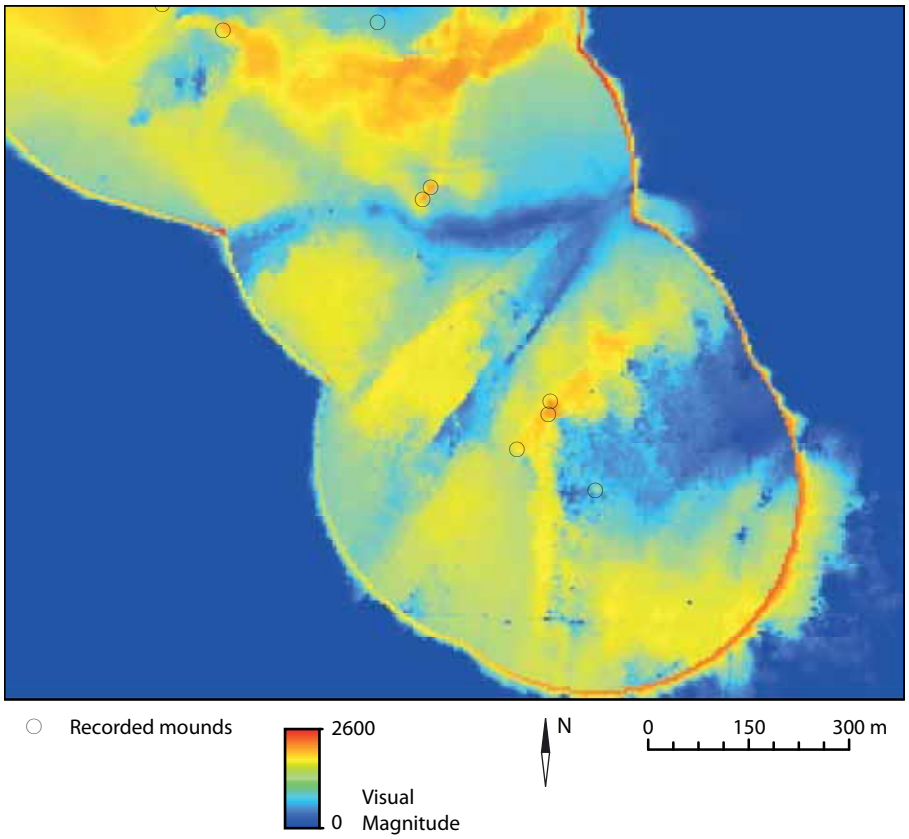


Fig. 6.23: Detail of the Cumulative viewshed map on a vegetation DEM. Note how several mounds (open circles) form the points with the highest visual magnitude.

The hierarchy observed above already suggests there was a difference in terms of visibility between mounds. It may well be that these highly visible mounds formed nodes in a network, linking parts of the landscape with one another.

A technique to investigate intervisibility has been suggested for long barrows in southern England (Wheatley 1995). The principle outlined by Wheatley does not differ much from the technique in the previous paragraphs. It involves the creation of a cumulative viewshed map on the basis of the location of the barrows. If a viewshed is constructed from each burial mound, and subsequently all these viewshed maps are summed, a map is created representing how often a cell can be seen from the location of each barrow. If barrows have significantly higher values than a set of random samples, then it can be suggested that barrows were built in locations enabling intervisibility.

A problem presents itself when the technique outlined above is applied to Late Neolithic and Bronze Age burial mounds. Generally speaking these were built in close proximity of one another forming distinct groups (in contrast to the relatively isolated long barrows which Wheatley researched, Wheatley 1995). Intervisibility between closely grouped barrows will automatically be a given and high intervisibility values will easily be achieved, potentially distorting the results and the subsequent interpretation.

An alternative approach might then be to investigate the intervisibility patterns between groups of burial mounds (Llobera 2007b), although this has the added problem of defining these groups. As I argued in Chapter 2, it is very difficult to define groups within the barrow landscape. With the alignments as an example, where does one group end and the other begin? Arbitrary group definitions as proposed by Llobera (Llobera 2007b, 55) are difficult to substantiate on archaeological grounds.

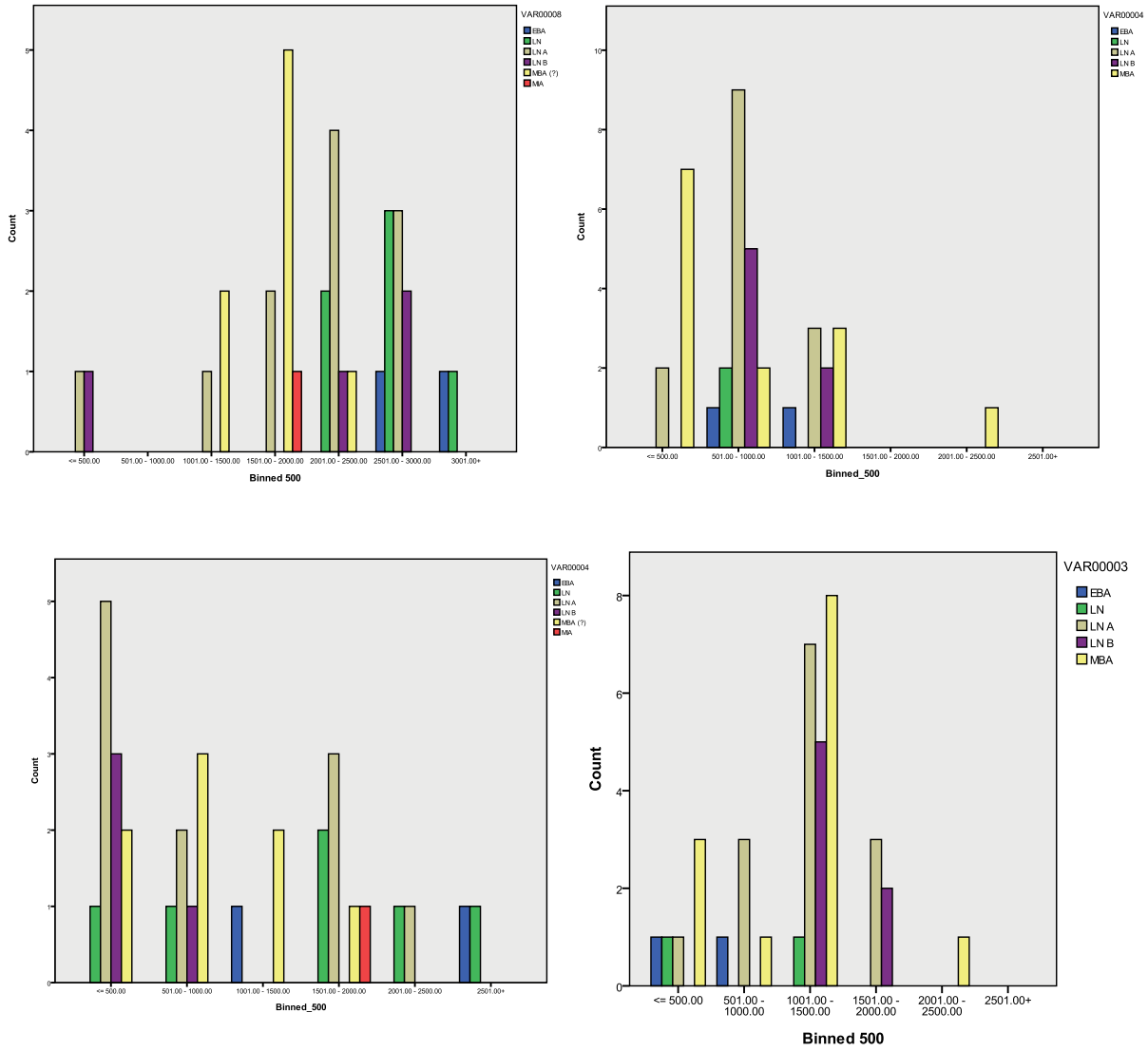


Fig. 6.24: Visual magnitude per phase. a) Bare earth DEM Epe-Niersen; b) Bare earth DEM Ermelo; c) Vegetation DEM Epe-Niersen; d) Vegetation DEM Ermelo.

While the techniques as proposed by Wheatley and by Llobera are interesting in their own right, they do not offer insight in how specific burial mounds relate to one another. If we wish to investigate patterns of lineage, kinship and hierarchy, we should be more interested in which burial mound can see which other mound.

This can effectively be researched by a simple LOS inspection, the basic component of every viewshed map. A LOS from each burial mound towards every other burial mound gives us insight in which burial mounds can be seen from each individual mound (Woodward 2000, 132-139). The resulting positive LOS then create a network of the intervisibility patterns available within a region. Additionally we can visualise how many LOS each individual burial mound has and which mounds form focal points and nodes in the network.

As with the previous studies, vegetation will of course impede long-distance visibility and both the vegetation DEM and the bare earth DEM have been used as a basis for the study.

Ermelo

The first intervisibility network was applied to the excavated burial mounds of the Ermelo heath. For each different phase a new network was generated (Fig. 6.25).

The differences in intervisibility patterns between the phases are not very large. Almost all mounds of the northern alignment can see one another, as can all the mounds of the southern group. This intervisibility pattern is a consequence of the local topography. The northern group is placed on a gently sloping plain, with no topographical elements impeding visibility. The barrows of the southern group are placed on both flanks of a dry-valley and here too intervisibility is easily achieved. Intervisibility between the barrows of each group therefore seems to be a topographical given.

The same patterns are achieved on the DEM with vegetation, the northern alignment maintains intervisibility, as does the southern group (Fig. 6.26).

What is more interesting to see, however, is how some barrows take up a more prominent position and interconnect both groups. Especially one mound (barrow 354), possibly constructed in the Late Neolithic A, has a line of sight to all mounds of the southern group, as well as to several of the northern alignment. Especially mound 329 located on a small hillock should have been noticeable from this barrow. Tests in the modern day heath field prove this to be the case, although the burial mounds to either side of it, and not located on the hillock, were undistinguishable from this vantage point. Another barrow (342), possibly constructed in the Middle Bronze Age achieves similar values.

Of course the networks created on the basis of the excavated burial mounds leave out almost two thirds of the burial mounds in the region. A visual network on the basis of every burial mound gives us insight in the total visual network of the region.

While some of the excavated burial mounds take up highly visible positions, they do not occupy the 'best' positions. The highest values of intervisibility and indeed visibility within the entire region are taken up by an unexcavated group of burial mounds on one of the highest points in the region. A group of at least seven unexcavated burial mounds (barrows nr. 4618 to 4624) can be seen from almost every barrow within the landscape, just as an isolated unexcavated mound some 400 metres to the east of it (barrow nr. 4686). These burial mounds have visual links with every barrow group in the region and take up a prime position in the visual network of the area.

These burial mounds continue to take up this prime position after creating a visual network on the vegetation DEM, with views extending as far as the northern alignment. Here too, the burial mound located on a hillock can be seen even though it is located at a distance of just under 2 km. Conversely those same burial mounds are presumed to be visible from the barrow on the alignment. As these burial mounds remain unexcavated it is impossible to say how these mounds must be fitted in the sequence.

Epe-Niersen

A visual network has been generated for both the Late Neolithic A and B and on both a bare earth DEM as well as a vegetation DEM (Fig. 6.27 and 6.28).

The patterns in the intervisibility network reflect the alignment itself. All barrows on the alignment are intervisible of one another, as well as of older mounds. If vegetation is not included, several mounds further off can be seen as well. After we account for vegetation, intervisibility patterns become restricted to the alignment itself or barrows in close proximity.

If we include the unexcavated barrows in the analysis, this pattern is only reinforced. The majority of the barrows along the alignment are intervisible. Yet here too, several mounds take up an interesting position.

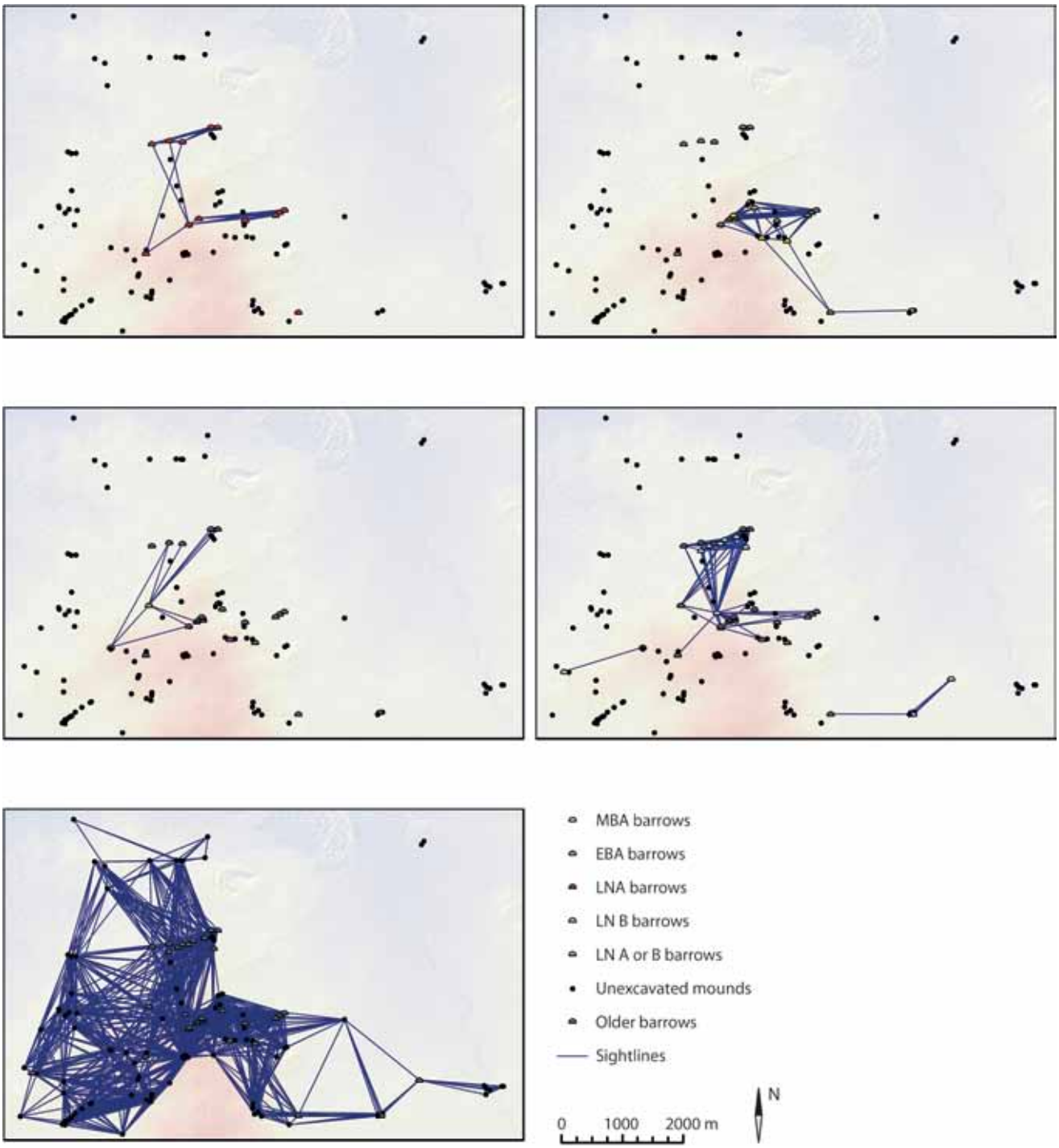


Fig. 6.25: Visual network between burial mounds in the Ermelo region. Each line represents a positive Line of Sight created on a bare earth DEM.

Firstly, three mounds on the *Galgenberg* (nos. 635, 636 and 4700) have LOS connecting mounds from both parts of the alignment with one-another. The hill on which these mounds are located impedes intervisibility between the northern and southern part. Yet these mounds form a visual bridge between both parts of the alignment.

Secondly, two mounds *not* located on the alignment (no. 4762 and 4764; one placed on top of a small hillock, the other higher up a ridge overlooking the alignment), are consistently in view from barrows on the alignment and vice-versa. Both barrows are unexcavated and their chronological relation to the alignment remains unknown. It is interesting, however, to see how both barrows, while physically not on the alignment, do appear to be visually related to it.

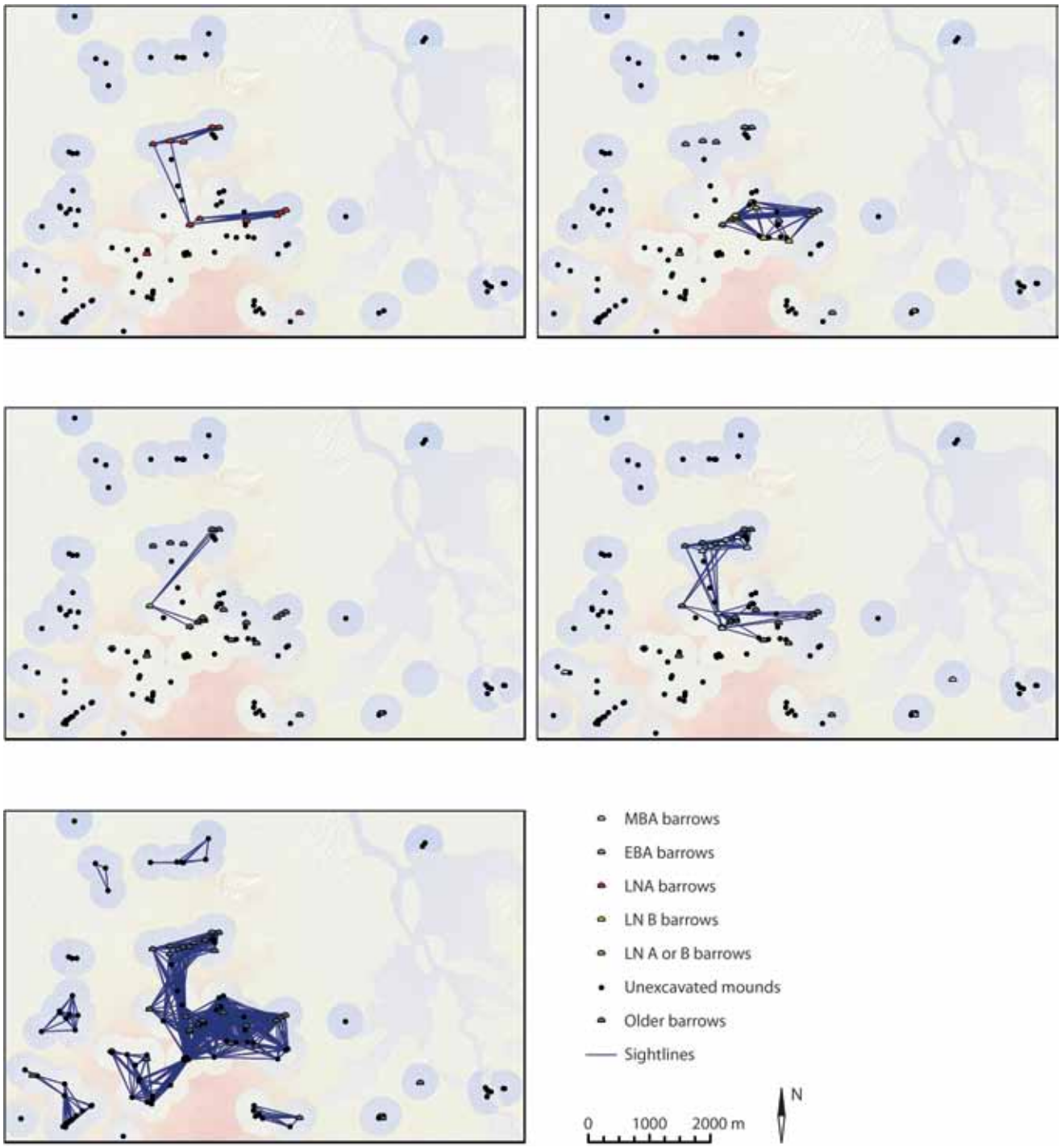


Fig. 6.26: Visual network between burial mounds in the Ermelo region. Each line represents a positive Line of Sight created on a vegetation DEM.

Interpretation

I would argue that the intervisibility patterns in-between most of the mounds is a consequence of the topography as well as the close proximity of the mounds to one-another. Intervisibility between most of the mounds is not very difficult to achieve within the dry-valleys or on gently sloping plains.

Yet at the same time, several mounds appear to connect several barrow groups to one another. They provide a bridge from one group to another. Especially in the Epe-Niersen case, the position of a few barrows, on top of a small hillock, connects two parts of the alignment which would otherwise not have been intervisible. Barrows to the north of this hillock cannot see barrows to the south and vice versa, yet they all can see the three barrows on that hillock.

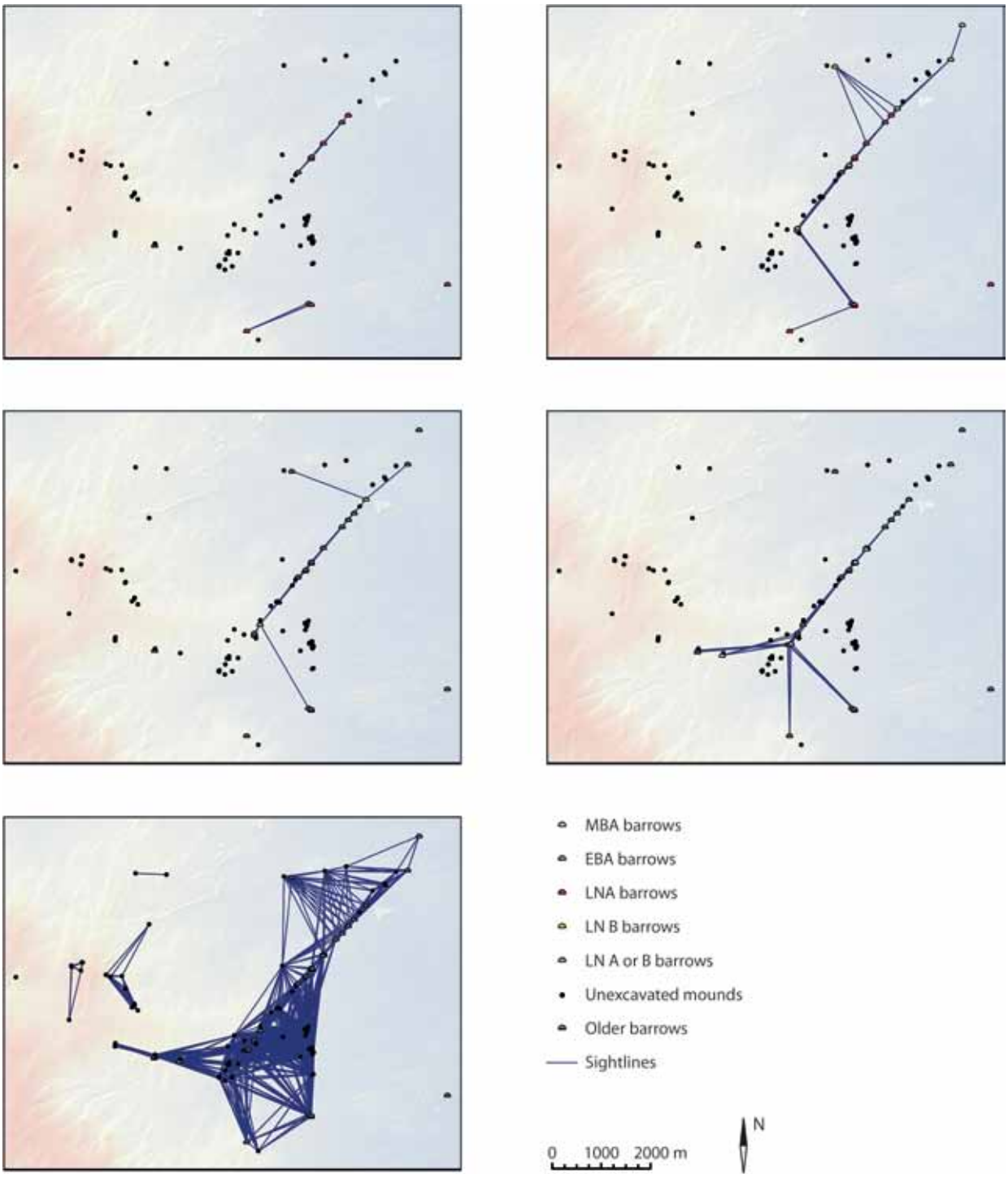


Fig. 6.27: Visual network between burial mounds in the Epe-Niersen region. Each line represents a positive Line of Sight created on a bare earth DEM.

Now of course 'seeing' within a GIS environment is not seeing in a real-life environment, and some of these Lines of Sight extend over more than a kilometre. Were these barrows then perhaps placed on the horizon in order to improve their visual signature? This question is of particular relevance to the alignments. When standing on a mound, can one see all the mounds on the alignment or only the next one in line?

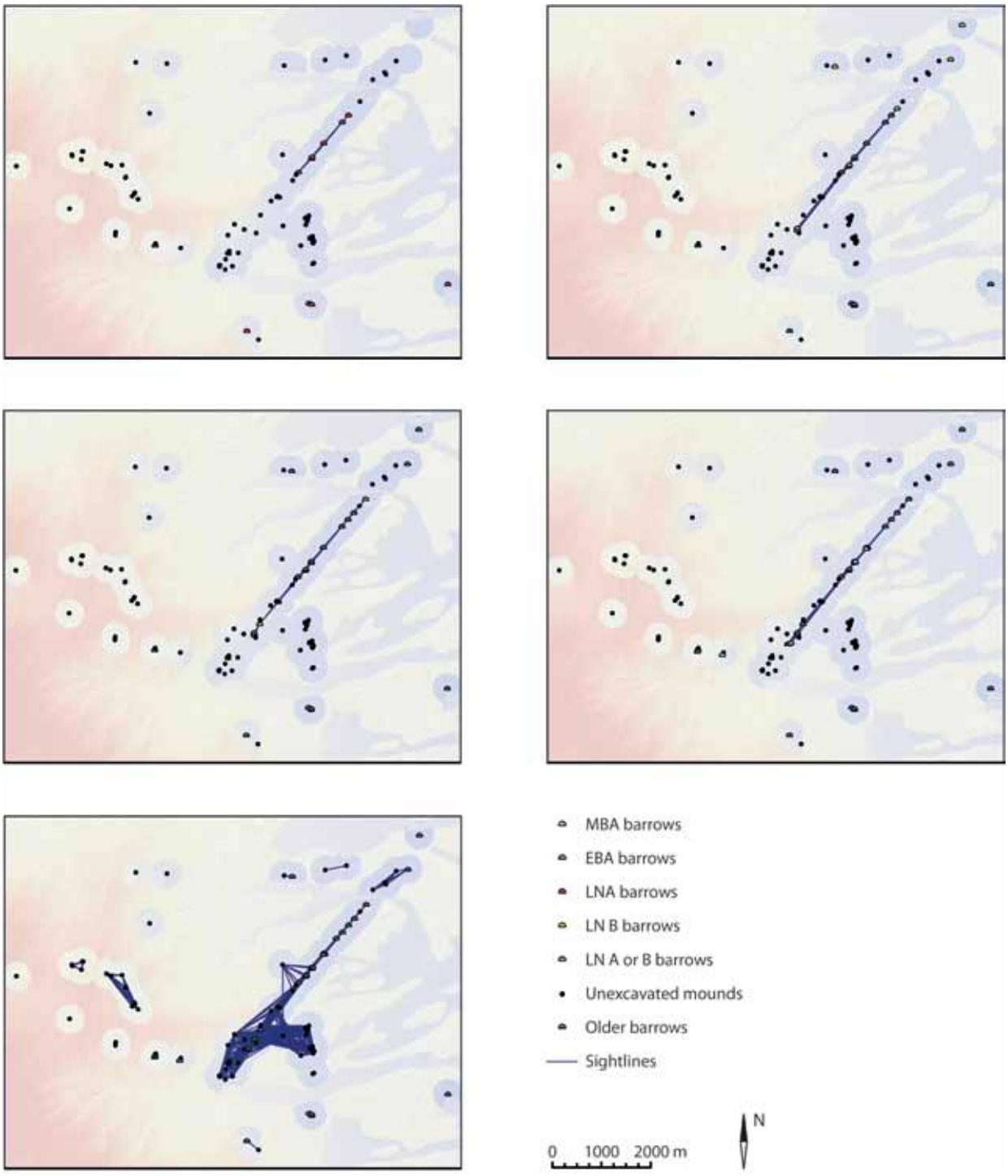


Fig. 6.28: Visual network between burial mounds in the Epe-Niersen region. Each line represents a positive Line of Sight created on a vegetation DEM.

6.5.6 Cresting the horizon

Methodology

With the previous two methods, we have established that most barrows have high visibility values on the viewshed maps. The question that remains however is whether or not these barrows were visible over long distances. This can be dependent on two qualities. Firstly, the contrast of the mounds with their surroundings. As I have argued above, the visibility of a mound may be increased through the colour of the mound or any post circles around it. Secondly, by positioning a mound in such a way that it 'crests' the horizon when seen from a certain perspective.

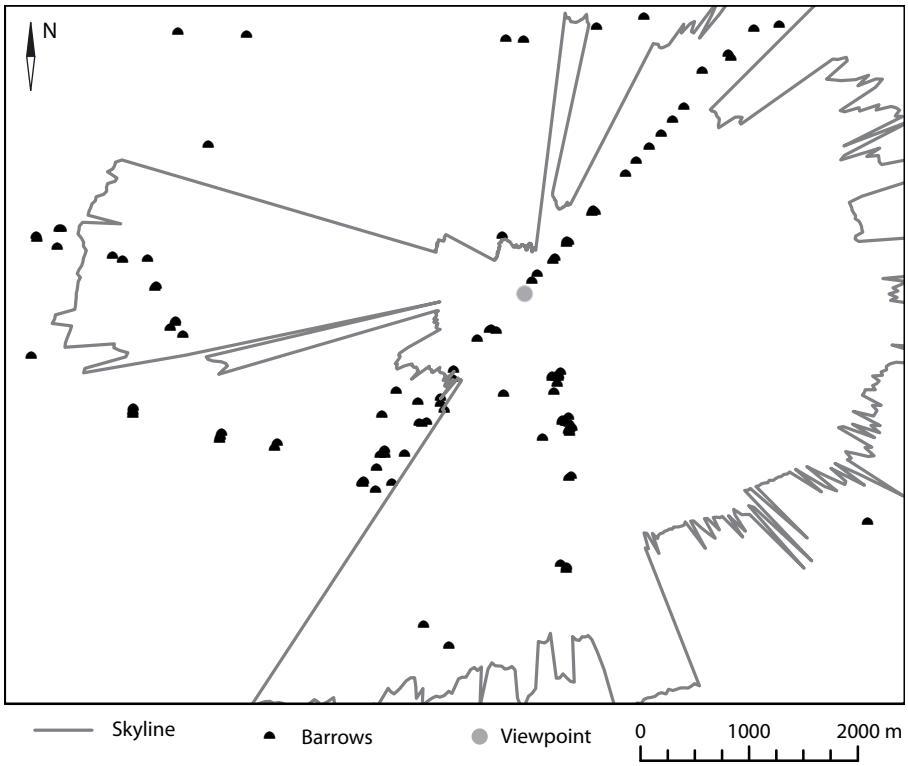


Fig. 6.29: A skyline from a single viewpoint in the Epe-Niersen region. Note how the skyline becomes increasingly coarser (and thus less accurate) the further away from the viewpoint.

Cresting is a quality frequently reported of many burial mounds (Field 1998, 315; Ogburn 2006, 407). In essence, these mounds are placed in such a way that they are visually topping a hill (see Fig. 6.1). As this is dependent on the viewpoint, this need not necessarily be the highest point of a hill. Especially ridges are ideally suited to enable this.

Within a GIS environment it is possible to demonstrate whether or not a burial mound is indeed cresting or false-cresting a hill. Through the creation of a skyline or horizon line, this quality can be visualised on the map. A skyline can be created by generating multiple LOS from the viewpoint incrementally along the azimuth (Fig. 6.29). Each last visual point along the LOS is then connected to its neighbour creating a continuous line representing the horizon or skyline.

The increment and thus resolution of the skyline can be manipulated to create coarser or more detailed skylines. Additionally the increment between each individual LOS means that the skyline becomes coarser the further away from the viewpoint. For example an increment of one degree between each LOS means that at 100 m from the viewpoint the distance between each individual LOS is 1.7 m, at one km it is 17.5 m, while at 2 km it is already 35 m. In this research an increment of half a degree has been used in order to provide enough detail at the 2 km range.

It should also be realized that the extent of the skyline is influenced by the extent of the DEM. If high elevation values are present beyond the extent of the DEM, it may well be that these would have formed the actual skyline, but they will not be included in the model.

It is therefore more useful to consider the skyline as a near-horizon rather than the actual horizon. Whether or not far off in the distance other elements of the landscape will form the actual horizon is perhaps a moot point. If a burial mound is located on the near-horizon it will still stand out from the surrounding landscape, whether or not in the far distance a tree-line or a distant hill will form the actual horizon.

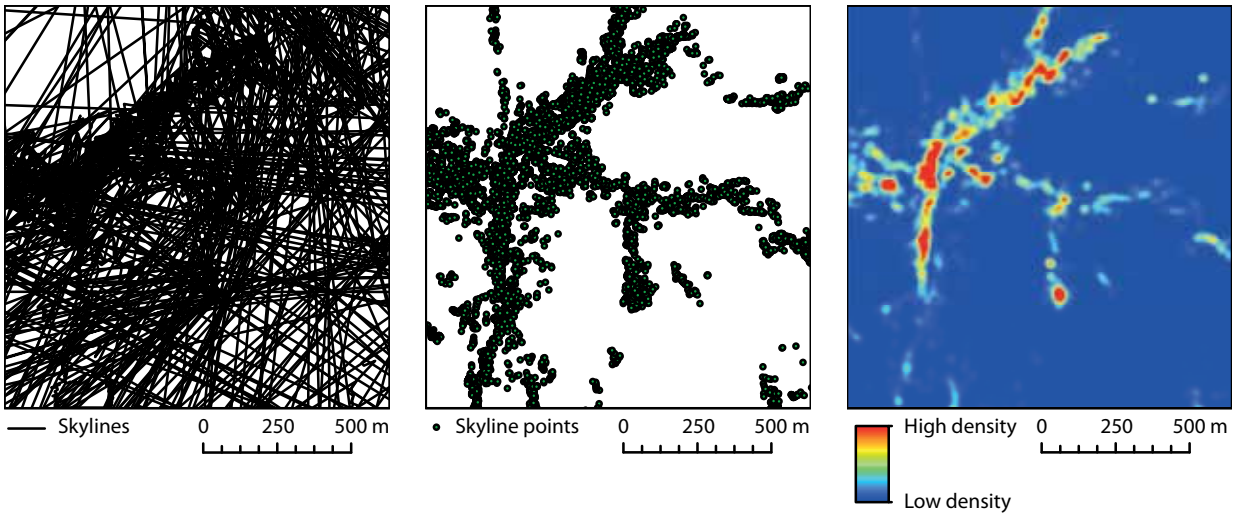


Fig. 6.30: The steps involved in the creation of a skyline density map. Firstly skylines are created on the basis of randomly located points. Secondly, the skylines are broken up in their blocking points. And thirdly a Kernel Density map is created on the basis of these skyline points.

It is for the same reason that I have not created a skyline map on a vegetation DEM. Any skyline map will create a horizon on the edge of the (artificial) forest. The local topography on this heathfield will not be included as the highest elevation values are provided by the 'trees' encircling the heath fields. Yet as I argued above, a ridge within the heathfield will still provide the same cresting effect, with or without a treeline behind it.

Visualising multiple skylines on an individual map and interpreting them is difficult. The multitude of criss-crossing lines does not provide a clear map (Fig. 6.30). A work around would then be to use the last visual point on each individual LOS (the starting point for a section of the skyline) and create a kernel density map on the basis of these points. Calculating the point density at each given cell then displaying in one map the areas which are frequently located on a skyline (a skyline density map). This map can then be used for further analysis and is able to answer which burial mounds are frequently located on the horizon.

Epe-Niersen

The skyline map of the Epe-Niersen region was created on a bare earth DEM (Fig. 6.31). The wide-ranging skylines are not impeded by vegetation and they represent what must be considered as the maximum potential skylines. Most burial mounds are not located in areas with high skyline values. In the centre of the map, we find a large East-West ridge with consistently high skyline values, yet with no barrows built on it.

Equally the burial mounds on the alignment are rarely located on a horizon. This lends weight to the assumption that most of these burial mounds were not intended to be seen from afar. They were probably only visible from within a few hundred metres, and the long-distance visibility of these mounds can certainly be questioned.

The low skyline values of the burial mounds on the alignment contrast sharply with the values of a few burial mounds on the southern end of the alignment. Here several burial mounds crest the small hill of the *Galgenberg* and together they are located on the cells with the highest skyline values within the map.

Ermelo

The skyline map for Ermelo (Fig. 6.32), once again without vegetation, displays similar results as in the Niersen-Epe alignment. Most of the burial mounds of the northern alignment are not located in areas with high skyline values. Only the eastern end of the alignment is skylined, and a detailed inspection of the direction

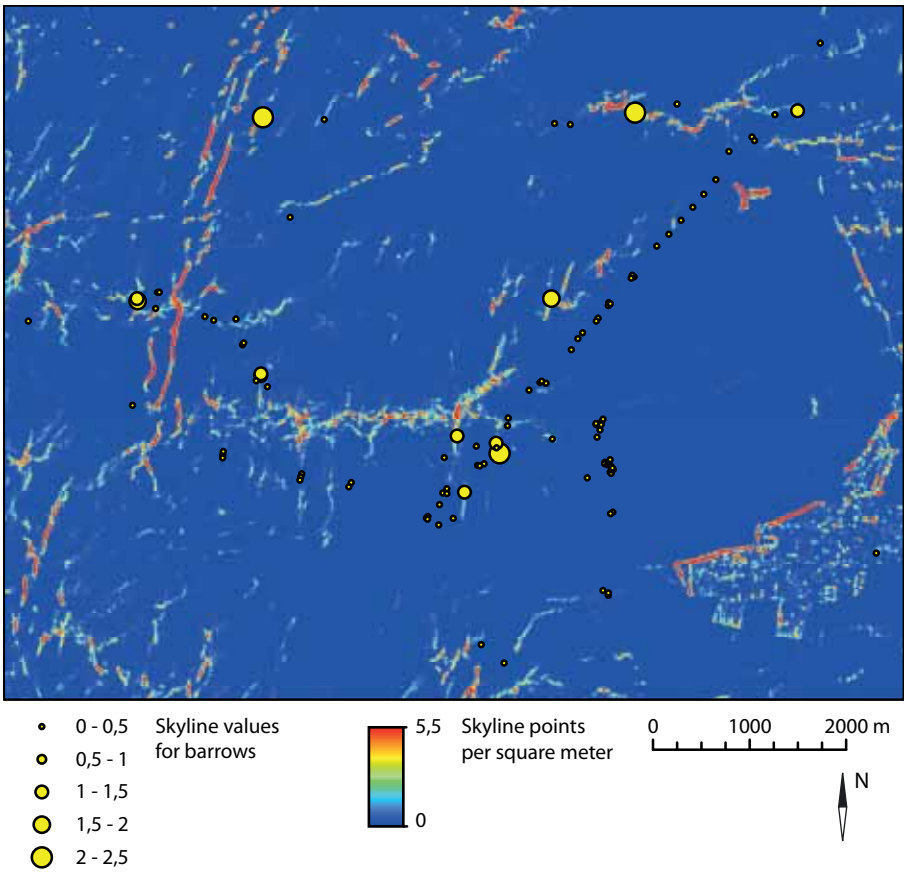


Fig. 6.31: The skyline density map for the Epe-Niersen research area. The size of the symbols represents the skyline density at that location. The bigger the symbol, the greater the skyline density.

of the skylines reveals that they all originate to the east of the alignment.[39] This suggests that when the alignment is approached from the east, this group of burial mounds will be clearly skylined with the rest of the alignment invisible behind it. The values for the other barrows on the alignment are extremely low and indicates they were not meant to be seen from far away. Only one burial mound of the alignment (nr. 329) located on a small hillock, has high skyline values.

Similarly to the northern alignment, most burial mounds of the southern group are not located in areas with high skyline values. However, here too a few burial mounds seem to take up extremely well-visible areas. Two burial mounds excavated by Modderman take up very prominent positions (barrows nr. 342 and 354) and are almost always cresting the horizon when approached from the east. Equally high skyline values are obtained for a group of seven unexcavated burial mounds a few hundred metres to the south of these (barrows nr. 4618 to 4624) as well as a barrow 600 m to the south-east (barrow nr. 4686).

Interpretation

The second analysis demonstrates that almost every burial mound had a high visual magnitude, yet the skyline analysis also reveals that not all barrows will have been equally well visible. The contrast between burial mounds becomes clear when differences in the values between them are explored. Some are almost never located on a skyline, while others crest almost every horizon. These differences hint at a hierarchy amongst burial mounds.

39 The values for the burial mounds are slightly lower than what they would have been in prehistory. This is caused by the presence of the N302 motorway, blocking part of the skylines from the east.

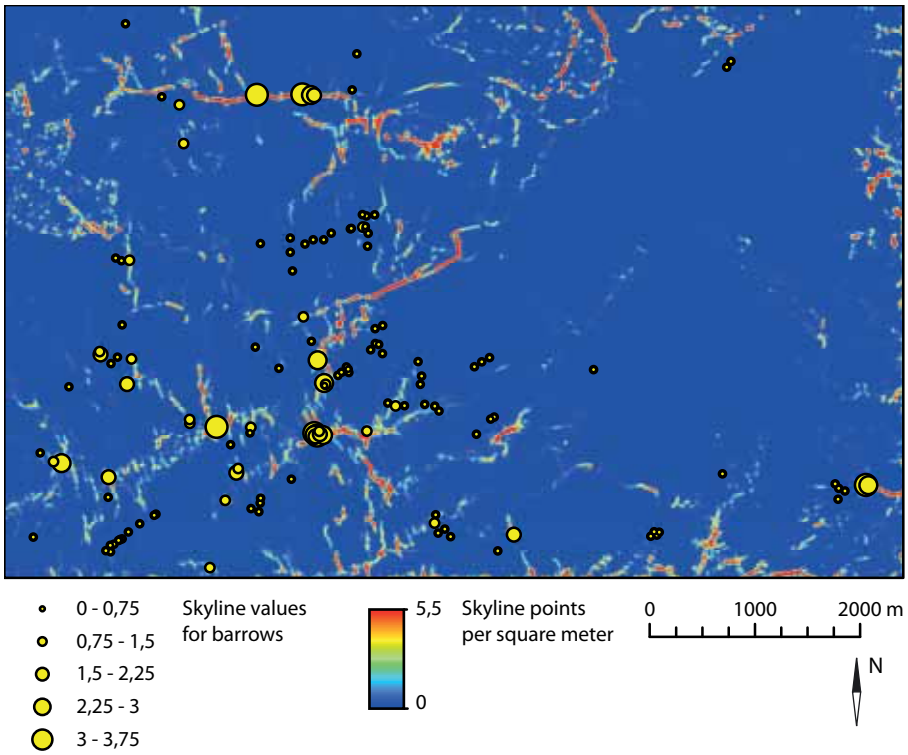


Fig. 6.32: The skyline density map for the Ermelo research area. The size of the symbols represents the skyline density at that location. The bigger the symbol, the greater the skyline density.

6.5.7 Moving along the alignments

Methodology

The viewsheds and their derivatives I presented above are static representations. They do not reveal the changing vistas people experienced when moving through these landscapes and how they encountered different monuments at different times. Therefore, it is interesting to investigate how visibility changes when walking along an alignment. As I stated in the introduction to this Chapter, standing on a mound of the Ermelo alignment, reveals a succession of mounds.

I will not discuss the role of movement along an alignment here (that is a discussion I reserve for Chapter 8), yet I would argue that it is worthwhile to investigate how visibility was manipulated along that axis. Several barrows on the alignments take up prominent positions throughout the methods I presented above. These mounds had a high visual magnitude and they connected fragments of the alignment to one another.

To investigate this manipulation, a skyline density map can be created along a single axis (see above). The axis can be any axis of choice, although here the axes were determined by the alignments themselves. A single point was placed every 5 m along the entire length of each alignment and a skyline generated for each point. All skylines were then broken down into their constituent points and a point density map was created for each. The resulting skyline density maps have been used below. Here, only the results pertaining to the alignments have been discussed.

Epe-Niersen

A skyline density map was created on the basis of a bare earth DEM (Fig. 6.33). Two groups of barrows can be identified. The first group of barrows is (almost) never located on a skyline. This is true for the majority of the mounds and it suggests most barrows were not visible from very far away.

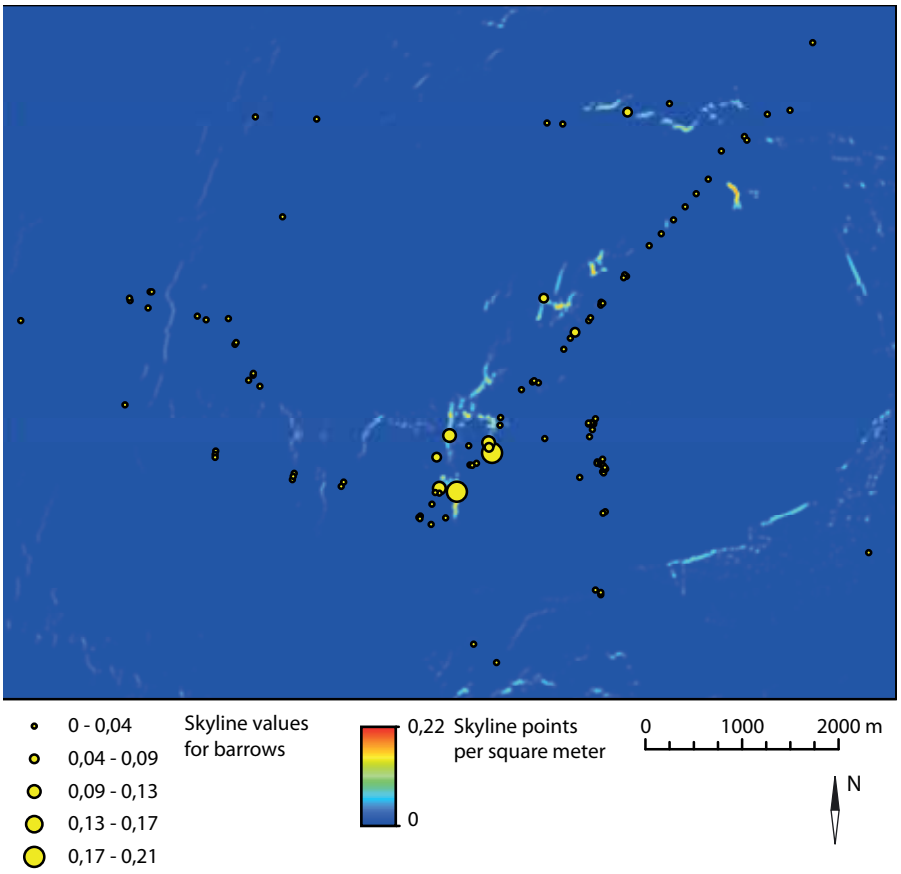


Fig. 6.33: Skyline density map on the basis of random points placed along the axis of the main alignment in the Epe-Niersen research area. Once again, the size of the symbols represents the skyline density at that location. The bigger the symbol, the greater the skyline density.

The second group on the other hand, consists of several mounds that are located on almost every skyline. A prime example being the three barrows on the *Galgenberg*. These three barrows were already mentioned before as forming a visual bridge between the two parts of the alignment (see above). The skyline density maps demonstrate that when walking along the alignment, these mounds are consistently on the skyline. Their position ensures they will have been visible from far away, guiding people along the alignment.

At the same time, several mounds, *not* on the alignment are consistently skylined when walking along it (nos. 4762 and 4764). I already pointed out these two mounds in the intervisibility section (see p.150).

The high skyline values illustrate that these two mounds will have been visible from a great distance when walking along the alignment. They were placed 'just so' as to be located on the horizon when walking along the alignment.

If we inspect individual skylines along the alignment, the following sequence can be reconstructed. Firstly, when emerging at the northern tip of the alignment, the view is drawn towards the *Galgenberg* hillock (perhaps aided by the forest edge encircling the heath around the alignment?). When walking towards it, this hillock remains in view and remains part of the horizon, together with the barrows cresting it. The other barrows of the alignment will not be immediately visible. Standing on top of one mound will only reveal the next one in the line, and perhaps the one after that. The rest of the alignment is gradually encountered when walking towards the hill. At the same time from the perspective of a person walking along the alignment, a single barrow to the west remains in view on the horizon, accompanying him as it were.

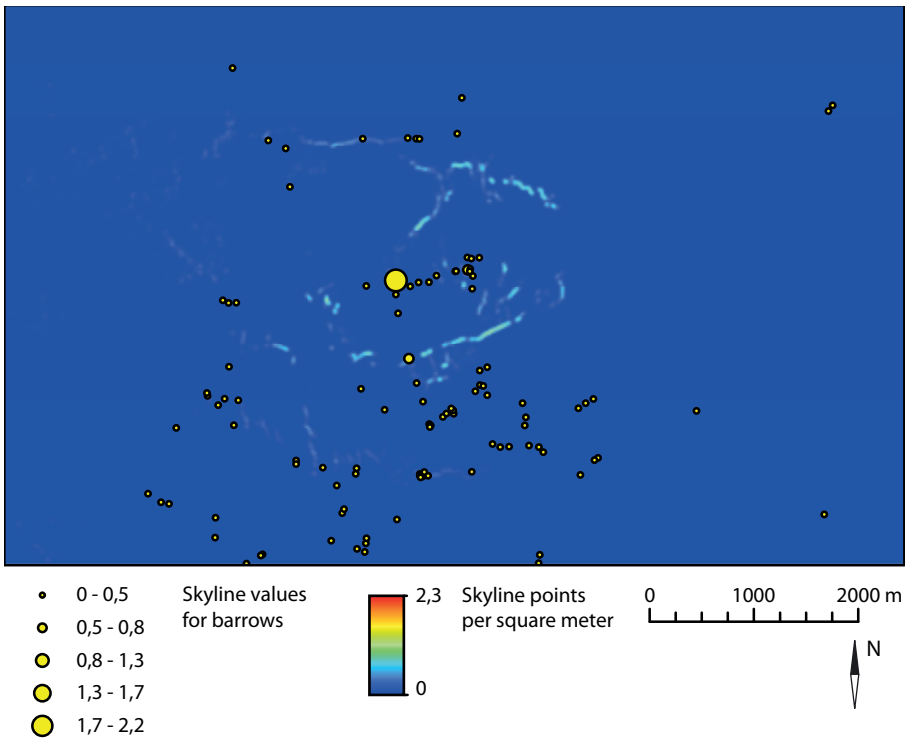


Fig. 6.34: Skyline density map on the basis of random points placed along the axis of the northern alignment in the Ermelo research area. Once again, the size of the symbols represents the skyline density at that location. The bigger the symbol, the greater the skyline density.

Ermelo

The skyline density map for the Ermelo alignment is similar to the Epe-Niersen map (Fig. 6.34). Indeed, most barrows are not frequently located on a skyline. Yet here too, one barrow takes up a very prominent position (nr. 329). It is located on a small hillock, and is always located on the horizon when walking along the alignment.

Examining several individual skylines also reveals a sequence in which this mound becomes visible. The first skylines originate in a lower lying area to the east of the alignment. The three easternmost mounds are placed on the horizon from that perspective (barrows 324 – 326). Approaching these barrows and standing next to these mounds will reveal the hillock located further off in the distance. Walking towards that point will then reveal a succession of less conspicuous mounds along the alignment.

Interpretation

The results from both the alignments are consistent with one another. Two points can be made, reiterating the previous analyses. On the one hand, most barrows will not have been visible from more than a few hundred meters. On the other, some barrows can, on the contrary, be seen from far away and are consistently visible on the horizon when walking along the alignment.

The sequences of skylines also reveal how those barrows remained in view throughout the entire length of the alignment. And it was through walking towards these points that the less conspicuous mounds along the path were revealed.

6.6 Interpreting the results

6.6.1 All barrows are equal …

The monumentality of the mounds themselves already suggests that people in Prehistory had a desire to create a visual place. This desire is also reflected in the construction of post circles around many of these burial mounds. The results of the second analysis support this and demonstrate that a burial mound creates a place which is more visible than its immediate surroundings.

Whether on a barren DEM, or in a forested landscape, barrows have a significantly higher visual magnitude than randomly located points. This intrinsic quality is shared by all burial monuments. It is therefore relatively safe to conclude that a barrow was meant to be seen, although this conclusion is perhaps not that surprising.

Whether or not visual links with other parts of the landscape (*i.e.* views from a barrow) played a further role is perhaps a different point. The research in this Chapter does not provide any evidence for preferential visual connections within the case studies. That is not to say these may not have been important at certain points in time. Conclusive proof of these visual links is, however, not provided in this research.

6.6.2 … but some are more equal than others

The underwhelming conclusion that burial mounds were meant to be seen is perhaps not the most revealing result of this Chapter, nor does it indicate that burial mounds were meant to be seen from afar. Tests in the field suggest that most mounds would be invisible beyond more than one or two kilometres. The visual impact of most mounds would therefore be limited to within a few hundred metres.

However, skyline and intervisibility analyses demonstrate how some burial mounds did receive pride of place, whilst others did not. These mounds will have been visible from much further away than other burial mounds as they occupied visually prominent points. This variation does not appear to be related to chronological phases. Contemporaneous burial mounds display extreme differences in the visual exposure depending on the positions in which they are located. Some burial mounds were built in such a way as to crest the horizon from specific positions while others were not, with some barrows forming nodes in a network, interconnecting parts of the landscape.

Especially in the case of the alignments, visibility was manipulated in order to reveal a succession of monuments. At the same time, some barrows were always visible, no matter where one stood on the alignment. This difference hints at a visual hierarchy amongst the burial mounds and demonstrates that the placement of each was carefully negotiated creating complex barrow landscapes.

6.6.3 Barrow landscapes and cosmological landscapes

It is almost impossible to understand a barrow group through an analysis of the individual burial mound. Rather it is the interplay between each individual mound and their intrinsic qualities that creates the entire barrow landscape. The differences between (almost) contemporaneous barrows reflect the conscious choices of people building these mounds, with some obtaining prime positions where others did not.

It is therefore imperative to study each burial mound within its wider landscape context and is perhaps a justification of the term barrow landscape. This barrow landscape is a relational landscape, where each burial mound is connected in some way with all previously existing structures.

The question we must ask ourselves now is what these barrow landscapes represent. The viewshed studies presented here are very mechanical. They involve looking at a specific place but not how we must interpret these views. Should we define these visual hierarchies in terms of kinship or lineage, with pride of place reserved for the politically powerful? Or conversely were these wholly cosmological landscapes, where mythical ancestors took up the most prominent positions.

In order to comprehend these barrow landscapes we need to understand two different processes. On the one hand the development of barrow groups, through the constant modifications and additions to the pre-existing barrow landscape. As we saw in Chapter 5, these processes are fundamentally historical in nature and have their own temporality. The Bronze Age reuse of Neolithic landscapes occurred on a massive scale, yet why is this? This will be the focus of Chapter 7.

On the other hand, we need to understand how a barrow landscape arose in the first place? Unravelling the barrow landscape to its bare origins reveals careful planning and placement of multiple barrows in a landscape at that time still devoid of burial monuments (Fontijn 2011; Whittle 1996, 227-228).

For example, with the long alignments of the Late Neolithic A, the initial phase of barrow construction already involves multiple burial mounds laid out almost simultaneously. Differences between burial mounds were already made explicit from the onset. What are the origins of these complex barrow landscapes? Who created these barrow landscapes and to what purpose? These questions will be addressed in Chapter 8.

Chapter 7

The reinterpretation of the barrow landscape: patterns of reuse in the Low Countries

7.1 Introduction

At a time when people were still building barrows, they will have increasingly encountered the many visible mortuary monuments of past generations (Ashbee 1960, 37; Kristiansen and Larsson 2005, 338). The heathlands in which the new barrows were being constructed, were dotted with the past dead made visible. These monuments were meant to be seen and it was the intention of the people building a barrow that the burial location of specific people remained visible and enduring (see Chapter 6). As such, these burial locations continued to elicit a reaction from onlookers.

It may well have been the intention of the people building these monuments to evoke a specific reaction from future generations. Yet throughout the millennia following the initial construction, the reactions to past monuments varied strongly. Reuse occurred in specific periods and shaped, modified and altered the entire barrow landscape. As we saw in Chapter 5, these alterations occurred at specific times and each period has its specific way of reinterpreting and reincorporating past monuments.

In this Chapter I will try to answer how people reacted to past monuments. First general patterns of reuse in the Low Countries will be discussed, followed by a discussion of what these changes in patterns tell us about the perception of past barrow landscapes throughout prehistory. And lastly I will delve deeper into the special position of the Bronze Age and its reinterpretation of the barrow landscape.

7.2 The reinterpretation of past monuments

In Chapter 6, we established that barrows create visible places in the landscape. Whether or not they were intended to be seen from far away is not relevant here. They created a visual marker, at a specific location. The physical form of the barrow ensures it will persist through time. Even when the post-circles and all other forms of overground architecture have decayed and are overgrown, the round mound will still remain. As such the permanency of a barrow means it is resilient to forgetting (Lucas 2005, 26-27) and their enduring presence ensures that they elicit a reaction from future generations. Indeed, it can be said to be inherent in the initial conception of all monuments (Barrett 1994,124 Holtorf 1998, 24; Bradley 1998, 162; Bradley 2002, 82). As Bradley puts it: *'[Monuments] are intended to convey a message to other people, extending beyond the lives of the original authors'* (Bradley 2002, 84).

The physical and visual presence of a barrow thus transforms a locality into a meaningful place (see Chapter 2, *cf.* Tuan 1977, 163-166). Burial communities still constructing their own burial mounds (in whatever form) would immediately identify an older barrow for what it is, a 'burial site' (Fontijn 2011, 437). The

barrow then becomes a symbol of past generations, even if these communities are far removed from the original builders of the barrow (either through time or distance) and even if the meaning they give to the barrow is significantly different (Cohen 1985, 15-17).

The symbolic presence of past generations is then used as a resource (Cohen 1985, 99) by burial communities to redefine their own place in the landscape and in death (Chapman 1997, 33; Gerritsen 2003, 111-113). By linking up with these ancient monuments and incorporating them within their own community, they make a statement that those past generations are theirs and part of their community. Even if their own practices differ significantly from those of the past, they assume they are still doing the same (Cohen 1985, 91-96).

Along the same line, a rejection of the barrow is the burial community opposing past generations and what they think these stand for (*cf.* Smith 2003). The abandonment of urnfields in the Middle Iron Age (*cf.* Fontijn 1996; Gerritsen 2003, 145) is a clear statement of those communities rejecting the ways of the past, and redefining these ways as opposed to their community. The Christian rejection of 'pagan' burial practices can be understood as such (*cf.* Roymans 1995; von Uslar 1972), with barrows part of the outside world, beyond the Christian community.

The permanency and symbolic nature of a barrow means that reinterpretation is of all ages and all places (Bradley 2002) and continues even up to this moment (Holtorf 1996). The restoration events of our own age also form part of the incorporation of these past generations into our own communities. The placement of a small post next to a barrow, with a sign saying that the barrow is indeed a barrow and part of Dutch heritage, is in this sense no different from a Bronze Age restoration event.

The fact *that* a barrow is reused and reincorporated is not so revealing and is inherent in the visual permanency of the barrow. Reuse and reinterpretation is therefore of all times and all places. Nevertheless, there are significant differences in *how* past communities have interacted with past monuments. As already hinted at in Chapter 5, the Bronze Age reinterpretation of Late Neolithic barrow landscapes is fundamentally different from the Late Neolithic reinterpretation of those same landscapes. In this Chapter, I will extend these observations to all excavated (and published) Neolithic and Bronze Age barrows in the Low Countries in our database.

7.3 Patterns of reuse in the Low Countries

Two different types of reuse can be identified in the Low Countries. Firstly the restoration of ancient barrows by adding material to a mound and sometimes rebuilding a post circle or encircling the mound with a ditch. Secondly the burying of the dead in an already existing mound. In a sense the copying of the shape and the form of a barrow can be viewed as a form of reuse as well (Holtorf 1998, 32), but I will deal with the creation of new barrows and additions to the barrow landscape in Chapter 8.

7.3.1 The restoration of ancient mounds

Excavations throughout the Low Countries have revealed that many burial mounds actually consist of multiple construction events. After a burial mound was erected it was usually increased in size, in many cases even after several hundred years. Additional sod layers were added to the mound and in many of these cases new post-circles and ring ditches were constructed around it (Fig. 7.1).

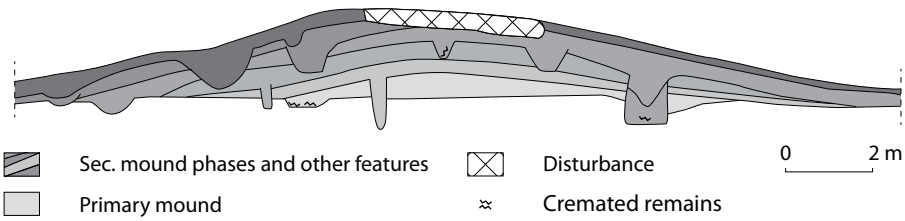


Fig. 7.1: Profile through a barrow with multiple separate mound phases (Garderen Bergsham Tumulus 5, Van Giffen 1937a, Afb. 9).

Dating these additional mound phases is very difficult as the construction event is rarely associated with a grave that can then yield a reliable date (only 50 out of 259 secondary mound phases have a secondary central grave).[40] Fortunately many secondary mound phases were accompanied by surrounding features that can be dated to specific periods.[41]

The restoration of existing mounds was a very rare practice in the Late Neolithic, contrasting sharply to the number of new mounds that were built (Fig. 7.2). As far as we know, not a single barrow was increased in size in the Late Neolithic A. In only seven cases was a barrow restored in the Late Neolithic B. Seven other restored mounds can be dated no more specifically than Late Neolithic. Although the restoration of mounds did occur in the Early Bronze Age, it remained a rare event, as was the construction of new mounds in that period (9 mound phases). During the Middle Bronze Age the restoration of mounds increased exponentially, with at least 103 secondary mound phases reliably dated to this period (almost 40%). 25 secondary mound phases cannot be dated more specifically than Bronze Age, but most of them will also date to the period between 1800 to 1400 cal BC (see Chapter 3). 37% of the secondary mound phases cannot be attributed to any chronological time period at all.

There does not appear to have been a distinction between which mounds were restored in the Middle Bronze Age. The time elapsed between the construction of the primary mound and the restoration event can be limited to within a century or up to more than a millennium (Fig. 7.3). There does not appear to be a preference as to which mound was to be restored. Almost as many primary Late Neolithic mounds were restored as primary Middle Bronze Age mounds (76 Bronze Age restoration events are placed on top of Late Neolithic primary mounds versus

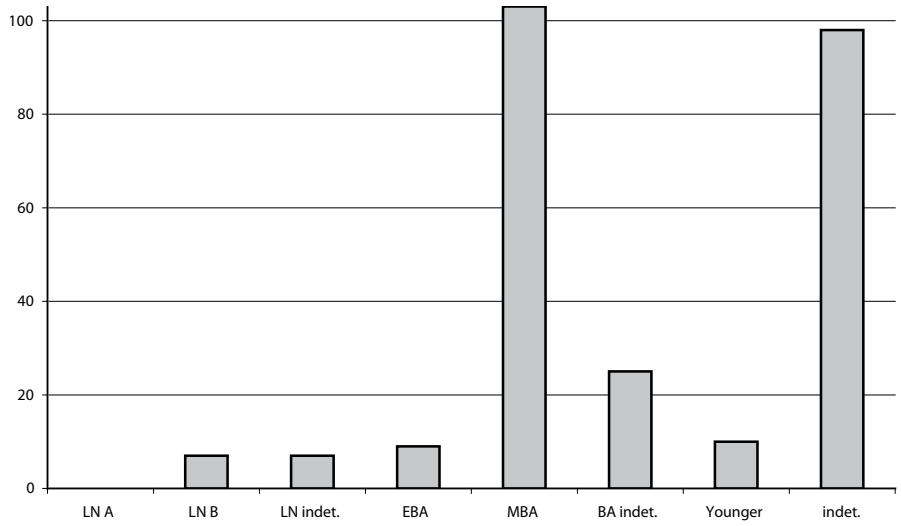


Fig. 7.2: Frequency of secondary mound phases per period.

40 This discrepancy can perhaps partly be explained as a negative side-effect of the quadrant-method developed by Van Giffen (Waterbolk 2011, 147).

41 Usually post-circles and ring ditches which can be dated to the Middle-Bronze Age.

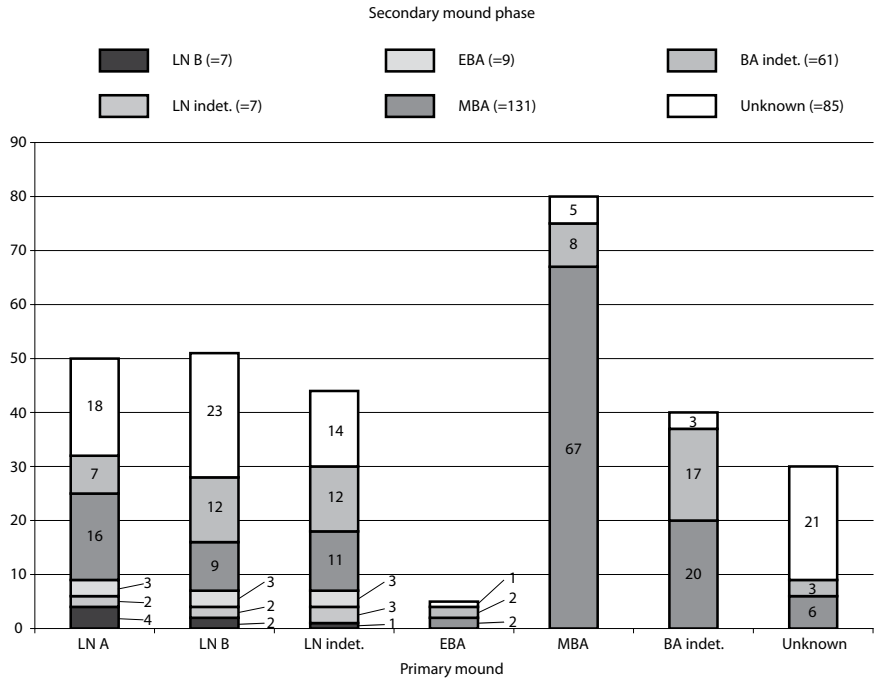


Fig. 7.3: The frequency of secondary mound phases offset against the primary barrows to which they were added.

112 on top of Middle Bronze Age mounds). Rather it seems the restoration of a burial mound was an indiscriminate event with almost every single existing burial mound being increased in size.

It should be noted, however, that earlier excavators (such as Holwerda, Bursch and Remouchamps), rarely recognised the presence of these multiple mound phases. Subsequent re-excavations have consistently proven that they systematically failed to interpret additional construction events (*e.g.* barrow nr. 344, Modderman 1954, 31; nr. 427, Lanting and Van der Waals 1972a; see Chapter 5).

7.3.2 Burial within ancient mounds

Another type of reuse associated with burial mounds is burial within already existing mounds. These so-called secondary graves were dug into the body of the barrow itself. As with the restoration of the mounds, secondary burial can occur hundreds of years after the barrow was initially constructed. Both inhumation and cremation burials were deposited within mounds although there is a regional preference for inhumation over cremation in the Northern Netherlands and vice versa for the Southern Netherlands (Drenth and Lohof 2005, 437). Nevertheless both inhumation and cremation remain common practices throughout the Late Neolithic and Bronze Age and were in use concurrently (Wentink in prep.).

Secondary burial in mounds is very rare in the Late Neolithic A (Fig. 7.4). Only three dubious examples are known from that period. The practice is a little more frequent in the Late Neolithic B (N=16), and most of the graves are dug from the top-centre of the mound. The secondary grave rarely disturbed the primary grave, usually stopping 25 - 50 cm above it. As with both barrow construction and restoration events, the re-use of mounds in the Early Bronze Age is limited, only four cases are known.

The contrast with the following period could not be greater. In total 404 graves can be positively identified as dating to the Middle Bronze Age, with a further 277 attributable to the Bronze Age in general. The increase in restoration of older mounds went hand in hand with a spectacular increase in secondary burial in barrows. Even though most secondary burials are not directly dated, a significant proportion of them fall in the period between 1800 to 1400 BC.

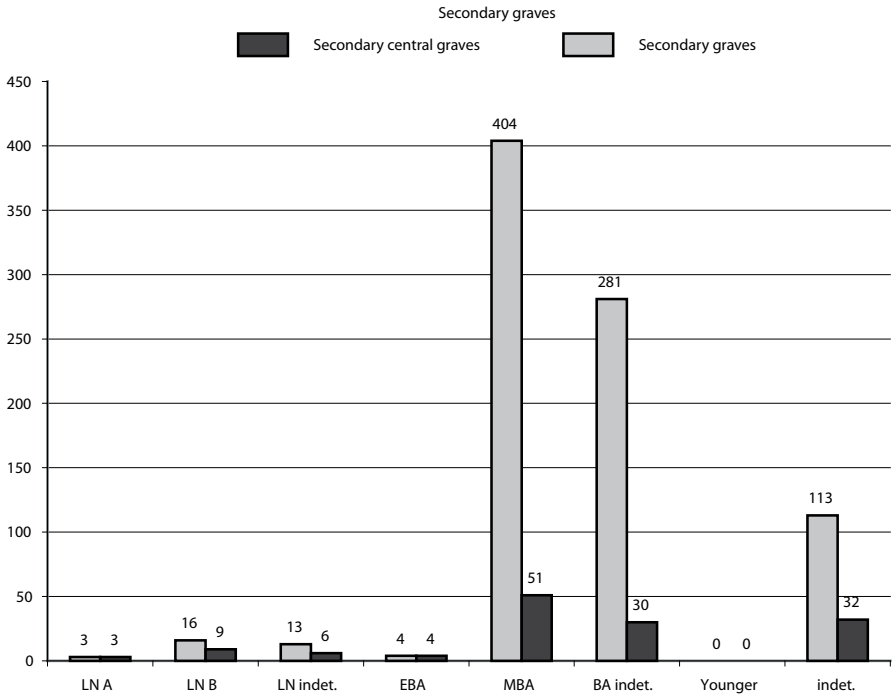


Fig. 7.4: The frequency of secondary burial per period. The dark grey bars indicate secondary central graves, the dark grey bars all secondary graves (including the central ones).

Yet at the same time, as with the restoration of ancient monuments, reburial was indiscriminate (Table 7.1). Secondary burial occurred in both Neolithic mounds as well as in Middle Bronze Age mounds.

7.4 Changing attitudes to barrows and barrow landscapes

7.4.1 Corded Ware mounds

The earliest barrows in the Low Countries are associated with Corded Ware traditions. Although rarely occurring south of the Rhine, they are numerous north of it (Bourgeois and Fontijn 2012). In the three case studies on the Veluwe they in fact form the largest group of burial monuments and are even more numerous than Bell Beaker barrows. Even though many of them are known, the construction of a single mound was still a rare event, perhaps occurring only once every four to five years (see Chapter 8).

Once a Corded Ware barrow was built however, it was considered a finished monument. As far as we know, there are no instances of pallisaded ditches having been rebuilt or any other form of restoration events, nor are there any (reliable) Corded Ware secondary graves within barrows. All subsequent activities within or on top of Corded Ware mounds were carried out centuries after the original mound

		Primary mound							
		LN A	**LN B**	**LN indet.**	**EBA**	**MBA**	**BA indet.**	**Indet.**	**Total**
Secondary grave	**LN A**	3	.	.	.	.	.	.	3
	LN B	8	7	1	.	.	.	.	16
	LN indet.	2	3	8	.	.	.	.	13
	EBA	3	0	1	0	.	.	.	4
	MBA	23	28	16	1	300	28	8	404
	BA indet.	41	16	44	15	38	126	1	281
	Indet.	40	21	17	.	3	21	11	113
	Total	120	75	87	16	341	175	20	834

Table 7.1: the frequency of secondary burial offset against the primary barrows to which they were added.

Deposition	LN A	LN B	LN indet.	EBA	MBA	BA indet.	Younger	indet.	Total
In/on top of mound	2	3	1	6	3	.	.	.	15
Underneath the mound	.	3	.	5	1	.	.	.	9
Close-by	.	3	.	1	.	.	.	.	4

Table 7.2: Depositions of artefacts in burial mounds. Both pottery (for the Late Neolithic and the Early Bronze Age) and bronze depositions (Middle Bronze Age) have been included.

had been built. For all intents and purposes people in the Late Neolithic A regarded the burial ritual as finished once a mound was constructed (see Chapter 8).

This concept was not limited to the Low Countries, secondary burial in Danish Corded Ware barrows is equally rare in their early LN (Hübner 2005, 468).

7.4.2 Sporadic Bell Beaker reuse

Bell Beaker attitudes towards barrows changed and restoration and re-burial within existing mounds became an acceptable option. Usually both practices occurred at the same time: a grave was dug into the top of an existing mound and an additional layer of sods was stacked over the entire mound and the second grave. The evidence suggests that whereas the construction of the burial mound was the final event in the Late Neolithic A, this attitude relaxed somewhat in the Late Neolithic B. The restoration as well as the secondary burial seems to have been indiscriminate, with the practices targeting both Corded Ware as well as Bell Beaker mounds.

7.4.3 The Early Bronze Age gap?

Very few barrows can be dated to the Early Bronze Age, and the practice of building new burial mounds appears to have decreased considerably. There are some indications of reuse, continuing the trend already set out in the Late Neolithic B. Secondary graves (all centrally located) as well as restoration phases are evidenced on several occasions.

It is difficult however to equate this relative lack of evidence to an absence of the (barrow) burial ritual altogether. Two important points have to be made. Firstly, some practices specific to the end of the Late Neolithic B and the Early Bronze Age certainly indicate that a barrow still played an important role as a focus point for ritual activities. Both Potbeakers (Late Neolithic B) and Barbed Wire Beakers (Early Bronze Age) are frequently associated with burial mounds, although they are almost never found within the grave itself (Table 7.2). In some cases pots or sherds were found on the old surface beneath a mound, placed on the flanks of, in a pit within, or just outside of pre-existing mound (Bourgeois and Fontijn 2010, 45-46; Bourgeois, *et al.* 2010, 85-87).

As many of these finds represent no clear burial context, they will have been frequently missed or misinterpreted by excavators. It is nevertheless tantalizing that the precise period when we see little to no activity in the burial ritual, is also the period in which we see these ephemeral ritual practices. Clearly burial monuments had not disappeared from the collective memory of Early Bronze Age communities, and they still took up a prominent position.

Secondly, non-perishable grave gifts such as pottery, metals and stone rarely entered the grave in the Early Bronze Age (Lohof 1991, 68-70; Theunissen 1999, 57). There are several well-documented cases where fragments of Barbed Wire Beakers were found on the old surface, but not within the grave. There is also a case where a Beaker was smashed and where half of the sherds were found on the old surface, and the other half within the grave (Modderman 1957).

Sitename	Objects	Primary	Secondary	Unknown	Flatgrave
Ballooërveld Tumulus 4	3 flint arrowheads, whetstone	.	x	.	.
Bergsham Tumulus 3	Wohlde sword	.	x	.	.
Den Dolder	Triangular full-hilted dagger	.	.	x	.
Drouwen	Sögel-sword, razor, nick-flanged axe, 2 gold coils, whetstone, flint strike-a-light, 9 flint arrowheads	.	x	.	.
Eext	Dagger (unknown type), 3 flint arrowheads	.	.	x	.
Hijken Hooghalen Tumulus 9	10 bronze arrowheads, 2 needles, 2 gold spirals, strike-a-light	x	.	.	.
Monnikenbraak-Find nr. 13	Wohlde-sword, flanged axe, whetstone, small ceramic vessel (?)	.	.	x	.
Monnikenbraak	Wohlde-sword, spearhead (?)	.	.	x	.
Putten	Wohlde-sword	.	.	x	.
Sleenerzand-De Galgenberg	Palstave, bronze ring, 14 bronze arrowheads, tweezer, 2 gold spirals	.	x	.	.
Vries Tum.2	1 bronze arrowhead	.	x	.	.
Zeijen-Noordse Veld Tum.114	Sögel-dagger, whetstone	.	x	.	.
Meteren-De Bogen	Griffplattenschwert, 2 bronze arrowheads, bronze needle (?), bronze indet. Artefact	.	x	.	.
Velserbroek	Griffplattenschwert, palstave, 2 golden coils	.	.	.	x
Zwaagdijk graf 3	Griffplattenschwert, 4 amber beads, possibly also worked flint, fragm. Of sandstone, indet. Animal bone	.	.	.	x
Zwaagdijk	Alledgedly sword and 2 gold coils	.	.	x	.

Table 7.3: Weapon graves in burial mounds (table after Fontijn 2009, 168-169).

Such actions may reflect a taboo on placing grave goods within a grave. The lack of grave goods, and therefore a good chronological marker is problematic, and it may well be that many of the 'empty' graves must be dated to this period.

Both points suggest we should be wary of interpreting the lack of graves and barrows attributable to the Early Bronze Age as a prehistoric reality. Nevertheless, even if we were to randomly allocate a proportion of the non-attributable barrows to the Early Bronze Age, the difference with the preceding and following periods would remain significant. We can therefore continue to speak of a 'gap' between the two periods, without being able to quantify it.

7.4.4 The Middle Bronze Age revival

Whatever the intensity of the Early Bronze Age burial mounds and burial practices, there is no denying that activities surrounding burial mounds increased exponentially in the Middle Bronze Age.

In Chapter 3 I argued that the intensity of barrow construction between the Late Neolithic and the Middle Bronze Age remained relatively stable. The increase in restoration events and secondary burials on the other hand represents a dramatic shift in attitude towards existing burial mounds. Whereas restoration events and secondary burial were rare events in the Late Neolithic and the Early Bronze Age, in the Middle Bronze Age they are common and widespread. This focus on existing mounds in the Middle Bronze Age is characteristic for every region of the Low Countries.

This change in attitude is not only evident from the reuse of mounds and restoration events, but also in the relation of Middle Bronze Age weapon graves to pre-existing mounds (Fontijn 2009, 164). Out of 8 known weapon graves from a reliable barrow context, 7 were dug into an already existing barrow (Table 7.3). Even the paramount warrior grave of Drouwen was probably dug into a pre-existing mound (Lohof 1991, catalogue nr. 061-0).

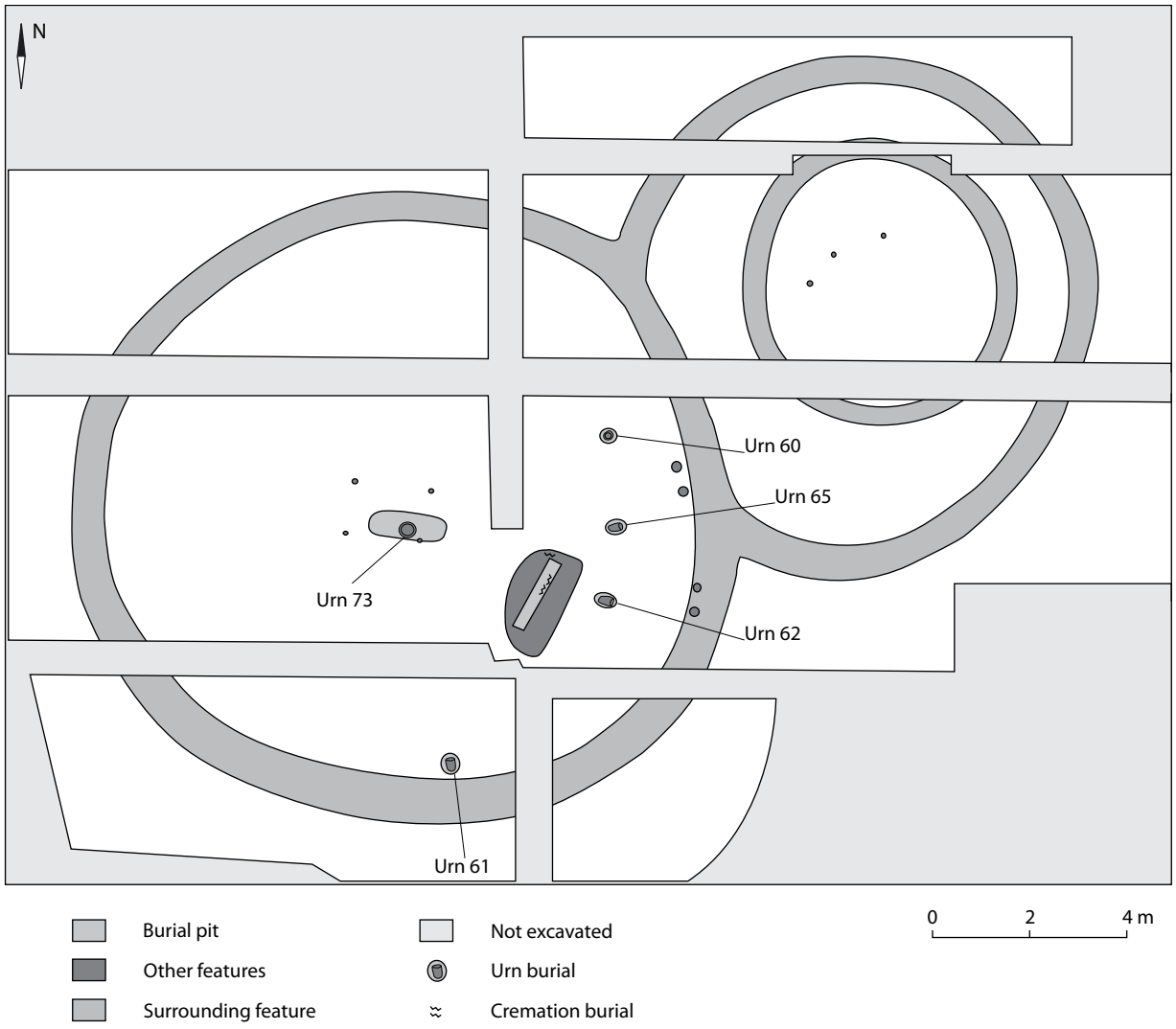


Fig. 7.5: The excavation plan of Tumulus 1B at Toterfout-Halve Mijl. Urn 61 was found lying on its side, with its mouth towards the primary grave (urn 73). Both urn 65 and 62 were also found lying on their sides, but with their mouths pointing away from the primary grave. Urn 60 was standing upright (redrawn after Glasbergen 1954a, Fig. 9).

The intensity of the restoration and reuse phase can best be illustrated through the Ermelo case study. In total a minimum of 77 secondary graves were recovered from at least 31 burial mounds (see Table 5.4).[42] Almost every single barrow was used for reburial.

In fact if we disregard the badly damaged and partly excavated barrows, all but two barrows have at least one secondary grave. Equally all but one burial monument have at least one additional mound phase. Only two of these mound phases can be unequivocally dated to the Late Neolithic or the Early Bronze Age, together with two or three secondary central graves associated with these additions (notably Tumulus II and XVI). All other restoration and burial events must be dated to the Middle Bronze Age. Comparisons with other areas in the Low Countries indicate the same intensity of reburial and restoration events.

The frequency with which these graves and restoration events occurred was equally high. Radiocarbon dating has demonstrated that the time in-between individual burials would have been extremely short, within a few generations of one-another. As an example, one of the Toterfout Halve Mijl barrows (Tumulus

42 Only the barrows excavated by Modderman have been considered, the amateur finds and the poor excavations by Remouchamps do not provide reliable information on stratigraphy, mound phases and secondary graves.

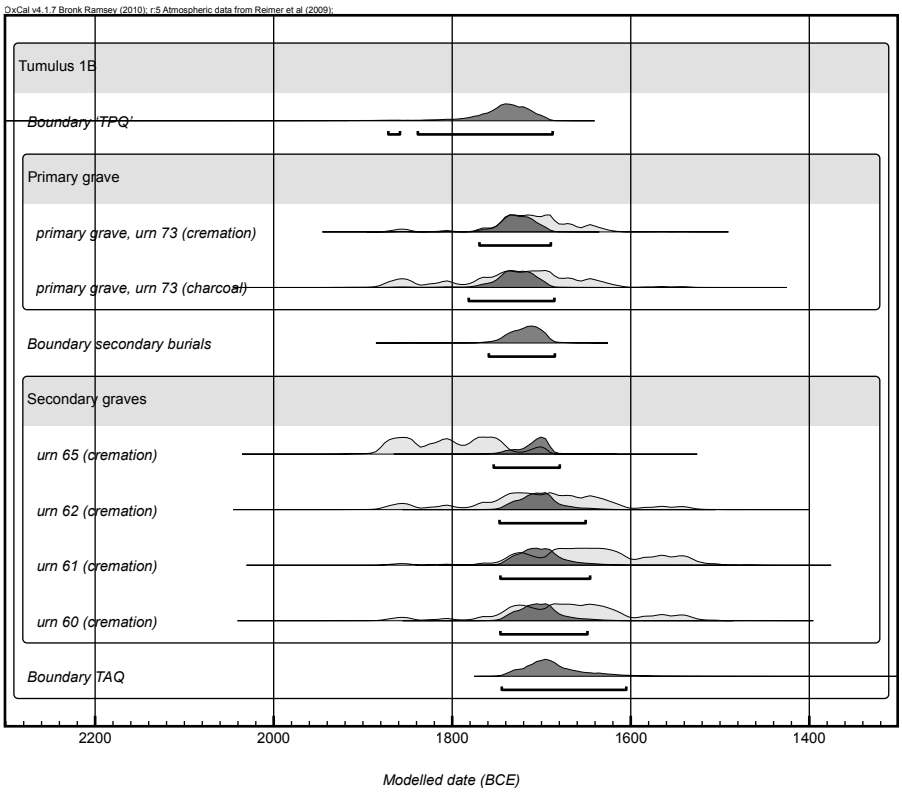


Fig. 7.6: All associated radiocarbon dates for the urned burials in mound 1B. Bayesian statistics constrain the dating range for the primary mound construction to approximately 1800 – 1700 cal BC, with the secondary burials following quickly afterwards.

1B, barrow nr. 10; Fig. 7.5) covered the primary cremation burial of a 30-40 year old man placed within a large Hilversum-style urn. Four large Drakenstein-style urns were inserted into the flank of the mound, with each containing the cremated remains of (in total at least four) adult women. Additionally a tree-trunk coffin was placed into the flank of the mound in which the remains of (possibly) a woman and a chiled aged 8-12 were found (Theunissen 1993). All of the urned cremation burials were radiocarbon dated (Lanting and Van der Plicht 2003, 181; Fig. 7.6). The barrow and the primary grave it covers it can be dated between 1775 and 1700 cal BC. The four subsequent urned cremation burials were added to the mound between 1750 and 1650 to 1600 cal BC. This suggests that the time seperating the primary burial and the secondary burials will not have exceeded more than a single century. The similarity in burial practice supports this observation and suggests that knowledge of the primary burial governed the subsequent burial practices (I will return to this barrow below; *cf.* Mizoguchi 1993; Bradley 2002; Theunissen 1999, 101-102).

Another site provides even more insight in the frequency at which secondary burials were placed within pre-existing barrows. At the Wiesselse Weg on the Crown Estates, three barrows were excavated in 2008 and 2009 (Fontijn and Louwen in prep.; Fig. 7.7). In total eighteen cremation graves were found in two quadrants of the two northernmost mounds. Radiocarbon dating of all graves revealed a very short time-span in-between the presumed primary grave and all secondary graves (Fig. 7.8). A Bayesian model of the ascertained primary and secondary graves suggests the first barrow (mound 3) was built between 1700 and 1600 cal BC, and within a short time-span of 50 to 100 years all subsequent graves were placed within the mound. After the first series of events, a second barrow (mound 2) was constructed, between 1600 and 1500 cal BC and here too all secondary graves were inserted into the barrow within a short time-span.

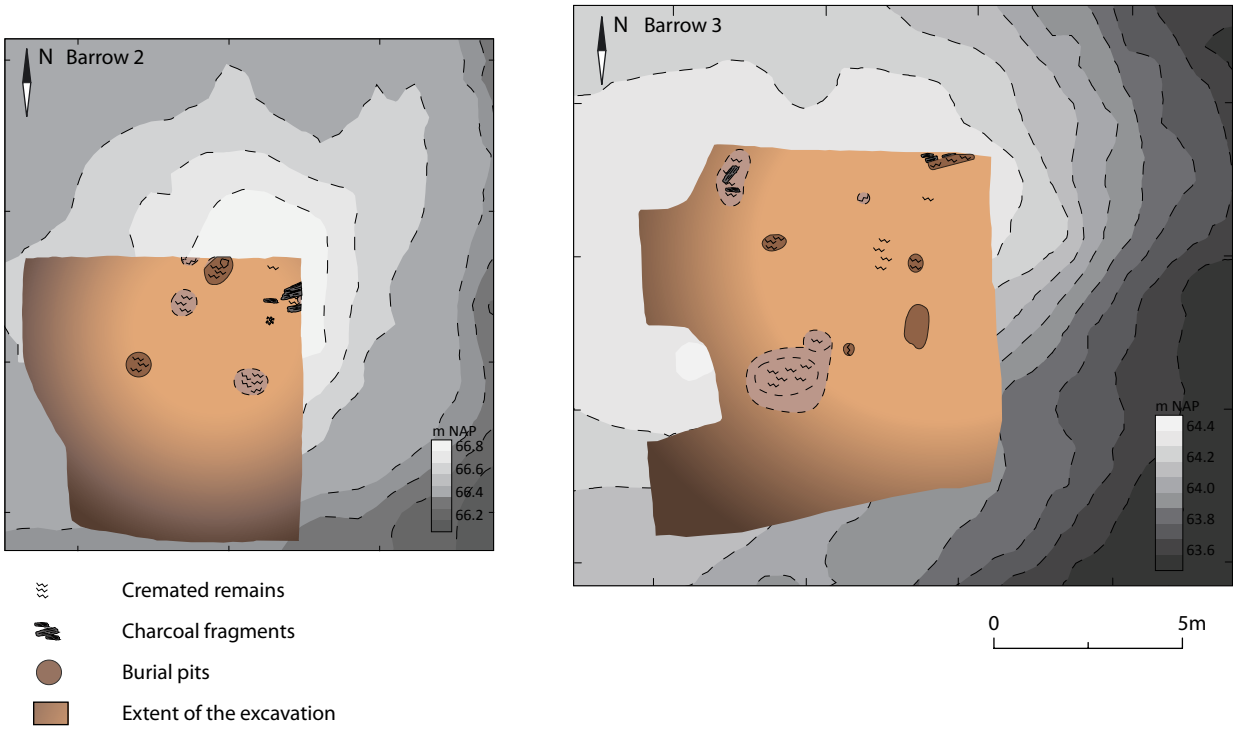


Fig. 7.7: Simplified excavation plan of barrow 2 and 3 at the Wiesselse Weg, municipality of Apeldoorn (drawing by J. Van Donkersgoed).

Both examples, and there are many more, indicate that the frequency at which secondary burials were placed within existing mounds was very high. Additionally in most cases no more than a few generations passed between the first and the last burial.

Estimating the frequency with which barrows were restored is much more difficult. Nevertheless as most seem to be associated with secondary graves from the Middle Bronze Age, the restoration phases themselves will probably also date to these time-periods. This is corroborated by the fact that many of these secondary mound phases are surrounded with typical Middle Bronze Age surrounding features, such as post-circles and ring-ditches. Of all barrows recorded in our database (N=589), 39 % of barrows has at least one additional mound phase, 49 % of barrows has at least one secondary grave, 31 % has at least one of both and 30 % has both.[43]

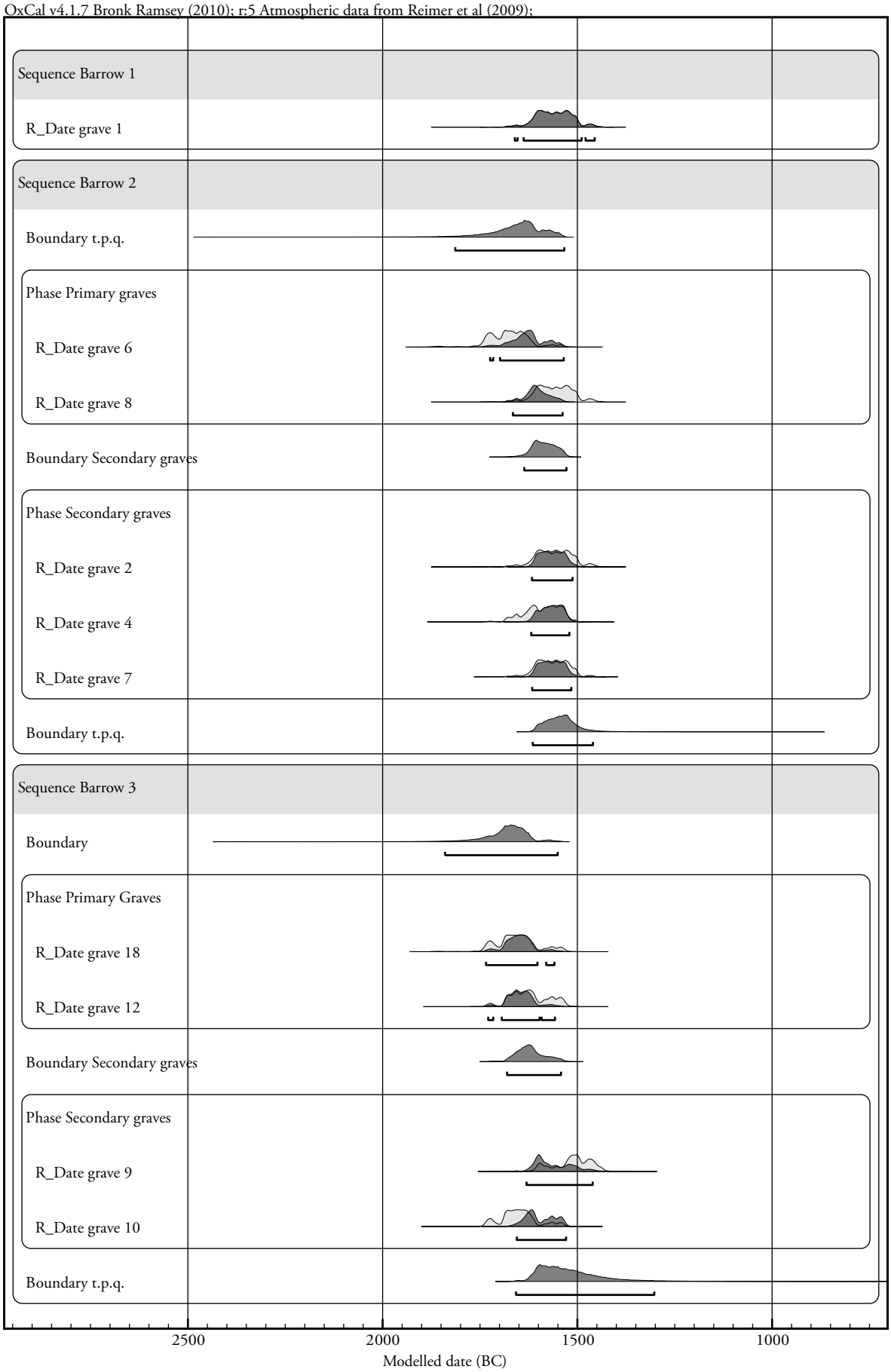
7.5 The reinterpretation of barrow landscapes

In the Late Neolithic A, older barrows were not reused. Once built they were considered finished. Relating and linking to past monuments was done through the position of a new burial mound within the wider barrow landscape, ultimately forming long alignments. In the second half of the 3rd Millennium BC people started to reuse the existing monuments by adding secondary graves, usually combined with restoration events. Towards the end of the Late Neolithic the deposition of Pot Beakers and Barbed Wire Beakers demonstrates that people still respected and engaged with the monuments even though burial underneath them declined. The Middle Bronze Age restoration events and secondary burials, even though on a much grander scale than before, are in a sense no different from the previous practices.

Fig. 7.8 (opposite page): Radiocarbon dates of cremation burials at the Wieselse Weg. Only those burials have been included of which the stratigraphic position in relation to the mound could be ascertained.

43 Note that these include all barrows in our database, including the partially and poorly excavated ones. Therefore the actual percentages are probably much higher.

OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);



It is important to note that this reinterpretation was not necessarily in concordance with any reality. There were in fact even some cases of mistaken identity where small sand-dunes were reused for secondary burial (Mullin 2001). In the Low Countries no such cases are known, but perhaps the small natural hillocks which are frequently observed underneath barrows may equally have been the case of a mistaken identity. At the Zevenbergen barrow group, one of the mounds excavated in 2007 covered a small dune, which in form and shape looked like a burial mound (Fontijn, *et al.* in press.). Perhaps its shape fooled the people in prehistory into thinking they were building on top of an ancient barrow. It certainly fooled me until almost halfway through the excavation.

The reinterpretation of ancient monuments continues inexorably throughout the rest of prehistory and history. Many of the urnfields of the Late Bronze Age and Early Iron Age were frequently built around or close to Late Neolithic or Middle Bronze Age mounds (Gerritsen 2003, 140-145). Even in later periods burial mounds were still recognized for what they are, and in several cases Early Mediaeval cemeteries linked up to ancient burial monuments (*e.g.* Beex 1954; Modderman 1967; Glasbergen 1955; Van Es 1964). This practice was even more widespread in Great-Britain (Williams 1998) and northern Germany (Holtorf 1998; Sopp 1999).

In later historical times, the Christian diabolization of heathen burial monuments (*tumuli paganorum*; von Uslar 1972; Roymans 1995, 13-17; Holtorf 1997) and the modification of barrows into gallows (Meurkens 2010) must still be considered as a form of reinterpretation of these by now truly ancient monuments. Even today, the restoration of barrows by national and local heritage departments is a form of reinterpretation. In some cases these restoration events have misinterpreted the original form of the burial monument (Fontijn, *et al.* 2011) and in others natural elevations were misinterpreted as burial monuments.

The process of reinterpretation is thus an ongoing process. Each individual barrow will continue to be reintegrated within society until it is fully destroyed and all memory of the former site has fallen into oblivion. All reuse and every reinterpretation can therefore be seen as an expression of how each society and each community defines itself within the landscape.

Yet the concept of reinterpretation and the reason why people reinterpret monuments does not explain the differences inherent between LN patterns of reuse versus Middle Bronze Age reuse. When seen from a chronological perspective reuse in the Bronze Age is systematic and on a grand scale. All ancient barrows were reworked in some way or another; either through restoration phases, or through secondary burials within older mounds, and usually both. The Bronze Age attitude to the barrow landscape was fundamentally different to what came before but also to what came after. There are four aspects in which reuse in the Bronze Age differs from other periods. Firstly, the concept of a burial mound implied burial of multiple individuals within a single mound. Secondly, reuse did not continue indefinitely. Thirdly, these concepts were extended to every single barrow in the wider landscape. And lastly, reuse was selective.

7.5.1 The Bronze Age barrow as a resting place for multiple individuals

The first element is the idea that every barrow necessitated more than one burial. A mound was not constructed for a single individual, rather it was built for many (*cf.* Petersen 1972; Woodward 2000, 23-25; Brück 2004; Bradley and Fraser 2010). The idea that multiple individuals were meant to be buried underneath or within a single mound was already present at the conception of a new mound.

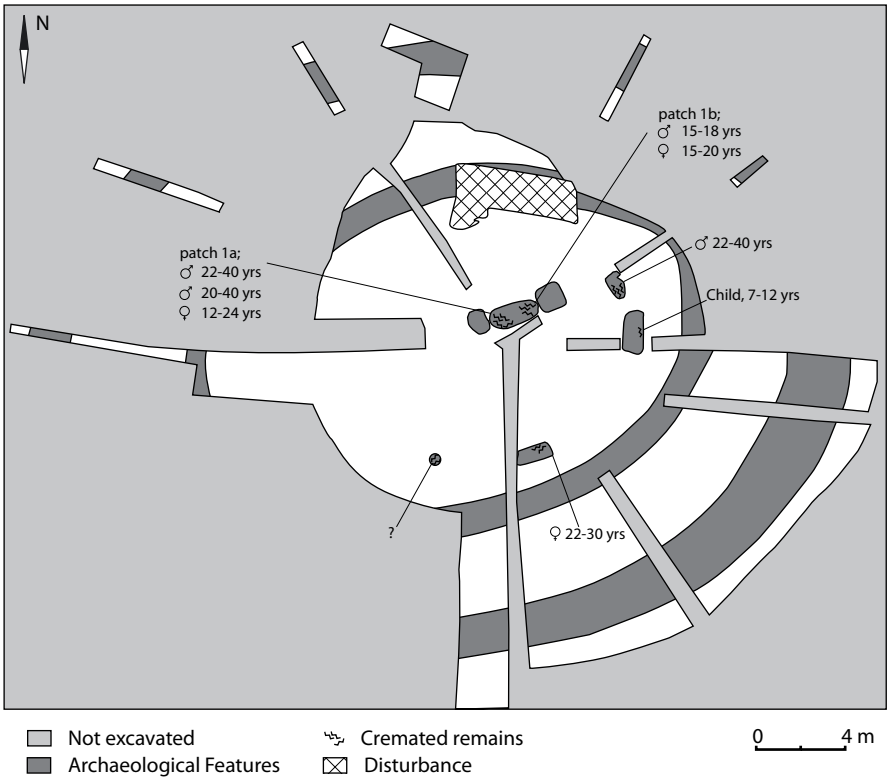


Fig. 7.9: Excavation plan of the large bank-and-ditch barrow Tumulus 1 at Toterfout-Halve Mijl (redrawn after Glasbergen 1954a, fig. 7).

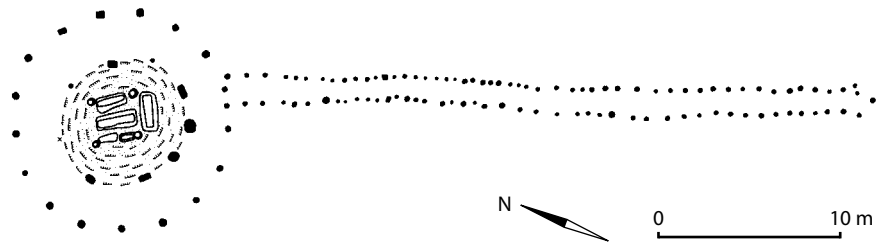


Fig. 7.10: Excavation plan of Tumulus 75 at Zeijen. A large allée of posts was excavated, extending 35 m beyond the mound. At both ends of the allée an extra post blocks the entrances (redrawn after Van Giffen 1949b).

At Toterfout, the large bank and ditch barrow Tumulus 1 (barrow nr. 645; Fig. 7.9) was erected over a single grave pit. Within that grave two distinct piles of cremation remains were recovered, each placed towards one end of the grave pit. Both piles contained the cremated remains of a minimum of respectively 2 and 3 individuals. The first of two young adults, male and female, and the second of two adult males and one young adult female (Theunissen 1993, 32; Smits 1994). In later times at least four secondary graves were added to the barrow.

The practice of multiple primary burials was also extended to include inhumation graves. A remarkable barrow at Zeijen, Tumulus 75 (Van Giffen 1949b; Fig. 7.10), covered five primary inhumation graves. The length of the graves has led the excavators to assume they were the graves of respectively three adults and two children. Four of the five inhumation graves were placed within a single small mortuary house (Dutch: *dodenhuisje*), suggesting some time had passed between the burials and the building of the barrow itself. The mound was encircled by two post circles, and a 35 m long allée is directed towards it.

Both examples indicate that little time had passed in-between the primary burials, and perhaps had even occurred simultaneously. It also strongly suggests genealogical ties between these individuals. They must have known each other in life, and it is plausible that they were members of the same communities (see Chapter 9).

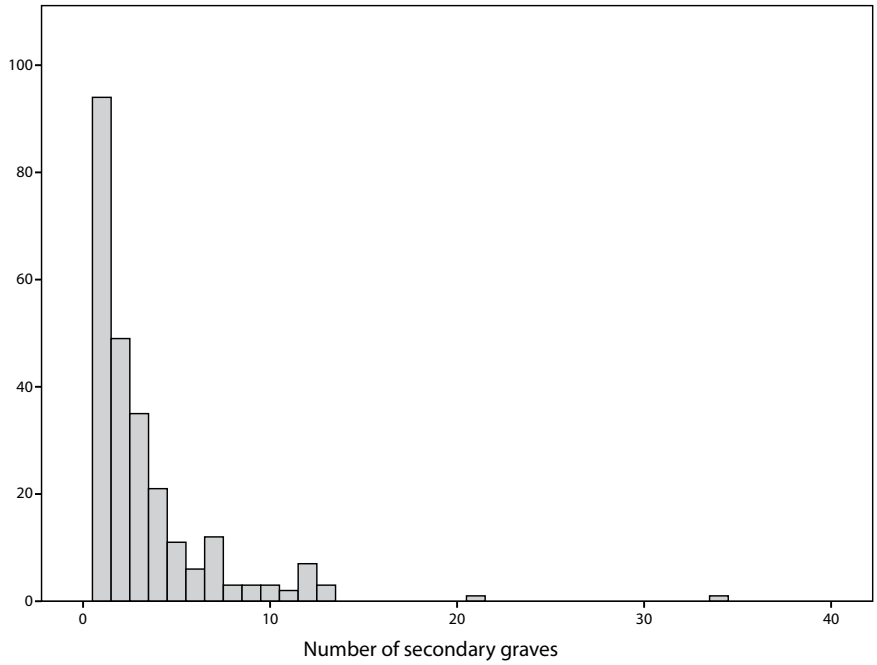


Fig. 7.11: The frequency of secondary burials within a single mound.

Multiple primary burials were not the norm however and in most cases a mound covered a single grave by and more graves were subsequently added to it. Here too, genealogical connections are suggested by the similarity in practice between the primary grave and the secondary graves.

Tumulus 1B at Toterfout is a compelling case in point (see above, Fig. 7.5; Theunissen 1993, 38; Theunissen 1999, 101-102). The specific placing of each urn in the mound suggests that knowledge on the way of burial within the primary grave governed how subsequent generations were buried within the mound. The primary urn stood upright, while two of the secondary urns were placed on their sides with the mouth of the pot facing away from the primary urn, one was placed with its opening towards the primary grave and the fourth urn stood upright.

The short time in-between each individual burial as well as the strong similarity in practice suggests that it is likely that the people placed within the mound knew (of) the person buried underneath and each other (Mizoguchi 1993).

At the same time, almost as many secondary Bronze Age graves were placed within Late Neolithic mounds. The burial mounds on the Ermelo heath being a case in point. There is no distinction to be made between reuse in Bronze Age or Late Neolithic burial monuments (see Table 5.4).

This is further illustrated by Vaassen Tumulus II (barrow 274, see Chapter 5; Lanting and Van der Waals 1971b). The primary mound was built over a Bell Beaker grave at around 2400 cal BC. After nearly a millennium, the mound was restored and a layer of sods was stacked against the primary mound. In total at least 12 secondary graves were added to the now extended mound, 8 inhumation and 4 cremation burials. It is highly unlikely that the people that placed the secondary graves within the mound knew precisely who was buried underneath the mound.

The same practices and intensity of reuse were reserved for barrows both in the close and distant past. The Ermelo case study shows that reburial within a mound was not only limited to the barrows of known ancestors, it was extended to every single other barrow already present in the landscape. This concept, that every barrow needed more burials, was shared throughout the Middle Bronze Age and throughout the entire Low Countries.

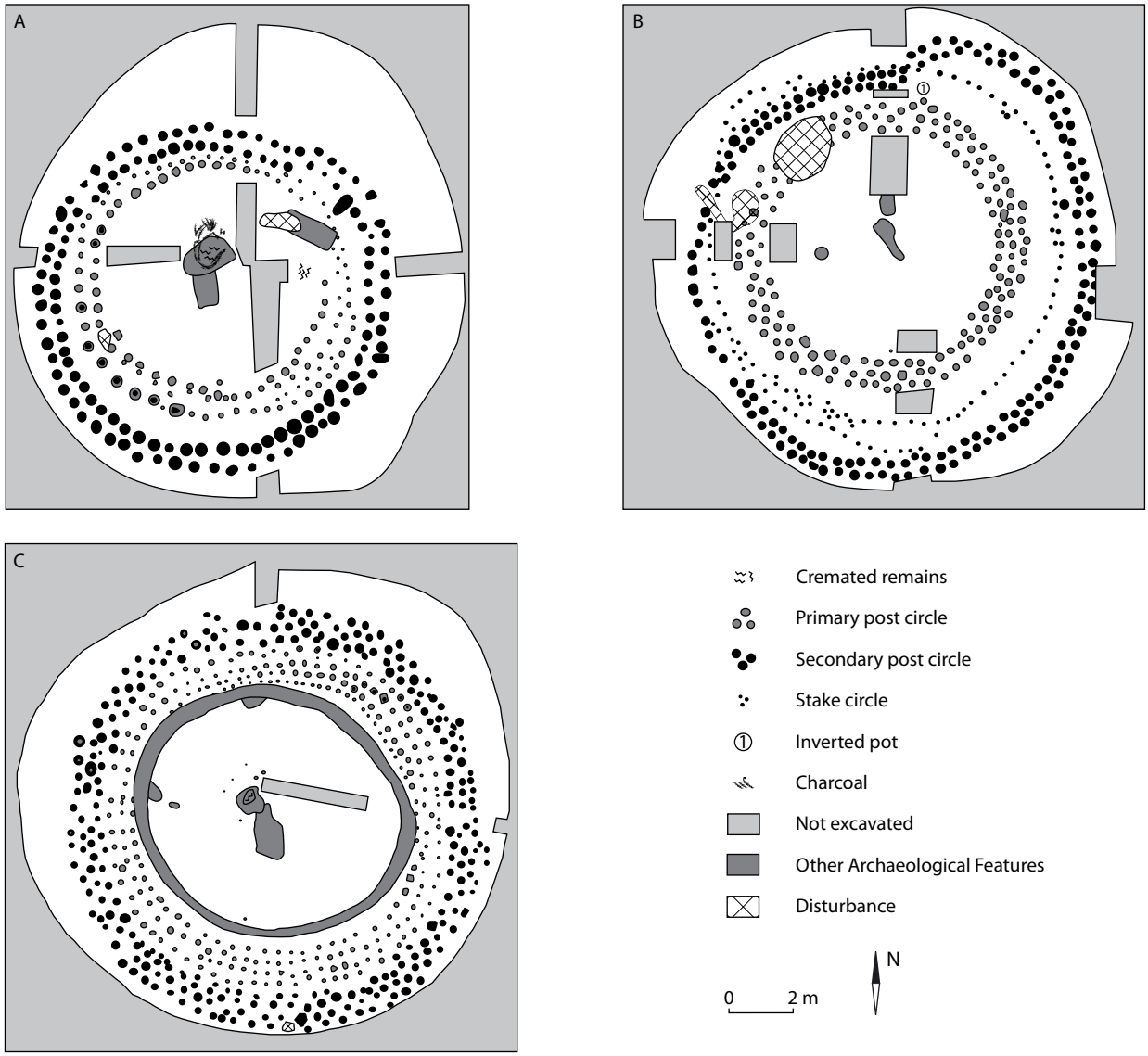


Fig. 7.12: The excavation plans of Tumulus 19 (A) and 22 (C) at Toterfout-Halve Mijl and a barrow on the Rechte Heide, near the town of Goirle (B); (redrawn after respectively Glasbergen 1954a, Fig. 28 and Fig. 31; Glasbergen 1954b, Fig. 51).

7.5.2 Reuse was pre-ordained

The examples I presented above indicate that secondary burial within a barrow was implied from the onset of construction. Reuse was pre-ordained with the creation of the mound (Fontijn 2008, 93), but there was also a limit to it. Reuse did not continue indefinitely and only in rare cases have more than 10 secondary graves been discovered within a single mound (Fig. 7.11). Mound 1B at Toterfout and the two barrows at the Wiesselse Weg I discussed above demonstrate that although reuse and activities surrounding a mound continued after the initial construction, this activity phase was also limited in time.

In a sense we can think of the burial ritual in the Bronze Age as a set of actions, which extend beyond the construction of the mound (see Chapter 9). These actions were not only limited to burial but also to the refurbishment of the mound.

This is evidenced by mound 19 at Toterfout (Fig. 7.12; barrow nr. 28; Glasbergen 1954a, 74-76). Here, around the foot of the small mound a double and in some cases even quadruple stake circle was erected. In total some 130 stakes were placed around the mound. In several cases the stakes were charred on the outside. After some time (perhaps several years), people returned to this mound, stacked an additional layer of sods on top of the primary mound and erected a

new post circle, this time with (on average) more substantial posts. Once again a similar number of posts was placed around the mound (128 to be exact). A barrow nearby (nr. 31; Glasbergen 1954a, 78-82) had ±260 stakes around the primary mound, once again small stakes. Some time afterwards 256 posts were placed around the mound. A third example (nr. 96; Glasbergen 1954b, 56, Fig.51), near the town of Goirle had an initial post circle of ±165 posts followed by a second circle of 167 posts several years later.

These three examples, of very particular barrows, indicate that for the Bronze Age, the barrow ritual was not final after the construction of the primary mound. The repetition strongly suggests people were meant to return to the same mound.

7.5.3 Reuse was totalizing

The third element characteristic of Bronze Age reuse is the concept that every barrow was eligible to be reappropriated, irrespective of the supposed mythical or genealogical distance between them. This totalizing approach of the Bronze Age can be exemplified by the difference between Middle Bronze Age and Late Bronze Age/Early Iron Age reuse. Both display a clear and conscious choice to link up with past monuments, indeed the presence of older burial mounds is frequently attested in many urnfields (Gerritsen 2003, 140-145).

Yet the difference between both is not in the fact that they reincorporate older mounds but rather in *where* they reappropriate older mounds. During the Late Bronze Age/Early Iron Age people chose a (group of) barrow(s) around which the urnfield developed; it is a localized reuse (Fontijn 1996, 78-79). All other barrows beyond the urnfield were effectively ignored. The Middle Bronze Age approach to the barrow landscape was the complete opposite; reuse was indiscriminate. *Every* mound on the heathland was eligible for multiple burials and restoration events. Indeed it is very rare to have a barrow with no restoration event and/or no secondary burials.

This indiscriminate approach to barrow landscapes becomes even more interesting if it is extended to sacrificial landscapes. Fontijn has argued that where in the Iron Age depositions are localized and restricted to specific places within the landscape, Bronze Age depositions are only restricted by general 'zones' (Fontijn 2002, 262-263). The similarity between burial practices and sacrificial practices is indicative of a different perception of the landscape (*cf.* Fontijn 2011, 441-442). Both urnfields and deposition places in the Early Iron Age are restricted to specific places, by contrast the Bronze Age attitude to both is quite different. Depositions could be placed anywhere in a river or swamp, and the dead could be placed anywhere on the heath. It is on these heaths that new barrows were constructed, old barrows were reincorporated and where (some of?) the dead were buried.

7.5.4 Reuse was selective

While the reuse of a barrow on the heath in general does not appear to have been limited by a specific location, each barrow nevertheless had its specific role within that landscape. Reuse was selective, and specific burial rituals were reserved to specific mounds.

As a first example, we can return to the three Neolithic barrows on the Ermelo heath I introduced in Chapter 5 (Tumuli I, II and III excavated by Modderman, respectively nos. 324, 325 and 326). As I argued, all three barrows started off relatively similar. They were small low barrows and each covered a grave. Yet their biographies diverge afterwards. Only barrows II and III were reused. Both were capped with additional layers of sods (III once and II at least three times) and

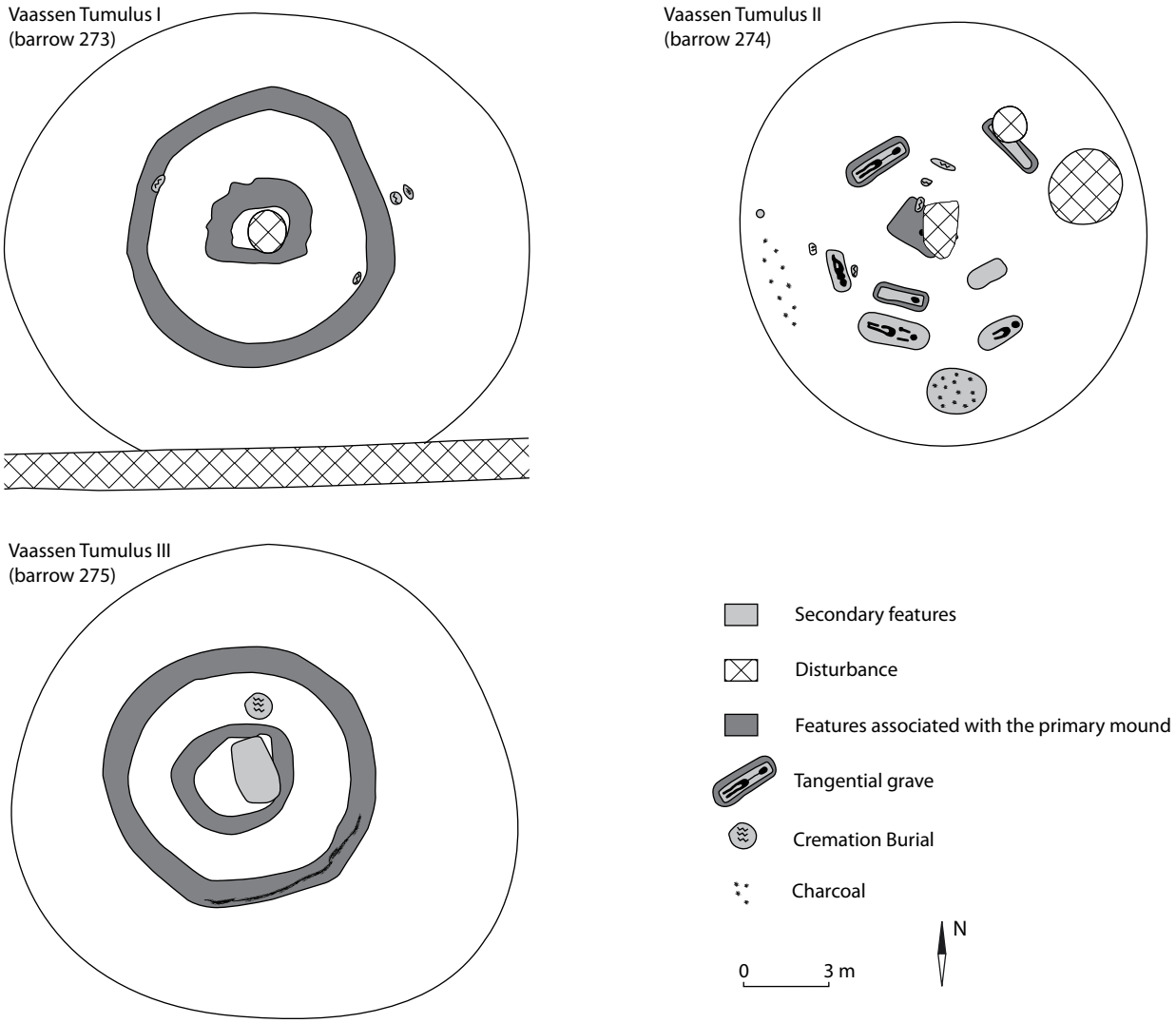


Fig. 7.13: The excavation plans of three Neolithic mounds near the town of Vaassen. The time-distance between the reuse in the Middle Bronze Age and the construction of the primary mounds extends over at least 800 years (Lanting and Van der Waals 1971b, Fig. 4, 7 and 0; courtesy of the National Museum of Antiquities (RMO)).

secondary graves were placed within their mounds (respectively five and two). Interestingly, there are no indications that Tumulus I was reused at all. For all intents and purposes it seems to have been neglected.

As a further example, Tumulus 1B of the Toterfout case study covers an urned cremation (barrow nr. 10). The secondary graves also consist of urned cremations. It is illuminating that of all burials excavated from the barrows in the entire Toterfout region, only one other cremation burial was urned (and possibly a second). All others were not. Urned burial was for some reason only reserved for this barrow and not any other, even though contemporaneous barrows can be found within the same region.

Tumulus 8A is another example from the same region (barrow 17). The barrow covered the cremated remains of a young child. In the postholes of the closely spaced post-circle encircling the mound, the cremated remains of at least six individuals were found (as far as could be determined these were all children; Theunissen 1993, 32). Cremated remains in postholes were only recovered from three other barrows (nos. 9, 97 and 113), yet many other barrows were surrounded by close-set post circles as well.

The last example, and perhaps the most telling, is the Vaassen Tumulus II already mentioned above (see p.172; barrow nr. 274; Fig. 7.13). It is part of a group of three Neolithic mounds (together with nrs. 273 and 275). All three barrows were used for secondary burial in the Bronze Age. In the other two mounds respectively three and one cremation burials were discovered. Yet only Tumulus II was restored and covered with a layer of sods in the Bronze Age. Additionally tangential inhumation graves were only added to this mound and not to the two other barrows. Similar situations can be found on the Speulderveld (*i.e.* Tumulus I versus II; Modderman 1954), and the Ermelo heath (*i.e.* Tumulus VII; Modderman 1954).

Specific types of secondary burial were thus reserved for specific barrows and knowledge of what was thought to be the 'right way to burry' within what barrow was defined by the communities burying within these mounds (Fontijn 2002, 271). Stories on each barrow will have circulated on who was buried where and how. Whether or not this was in accordance with reality does not matter, as long as they *thought* it was real. In this sense barrows were named places with each mound taking up a specific position in the cosmological landscape and burial in these mounds was then governed by knowledge (real or claimed) on how one should bury their dead in them.

7.6 Conclusion

Reuse and the reinterpretation of older mounds was almost non-existent in the Late Neolithic A. Once a mound was built, it was considered finished and we have very few traces of people returning to a mound during the Late Neolithic A. It is only in the Late Neolithic B that the practice of reburial within an older mound is seen sporadically. In these cases it is always accompanied by a secondary mound phase. This practice continues in the Early Bronze Age.

Yet the patterns of reinterpretation and reuse discussed in this Chapter revealed the exceptional position of the Middle Bronze Age. In a relative short period of 400 - 500 years the entire barrow landscape was reworked and covered with a Middle Bronze Age interpretation.

Almost every single barrow on the heathlands was sought out, either for burial, to be restored with an additional layer of sods or both. In this way, every barrow was converted into a Bronze Age barrow. And the idea of a barrow as the burial place for multiple individuals was extended not only to their own barrows, but to every single barrow already present in the landscape.

The indiscriminate nature of reuse shows that this reinterpretation was not restricted to specific monuments or specific places within the landscape. Rather the entire heathland in which the barrows were built was eligible to be reused. There are no limitations as to which barrow on the heath-field could be reused. This observation reveals a deeply seated belief during the Middle Bronze Age that specific practices are limited to specific zones within the landscape (depositions in swamps and streams, burial on heaths).

The extensive heaths of the Low Countries should then be considered as the place where the dead ought to be buried. The extensive dispersed groups of barrows were already mentioned in Chapter 1 and 2. They have always been elusive and difficult to understand. Yet the reuse patterns of the Bronze Age may well offer insight into why these mounds do not seem to conform to a pattern. This will be the topic of the next Chapter.

Chapter 8

The creation of a barrow landscape: constructing new mounds

8.1 Introduction

In the previous Chapter I focussed on the role of the individual barrow, and how it continued to be reinterpreted through time. The visibility, permanency and symbolic nature of the mound ensured it remained a stable element in the minds of prehistoric communities. In this Chapter the focus lies more on how time and again a new barrow was inserted into the wider landscape. Each new barrow is a purposeful modification of the barrow landscape and was carefully deliberated. As each new mound actively shaped and altered the form of the entire landscape, it permanently changed how the landscape could or should be interpreted (Barrett and Ko 2009, 288). The barrow landscape thus represents the sedimented activities and manipulations of generation upon generation of burial communities (*cf.* Ingold 1993, 167).

These constant manipulations and additions created intricate patterns of alignments and other features. It was a landscape where most of the time older monuments were present, and where each new barrow had to take into account the presence of these older monuments.

The way in which new barrows were added to the landscape changed significantly through time. As we have seen in Chapter 5, the long alignments are certainly typical for the Late Neolithic A, while the extensive dispersed barrow landscapes are more typical for the Bronze Age. In this Chapter I will try to understand these different types of barrow landscape. First I will set the stage in which barrows are built. At what rate were barrows constructed, and thus at what rate was the barrow landscape modified? And in what type of landscape were these barrows built, was it a lived-in landscape or rather a specific place set apart from the realm of the living? Having created the background I will summarize the general patterns of the different barrow landscapes through time followed by a discussion of what these patterns represent.

8.2 The frequency of barrow construction

The addition of a new barrow to the barrow landscape is a single event and limited in time. Specific episodes of barrow construction can be identified in each region, yet how often was a new barrow constructed? At what rate was the barrow landscape altered? The assumption is that during the Bronze Age more barrows were built than in the previous Late Neolithic period (Drenth and Lohof 2005, 453), but as we have already seen in Chapter 3, this is not necessarily so (see p.32).

Starting from the excavated and datable barrows in our database, we can then go on to calculate the number of barrows constructed during each chronological horizon. For the Late Neolithic A we have around 100 barrows over a period of about 400 years (see Table 3.1), which would translate to roughly one barrow constructed every three to four years. Similar frequencies can also be calculated for the Late Neolithic B and the Middle Bronze Age.

	Epe-Niersen				Renkum				Ermelo				Toterfout			
N barrows	110				71				134				55			
Period	**LN A**	**LN B**	**EBA**	**MBA**	**LN A**	**LN B**	**EBA**	**MBA**	**LN A**	**LN B**	**EBA**	**MBA**	**LN A**	**LN B**	**EBA**	**MBA**
Excavated	11	6	2	.	14	12	.	.	14	7	2	13	.	.	.	47
Extrapolated	33	18	6	.	33	28	.	.	52	26	7	48	.	.	.	55
Barrow / N years	~ 12	~ 22	~ 33	.	~ 12	~ 14	.	.	~ 8	~ 15	~ 29	~ 8	.	.	.	~ 7

Table 8.1: Extrapolation of the frequency of barrow construction within each research area. The extrapolation is on the basis of the excavated and unequivocally dated barrows. The percentage of excavated barrows dating to a certain period is assumed to be representative of the entire barrow assemblage.

Now the excavated barrows are only a fraction of the number of undatable or unexcavated barrows (see Chapter 5). In order to put the figures of excavated barrows into context we can turn to the case studies. If, for the sake of argument, we extrapolate the datable barrows to all known barrows within each case study, we can estimate with what frequency a new barrow was constructed in that area (Table 8.1; *cf.* Lowenborg 2009).

The frequency at which barrows were constructed on the Ermelo heath is then roughly once every 8 years for the Late Neolithic A, once every 10-12 years for the Late Neolithic B and once every 8 years for the Middle Bronze Age. Similar results are obtained for both Renkum and Epe-Niersen, though here, the Bronze Age is underrepresented (see Chapter 5). For the Toterfout region, we can assume one barrow was constructed every 4 to 5 years during the Middle Bronze Age.

Yet these estimates are severely limited by the amount of barrows which have survived throughout the millennia (Theunissen 1999, 49-53). As often mentioned in Chapter 4, the map formation processes fundamentally reduced the number of barrows available for study. Indeed, levelled barrows are frequently encountered during rescue excavations (*e.g.* Van Doesburg, *et al.* 2009; Roessingh 2010; Lohof, *et al.* 2011; De Smaele, *et al.* 2011 to name but a few recent ones) and large scale aerial photography surveys have discovered hundreds of barrows in areas previously devoid of burial monuments (*e.g.* Metz 1993; Meganck 2006; De Reu, *et al.* 2011a).

If we continue this line of thought, it follows that the intensity of barrow construction can easily be exponentially higher than the estimates presented above. Additionally they are strongly influenced by our ability to correctly attribute them to a specific chronological timeframe. These results should therefore be considered as an absolute minimum.

My conservative estimate for the Ermelo case study is that we have records for roughly half of the barrows which were once present in the area (see Chapter 5). Using this estimate, we are then dealing with on average one barrow being built every couple of years for the Ermelo area throughout prehistory. The same estimate can be applied to all other study areas.

Now of course the rate of survival differs from region to region. And equally the rate of barrow construction will have differed over time and space. In the Southern Netherlands for example only a handful of barrows date to the Late Neolithic (Theunissen 1999, 57-58; Drenth and Lohof 2005, 433) and probably far fewer were built there than on the Veluwe. It is therefore difficult to extrapolate these estimates to the entire Low Countries. Nevertheless the conclusion for all case studies is that the general rate of barrow construction was relatively low, with a new mound erected every couple of years.

8.3 The episodic nature of barrow construction

At the same time it is important to realise that the construction of new barrows is not necessarily a continuous process. It may well be the case that multiple barrows were built at the same time or in quick succession of one another.

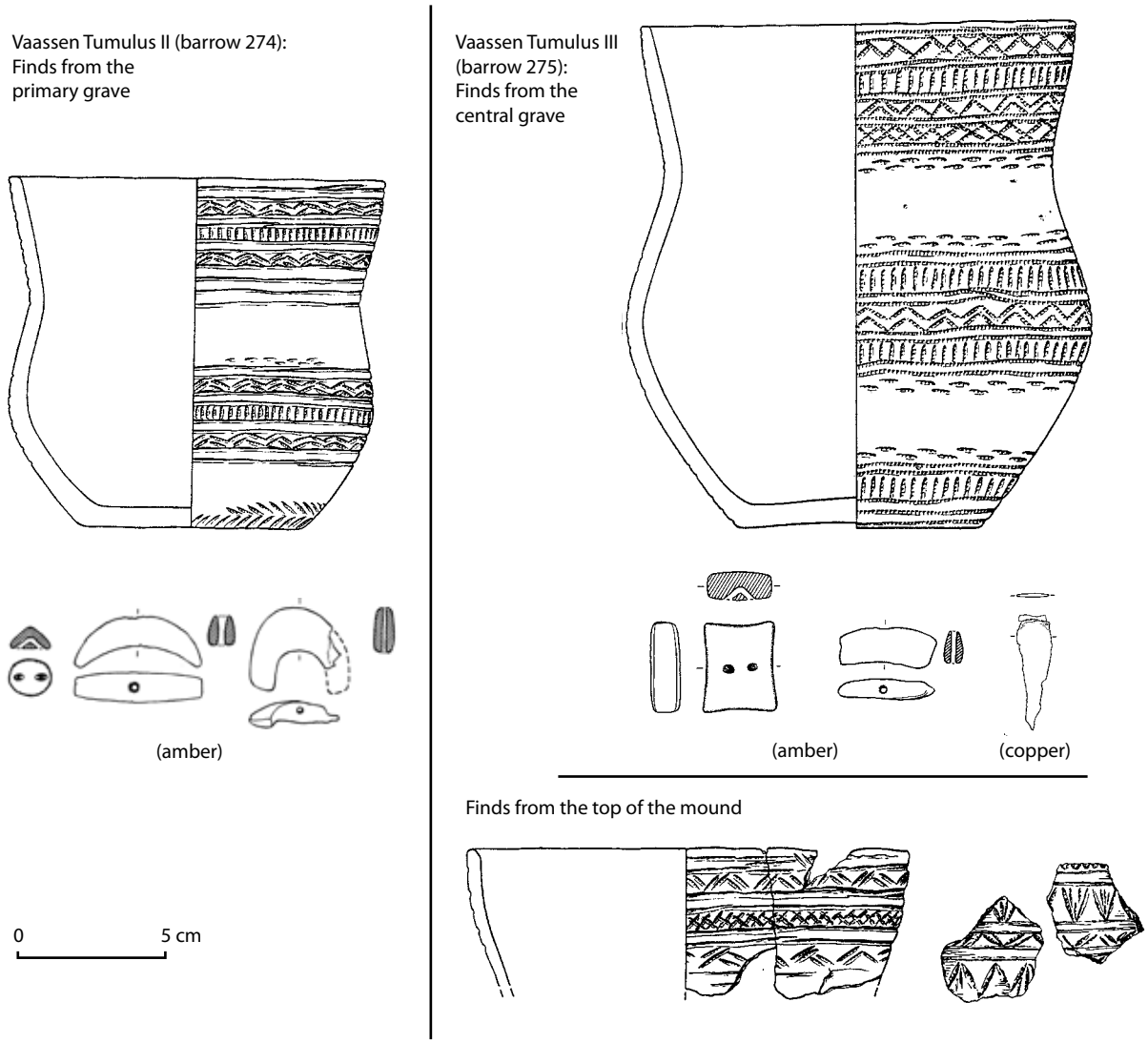


Fig. 8.1: Finds from the burials underneath and in Tumulus II and III at Vaassen (see fig. 7.15) (redrawn after Lanting and Van der Waals 1971b, Fig. 8 and 12; courtesy of the National Museum of Antiquities (RMO)).

Peaks and activity phases can certainly be reconstructed for specific periods and specific areas in the Low Countries. The linearity and regularity seen in the earliest phase of the Epe-Niersen alignment suggests it was built in a very short time frame. Most of the Late Neolithic A barrows on that alignment have AOO-pottery or GP daggers associated with them (at least four out of six). These artefacts are typical for the late phase of the Late Neolithic A and can probably be dated to within 150 years of one another (see Chapter 3; Wentink in prep.).

The Bell Beaker graves of Vaassen within the same region are another example. One grave was covered by a barrow, the other was dug into an already existing Late Neolithic A mound. Both graves contained strikingly similar grave goods (Fig. 8.1). Not only did they both contain similar amber beads, the decoration patterns on both beakers (and on a smashed beaker on top of one of the mounds) were very much alike. While there are small differences, I would argue that they are more alike one another than to any other Bell Beaker found on the Veluwe.

At Ermelo as well, the similarity in grave goods between two adjacent barrows strongly suggests they were built within a short time of one another (Tumuli II and III; barrows 325 and 326; Modderman 1954). In both primary graves, two beakers were found along with a single flint blade (Fig.8.2). Both sets of beakers are of a similar type (1d) and even their position within the grave mimics their relative position to one another. The beaker set in the eastern barrow (326) was

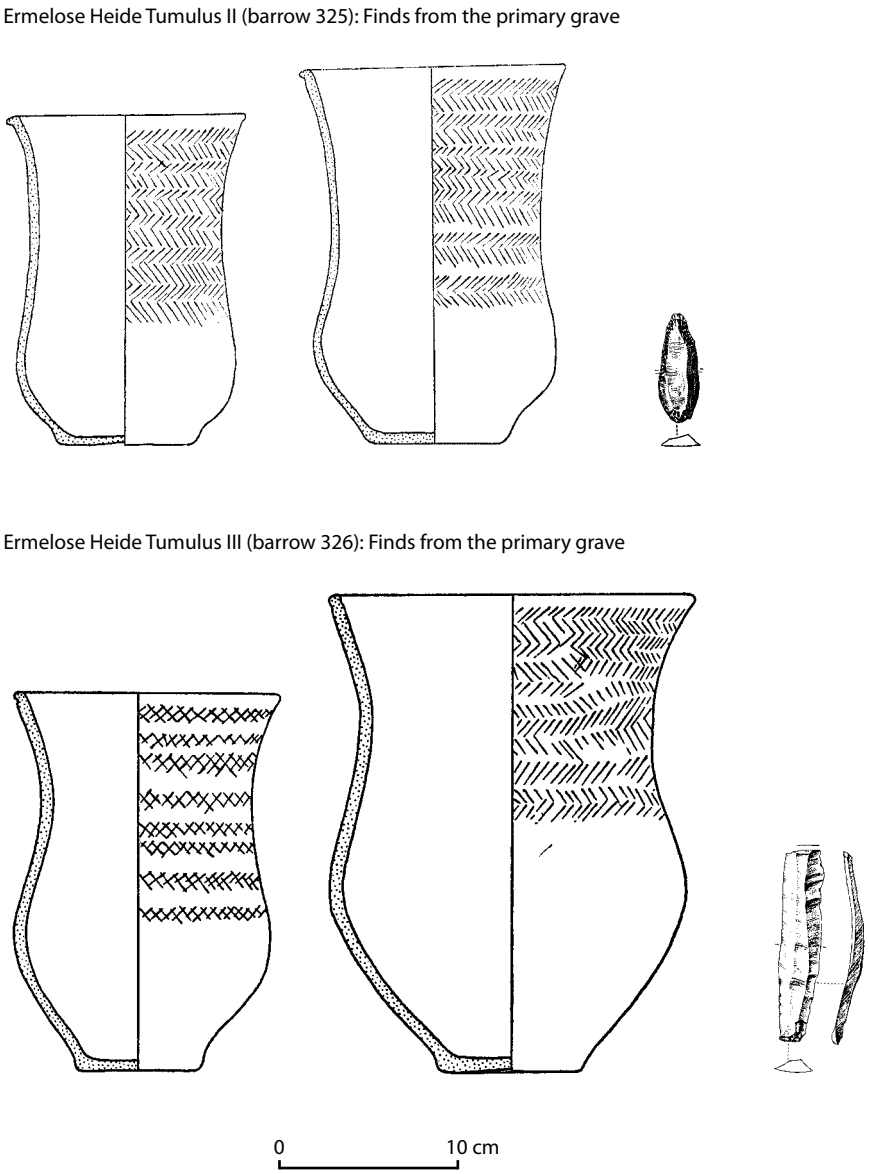


Fig. 8.2: Finds from the primary graves underneath Tumulus II and III at the Ermelose Heide (redrawn after Modderman 1954, Fig. 5 and 7).

found in the eastern part of the burial pit, at the feet of the inhumation. The beaker set in the western barrow (325) was found in the western part of the burial pit, at the head of the inhumation. The flint blade in both was found in the pelvic region. Both inhumations were lying on their right side, facing south. Similar grave sets are very rare in the Netherlands and only three other such sets are known (see Wentink in prep.).[44]

I would argue that the similarities seen in both the Vaassen and Ermelo examples strongly suggests that neither was separated by a vast amount of time and may even have been constructed simultaneously.

Similar activity phases have been proposed for the Bronze Age in Denmark. Dendrochronological research of oak-log coffins in Denmark dates almost all of them within 50 years of one another (Holst, *et al.* 2001, 131-132) and it has been estimated that almost half of the 86.000 recorded Danish barrows must be dated to the Early Bronze Age (Johansen, *et al.* 2004, 34; *cf.* Beck, *et al.* 2007, 838-840). Comparable episodic barrow construction has also been suggested for Early Bronze Age round barrows in Southern England (Garwood 2007, 37).

44 AMP0466 Zeijerveld, Jodenbergje; AMP0038 Swalmen h4; AMP0429 Ede Ginkelse Heide

So the frequency of barrow construction remained relatively constant throughout the 3rd and 2nd Millennium BC (with the exception of the Early Bronze Age). Within any given region, on average one new barrow was constructed every few years. As with the secondary graves (see Chapter 7), the construction could occur in very short spurts, with several barrows being constructed in quick succession.

8.4 Heathland Barrows

As this Chapter focuses more on the landscape in which the barrows were constructed, it is imperative to understand what type of landscape these burial monuments were placed in. In Chapter 6 we already established that most barrows were constructed in heath (see p.125). I made the point that even though barrows were constructed in heath, forests were present close by. The vegetation reconstructions I presented there function more as a minimum extent of the heath within an otherwise difficult to grasp vegetation pattern. The heaths may well have been substantially bigger than the distribution of the burial mounds let us to assume.

To illustrate this point we can turn to the palynological evidence. As I argued in Chapter 6, we can extrapolate the palynological data underneath sampled barrows (see p. 127). As all pollen underneath these barrows indicate heath (N=118; Doorenbosch in prep.; *cf.* Casparie and Groenman-Van Waateringe 1980), we can extrapolate this heath to all known barrows (on Pleistocene sandy soils). In this way, a barrow becomes a proxy for heathland as all barrows are built on *fully developed* heaths (Doorenbosch 2011). The last point is important as it demonstrates that barrows were built in a heath, but also that this heath was present long before any barrows were built. At least a few decades are needed before heath establishes itself (Doorenbosch in prep.).

The implication is that even underneath the earliest barrows, in the Late Neolithic A, heathland was present (*cf.* Casparie and Groenman-Van Waateringe 1980; Doorenbosch in prep.). If we take the northern alignment of Ermelo for example, a minimum of slightly under 1 km^2 would have been open heathland.[45] The same applies to the Niersen alignment, where at least 1 km^2 of heathland must be reconstructed. At the Renkum case study, a minimum of 3 km^2 must be considered to have been heathland.

These estimates depart from the excavated and datable barrows. If we take into consideration the many destroyed, unexcavated and undatable barrows (usually more than 50% within the case studies), it follows that the heathlands must have been much more extensive. Even in the earliest phase of barrow construction, extensive tracts of land were open and covered in heath or grasses. Especially the alignments on the Veluwe will have been located in large open areas.

The consequence of these reconstructions is that every barrow on the Pleistocene sandy soils will have been built in an anthropogenic landscape (Johansen, *et al.* 2004, 36). Once heath vegetation has established itself, it needs to be maintained or other types of vegetation will quickly take over. Heath can be managed through either burning, grazing or sod-cutting (Stortelder, *et al.* 1996). As we are dealing with substantial heathlands, the cutting of sods can almost certainly be ruled out (Doorenbosch 2011, 120-121).[46] Between both burning and grazing, the latter seems the more probable (they may also have occurred together as a rejuvenation

45 For these estimates a heath with a radius of 250 m was used (see Chapter 6).

46 Calculations of the surface needed to cut sods for a large Iron Age mound on the Veluwe indicated that just a few hundred square metres are sufficient (Doorenbosch 2011, 120).

Toponiem	Barrow ID	Primary mound construction	Remarks	References
Toterfout-Halve Mijl Tumulus 1B	10	MBA	Several postholes underneath the annex and the primary mound.	Glasbergen 1954a
Toterfout-Halve Mijl Tumulus 14	23	MBA	Single row of posts splitting into two different rows. According to Glasbergen it is part of the same structure as underneath Tumulus 21.	Glasbergen 1954a
Toterfout-Halve Mijl Tumulus 21	30	MBA	Row of posts. According to Glasbergen it is part of the same structure as underneath Tumulus 14.	Glasbergen 1954a
Putten	409	LN A	The primary barrow covered a pit in which sherds of a large Wellenband-pot were found.	Van Giffen, *et al.*1971
Epe-Emst 'Doppelhügel'	443	LN B	Two four-post structures were found underneath the foot of the third mound phase.	Van Giffen 1930
De Eeze heuvel IV	447	LN A	Pit with fragments of pottery (indet.).	Waterbolk 1964
Oosterwolde Langedijk Tumulus II	551	LN A	Several dark (charcoal-filled?) pits are visible on a photograph of the level underneath the mound.	Van Giffen 1930
Elp Smalbroekseweg	616	MBA	Three charcoal-filled pits were discovered underneath the mound. Several house-plans were also discovered in close proximity of the barrow.	Waterbolk 1961; Waterbolk 1964
Niersen Galgenberg heuvel G4	635	LN	three post-holes underneath the mound, not conforming to any apparent structure.	Holwerda 1908
Apeldoorn Wieselse Weg barrow 1	.	LN	Several postholes and pits with pottery covered by the barrow.	Fontijn, *et al.* In press.
Rhenen Elst barrow 'Delfin 190'	.	MBA	Several pits with burnt stone and burnt MBA pottery covered by the barrow.	Fontijn 2010
Meteren De Bogen	.	MBA	The posts of a MBA house plan were found, possibly built on top of an already pre-existing barrow.	Bourgeois and Fontijn 2008

Table 8.2: Evidence for settlements associated with burial mounds in the Low Countries. Only evidence for approximately contemporaneous settlements in direct association with a barrow has been considered.

technique, see Karg 2007, 46). Especially if we consider that the heaths were maintained for millennia, then it follows that barrows were placed in areas where human presence was constant, both before and after the construction of barrows.

Other elements indicating human presence are rare. As far as we know, most barrows were not built in close proximity to settlements (Bourgeois and Arnoldussen 2006; Bourgeois and Fontijn 2008; Arnoldussen 2008, 437-441). Of all barrows recorded in our database, only a marginal number has evidence for elements associated with settlements (house-plans, discarded pottery and flint, postholes and pits; Table 8.2). This, in and of itself, is not so surprising as evidence for settlements is elusive for both the Late Neolithic and the first half of the Middle Bronze Age (Drenth, *et al.* 2008; Arnoldussen 2008; Arnoldussen and Fontijn 2007).

Evidence for arable fields close to the barrows is equally elusive. Pollen of cereals have been found underneath 38 barrows (42%), though most of these consist of percentages lower than 1% (in most cases no more than one or two pollen of cereal, Doorenbosch in prep.). It is however unclear whether or not this then represents agricultural fields in the direct vicinity. Unequivocal evidence for agriculture (through plough marks) has been found underneath five barrows (Table 8.3). Presumed arable layers have been found under several other barrows although the interpretation of these is debatable (see Fokkens, *et al.* 2009, 103-105). Especially older claims of arable land are difficult to verify.

Both the lack of evidence for settlements as well as the low evidence for agriculture would suggest that barrows were built some distance away from settlements. Yet this is not away from human activity as the heaths themselves represent an important economic zone. If we accept they were maintained by grazing herds of cattle or sheep, then these heathlands will have been fully incorporated in the activities of the living. It would have been a place where people wandered through with their herds.

Sitename	Barrow ID	Primary mound construction	Remarks	Literature
Hijken Hooghalen Tumulus 5	465	MBA	Plough-marks underneath the mound	Lanting and Van der Veen 1991
Hijken Hooghalen Tumulus 6	466	MBA	Plough-marks underneath the extent of the primary mound	Lanting and Van der Veen 1991
Gasteren Tumulus nr. 14	504	LN B or EBA	Plough-marks underneath the mound	Lanting 1973
Eext 't Witzand	535	EBA	Plough-marks underneath the extent of the primary mound	Jager 1985
Oostwoud Tumulus 2	.	LN B or EBA	Plough-marks underneath the mound and in a later phase around it	Lanting and Van der Plicht 2001

Table 8.3: Evidence of arable land underneath or in the immediate vicinity of burial mounds.

These observations are in accordance with Danish data on SGC barrows (Andersen 1994-1995; Kristiansen 1998, 282). The heathland found under their SGC barrows is interpreted in terms of pasture, while for later periods the importance of heathland is also recognised in Southern England (Bradley and Fraser 2010; Fleming 1971) and Belgium (Bourgeois 1995). Especially the symbolic role of heathland as pasture during the Bronze Age has been emphasised by Kristiansen and Larsson (Kristiansen and Larsson 2005, 226, 242; see Hannon, *et al.* 2008 for a similar view).

I have now tried to set the stage in which barrows were built. The evidence suggests most if not all barrows were built on heath, usually some distance away from any form of settlement.[47] The heathlands were already present long before barrows were built, and it is highly likely that they were in use as pastures. The consequence is then that burial activities predominantly took place on heathland. Every few years prehistoric communities created visual symbols on extensive and managed heathlands. Each new mound was purposefully fitted into the wider landscape. The relentless repetition and short bursts of construction activity created complex relational barrow landscapes.

8.5 Barrow landscapes in the Low Countries

What are then the characteristics of barrow landscapes in the Low Countries and what are the patterns in which these barrows were fitted into the landscape? I will first present a short summary of the observations made in the case studies in Chapter 5 and attempt to place them in a wider context.

8.5.1 Late Neolithic A

Typical for the Late Neolithic A, is that most of the barrows are placed in long alignments. In the three case studies on the Veluwe, a minimum of three to four alignments have been identified (Fig. 8.3). Each alignment consists of at least six barrows, over a minimum distance of 1 to 1,5 km. These distances should be considered an absolute minimum as taphonomical processes and unexcavated barrows on the same alignment could easily have extended them beyond 2 to 3 km. Large scale heath reclamation and afforestation programmes as well as agriculture and urbanization have all destroyed barrows, reducing the alignments to a large extent (see Chapter 4). It is therefore rather surprising that any of these alignments are recognisable at all (*cf.* Løvschal in press., p.8)!

47 It is important to realize that this reconstruction is only valid for burial mounds on the Pleistocene sandy soils, the situation in the Holocene region was probably very different.

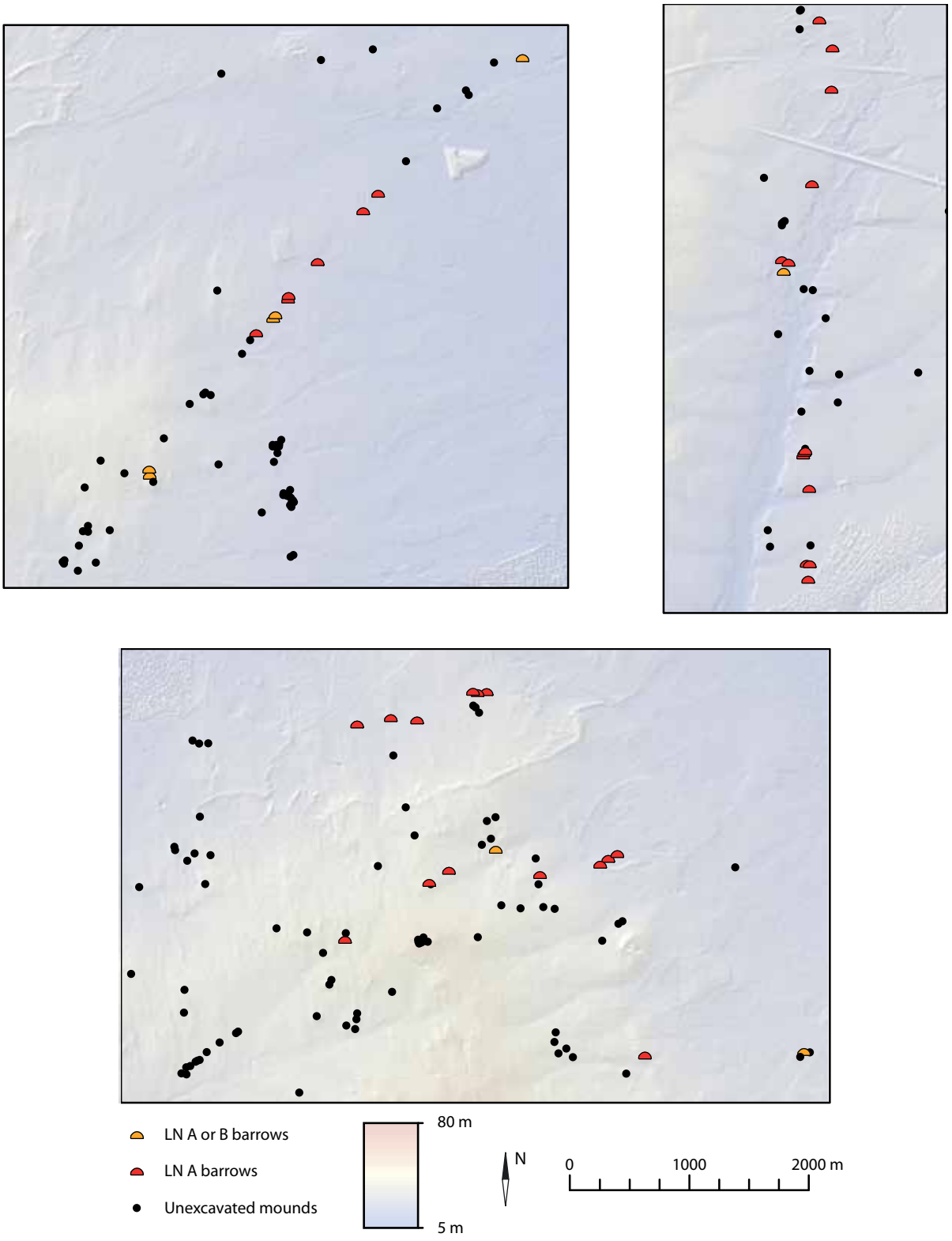


Fig. 8.3: Overview of all Late Neolithic A alignments in the research areas on the Veluwe.

All alignments share the same characteristics. There is a regularity and order in the placement of each individual barrow. Firstly barrows are placed singly, in pairs and in a few rare cases in triples.[48] The similarity between some twin barrows suggests they are built within a short time of one another (*e.g.* the Ermelo case).

48 In pairs and triples is defined as all within 100 m of one another.

Secondly the closest neighbouring barrow(s) are then built a few hundred metres away. The distance between each barrow is fairly regular, and is repeated along the alignment. For instance, the distance between the barrows with ascertained locations on the Epe-Niersen alignment is approximately 400 m from one another. Thirdly, each new barrow is placed along one single axis. For the Epe-Niersen alignment this axis is a straight line with at least four barrows being placed exactly on that axis. For the Renkum and especially the Ermelo alignments this axis is less strictly defined and they keep to a general North-South and East West orientation respectively.

Next to these alignments, isolated barrows can be found. Especially in the Epe-Niersen case study, at least six barrows are placed around the dry valley without direct evidence for contemporaneous alignments. It should be mentioned though that Bakker includes at least three of these in additional alignments (Bakker 2008). Indeed, if we include the many unexcavated barrows in the analysis, they do seem to be placed along other alignments, although it is impossible to date these (see Chapter 5). While it does not seem to be the case that *all* Late Neolithic A barrows were placed on alignments, the majority certainly were.

Barrow alignments are certainly not isolated to the Veluwe and they were part of a wider phenomenon typical for the early 3rd Millennium BC. In Drenthe a long 'barrow road' is found along the *Hondsrug* (Jager 1985; Bakker 1976) with most of the barrows dating to the Late Neolithic A. Recently it has been suggested that at Angelslo-Emmerhout a similar alignment may be found (Arnoldussen and Scheele 2011). Especially in Denmark, long alignments of Corded Ware burial mounds have been recognised early on (Müller 1904; Mathiassen 1948; Johansen, *et al.* 2004, 37; Johannsen and Laursen 2010). Shorter alignments are also known from southern England, although these seem to date slightly later to the Bell Beaker phase (Lawson 2007, 152-153).

8.5.2 Late Neolithic B

On the level of the individual barrow in the Late Neolithic B, the characteristics of how a barrow is placed within the landscape is very similar to the Late Neolithic A. Barrows occur singly, in pairs and in a few rare cases in triples. Once again similarities between burial practices certainly suggest little time occurred between the construction of these mounds (*e.g.* Ermelo Tumuli 356-358 and Vaassen, see above).

The practice of building on an alignment is sporadically continued in the Bell Beaker period. Both the Epe-Niersen and the Renkum alignment are extended and added upon in the Late Neolithic B (see Chapter 5).

Yet the placement of barrows within the wider landscape is entirely different. This difference can best be illustrated through the Renkum case study. While a few new barrows are placed on the older barrow alignment, most are built far away from it. Indeed it can be said that if almost all of the Late Neolithic A barrows were added to a singular larger structure, most Late Neolithic B barrows are built well away from one another. As already mentioned for the Renkum case in Chapter 5, the 13 Late Neolithic A barrows were placed in a relatively restricted area of 3 km^2. The 12 Late Neolithic B barrows on the contrary are distributed over an area of approximately 20 - 25 km^2. This contrast is even more dramatic if we include all barrows of the Ede-Wageningen ice-pushed ridge (Fig. 8.4).

Both the adherence to the alignments as well as the expansion into new areas are also seen in the Epe-Niersen and Ermelo case studies. In areas where no alignments are present – and no earlier barrows for that matter, such as the Southern Netherlands – Late Neolithic B barrows are built far from one another. The burial

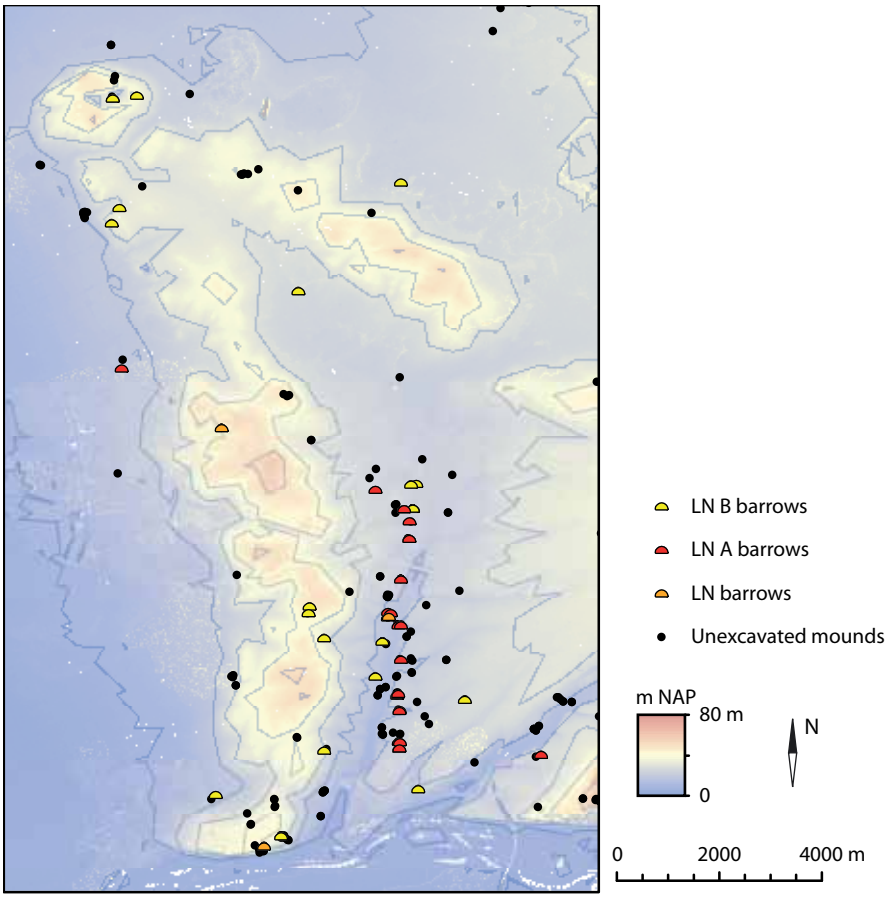


Fig. 8.4: All Neolithic barrows in the wider Renkum stream valley (including the Ede-Lunteren barrows to the North-West).

mounds of Schaijk, Oss Vorstengrafdonk, Meerlo and Mol are all isolated and solitary burial monuments (Van Giffen 1949a; Bursch 1937; Verwers 1964; Beex and Roosens 1962). Even though some of these mounds develop into focal points for later additions, as far as we now, no contemporaneous barrows were built in their immediate vicinity. This practice originated in the Late Neolithic A, with a few barrows associated with AOO pottery, already having been built in apparent isolation (*e.g.* Bergeijk Witrijt, Beex 1957; Baexem and Millert, Hulst, *et al.* 1973).

So in essence, new Bell Beaker barrows are built far apart from one another resulting in a diffuse pattern. Especially where no older barrows are present, new mounds are built in groups of up to three with the next closest barrows at least several hundred metres away.

8.5.3 The Early Bronze Age intermezzo

The low numbers of barrows constructed during this period make it difficult to understand the Early Bronze Age barrow landscape. The alignments of the Late Neolithic are in some cases respected and still added upon. Both at Epe-Niersen and Ermelo, there are indications of reuse for some older mounds but possibly also of new barrows being constructed. While they keep revering past barrows, the construction of a new barrow does seem to be a rare event, perhaps restricted to only once every generation or even less.

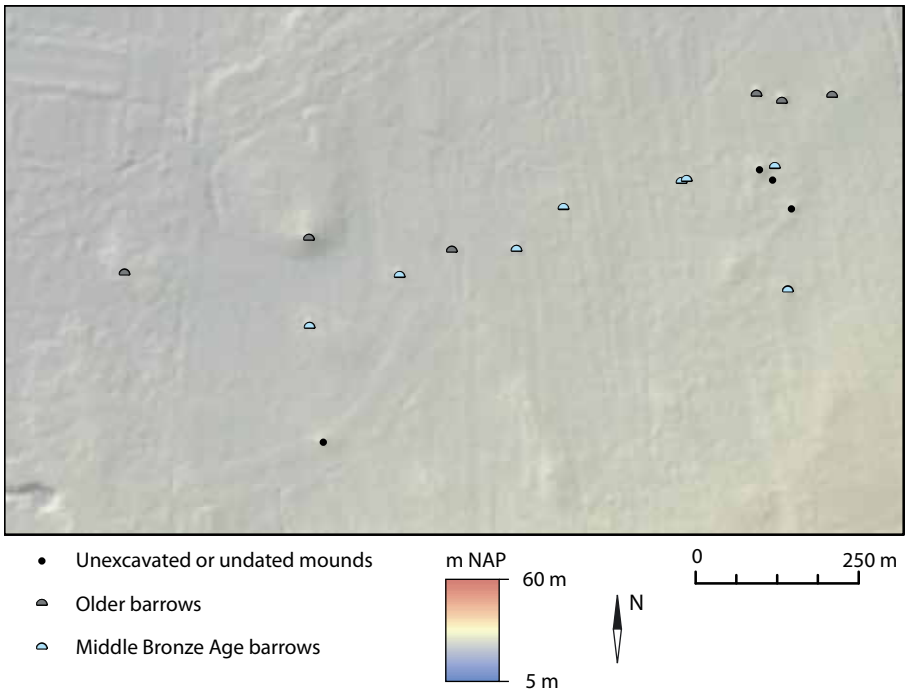


Fig. 8.5: Detail of the northern alignment in the Ermelo research area. The Middle Bronze Age barrows are placed amongst and in-between the Neolithic mounds.

8.5.4 Middle Bronze Age

As we have seen in Chapter 7, the Bronze Age attitude towards barrow landscapes is significantly different than during the previous periods. Whereas in the Late Neolithic barrows were built singly, in pairs or in triples, during the Middle Bronze Age barrows are built in much closer proximity of one another. Clusters of more than 3 barrows within 100 m of one another are now very common. In terms of frequency of barrow construction however, not much seems to change.

Where older barrows are present, the presence of those older barrows seems to be acknowledged. The new barrows are constructed in recognition of the older structures. At Ermelo, Bronze Age barrows are built along the same axis of the northern Late Neolithic alignment (Fig. 8.5). For both Renkum and the Epe-Niersen alignments, the reaction and additions of new barrows is less clear, although some new barrows have certainly been built amongst the Neolithic barrows (*e.g.* barrow 4518).

Even though they respect the older alignments, and in rare cases copy them, the larger alignments seem to have been abandoned. The general distribution of Bronze Age barrows is much more dispersed and similar to the Late Neolithic B. The Toterfout case, as a Bronze Age barrow landscape par excellence, illustrates this diffuse distribution nicely. Almost every part of the cover sand ridges encircling the swamps and lakes of the *Postelse Weijer* are dotted with barrows. Construction of new barrows does not seem to be limited to any pre-built structures but rather confined to the heathlands in general. They cluster in some areas, though without forming any clear cut patterns or (long) lines. The distribution seems indiscriminate and almost wilfully dispersed.

Nevertheless shorter alignments of barrows are known. One alignment of four barrows at Toterfout is ca. 100 m from beginning to start. Each barrow is placed no more than 10 – 20 m from the other. A slightly longer alignment is known at Goirle, where 6 barrows, all dating to the Middle Bronze Age are placed in one line over a length of no more than 400 m (Van Giffen 1937a; see Fig. 2.1). There are several more examples of such short alignments for the Bronze Age (*e.g.* Oss-Zevenbergen, Fokkens, *et al.* 2009, 210-211; Epe-Rendierklippen, Bursch 1933a, 63-69; Oedelem-Wulfsberge, Cherretté and Bourgeois 2003).

Such short alignments are well known from England in the Early Bronze Age (Bradley 2007, 164-165), and especially around Stonehenge such rows are common (*e.g.* The Old an New Kings barrow groups, Lawson 2007; The Normanton Down group, Needham, *et al.* 2010).

8.6 Understanding barrow landscapes

In essence there are two major types of barrow landscapes. On the one hand the structured barrow landscapes of the Late Neolithic A, with alignments and lines in the landscape. On the other hand, the more ephemeral and difficult to understand dispersed barrow groups of both the Late Neolithic B and the Middle Bronze Age. While structures such as small alignments are certainly present in the latter, they are much more limited in scale and do not extend beyond a few hundred metres.

8.6.1 Barrow Lines

Barrow alignments are typical features of the Late Neolithic A, not only in the Low Countries but also beyond. Especially in Denmark, long alignments of barrows certainly start in the Late Neolithic (Hübner 2005, Beilage 2.1; Johannsen and Laursen 2010, 39; Geschwinde 2012).

Firstly, the linearity and regularity of the alignments suggests they may be orientated towards something. For example, it has been suggested for the Epe-Niersen alignment that it is orientated exactly on the midwinter sunset or the midsummer sunrise (by Garwood as quoted in Bakker 2008, p.282). An alternative orientation on the southernmost moonset or the northernmost moonrise has been suggested for this alignment as well (idem.; Van Baarle 2009, 79-83; Fig. 8.6).[49]

The second hypothesis can be shown to be false. The position of the southernmost major lunar standstill in this region occurred at approximately 214˚. The earliest phase of the alignment is orientated at 221˚, several degrees to the west of the lunar standstill. Furthermore, if we take into account the influence the horizon and the vegetation had on the moonset, the moon would have set even more to the east, at around 211 or 212˚, a difference of almost 10˚.

The first hypothesis is more suggestive. The midwinter sunset in this region occurred at 228-229˚, while the axis of the alignment is orientated at 221˚. If we take into account the influence of the horizon and the vegetation at the time, the sun would have set at approximately 225˚ during the midwinter solstice. With a difference of only 4 degrees, and the sun itself already being half a degree in size, the alignment and the midwinter sunset almost align.

Whether or not this was significant in the positioning of these barrows is left open to discussion. Whatever the case may be, it is only valid for the earliest phase of the Epe-Niersen alignment and not for any of the other alignments on the Veluwe, which are all orientated differently. This suggests that an orientation on celestial bodies was not the primary reason why an alignment is orientated towards a certain point.

The most common, and perhaps practical, explanation for these alignments is that they are assumed to indicate road patterns and communication routes (Müller 1904; Mathiassen 1948; Bakker 1976; Bakker 2008; Klok 1982; Holst, *et al.* 2001; Johansen, *et al.* 2004; Johannsen and Laursen 2010 and Løvschal in press.).

---

49 All sunsets and sunrises as well as the southernmost positions of the moon for the period around 2550 cal BC were calculated with the help of NASA's Horizons integrator (http://ssd.jpl.nasa.gov/horizons.cgi). The influence of the horizons and vegetation was calculated with the help of ArcMap 10. For each sunset and moonset the atmospheric refraction was also accounted for. I would like to thank dr. M. Langbroek for his extensive help with the calculations!

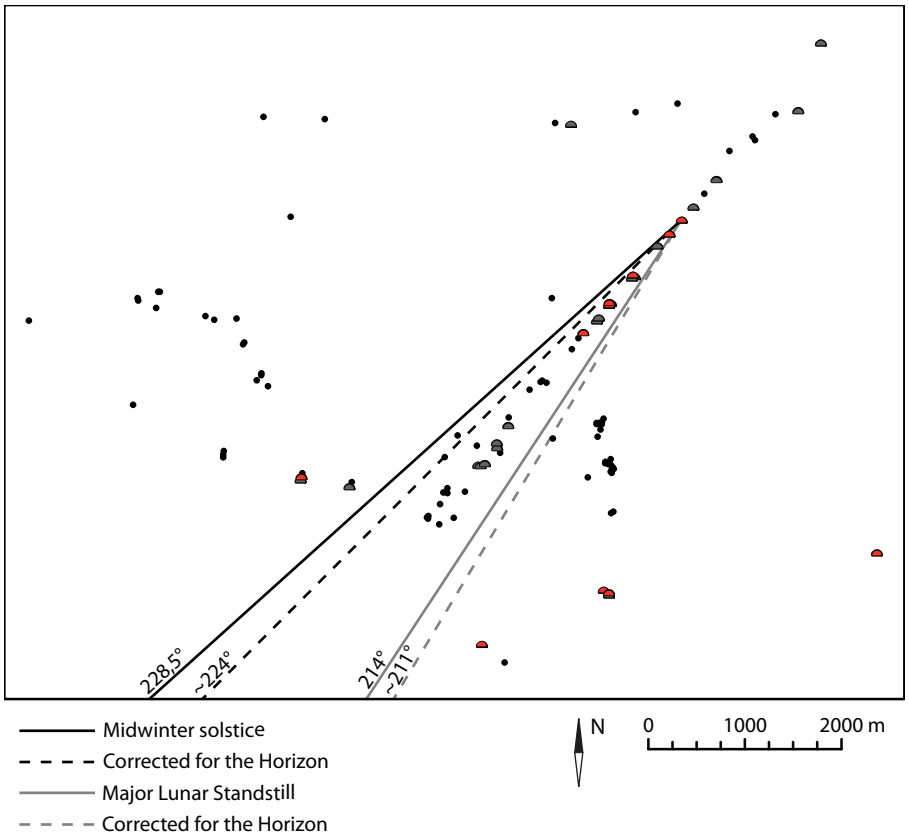


Fig. 8.6: The Epe-Niersen alignment and the axis of the midwinter solstice and the major lunar standstill (solid line). The dashed line indicates its approximate position depending on the horizon.

The discussion whether or not these barrows indicate roads is certainly a difficult one and in most cases several arguments in favour and against can be put forward (Thrane 1998, 273-274). The Epe-Niersen alignment, while (almost) orientated on the midwinter sunset,[50] is also directed towards the smallest crossing point of a stream valley to the north and perhaps a similar situation to the south. And even on the present day heath, cart tracks can be seen along the axis of the alignment (though they split up when reaching barrows). Certainly some of the cart tracks in the Epe-Niersen region are prehistoric in origin (*i.e.* older than parts of a Celtic Field, Brongers 1976, 58).

Yet the discussion of whether or not we are dealing with roads misses the point of why barrows were built in long alignments alongside a presumed road. Roads have been evidenced in urnfields on multiple occasions (Kooi 1979), yet none of these urnfields extend along the entire road. Furthermore roads and routes of travel are also known from earlier prehistoric societies (*e.g.* Bakker, *et al.* 1999, 783-784; Johannsen and Laursen 2010).

Rather the point is that during the Late Neolithic A communities erected monumental symbols of death and burial at specific intervals and along a single axis thus creating singular large man made structures. The resulting effect of the barrow lines is then to create a linear experience where movement along that line stands central and the succession and accumulation of barrows becomes important (*cf.* Løvschal in press.).

The dominating organizational structures of the Late Neolithic A barrow landscapes were thus ultimately about controlling movement. Indeed in most cases it will not have been possible, to perceive and see the entire alignment whilst standing on ground-level.[51] In this respect it is interesting to note that all articles

50 For some British examples see Garwood 2007, 41.
51 Or at least distinguish each individual barrow! See Chapter 6, p.130.

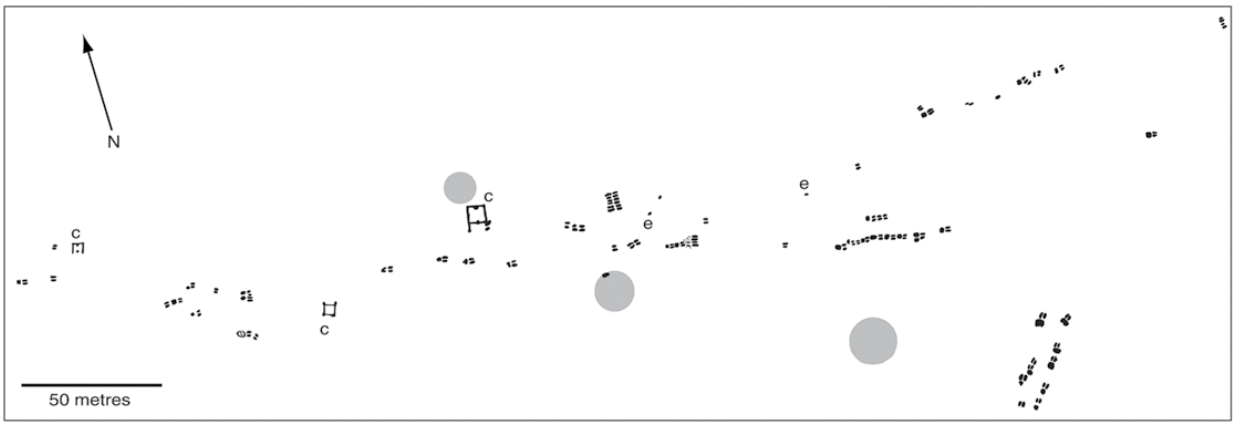


Fig. 8.7: The stone-heap graves of the Herrup stone heap grave cemetery, (after Johansen and Laursen, 2010, fig. 10).

discussing barrow alignments use maps or aerial photographs to demonstrate the linearity (even this one)! Rather, the linearity of the alignment can only be experienced by walking along its length (see Chapter 6, *cf.* Løvschal in press., 14). Each new barrow built on that alignment reiterates and reifies the linear experience and becomes an anchor point guiding people along the entire axis.

When walking along the alignment, each barrow, placed at specific intervals, induces a certain reaction and recognition of what the mound stands for – *i.e.* the presence of past generations. Movement along that axis is framed by death. Whether or not they are located alongside a functioning road system or not, these alignments become a sacral landscape. People are walking along with the dead and along with genealogical and mythical histories of these dead (*cf.* Gosden and Lock 1998). As the alignment grows, each new barrow is placed within this fully semiotic landscape.

The lines of barrows reflect a direct concern with linearity and movement through the landscape which was typical for the early 3rd Millennium BC both in and beyond the Low Countries. To emphasise the role and social importance of movement during that period, we can turn to the slightly earlier stone heap graves of Jutland that have many similarities to the Single Grave Culture alignments. These graves usually consisted of one rectangular pit and two parallel oblong pits. The rectangular pit probably contained a wagon and a burial, while the oblong pits contained remains of a team of oxen (Johannsen and Laursen 2010). The pits were then covered in a heap of stones forming a small mound. The stone heap graves were placed in long alignments, in some cases extending as much as 1,2 to 1,7 km (Fig. 8.7; Fabricius 1996, 22; Johannsen and Laursen 2010, 33). Indeed, the chronologically later barrow alignments in these areas often followed the same axis as these stone heap graves (Johannsen and Laursen 2010, 39). The link between movement (the wagon and oxen pairs) and a specific direction (the common orientation of the graves) is explicit here (*ibid.*, 44).

While the stone heap graves represent a chronologically and geographically limited phenomenon (they only occurred on Jutland between 3100 and 2800 cal BC, *ibid.*), the praxis displays strong similarities with SGC alignments both in Denmark and beyond.

For the Low Countries, no such types of graves are known though the concern with both movement and linearity are widely evidenced for the slightly later SGC. It is for instance tantalizing, that multiple disc-wheels were deposited in the swamps of the Northern Netherlands during the same period that the alignments were built (Van der Waals 1964). Radiocarbon dates place these wheels unequivocally in the Late Neolithic A (Lanting and Van der Plicht 2001, 95-96). Equally

cattle seem to have taken up a special position in the grave ritual of the Low Countries (see Wentink in prep.). As such it is worth noting that in one of the graves on the Epe-Niersen alignment the skull of a cow was found (barrow 308). A discussion on the role of both cattle and wagons in the late 4th and early 3rd Millennium BC is beyond the scope of this thesis. Suffice to say that they both took up a central role in the burial ritual of the earliest barrow building communities (*e.g.* Ecsedy 1979; Sherratt 1981; 1997; Pollex 1999; Tureckij 2004; Anthony 2007; Towers, *et al.* 2010, 509-510) and reveal a deeply rooted concern with movement and linearity (*e.g.* Harrison and Heyd 2007, 135) in association with burial rituals.

Movement along the alignment was fixed at specific intervals with mortuary symbols which would seem to indicate that framing of movement with death was a central theme in the construction of the individual monuments. The defining elements were therefore the construction of the alignment and a mounds position within it (*cf.* Bender 1992, 748; Bender 1999, 39; Kuchler 1987) and this was not necessarily tied to the person buried underneath it. As far as we can tell there seems to have been no correlation between who was buried underneath a barrow or which grave goods accompanied them and their position on the alignment. If we take the Epe-Niersen alignment as an example, not one of the Late Neolithic A graves was identical. Even the fragmentary excavations by Holwerda reveal a diversity of burial practices. One barrow is associated with a fragment of a GP dagger, one covered the grave of a sitting individual, one is associated with a flint axe and a semi-flexed inhumation, another with the head of a cow, a GP dagger and two beakers while two barrows may not have covered a grave but are associated with sherds of AOO pottery (see p.59). For both Renkum and Ermelo no significant correlation can be discerned either. Heterogeneity would appear to have been a feature of the burial ritual on the alignments.

Yet on the other hand, the outward form of most barrows was very much alike. As far as we can tell (based on the better excavated examples) all were surrounded by a palisaded ditch and were of relative similar size. While the symbology employed in the grave ritual was diverse and flexible, the outward and visible symbol is identical, unchanging and fixed (*cf.* Rowlands 1993).

So when walking along an alignment, be it on a road or otherwise, one would encounter a monotonous succession of barrows. Visually all these burial monuments were alike, a strong suggestion that even though the grave ritual was heterogeneous and differentiated, the outward expression was not. And even though a mounded burial was likely reserved for only a few, in a sense they were all alike in death.

The visual effect of the alignments has already been explored in depth in Chapter 6. It was argued that even though the outward expression of each individual barrow was alike (*i.e.* they create a place more visible than others), some were visible from greater distances than others. Furthermore, each alignment guided visibility and thus movement along a specific axis. And especially specific barrows visible from great distances would have formed focal points towards which movement was orientated.

This can be demonstrated by the Epe-Niersen alignment where the barrows on the southern-end of the alignment crest the horizon along the entire length of the alignment creating a sense of directionality (see p.154-155). A skyline analysis places them invariably on the horizon when standing on top of each mound of the alignment. This manipulation of visibility and its combination with movement can also be seen in both the Ermelo and Renkum case.

The alignments were thus ultimately about movement along an axis. Whether or not this axis was then a road is a moot point. The intention was to create a succession of mortuary symbols when passing from one point to another.

8.6.2 Dispersed barrow groups

The second type of barrow landscape can be characterized by a seeming lack of organisation and an almost random distribution. These barrows rarely nucleate and are spread out over large distances. This situation is valid for both the Late Neolithic B and the Middle Bronze Age.

This almost unbounded type of distribution can be seen among the Late Neolithic B barrows on the ice-pushed ridge of Ede-Wageningen but equally among the Middle Bronze Age barrows on the cover sand ridges of the Toterfout barrow groups. While small scale structures such as small alignments did occur, in particular during the Bronze Age, they are never placed within a larger encompassing whole. Barrow construction departs from the larger alignments (although not abandoning them completely), and most new barrows are built far from them.

The dispersed nature of barrow distribution can not only be observed in the Low Countries. Dispersed barrow groups have also been recognised in England, Denmark and Germany (*e.g.* Ashbee 1960, 34; Woodward 2000, 80-85; Garwood 2007, 45; Løvschal in press.; Geschwinde 2000; Johansen, *et al.* 2004, 36). It has been argued that the dispersed nature of the barrows is difficult to understand and may conceal clustering on a smaller level (*e.g.* Woodward and Woodward 1996, 277). I would rather argue that the dispersed nature of the barrow landscape is not so much as a consequence of loose settlement organisation (*e.g.* Gerritsen 2003, 235), or a lack of a dominating social structure (*e.g.* Garwood 2007, 45-46), but rather that it was a fundamental feature of the Late Neolithic B and Bronze Age barrow landscape (*cf.* Fontijn 2011, 437).

In the same light it is difficult not to see these expansions as colonization phases into new lands (*e.g.* Modderman 1962-1963, 11-12; Garwood 2007, 45-46). However, these expansion are not necessarily related to an expansion of heathland. The evidence only suggests that heath was already present when the earliest Bell Beaker barrows were built and that it was fully developed prior to the mound construction. The heath may have been present for centuries or only a few decades. Indeed, the heath may have been established in the Late Neolithic A. It is therefore not possible to correlate the expansion of barrows into new areas to the expansion of heath in those regions.

Instead I would argue that it is part of a shift in attitude towards the landscape. Whereas people in the Late Neolithic A deliberately placed each new barrow as part of a larger structure, in the Late Neolithic B and Middle Bronze Age, each barrow is almost wilfully dispersed. Especially in areas where no larger alignments are present the distribution of barrows appears to have beenlimited only by the presence of heath and not by a larger structuring principle.

This shift in attitude is supported by how barrows were reused in the Middle Bronze Age. We have already seen in Chapter 7 that reuse in that period was extended to all barrows on the heaths. Likewise the construction of a barrow was confined only to a specific part of the landscape, the heathland. Barrows were not built in the places where people lived, nor where they farmed. Rather they were built in pastures and heathlands. This was the place where the dead 'ought to be buried'.

It would be wrong however to characterise this use of the landscape as unstructured or loosely organised (see for example Gerritsen 2003, 235-237). There is clear evidence that the specific positioning of each individual barrow on these

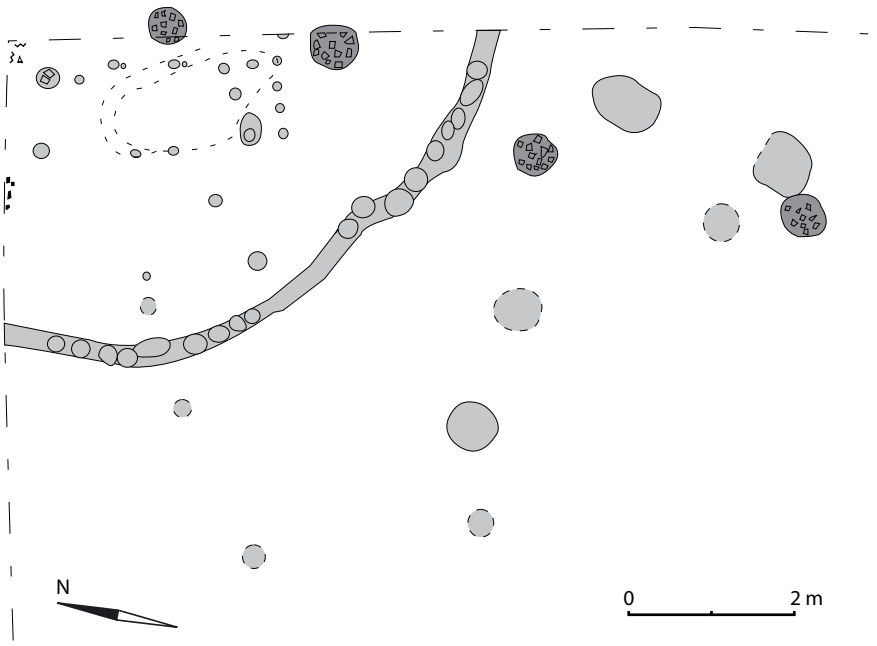


Fig. 8.8: Preliminary excavation plan of barrow 1 at the Wiesselse Weg (municipality of Apeldoorn). The row of pits with burnt stones is indicated with the dark shading; light grey are other features. A fifth pit was discovered 50 m to the south. Extensive plough damage has destroyed several of the pits lying in-between (as testified by several fragments of burnt stones in the plough-marks).

heaths was governed by a pre-conceived idea of what goes where. This is made explicit through the use of post-circles at the Toterfout barrow group. The differences between the two types of post circles suggests two groups were actively constructing two entirely different types of burial monuments (see Chapter 5; Bourgeois and Fontijn 2012). Even though it is impossible to say whether or not they represent two contemporaneous groups, the distance in time between them will not have been more than a century. The opposition may have been governed by a division between two different clans, or perhaps two different households. Another option is that the division is based on sex (although the evidence for this is rather meagre; *cf.* Theunissen 1993; Bourgeois and Fontijn 2012). Either way, two (or more) communities expressed their presence in the landscape in a fundamentally different way.

Evidence of the structuring of space beyond the barrow is limited. Nevertheless, the few barrow excavations that extend beyond the foot of the mound reveal a complex set of practices all related to the burial monuments. The deposition of potbeakers and Barbed Wire Beakers at the foot of the mound has already been touched upon in Chapter 5. To this set of practices the rows of 'cooking' pits of the Wiesselse Weg excavations can be added (Fontijn and Louwen in prep.; Fig. 8.8). Here a row of at least six pits filled with burnt stones and burnt loam were aligned towards the centre of a Neolithic barrow. In one of the pits a fragment of a reworked amber spacer plate was uncovered and a radiocarbon date places the pits in the early half of the Middle Bronze Age (3285±40BP; calibrated between 1680 and 1450 cal BC at the 2σ range). The digging of the pits is contemporaneous with the building of two barrows to the north as well as the placement of multiple secondary graves in them (see Chapter 5).

Occasionally post alignments have been uncovered beyond the extent of the mound itself, guiding people towards the mound and dictating how people ought to approach the barrow. Contemporaneity between such alignments of posts and burial monuments is very difficult to prove (see for example the extensive discussion on the alignments of the Oss Zevenbergen barrow complex, Fokkens, *et al.* 2009, 136-139). Nevertheless in several cases highly compelling evidence suggests

they were (notably Van Giffen 1949b). Similar post and pit-alignments have been uncovered in both Denmark and Germany (*e.g.* Wilhelmi 1986; Hübner 2005, 495; Freudenberg 2012).

These post settings and other practices, criss-crossing the landscape, indicate that these barrows were not randomly placed or that they were just following the wandering settlements (see Chapter 2). While the individual placing was confined to the very general concept of heathland, each barrow took a very specific role within these heaths. How each barrow was meant to be seen as well as approached was fully controlled.

8.7 Conclusion

It can be argued that the barrow landscape as we now know it developed in two distinct phases. The first phase with the lines and alignments of the Late Neolithic A. These were the earliest structures to be laid out in the landscape. The linearity and perhaps their association with roads and cattle suggest a concern with movement and structuring this movement within the landscape.

The second phase in the formation of the barrow landscape sets in as early as the Late Neolithic B. Here, the alignments of the Late Neolithic A were gradually abandoned (although never fully) and barrows became much more dispersed throughout the landscape. This dispersal was continued into the Middle Bronze Age and it is then that the full extent of the barrow landscape was reached. Afterwards, additions to the barrow landscape became much more localised.

In both Chapter 7 and 8 I discussed the patterns behind the formation of the barrow landscape. I have demonstrated how the barrow landscape came into being through several distinct activity phases. It was created in the Late Neolithic A, and added upon throughout the centuries. And I have argued in Chapter 7, how during the Middle Bronze Age, the entire barrow landscape was reworked. Yet we are now left with the question of how we should understand its development on a human scale. This will be the focus of the next and last Chapter.

Chapter 9

The formation of the barrow landscape

9.1 Introduction

In both Chapters 7 and 8 I discussed the intricate patterns in the formation processes and reuse of the barrow landscape. Yet both reuse and new barrow constructing took place at the same time, and the question is then what processes lay at the basis of these patterns. How did the barrow landscape form around, at times ancient monuments? And how did, for example, the long alignments come about? But especially, why was a barrow placed in a specific place and not in another? What governed these choices?

In the previous Chapters I approached the barrow landscape from a distant perspective, detached from the human scale, both in a temporal and a geographical sense. In this Chapter I will attempt to contextualize the barrow landscape on a human level. The first implication when dealing with a human level is the vast time-depth of the barrow landscape.

9.2 The time-depth of the barrow landscape and its implications

The barrow landscape can be characterised as a very stable element of prehistoric society. Throughout several millennia the praxis of mounded burial never disappeared fully and time and again earthen mounds were erected over burials. Yet the constituent elements of these mounds each have their own distinct temporality. The shape and the form of each mound as well as the burial it covered will have been distinctly different in specific periods as opposed to others. Because of these differences we have little difficulty recognising a Bronze Age barrow from a Neolithic one.

We now assume several three to four hundred year periods of intense barrow construction took place (see Fig. 3.6). These are usually viewed as monolithic blocks of consecutive mound building which display differing and distinct practices. They allow us to differentiate between activity phases and parts of the barrow landscapes which formed during specific periods.

The long alignments, for example, are typical for the Late Neolithic A. They are certainly extended upon in later periods, yet they all originate in that period. Through lack of a detailed chronological time-frame, most Late Neolithic A barrows are now grouped together in periods of 400 years and we see the emergence of the alignment as one single event. The same applies to Late Neolithic B and Middle Bronze Age barrows.

There are two important points we need to consider in regards to these monolithic blocks. The first point is that these blocks in all likelihood represent several intermittent periods of barrow construction. There are strong indications that within any given region, multiple barrows were built in quick succession (perhaps even in a single year), only to be followed by decades of inactivity before a new construction phase took place (see Chapter 8). At this point the lack of a detailed

chronology cannot provide a clear answer. It is only with techniques such as dendrochronology that these short activity periods can be evidenced (*cf.* Holst, *et al.* 2001, 131-132).

But we should not lose sight of the limitations of our chronological resolution nor of the implications these entail. This brings me to the second point, namely that the best temporal resolution already extends over the actions of many successive generations. A period of 200 years - the best resolution we can usually achieve through radiocarbon dating - in human terms already represents eight to ten successive generations.

The implications are two-fold. On the one hand, we assume contemporaneity between barrows which were in all likelihood separated by significant amounts of time and multiple generations. On the other hand, the significant time-span in-between suggests that at any point in time, knowledge of who lay buried where, and what actions were carried out at which barrow will have been imperfect at best.

As etnographic research has consistently demonstrated, in societies with an oral history, accurate historical knowledge extends back to at the most four generations (ca. 80-100 years, Erll 2011; Assmann 1992, 50; Vansina 1985, 182-184; Bradley 2003, 221). Beyond four generations, knowledge becomes unstable and we enter the realm of the mythical past. Genealogical lists extending beyond these four generations are known, but these are simplified and increasingly inaccurate. In-between the historical and the mythical past lies a *floating gap* which migrates along with each successive generation (Assmann 1992, 48; Vansina 1985, 192-193).

To illustrate both points we can turn to the Toterfout barrow group (Fig. 9.1). Each of the 34 barrows excavated by Glasbergen represents a discrete event, carried out at a specific point in time. On the basis of radiocarbon dates and typochronological evidence we can distinguish between an earlier and a younger group, although the boundaries between the two are fluid (see Chapter 5). The distance in time between barrows of both groups is considerable and in most cases extends over at least a century.

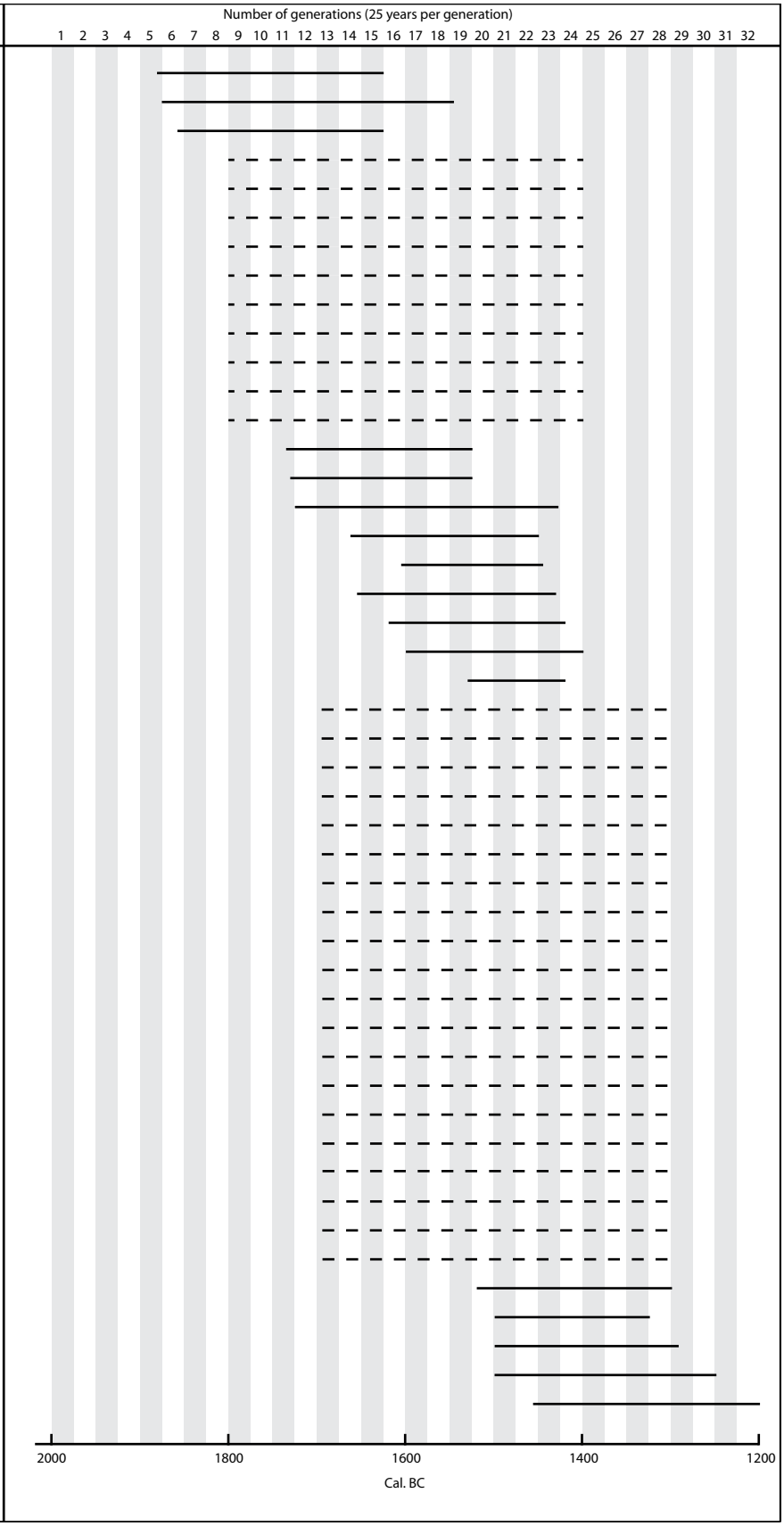
But even between apparent contemporaneous barrows, there is a significant possibility that the earliest barrow was decades if not centuries older than the others. Let us, for the sake of argument, consider both Tumulus 4 and 14 of Toterfout (barrows nr. 646 and 23), the two oldest barrows in the region. On the basis of calibrated radiocarbon dates they are assumed to be roughly contemporaneous. Yet the former may well have been built in, say, 1824 BC and the latter in 1658 BC. In human terms, this is already beyond the limits of genealogical history.

Even if we do assume contemporaneity between some barrows on the basis of similarities in burial practices, most of the barrows already built will have been part of a distant past. The centuries in-between these suggests that precise knowledge of who lay buried where was flawed if it had not already disappeared completely.

These points may seem self-evident yet they illustrate how at every possible moment in time, the role of memory in the transmission of knowledge and the constant reinterpretation of that knowledge were central to the development of the barrow landscape. At the same time it puts constraints on what role direct genealogical connections will have played. I will return to these implications below.

Fig. 9.1 (opposite page): Dating ranges of all primary barrows in the Toterfout region. The grey and white bands indicate each individual generation. The solid black lines indicate radiocarbon dated barrows, the interrupted lines indicate barrows dated on typochronological grounds.

Sitename	Barrow number
Toterfout Tumulus 14	23
Toterfout Tumulus 4	646
Toterfout Tumulus 1b	10
Toterfout Tumulus 1a	9
Toterfout Tumulus 6	14
Toterfout Tumulus 7	15
Toterfout Tumulus 11	20
Toterfout Tumulus 13	22
Toterfout Tumulus 20	29
Toterfout Tumulus 21	30
Toterfout Tumulus 29	39
Huismeer Heuvel VI	131
Huismeer Heuvel VII	132
Toterfout Tumulus 3	12
Toterfout Tumulus 9	18
Toterfout Tumulus 10	19
Toterfout Tumulus 1	645
Toterfout Tumulus 5	13
Toterfout Tumulus 16	25
Toterfout Tumulus 18	27
Toterfout Tumulus 2	11
Toterfout Tumulus 19	28
Toterfout Tumulus 8A	17
Toterfout Tumulus 22	31
Toterfout Tumulus 22A	32
Toterfout Tumulus 23	33
Toterfout Tumulus 24	34
Toterfout Tumulus 25	35
Toterfout Tumulus 26	36
Toterfout Tumulus 27	37
Toterfout Tumulus 28	38
Toterfout Tumulus 30	40
Huismeer Heuvel I	126
Huismeer Heuvel II	127
Huismeer Heuvel III	128
Huismeer Heuvel IV	129
Huismeer Heuvel V	130
Knegsel Palisadeheuvel B	75
Knegsel Palisadeheuvel C	76
Knegsel Palisadeheuvel D	77
Knegsel Tumulus F	79
Vessem 'De Lillen'	97
Toterfout Tumulus 8	16
Toterfout Tumulus 17	26
Toterfout Tumulus 15	24
Toterfout Tumulus 12	21
Knegsel Tumulus E	78



9.3 The Barrow Choreography

While the outward form of the mound remained relatively stable for thousands of years, the rituals surrounding these mounds differed greatly (at least those we can see archaeologically). The complexity of the events associated with each mound suggests we should view each one of them as a fossilized choreography, with a specific set of actions determined from the onset (Goffman 1963, 19; Metcalf and Huntington 1991, 174). These actions can be separated by a significant amount of time, but they were implied from the beginning.[52]

If we take a Late Neolithic A barrow as an example – the Putten barrow (barrow nr. 409; Van Giffen, *et al.* 1971; see Fig. 6.7) – the choreography started with the digging of a grave pit, deepening the pit along its edges to create a small ditch, placing stakes within that small ditch and lining the wall with wickerwork. Once the burial chamber was ready, the body and the associated grave goods were carefully arranged within it. Perhaps after an intermittent period a palisaded ditch was erected around the grave and subsequently a barrow was erected over it. Once the mound was built, the choreography was over and the people literally moved on (see Chapter 8, p.189-190).

The barrow choreography for a Bronze Age mound was very different. A distinct set of rituals occurred prior to, during and after barrow construction. If we consider mound 1B of Toterfout (see Fig. 7.5; barrow nr. 10), the choreography started with the creation of a small four-poster construction, perhaps to support a pyre or to create a temporary shelter (Lohof 2000), or perhaps on a more symbolical level as a reference to granaries and fertility (Bradley 2005, 3-10; Fokkens, *et al.* 2009, 215-216). A large urn, with in it the cremated remains of a man, was placed amongst the remains of the pyre. A wide ringditch was then dug, encircling the grave, and the sand from the ditch was thrown inwards to form a bank. A small mound of sods was erected on the inside of this bank and on top of the pyre and the urn. Whether or not a smaller conjoining mound was constructed at the same time is unclear.

In many respects the barrow choreography during the Bronze Age (and perhaps already in the Late Neolithic B) can be said to extend beyond the initial construction of the mound. As I argued in Chapter 7, the similarity in burial practice between some secondary graves and the primary graves implies that their placing within a specific mound was already determined from the onset. In the case of mound 1B the similarity between the primary grave and four of the secondary graves is striking.

Yet as the Wiesselse Weg example demonstrates (see Fig. 7.7), the secondary activities associated with each mound were also finite. Secondary burial did not continue indefinitely and most barrows only had a few secondary graves placed within them. Once the appropriate rituals were conducted, the barrow choreography ended and a new choreography was started elsewhere.

9.4 Idiosyncratic groups

The choreographic approach to the barrow ritual reveals discrete practices which are idiosyncratic for individual regions, specific periods and groups (Bourgeois and Fontijn 2012).

---

52 Note that I do not suggest that all actions following the construction of a mound were implied from the beginning, only those actions carried out by the people building the mound. Bronze Age secondary burial in Late Neolithic A mounds was not implied by the original builders, yet when one secondary grave was placed in a mound during the Bronze Age, others were generally meant to follow (see Chapter 7).

As an example we can consider the distinct groups of post circles and their opposition on specific parts of the cover sand ridges of Toterfout (see Chapter 5 and 8). Yet this opposition is typical only for the Toterfout region. A contemporaneous barrow group 20 km to the west, at Goirle (Van Giffen 1937a), does not display such an opposition.

This idiosyncrasy can be extended to every element of the burial ritual. The way in which people constructed graves on the Ermelo heath in the Late Neolithic B, by digging massive burial pits and lining them with burnt or charred planks for instance, is uncommon outside of the Ermelo region (see Fig. 5.21).

Equally the provision of grave goods within the grave follows an idiosyncratic logic. For example on the west-flank of the ice-pushed ridge at Renkum, three of the Late Neolithic B graves contained a set of two almost identical Veluvian Bell Beakers each. Two of these graves contained amber beads as well. This practice is rare outside of this region (Wentink in prep.).

As a last example, the prevalence of mortuary houses at Toterfout is typical for that group of barrows only (accounting for approximately a third of all documented mortuary houses, Lohof 2000; Bourgeois and Fontijn 2012, 521). No mortuary houses have been found under the barrows of the *Huismeer* lake 1 km to the southeast (see Chapter 5).

Although none of these practices are exclusive to a specific region, there is a pervasive feeling of similarity and sameness between specific groups of barrows. While acting out the barrow choreography specific elements of the barrow ritual are selected and manipulated, and each group of people thus creates their own idiosyncratic version of the barrow ritual. It is this combination of elements and the entire choreography which reveals a coherence within a specific region.

This level of idiosyncrasy can also be seen in the Late Bronze Age and Early Iron Age burial ritual. Each urnfield has its own character, with some urnfields displaying a preference for iron over bronze ornaments or very specific local types of ornaments (Fontijn 2002, 206-207 and 244-246; Fontijn 2008, 92-93; see Harding 2000, 113-114 for several Danish examples).

9.5 Barrow communities

The nature of the barrow choreography and the work involved in it suggests large groups of people were involved in the construction of these mounds. The creation of massive mounds, elaborate post circles, etc. all suggest that more than the directly related took part in the creation of a barrow. At the same time the idiosyncratic nature of the choreographies indicates these groups were restricted in space and time.

These shared practices point towards the existence of a community. As I argued in Chapter 2, a community is very difficult to define (Cohen 1985, 12-13). Communities can exist on multiple levels and people can be part of several and separate communities. A community is defined by a set of shared practices, knowledge and symbols. By adhering to these practices and symbols people create insiders and outsiders, us versus them.

I would argue that the shared practices and idiosyncrasies point towards the existence of barrow communities. Groups of people who shared the knowledge on how to conduct a 'proper' burial and what steps, which choreography, this entailed. And by sharing that knowledge and the practices, people defined themselves as a community.

In this sense, Gerritsen argued for the existence of a burial community in the Late Bronze Age and Early Iron Age (Gerritsen 2003, 110-115) and Fontijn for the existence of sacrificial communities in the Middle and Late Bronze Age

(Fontijn 2002, 270-271; Fontijn 2008, 103-104). Can we, along a similar vein, identify the existence of *barrow* communities in the Late Neolithic and the Middle Bronze Age? Four arguments certainly suggest we can.

Firstly, if we consider that a barrow within any given region was built every few years, it must have been considered a special event. The fact that the construction of a barrow was a relative rare event moreover indicates that only a select few were eligible for burial under a barrow (see Chapter 2 and 8, Lohof 1994, 113; Wentink in prep.). The barrow burial ritual was thus the burial ritual for a restricted group of people, a selection from prehistoric society.

Secondly, the semiotic nature of the burial ritual – through the creation of a mound, with its elaborate post circles and other elements meant to be seen – indicates that people beyond those directly participating were involved.

Thirdly, by placing each barrow amongst a much larger whole, for example on long alignments, people made a statement of adherence to a wider community. Through the placement of their barrow in a specific position relative to other mounds, communities define themselves as part of a larger whole.

And lastly, the constituent elements of the burial ritual point to the significance and existence of communities on multiple levels. There are certainly indications of a local community. The idiosyncratic nature of some elements of the burial ritual supports this.

The differences in-between these groups can be small, but people from a different local community (*i.e.* the neighbouring valley or settlement) will recognise the small discrepancies between how they conducted the burial ritual and how their neighbours did it. Yet at the same time the shape and form of many of the constituent elements equally points to the importance of non-local communities (*e.g.* the martial identity expressed in some graves, Fontijn 2002, 246, 273-274).

The last point highlights the complexity in recognising communities in the archaeological record. Is it then possible to identify specific and discrete barrow communities? Two objections can be raised.

The first objection is that communities are multi-scalar in nature and they are essentially context-sensitive (Cohen 1985, 116). The death of one individual will create a different response depending on the people he knew, the several communities he was a member of, his position within society, the communities and people taking part in the burial ritual, etc. The burial ritual is thus not the expression of a single community, but rather we are seeing the expression of multiple communities.

The second objection is that a community does not exist outside of the bodies of its members (Gerritsen 2003, 112). It is therefore subject to constant change. As time passes the way in which a community expresses itself can change significantly, even if the people themselves are not aware of these changes (Cohen 1985, 91-96).

In a sense attempting to locate specific barrow communities can therefore be seen as futile. The fact is that they existed however, and that at a particular point in time a specific group of people will have considered a particular part of the barrow landscape as theirs. It then becomes more interesting to investigate *how* these barrow communities constantly formed themselves around these older monuments.

9.6 The creation of barrow communities

9.6.1 Collective memory and the barrow landscape

The way in which communities created and recreated themselves brings me back to the point I made at the beginning of the Chapter, that the time-depth of the barrow landscape is already so vast, that we are ultimately dealing with a constant reinvention and reincorporation of that same barrow landscape.

The cumulative effect of barrow building will have created a palimpsest of mounds, which will have had a significant impact on the people living in each respective period (Field 1998, 315; Garwood 2007, 30-31; for a similar argument concerning urnfields see Gerritsen 2003, 125). In many ways they were walking and living among the visible ancestral remains (Ashbee 1960, 37; Bogucki 1999, 277; Kristiansen and Larsson 2005, 338;). The hundreds of barrows, placed in alignments or spread out over vast distances will have created a pervasive sense of a lasting communal presence. The role of memory, its creation and the transmission of that memory will therefore have been central to the creation of community (Cohen 1985, 99-103).

To understand the processes behind the transmission of memory we can turn to the work of French sociologist Halbwachs (Halbwachs 1968 [1950]; 1971 [1941]) and his concept of *collective memory*. In the last two decades the concept of memory has seen a veritable boom within archaeology and other social sciences and Halbwachs' work has been further developed by most notably Assmann (Assmann 1992) and others (for works in archaeology see Rowlands 1993; Holtorf 1996; 1998; Moore 2010; Yoffee 2007; Van Dyke 2009; Roddick and Hastorf 2010; Porr 2010; Dušan 2010; for a general overview see Erll 2011).

In essence collective memory is a form of memory shared by members of a community, and each community has its own collective memory (Halbwachs 1968 [1950], 74; Assmann 1992, 39; Nora 1989, 9). This memory is not based on facts and historical truths, indeed it can be said to be entirely fictitious (Halbwachs 1971 [1941]; Assmann 1992, 40-41). In adhering to this collective memory, a person expresses its membership to a specific community (Assmann 1992, 39). At the same time the collective memory defines the characteristics and the nature of the community (*ibid.*, 40). Each element of the collective memory is defined in space and is attached to an event, a person, a locality or even entire landscapes (*ibid.*, 38, 60; Nora 1989, 12).

Fundamentally, the collective memory creates a fictitious topography with narratives attached to specific places and parts of the landscape (Halbwachs 1971 [1941], 126; Assmann 1992, 60). Older monuments and relics of a distant past become elevated into this topography and part of the collective memory (Holtorf 1998, 24).[53]

I would argue that the reinterpretation of the barrow landscape in the Middle Bronze Age (see Chapter 7) is a form of collective memory. At that time, knowledge on who lay in the earlier Neolithic mounds had already fully disappeared. The collective memory and the mental topography of the Middle Bronze Age will thus have been entirely fictitious.

This mental topography spanned the entire barrow landscape. As most barrows were incorporated in the collective topography, it is the entire story, when narrated in succession, which made up the collective memory. Each barrow gained a significance which surpassed itself and which placed it within the narrative as a whole. This narrative changed gradually through time, changing with each new

53 And we should not forget the role of natural places (*cf.* Bradley 2000; Fontijn 2002).

barrow being incorporated, and with each slight modification changing the collective memory as a whole without the community noticing the changes (Cohen 1985, 91; Halbwachs 1971 [1941], 144).

The creation of a collective memory in the Bronze Age not only involved the Neolithic barrows, but also older monuments from the Bronze Age itself. If we consider the older and younger group of the Toterfout barrows, the older barrows had already descended into a mythical and distant past by the time the younger barrows were being built. And all of the older barrows had an invented story attached to them. To illustrate this: Tumuli 1B and 14 became focal points for secondary burial and additional mounds were constructed in their vicinity. Yet barrow 4, in a relative sense as old as the others, was apparently neglected. These, seemingly arbitrary choices were governed by this mental topography.

As a further example, we can turn to three barrows I already discussed in detail in Chapter 7. On the Ermelo heath, three Late Neolithic A barrows were built in close proximity to one another (Tumuli I to III; barrows 324-326). From the onset these three barrows were almost identical in size and composition. Yet only one of these was reused in the Late Neolithic B (Tumulus II). A secondary central grave was dug into its top and an additional layer of sods added to the entire barrow. The other two were not reused during this period.

In the Middle Bronze Age, a secondary mound phase was added to Tumulus III, while at least three or perhaps even four were added to Tumulus II. Additionally, secondary burials were placed in both these mounds. Throughout this period, for whatever reason, Tumulus I was shunned. The reasons why some barrows became foci of later activities was not governed by the barrow itself, but rather by the stories that became attached to them.

This collective memory is of course not exclusive to the Middle Bronze Age and will have existed in the LN as well (one can think of the selectiveness in reuse at the Vaassen Tumuli, see p.176). A similar process took place during the Late Bronze Age and Early Iron Age. But here the collective memory only attached itself to individual (groups of) barrows, and not the barrow landscape as a whole.

In essence the barrow community is thus an imagined community. By manipulating and controlling the collective memory people could control the 'right to be buried among the ancestral barrows'. In turn the collective memory shaped and controlled how people were buried amongst the ancestral barrows (*cf.* De Coppet 1985). Or as Halbwachs puts it:

> *'le lieu a reçu l'empreinte du groupe, et réciproquement'* (Halbwachs 1968 [1950], 133).

9.6.2 Non-discursive construction of community

A community defines itself amongst the remains of the distant past. The physical relics of the past certainly intrude upon the sense of community, but it is not only the past which plays a role in the creation of these communities (*cf.* Moore 2010, 402-404). There is a danger of overextending the concept of collective memory until it essentially equates to culture (Berliner 2005; Moore 2010, 402-404; Van Dyke 2009, 222-223). Collective memory as such operates in the distant past, beyond the floating gap (Assmann 1992, 32), it is about incorporating that distant past into the present.

Yet a sense of community was also created by performing activities around the burial mounds and by creating new barrows. By building a mound a community defined itself. By continuously burying their dead in a similar fashion people

reinforced their sense of community, and it is by 'doing *that they* become' (Budden and Sofaer 2009, 204). This is in a sense a non-discursive process, it is more about *how* something is done rather than *why* it is done.

If someone of a specific group died, people would have had an expectation of what was to follow, they had an idea of how that person ought to be buried. These expectations were determined by previous performances (Metcalf and Huntington 1991, 174). If we continue this line of thought - of barrow building as a performance or a choreography (see above) - it was then the acting out and the repetition of the performance which generated a sense of community.

This sense of community was not only reinforced by creating new mounds, but also by walking past them in day-to-day tasks (Roddick and Hastorf 2010, 172; Ingold 1993, 167). If we accept that the alignments were placed alongside roads, then walking along that road and encountering the barrows when walking from, say, a settlement to pastures would have reinforced the sense of community.

The dispersed nature of the barrow landscape also suggests that the expectation of how one was to be buried extended to that of a place or a *zone* in the landscape (see Chapter 8). When entering a specific place, people belonging to a specific community would havehad a specific expectation of that place. Once again in the words of Halbwachs:

> *'Lorsqu'il entre dans une église, dans un cimetière, dans un lieu consacré, le fidèle sait qu'il va retrouver là un état d'esprit dont il a fait souvent déjà l'expérience, et qu'avec d'autres croyants il va reconstituer, en même temps qu'une communauté visible, une pensée De souvenirs en communs, ceux-là mêmes qui se sont formés et entretenues, aux époques précédentes en ce même endroit'* (Halbwachs 1968 [1950], 160).

I would argue that in the Late Neolithic and the Bronze Age, the heathlands took up such a role (*cf.* Littleton 2007, 1025). It was on these heathlands that the dead resided, it was there that barrows were constructed (see Chapter 8). Barrows and heathland were inextricably connected. If someone of the barrow community died, people expected to bury him on the heathland unless there was a distinct reason *not* to.

Time and again throughout this book, the important position of heathland has been emphasised. As I argued above it remained a stable element of prehistoric life. The large concentrations of barrows as we know them in the Low Countries are especially known from heathland areas. Of course barrows are also known from other areas, on occasion they are uncovered in the river-area of the central Netherlands (*cf.* Meijlink and Kranendonk 2002; Jongste and Van Wijngaarden 2002). Yet, as far as we know, they rarely formed large and extensive groups. Perhaps we should also think in terms of heathland communities different as to those on the wetlands?

The important point is that the barrows were in the first place, built on heathland that was maintained as such for millennia afterwards. If we accept that these heathlands were managed by grazing herds and their accompanying herdsmen, then they are no wastelands but rather fully incorporated into social and every-day life. Yet these communities will have differed significantly through time and their attitudes towards each of these mounds will have changed as well.

9.6.3 Semiotic and relational landscapes

Neither the collective memory nor the non-discursive processes explain how the barrow landscapes attained their specific configurations. Even within extensively dispersed groups such as the Toterfout barrows, we see a deliberate positioning of

each barrow. Small alignments formed, specific barrows were reused in a specific way, some became focal points for further barrow construction whereas others did not. While people had an expectation to be buried on heathland, there was probably also an expectation as to where on that heathland. These heathlands were structured and organised.

This brings me back to the nature of mounded burial. By building a mound communities created a physical reality which transformed the landscape in a lasting way. It is through this creation that a community defined itself physically in the landscape. In this sense, each new mound is the barrow community made explicit.

Yet that mound was built in relation to all other mounds (even in an 'empty' landscape). By referencing older elements, barrow communities redefined themselves in reference to all the other mounds. And at the same time they redefined these as well. Each mound thus stated their place within the wider – and entirely fictitious – landscape. It was a statement of who they were and how they defined themselves in respect to the wider world. These semiotic statements were made in a relational landscape.

Perhaps the long alignment of Epe-Niersen represents the best illustration of this process. Each new barrow being constructed brought with it the dilemma and the choice as to where to place it. By building a barrow on the alignment, people became part of and redefined themselves and the alignment as their barrow community. Yet at the same time, by *not* building on the alignment (as perhaps happened from the Late Neolithic B onwards), people departed from and defined themselves as different from that community and its barrows. And that choice was made visible through the physical presence of the mound.

These relations were not only defined in terms of visual conformance or opposition but could be much more ambiguous. The Epe-Niersen alignment once again provides a good example. In Chapter 6, I frequently discussed the visual hierarchy expressed in the choice of location for each barrow and I especially focussed upon the three barrows on the *Galgenberg*. I argued that these three mounds were effectively skylined when walking along the entire length of the alignment. These mounds expand the alignment and are an integral part of it. Yet at the same time, the choice of location and the visual hierarchy it entails also hints at a difference.

We are left to guess why these three mounds were placed in such an elevated position, overlooking the others. One of these mounds has not been excavated, the other poorly so and the third could not be reliably dated (see Chapter 5). Yet it is interesting that the latter covered a grave with a complex grave ritual. In it were found the remains of a woman in flexed position and placed at her back were the disarticulated remains of at least two more individuals (Bourgeois *et al.* 2009). As far as we know, this was a rare practice in the Low Countries. Perhaps such positions were only reserved for specific people and specific burial rituals?

A similar and ambiguous relationship is also expressed in one of the mounds which is located off the alignment itself. As I argued in Chapter 6, it is cresting a hill when viewed from the alignment. By placing it away from the alignment, the barrow community made a visual statement of not adhering to the alignment, of being different. Yet by maintaining such a distinct visual relation with the mounds of the alignment, we can suggest they still incorporated the alignment into their own barrow community.

With each barrow a new element was added to the visual structure. Each barrow can thus be seen as a meaningful statement. And each barrow visually redefined and restructured the relation of the barrow community with the landscape and with all other barrows within the landscape.

9.7 Conclusion

It is the interplay of these three processes that created the barrow landscape. It came about through a constant structuring and restructuring of the landscape by barrow communities.

By creating a mound, a barrow community manifested itself visually. The material and physical presence of the barrow then positioned this barrow community within the landscape. And by manipulating its position in relation to other elements, meaningful statements could be made. In some cases the positioning may have been governed along genealogical lines, in others perhaps in terms of a hierarchy and others still even as ambiguous and dual statements. It is the cumulation of these statements that created a visually structured landscape.

Yet at the same time, these communities kept burying on these heathlands because it was what they did. It was by building barrows that they became the barrow community. And in a sense the entire heathland was eligible for burial and was defined as a burial *zone*. It was the place of the dead, where time and again people returned to carry out a barrow choreography. Once the choreography was over, they moved on, only to start a new choreography elsewhere.

And in returning to these heathlands, the ancient relics of ages past became, time and again, reincorporated into the collective memory. Some mounds were added upon, others were shunned. Through time the barrow communities of the Low Countries reinvented themselves amongst the remnants of ages past and gradually more and more barrows became part of the collective memory. And by adding a new barrow these communities kept restructuring themselves around these mounds.

Let us consider the interplay of these processes in the light of the alignments. Each one of these started in an 'empty' landscape. The first mounds visually structured the landscape by creating long alignments. Technically with the first two mounds, the axis was already set out, and it is then, by building barrows on the alignment that people became the barrow community.

There may certainly have been a deeper symbolical level to the alignments – one quickly thinks of a journey to the afterlife – yet gradually the alignment started to exist for its own sake (*cf.* Bender 1992, 748). Throughout the Late Neolithic A, people expected each new barrow to be placed on an alignment.

Gradually and through time, the original meaning of the alignment became lost or was actively abandoned (perhaps in the Late Neolithic B?). Yet the alignment as such was still physically present and visible in the landscape. In this sense it continued to become incorporated into the collective memory.

Throughout the Late Neolithic B and the Bronze Age new mounds were built close to ancient ones. The very physicality of the alignment ensured it kept intruding upon the sense of community. But by building new barrows, and burying on the alignment, the new community shaped itself around the alignment. This is especially clear in the Ermelo case, where during the Middle Bronze Age, the previous alignment was copied and added upon.

Yet at the same time, the structures of the previous period were abandoned as well. Especially from the Late Neolithic B onwards new barrows were also built away from these structures, in visual opposition to these alignments. As I argued in Chapter 8 and above, the dispersion of mounds throughout the landscape suggests that instead of alignments, now heathlands took up a central role in the burial ritual and the definition of a community.

Fig. 9.2: A small marble stone, with the inscription papa *was dug into the flank of a mound, close to the hamlet of Hoogsoeren on the Veluwe (photograph by A.Louwen).*

Throughout the Late Neolithic B and Bronze Age, a barrow had to be built on heathland, and whether or not they were built close to ancient monuments was then a consequence of the collective memory – the stories which were attached to it – and the statements the community wished to make. In a sense there was enough liberty to start a new group somewhere away from the alignments in 'empty' areas.

A similar process of reinterpretation of ancient monuments occured in the Late Bronze Age and Early Iron Age. In several cases urnfields formed around a select few barrows of the Late Neolithic and Bronze Age. Once again these were choices, shaped by a form of collective memory. Out of the vast barrow landscape, specific barrows were chosen. Around these monuments, gradually the urnfield communities redefined and restructured themselves, each time they built a new small earthen mound on the urnfield.

This process of reinterpretation and reincorporation continued in later periods, albeit on a lesser scale. The importance of heathland as a burial place decreased and only on specific occasions were people buried on the heathland. The position of the heathland barrows gradually receded into the negative sphere (Roymans 1995).

To continue with our alignments, one of the mounds on the Epe-Niersen alignment – perhaps not by chance the one with the highest visual signature (see Chapter 6) – was used as a gallows mound. It is even indicated as such on maps dating back as early as the 17th Century. The Christian communities of the Low Countries had as such defined the barrow landscape as something outside of their community. The barrows became the areas where goblins, dwarves, demons and witches lived (Roymans 1995). And it became a final resting place for murderers and thieves (Meurkens 2010).

Yet the story of the alignment does not stop there, and in fact continues into our own time. Perhaps the activities of Holwerda, the Queen, the State Heritage, and now by me can be seen as the latest revival of the Epe-Niersen alignment. It is through my authority as an archaeologist that I claim to date specific barrows. As I write this, new posts carrying a short description on the basis of this authority are being placed close to these mounds.

And even today some of the mounds of the barrow landscape are still used for burial. Near the town of Hoog-Soeren a small stone was inserted into a barrow, carrying the inscription *papa* (Fig. 9.2).[54] We do not know who placed it there, nor if there really is someone buried underneath it, but perhaps this is the start of a new revival?

54 I am very grateful to Arjan Louwen for pointing my attention to this barrow.

References

Andersen, S. T. 1994-1995. Pollen analytical investigations of barrows from the Funnel Beaker and Single Grave Cultures in the Vroue area, West Jutland, Denmark, *Journal of Danish Archaeology* 12, 107-132.

Anonymus 1965/1966. De periodisering van de Nederlandse Prehistorie, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 15-16, 7-11.

Anonymus 1987. Epe, *Jaarverslag van de Rijksdienst voor Oudheidkundig Bodemonderzoek* 122.

Anthony, D. W. 2007. *The horse, the wheel and language: how Bronze-Age riders from the Eurasian steppes shaped the modern world*, Princeton University Press, Princeton.

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

Arnoldussen, S. and D. R. Fontijn 2007. Towards familiar landscapes? On the nature and origin of Middle Bronze Age landscapes in the Netherlands, *Proceedings of the Prehistoric Society* 72, 289-317.

Arnoldussen, S. and E. E. Scheele 2011. The ancestors nearby. The domestic and funerary landscape of Angelslo Emmerhout. In H. van der Velde/N. L. Jaspers/E. Drenth and H. B. G. Scholte Lubberink, *Van graven in de prehistorie en dingen die voorbijgaan. Studies aangeboden aan Eric Lohof bij zijn pensionering in de archeologie*, Sidestone Press, Leiden, 153-185.

Ashbee, P. 1960. *The Bronze Age round barrow in Britain*, Phoenix House, London.

Assmann, J. 1992. *Das kulturelle Gedächtnis. Schrift, Erinnerung und politische Identität in frühen Hochkulturen*, C.H. Beck, München.

Baarle, van C. 2009. *Handel en Wandel op de Noord-Veluwe tussen prehistorie en historie*, BDG Zwolle, Zwolle.

Bakels, C. and Y. Achterkamp in press. The local vegetation at the time of the construction of the Oss-Zevenbergen mounds 7 and 6. In D. R. Fontijn/S. A. van der Vaart and R. Jansen, *Transformation through Destruction. A monumental and extraordinary Early Iron Age Hallstatt C barrow from the ritual landscape of Oss-Zevenbergen*, Sidestone Press, Leiden,

Bakker, J. A. 1976. On the possibility of reconstructing roads from the TRB period, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 26, 63-91.

Bakker, J. A. 2008. A note on prehistoric routes on the Veluwe and near Uelzen. In H. Fokkens/B. J. Coles/A. van Gijn/J. P. Kleijne/H. P. Hedwig and C. G. Slappendel, Between Foraging and Farming. An Extended Broad Spectrum of Papers presented to Leendert Louwe Kooijmans, *Analecta Praehistorica Leidensia* 40, Leiden University, Leiden, 281-286.

Bakker, J. A./J. Kruk/A. E. Lanting and S. Milisauskas 1999. The earliest evidence of wheeled vehicles in Europe and the Near East, *Antiquity* 73, 778-790.

Balquet, A. 2001. Les Tumulus Armoricains du Bronze Ancien, *Patrimoine Archéologique de Bretagne* 20, Institut Culturel de Bretagne, Rennes.

Barrett, J. C. 1989. Time and Tradition: the rituals of everyday life. In H. A. Nordström and A. Knape, *Bronze Age studies: transactions of the British-Scandinavian colloquium in Stockholm, May 10-11, 1985*, Statens Historiska Museum, Stockholm.

Barrett, J. C. 1990. The monumentality of death: the character of Early Bronze Age mortuary mounds in southern Britain, *World Archaeology* 22, 179-189.

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

Barrett, J. C. 2004. Comments to Christopher Tilley's paper 'Round Barrows and Dykes as Landscape Metaphors', *Cambridge Archaeological Journal* 14, 199.

Barrett, J. C. and I. Ko 2009. A phenomenology of landscape: A crisis in British landscape archaeology?, *Journal of Social Archaeology* 9, 275-294.

Beck, R. A./D. J. Bolender/J. A. Brown and T. K. Earle 2007. Eventful Archaeology: the Place of Space in Structural Transformation, *Current Anthropology* 48, 833-860.

Beek, van. B. L. 1977. Sporen van een Neolithische Nederzetting tussen Toterfout en Halve Mijl, Gemeente Veldhoven (N.Br.). In N. Roymans/J. Biemans/J. Slofstra and W. J. H. Verwers, *Brabantse Oudheden (Bijdragen tot de studie van het Brabantse Heem 16, opgedragen aan Gerrit Beex bij zijn 65ste verjaardag)*, Eindhoven, 43-54.

Beek, van R. 2009. *Reliëf in Tijd en Ruimte. Interdisciplinair onderzoek naar bewoning en lanschap van Oost-Nederland tussen vroege prehistorie en middeleeuwen*, Wageningen Universiteit, Wageningen (PhD thesis).

Beex, G. 1952a. De grafheuvels en de weg langs het Huismeer te Knegsel, *Brabants Heem* 4, 14-18.

Beex, G. 1952b. Onverwachte vondst te Vessem, *Brabants Heem* 4, 57-59.

Beex, G. 1954. Twee bronstijdgrafheuvels en enige graven uit de merovingische tijd te Casteren (gemeente Hoogeloon C.A.), *Brabants Heem* 6, 57-65.

Beex, G. 1957. Een Neolithische grafheuvel met beker en vuursteendolk bij de Witrijt (gemeente Bergeijk). In G. Beex, *Twee grafheuvels in Noord-brabant (Bijdragen tot de studie van het Brabantse Heem deel IX)*, Eindhoven, 7-23.

Beex, G. 1958. Onderzoek van Grafheuvels te Weelde, *Toxandria (Nieuwe Reeks)* XXX, 1-29.

Beex, G. and H. Roosens 1962. Drieperiodenheuvel te Mol bij Grenspaal 194, *Helinium* 2, 255-259.

Bell, T. and G. Lock 2000. Topographic and cultural influences on walking the Ridgeway in later prehistoric times. In G. Lock, *Beyond the Map: Archaeology and Spatial Technologies*, IOS Press, Amsterdam.

Bender, B. 1992. Theorising landscapes, and the Prehistoric Landscapes of Stonehenge, *Man* 27, 735-755.

Bender, B. 1999. Subverting the Western Gaze: mapping alternative worlds. In P. J. Ucko and R. Layton, *The Archaeology and Anthropology of Landscape. Shaping your landscape*, Routledge, London.

Berendsen, H. J. A. 2000a. *Landschap in delen. Overzicht van de geofactoren,* Van Gorcum, Assen.

Berendsen, H. J. A. 2000b. *Landschappelijk Nederland*, Van Gorcum, Assen.

Berendsen, H. J. A. and E. Southamer 2001. *Palaeogeographical development of the Rhine-Meuse delta, The Netherlands*, Van Gorcum, Assen.

Berliner, D. 2005. The abuses of Memory: Reflections on the Memory Boom in Anthropology, *Anthropological Quarterly* 78, 197-211.

Bleumink, H. and J. Neefjes 2010. *Kroondomein Het Loo*, Matrijs, Utrecht.

Bogucki, P. 1999. *The origins of human society*, Blackwell, Malden.

Bonisch, E. 2007. Grabhugel als Grenzmale. In G. H. Jeute/J. Schneeweiss and C. Theune, *aedificatio terrae, Beitrage zur Umwelt- und Siedlungsarchäologie Mitteleuropas. Festschrift für Eike Gringmuth-Dallmer zum 65. Geburtstag*, Rahden/Westf., Leidorf, 79-90.

Bourgeois, I. 1995. Palynologisch onderzoek van grafheuvelstructuren uit de bronstijd in zandig Binnen-Vlaanderen, *Lunula Archaeologia Protohistorica* III, 9-11.

Bourgeois, Q. in press. Seeing the forest for the trees. The impact of vegetation reconstructions on visibility in barrow landscapes. In J. Bourgeois and E. Deweirdt, *Spatial Analysis Applied to Archaeological Sites from Protohistory to the Roman Period. Workshop on Spatial Archaeology at the Ghent University Het Pand – Ghent,, Belgium (2 & 3 December 2010)*, Gent.

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

Bourgeois, Q. P. J./L. Amkreutz and R. Panhuysen 2009. The Niersen Beaker burial: A renewed study of a century-old excavation, *Journal of Archaeology in the Low Countries* 1, 83-105.

Bourgeois, Q. P. J. and D. R. Fontijn 2008. Houses and barrows in the Low Countries. In S. Arnoldussen and H. Fokkens, *The Bronze Age in the Netherlands*, Oxbow Books, Oxford, 41-57.

Bourgeois, Q. P. J. and D. R. Fontijn 2010. Burial mound "Unitas" 1: an Early Bronze Age barrow with traces of Iron Age activities. In D. R. Fontijn, *Living near the Dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*, Sidestone Press, Leiden, 29-48.

Bourgeois, Q. P. J. /D. R. Fontijn/A. Louwen/P. Valentijn and K. Wentink 2010. Finds from the Unitas 1 mound and its surroundings. In D. R. Fontijn, *Living near the Dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*, Sidestone Press, Leiden, 73-90.

Bourgeois, Q. P. J. and D. R. Fontijn 2012. Diversity in uniformity, uniformity in diversity: barrow groups in the Netherlands. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 533-551.

Braat, W. C. 1936. Een urnenveld te Knegsel (gem. Vessem), *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* 17, 38-46.

Bradley, R. 1998. *The Significance of Monuments: On the shaping of human experience in Neolithic and Bronze Age Europe*, Routledge, London.

Bradley, R. 2000. *An archaeology of natural places*, Routledge, London.

Bradley, R. 2002. *The past in prehistoric societies*, Routledge, London.

Bradley, R. 2003. The Translation of Time. In R. M. Van Dyke and S. E. Alcock, *Archaeologies of Memory*, Blackwell, Oxford, 221-227.

Bradley, R. 2005. *Ritual and domestic life in prehistoric Europe*, Routledge, London.

Bradley, R. 2007. *The Prehistory of Britain and Ireland*, Cambridge University Press, Cambridge.

Bradley, R. and E. Fraser 2010. Bronze Age Barrows on the Heathlands of Southern England: Construction, Forms and Interpretations, *Oxford Journal of Archaeology* 29, 15-33.

Broeke, van den P. W./H. Fokkens and A. Van Gijn 2005. A prehistory of our time. In L. P. Louwe Kooijmans/P. W. Van den Broeke/H. Fokkens and A. Van Gijn, *The Prehistory of the Netherlands*, Amsterdam University Press, Amsterdam.

Brongers, J. A. 1976. Air photography and Celtic field research in the Netherlands, *Nederlandse Oudheden* 6, Rijksdienst voor Oudheidkundig Bodemonderzoek, Amersfoort.

Brück, J. 2001. Monuments, power and personhood in the British Neolithic, *Journal of the Royal Anthropological Institute* 7, 649-667.

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.

Brück, J. 2005. Experiencing the past? The development of a phenomenological archaeology in British prehistory, *Archaeological Dialogues* 12, 45-45.

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

Bursch, F. C. 1933a. Die Becherkultur in den Niederlanden, *Oudheidkundige Mededelingen van het Rijksmuseum voor Oudheden te Leiden* 14, 39-111.

Bursch, F. C. 1933b. Het urnenveld op het Landgoed Oostereng onder Bennekom, *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden* XIV, 26-38.

Bursch, F. C. 1937. Korte Oudheidkundige Mededeelingen, Grafheuvel te Oss, *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden* 18, 1-3.

Butler, J. J. and J. D. van der Waals 1966. Bell Beakers and early metal-working in the Netherlands, *Palaeohistoria* 12, 44-139.

Casparie, W. A. and W. Groenman-van Waateringe 1980. Palynological analysis of Dutch barrows, *Palaeohistoria* 22, 7-65.

Chadwick, A. M. 2004. Stories from the landscape: archaeologies of inhabitation, *BAR international series* 1238, 1-281.

Chapman, H. 2000. Understanding wetland archaeological landscapes: GIS, environmental analysis and landscape reconstruction; pathways and narratives. In G. Lock, *Beyond the Map: Archaeology and Spatial technologies*, IOS Press, Amsterdam, 49-59.

Chapman, J. 1997. Places as Timemarks - The Social Construction of Prehistoric Landscapes in Eastern Hungary. In G. Nash, Semiotics of Landscape: Archaeology of Mind, *BAR International Series* 661, Archaeopress, Oxford, 31-45.

Chapman, P. and R. Gearey 2000. Palaeoecology and the perception of prehistoric landscapes: some comments on visual approaches to phenomenology, *Antiquity* 74, 316-319.

Cherretté, B. and J. Bourgeois 2003. Oedelem-Wulfsberge 2002: grafmonumenten uit brons- en ijzertijd (W.-VL.), *Lunula Archaeologia Protohistorica* XI, 33-36.

Cohen, A. P. 1985. *The symbolic construction of Community*, Routledge, London.

Conolly, J. and M. Lake 2006. *Geographical Information Systems in Archaeology*, Cambridge University Press, Cambridge.

Cosgrove, D. E. 1998 [1984]. *Social Formation and Symbolic Landscape*, University of Wisconsin Press, Madison.

Criado Boado, F. and V. Villoch Vazquez 2000. Monumentalizing Landscape: from present perception to the past meaning of Galician megalithism (north-west Iberian Peninsula), *European Journal of Archaeology* 3, 188-216.

Cummings, V. 2008. Virtual Reality, Visual Envelopes, and Characterizing Landscape. In B. David and J. Thomas, *Handbook of Landscape Archaeology*, Left Coast Press, Walnut Creek, 285-290.

Cummings, V. and A. Whittle 2003. Tombs with a view: landscape, monuments and trees, *Antiquity* 77, 255-266.

Cummings, V. and A. Whittle 2004. *Places of special virtue: megaliths in the Neolithic landscapes of Wales*, Oxbow Books, Oxford.

De Coppet, D. 1985. ... Land owns people. In R. H. Barnes/D. De Coppet and R. J. Parkin, Contexts and Levels. Anthropological Essays on Hierarchy, *Jaso Occasional Papers* 4, JASO, Oxford, 78-90.

DeBoer, W. R. 2004. Comments to Christopher Tilley's paper 'Round Barrows and Dykes as Landscape Metaphors', *Cambridge Archaeological Journal* 14, 199-201.

Deeben, J. 1988. Compagnie oefen terrein Ginkelse Heide: een archeologische kartering, inventarisatie en waardering, R.*A.A.P.-Rapport* 14, Stichting R.A.A.P., Amsterdam.

Deeben, J. 1989. Compagnies Oefenterrein Ermelose heide, een archeologische kartering, inventarisatie en waardering, R.*A.A.P.-Rapport* 24, Stichting R.A.A.P., Amsterdam.

Delaruelle, S./B. de Smaele and J. van Doninck 2008. Ovalen voor de doden. Opgraving van een grafmonument uit de bronstij aan de Mezenstraat in Beerse (provincie Antwerpen, België), *Lunula Archaeologia Protohistorica* XVI, 31-38.

Delrieu, F. and P.-Y. Milcent 2012. Les paysages tumulaires protohistoriques dans le Massif Central (France): les exemples du Cézallier et du Causse Noir. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 23-57.

Doesburg, van J./E. Drenth and F. van der Heijden 2009. *Graven naar de context van een bronzen Vollgriffdolch en het middeleeuwse dorp Hees. Waardestellend archeologisch onderzoek in 2004 en 2005 te Den Dolder-Fornheze (provincie Utrecht)*, RACM, Amersfoort.

Doorenbosch, M. 2011. An environmental history of the *Echoput* barrows. In D. R. Fontijn/Q. Bourgeois and A. Louwen, *Iron Age Echoes*, Sidestone Press, Leiden, 111-125.

Doorenbosch, M. in prep. *An environmental study of barrows (working title)*, Leiden (PhD thesis).

Drenth, E. and A. E. Lanting 1991. Die Chronologie der Einzelgrabkultur in den Niederlanden. In C. Strahm, *Die kontinentaleuropäischen Gruppen der Kultur mit Schnurkeramik: Die Chronologie der regionalen Gruppen*, Institut für Ur- und Frühgeschichte, Freiburg, 103-114.

Drenth, E. and E. Lohof 2005. Mounds for the dead. Funerary and burial ritual in Beaker period, Early and Middle Bronze Age. In L. P. Louwe Kooijmans/P. W. Van den Broeke/H. Fokkens and A. Van Gijn, *The Prehistory of the Netherlands*, Amsterdam University Press, Amsterdam, 443-454.

Drenth, E./O. Brinkkemper and R. C. G. M. Lauwerier 2008. Single Grave Culture Settlements in the Netherlands: the state of affairs anno 2006. In W. Dörfler and J. Müller, Umwelt Wirtschaft Siedlungen im Dritten vorchristlichen Jahrtausend Mitteleuropas und Südskandinaviens, *Offa Bücher* 85, Wachholtz Verlag, Neumünster, 149-181.

Dušan, B. 2010. *Archaeology and Memory*, Oxbow Books, Oxford.

Earle, T. K. 1997. *How Chiefs Come to Power. The Political Economy in Prehistory*, Stanford University Press, Stanford.

Dyke, van R. M. 2009. Chaco reloaded: Discursive social memory in post-Chacoan landscape, *Journal of Social Archaeology* 9, 220-248.

Eckardt, H./P. Brewer/S. Hay and S. Poppy 2009. Roman Barrows and their Landscape Context: a GIS Case Study at Bartlow, Cambridgeshire, *Britannia* XL, 65-98.

Ecsedy, I. 1979. *The people of the pit-grave kurgans in eastern Hungary*, Fontes archaeologici Hungariae Budapest Akadémiai Kiadó, Budapest.

Eilander, D. A./J. L. Kloosterhuis/d. F. H. Jong and J. Koning 1982. *Bodemkaart van Nederland Schaal 1:50 000. Toelichting bij de kaartbladen 26 Oost Harderwijk en 27 West Heerde*, Van der Wiel -Luyben B.V., Arnhem.

Erll, A. 2011. *Kollektives Gedächtnis und Erinnerungskulturen. Eine Einführung. 2. aktualisierte und erweiterte Auflage* J.B.Metzler, Stuttgart.

Es, van W. A. 1964. Het Rijengrafveld van Wageningen, *Palaeohistoria* X, 185-310.

Exon, S./V. Gaffney/A. B. Woodward and R. Yorston 2000. *Stonehenge Landscapes. Journeys through real-and-imagined worlds*, Archaeopress, Oxford.

Fabricius, K. 1996. Tragtbægerkulturens mellemneolitiske stendyngegrave. In K. Fabricius and C. J. Becker, Stendynge grave og kulthuse. Studier over tragtbægerkulturen i Nord o Vest Jylland, *Arkæologiske Studier XI*, Akademisk Forlag a/s, Copenhague, 13-276.

Field, D. 1998. Round barrows and the harmonious landscape: placing Early Bronze Age burial monuments in south-east England, *Oxford Journal of Archaeology* 17, 309-326.

Fily, M./A. Villard-Le Tiec/Y. Ménez and T. Lorho 2012. Paysages funéraires de l'âge du Bronze dans le centre-ouest de la Bretagne: approches multiscalaires. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 59-76.

Fitzpatrick, A. P. 2011. The Amesbury Archer and the Boscombe Bowmen. Bell Beaker Burials on Boscombe Down, Amesbury, Wiltshire, *Wessex Archaeology Report* 27, Wessex Archaeology Ltd., Salisbury.

Fleming, A. 1971. Territorial patterns in Bronze Age Wessex, *Proceedings of the Prehistoric Society* XX, 138-166.

Fleming, A. 1999. Phenomenology and the Megaliths of Wales: a Dreaming Too Far?, *Oxford Journal of Archaeology* 18, 119-125.

Fleming, A. 2005. Megaliths and post-modernism: the case of Wales, *Antiquity* 79, 921-932.

Fleming, A. 2006. Post-processual Landscape Archaeology: a Critique, *Cambridge Archaeological Journal* 16, 267-280.

Fokkens, H. 1998. *Drowned Landscape. The occupation of the western part of the Frisian-Drentian plateau, 4400 BC - AD 500*, Van Gorcum, Amersfoort/Assen.

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

Fokkens, H. 2003. The longhouse as a central element in Bronze Age Daily Life. In J. Bourgeois/I. Bourgeois and B. Cherretté, *Bronze Age and Iron Age communities in North-Western Europe*, Universa Press, Wetteren, 9-38.

Fokkens, H. 2012. Access to origins: on the meaning of continuity and discontinuity in the use of barrow 'cemeteries'. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 553-572.

Fokkens, H. and S. Arnoldussen 2008. Towards new models. In S. Arnoldussen and H. Fokkens, *Bronze Age Settlements in the Low Countries*, Oxbow Books, Oxford, 1-16.

Fokkens, H./R. Jansen and I. M. Van Wijk 2009. *Het grafveld Oss-Zevenbergen. Een prehistorisch grafveld ontleed*, Archol bv, Leiden.

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

Fontijn, D. R. 2002. Sacrificial landscapes. The cultural biographies of persons, objects and natural places in the Bronze Age of the Southern Netherlands, c. 2300-600 BC, *Analecta Praehistorica Leidensia* 33/34, 1-392.

Fontijn, D. R. 2007. The significance of 'invisible' places, *World Archaeology* 39, 70-83.

Fontijn, D. R. 2008. Everything in its Right Place? On Selective Deposition, Landscape and the Construction of Identity in Later Prehistory. In A. Jones, Prehistoric Europe: Theory and Practice, *Blackwell Studies in Global Archaeology* 12, Wiley-Blackwell, Chichester, 86-106.

Fontijn, D. R. 2009. Mittelbronzezeitliche Kriegergräber und Waffendeponierungen in Nordbelgien und den Niederlanden. In A. Krenn-Leeb/H.-J. Beier/E. Claßen/F. Falkenstein and S. Schwenzer, Varia neolithica V. Mobilität, Migration und Kommunikation in Europa während des Neolithikums und der Bronzezeit. Beiträge der Sitzungen der Arbeitsgemeinschaften Neolithikum und Bronzezeit während der Jahrestagung des West- und Süddeutschen Verbandes für Altertumsforschung e. V. in Xanten, 6. – 8. Juni 2006, *Beiträge zur Ur- und Frühgeschichte Mitteleuropas* 53, Beier & Beran. Archäologische Fachliteratur, Langenweissbach, 161-169.

Fontijn, D. R. 2010. *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*, Sidestone Press, Leiden.

Fontijn, D. R. 2011. The 'Ritual' Fabric of Prehistoric Landscape. Funerary Places and Deposition Sites in the Low Countries, c.5000-1500 cal BC, *Archäologie in Eurasien* 24, 429-448.

Fontijn, D. R. and A. G. F. M. Cuijpers 1999. Prehistoric stone circles, stone platforms and a ritual enclosure from Nijmegen, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 43, 33-67.

Fontijn, D. R. and A. G. F. M. Cuijpers 2002. Revisiting Barrows: a Middle Bronze Age Burial Group at the Kops Plateau Nijmegen, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 45, 155-187.

Fontijn, D. R./Q. P. J. Bourgeois and A. Louwen 2011. *Iron Age Echoes. Prehistoric land management and the creation of a funerary landscape - the "twin barrows" at the Echoput in Apeldoorn*, Sidestone Press, Leiden.

Fontijn, D. R. and A. Louwen in prep. *Re-united in Death. Collective burials in the Bronze Age barrow landscape of Apeldoorn-Wieselse Weg*, Sidestone Press, Leiden.

Fontijn, D. R./S. A. van der Vaart and R. Jansen in press. *Transformation through Destruction. A monumental and extraordinary Early Iron Age Hallstatt C barrow from the ritual landscape of Oss-Zevenbergen*, Sidestone Press, Leiden.

Freudenberg, M. 2012. Grab und Kultanlage der älteren Bronzezeit von Hüsby, Kreis Schleswig-Flensburg - rituelle Landschaft oder eine Demonstration der Macht am Verbindungsweg zwischen Jütischer Halbinsel und Norddeutschland. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 619-639.

Furholt, M. 2003. Die absolutchronologische Datierung der Schnurkeramik in Mitteleuropa und Südskandinavien, *Universitätsforschungen zur prähistorischen Archäologie* 101, Dr. Rudolf Habelt GmbH, Bonn.

Gansum, T. and T. Oestigaard 2004. The ritual stratigraphy of monuments that matter, *European Journal of Archaeology* 7, 61-79.

Garwood, P. 2007. Before The Hills In Order Stood: chronology, time and history in the interpretation of Early Bronze Age round barrows. In J. Last, *Beyond the grave, new perspectives on barrows*, Oxbow Books, Oxford, 30-52.

Gearey, B. R. and H. Chapman 2006. 'Digital Gardening': an approach to simulating elements of palaeovegetation and some implications for the interpretation of prehistoric sites and landscapes. In T. L. Evans and P. Daly, *Digital Archaeology: bridging method and theory*, Routledge, London, 171-190.

Gerloff, S. 1975. The Early Bronze Age Daggers in Great Britain, and a Reconsideration of the Wessex Culture, *Prähistorische Bronzefunde* VI, Beck, Munich.

Gerritsen, F. 2003. Local Identities: Landscape and community in the Late Prehistoric Meuse-Demer-Scheldt region, *Amsterdam Archaeological Studies* 9, Amsterdam University Press, Amsterdam.

Geschwinde, M. 2000. Die Hügelgräber auf der Großen Heide bei Ripdorf im Landkreis Uelzen. Archäologische Beobachtungen zu den Bestattungssitten des Spätneolithikums und der Bronzezeit in der Lüneburger Heide, *Göttinger Schriften zur Vor- und Frühgeschichte* 27, Wachholtz, Neumünster.

Geschwinde, M. 2012. Die Große Heide bei Uelzen-Ripdorf. Ein Hügelgräberfeld vom Spätneolithikum bis in die jüngere Bronzezeit. In D. Bérenger/J. Bourgeois/M. Talon and S. Wirth, Gräberlandschaften der Bronzezeit - Paysages funéraires de l'âge du Bronze. Internationales Kolloquium zur Bronzezeit - colloque International sur l'âge du Bronze. Herne 15-18 Oktober 2008, *Bodenaltertümer Westfalens* 51, Philipp von Zabern, Darmstadt, 107-123.

Gibson, A. 1992. The timber circle at Sarn-y-Bryn-Caled, Welshpool, Powys: ritual-and-sacrifice in Bronze Age mid-Wales, *Antiquity* 66, 84-92.

Giffen, van A. E. 1930. *Die Bauart der Einzelgräber. Beitrag zur Kenntnis der älteren individuellen Grabhügelstrukturen in den Niederlanden*, Mannus, Leipzig.

Giffen, van A. E. 1937a. Bouwstenen voor de Brabantse oergeschiedenis (Opgravingen in de provincie Noord-Brabant 1935), *Uitgave van het Provinciaal Genootschap van Kunsten en Wetenschappen in Noordbrabant* 30, Provinciaal Genootschap van Kunsten en Wetenschappen in Noord-Brabant, 's-Hertogenbosch.

Giffen, van A. E. 1937b. Tumuli-opgravingen in Gelderland, 1935/1936, *Gelre* 40, 3-18.

Giffen, van A. E. 1949a. Een vierperioden-tumulus met primaire klokbekerheuvel bij Schaijk, Gem. Oss, N.Br., *Brabants Heem* 1, 71-74.

Giffen, van A. E. 1949b. Oudheidkundige aanteekeningen over Drentsche vondsten XVI, *Nieuwe Drentse Volksalmanak* 67, 93-148.

Giffen, van A. E. 1954. Een Meerperioden-heuvel, Tumulus I te Bennekom, gem. Ede, *Bijdragen en mededelingen der Vereniging "Gelre"* LIV, 1-21.

Giffen, van A. E. 1958. Renkum, *Archeologisch Nieuws in het Bulletin van de Koninklijke Nederlandse Oudheidkundige Bond* 11, *66.

Giffen, van A. E./M. Addink-Samplonius and W. Glasbergen 1971. Een grafheuvel te Putten, *Helinium* 11, 104-123.

Gijn, van A. and H. T. Waterbolk 1984. The colonization of the salt marshes of Friesland and Groningen: the possibility of a transhumant prelude, *Palaeohistoria* 26, 101-122.

Gijn, van A. and J. A. Bakker 2005. Megalith builders and sturgeon fishers. Middle Neolithic B: Funnel Beaker culture and the Vlaardingen Group. In L. P. Louwe Kooijmans/P. W. Van den Broeke/H. Fokkens and A. Van Gijn, *The Prehistory of the Netherlands*, Amsterdam University Press, Amsterdam, 281-306.

Ginkel, van E. and Y. van Koeveringe 2010. *Op de Rand van de Rug. Grafheuvels op de Elsterberg bij Rhenen*, Quadrant 2, Sidestone Press, Leiden.

Glasbergen, W. 1954a. Barrow excavations in the Eight Beatitudes. The Bronze Age cemetery between Toterfout & Halve Mijl, North Brabant. I. The Excavations, *Palaeohistoria* 2, 1-134.

Glasbergen, W. 1954b. Barrow excavations in the Eight Beatitudes. The Bronze Age cemetery between Toterfout & Halve Mijl, North Brabant. II. The Implications, *Palaeohistoria* 3, 1-204.

Glasbergen, W. 1955. Het Rijengrafveld te Broekeneind bij Hoogeloon (N.-Br.), *Bijdragen tot de studie van het Brabantse Heem* VI, 39.

Glob, P. V. 2004 [1965]. *The Bog People. Iron-Age Man Preserved*, The New York Review of Books, New York.

Goekoop-de Jongh, J. 1912. Praehistorische grafheuvels op de Renkumsche heide, *Bulletin van den Nederlandschen Oudheidkundigen Bond. Tweede Serie.* V, 23-31.

Goffman, E. 1963. *Behaviour in public places, notes on the social organization of gatherings*, The Free Press, New York.

Görner, I. 2002. Bestattungssitten der Hügelgräberbronzezeit in Nord- und Osthessen, *Marburger Studien zur Vor- und Frühgeschichte* 20, Marie Leidorf, Rahden.

Gosden, C. and G. Lock 1998. Prehistoric Histories, *World Archaeology* 30, 2-12.

Groenman-van Waateringe, W. 2005. Barrow research and palynology: methods and results. In L. P. Louwe Kooijmans/P. W. van den Broeke/H. Fokkens and A. van Gijn, *The Prehistory of the Netherlands*, Amsterdam University Press, Amsterdam,

Halbwachs, M. 1968 [1950]. *La mémoire collective [2nd edition]*, Presses Universitaires de France, Paris.

Halbwachs, M. 1971 [1941]. *La Topographie Légendaire des Évangiles en Terre Sainte [2nd edition]*, Presses Universitaires de France, Paris.

Hanks, B. 2008. The past in later Prehistory. In A. Jones, *Prehistoric Europe, Theory and Practice*, Blackwell, Oxford, 255-284.

Hannon, G. E./R. H. W. Bradshaw/J. Nord and M. Gustafsson 2008. The Bronze Age landscape of the Bjäre peninsula, southern Sweden, and its relationship to burial mounds, *Journal of Archaeological Science* 35, 623-632.

Harding, A. F. 2000. *European societies in the Bronze Age*, Cambridge University Press, Cambridge.

Harrison, R. and V. Heyd 2007. The transformation of Europe in the Third Millennium BC: the example of 'Le Petit-Chasseur I + III' (Sion, Valais, Switzerland), *Praehistorische Zeitschrift* 82, 129-214.

Harsema, O. H. 2001. Over de betekenis van precisie in de uitvoering van paalkransen in de Nederlandse Midden-Bronstijd. In W. Metz/B. L. van Beek and H. Steegstra, *Patina: essays presented to Jay Jordan Butler on the occasion of his 80th birthday*, Metz, Van Beek & Steegstra, Groningen, 321-335.

Heerd, van R. M./E. A. C. Kuijlaars/M. P. Teeuw and R. J. van 't Zand 2000. *Produktspecificatie AHN*, Rijkswaterstaat, Adviesdienst Geo-informatie en ICT,

Heidinga, H. A. 1987. *Medieval settlement and economy north of the lower Rhine: archeology and history of Kootwijk and the Veluwe (the Netherlands)*, Van Gorcum, Assen.

Helms, M. W. 1998. *Access to Origins. Affines, Ancestors and Aristocrats*, University of Texas Press, Austin.

Herring, B. 2009. Die Gräber der Frühen bis Mittleren Bronzezeit in Westfalen. Eine Analyse der Bestattungssitten unter besonderer Berücksichtigung des Grabbaus und ihre Einbettung in die angrenzenden Gebiete, *Bodenaltertümer Westfalens* 48, Philipp von Zabern, Mainz.

Hessing, W. and P. Kooi 2005. Urnfields and cinerary barrows. Funerary and burial ritual in the Late Bronze and Iron Ages. In L. P. Louwe Kooijmans/P. W. van den Broeke/H. Fokkens and A. Van Gijn, *The Prehistory of the Netherlands*, Amsterdam University Press, Amsterdam, 631-654.

Hiddink, H. 2003. Het grafritueel in de Late IJzertijd en Romeinse tijd in het Maas-Demer-Scheldegebied, in het bijzonder van twee grafvelden bij Weert, *Zuidnederlandse Archeologische Rapporten* 11, Archeologisch Instituut Vrije Universiteit, Amsterdam.

Hiddink, H. 2011. Hoogeloon-Kaboutersberg. Onderzoek naar een grafveld uit de Romeinse tijd, *Zuidnederlandse Archeologische Rapporten* 47, Archeologisch Centrum Vrije Universiteit - Hendrik Brunsting Stichting, Amsterdam.

Hijszeler, C. C. W. J. 1945. Grafheuvels uit den steen- en vroegen bronstijd in het Nutterveld, buurtschap Nutter, gem. Denekamp, *Verslagen en Mededeelingen van de Vereeniging tot Beoefening van Overijsselsch Regt en Geschiedenis* 60, 1-16.

Hijszeler, C. C. W. J. 1952. Grave-Mounds near Knegsel (Province of Noord-Brabant), *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 3, 26-27.

Holst, M. K./H. Breuning-Madsen and M. Rasmussen 2001. The South-Scandinavian barrows with well-preserved oak-log coffins, *Antiquity* 75, 126-136.

Holst, M. K./M. Rasmussen and H. Breuning-Madsen 2004. Skelhøj. Et bygningsværk fra den ældre bronzealder, *Nationalmuseets Arbejdsmark* 2004, 11-23.

Holtorf, C. J. 1996. Towards a chrono*logy* of Megaliths: understanding monumental time and cultural memory, *Journal of European Archaeology* 4, 119-152.

Holtorf, C. J. 1997. Christian landscapes of pagan Monuments. A Radical Constructivist Perspective In G. Nash, Semiotics of Landscape: Archaeology of Mind, *BAR International Series* 661, Archaeopress, Oxford, 80-88.

Holtorf, C. J. 1998. The Life-Histories of Megaliths in Meclenburg-Vorpommern (Germany), *World Archaeology* 30, 23-38.

Holwerda, J. H. 1908. Tumuli bij Nierssen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* II, 1-17.

Holwerda, J. H. 1909. Hunneschans bij het Uddelermeer, *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden* III, 1-51.

Holwerda, J. H. 1910a. Korte mededeelingen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* IV, 54.

Holwerda, J. H. 1910b. Opgravingen in de Hertekamp bij Vaassen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* IV, 1-30.

Holwerda, J. H. 1911. Opgravingen bij Niersen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* V, 1-4.

Holwerda, J. H. and M. A. Evelein 1911. Opgravingen bij het Hanendorp (Emst), *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* V, 18-22.

Hübner, E. 2005. Jungneolithische Gräber auf der Jütischen Halbinsel. Typologische und chronologische Studien zur Einzelgrabkultur, *Nordiske Fortidsminder Serie B* 24, Det Kongelige Nordiske Oldskriftselskab, Copenhague.

Huijts, C. S. T. J. 1992. *De voor-historische boerderijenbouw in Drenthe: reconstructiemodellen van 1300 vóór tot 1300 na Chr.*, Stichting Historisch Boerderijonderzoek, Arnhem (PhD thesis).

Hulst, R. S./J. N. Lanting and J. D. van der Waals 1973. Grabfunde mit frühen Glockenbechern aus Gelderland und Limburg, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 23, 77-101.

Ingold, T. 1993. The temporality of the landscape, *World Archaeology* 25, 152-174.

Jager, S. W. 1985. A prehistoric route and ancient cart-tracks in the Gemeente of Anloo (Province of Drenthe), *Palaeohistoria* 27, 185-245.

Johannsen, N. and S. Laursen 2010. Routes and Wheeled Transport in Late 4th–Early 3rd Millennium Funerary Customs of the Jutland Peninsula: Regional Evidence and European Context, *Praehistorische Zeitschrift* 85, 15-58.

Johansen, K. L./S. T. Laursen and M. K. Holst 2004. Spatial patterns of social organization in the Early Bronze Age of South Scandinavia, *Journal of Anthropological Archaeology* 23, 33-55.

Jongste, P. F. B. and G. J. van Wijngaarden 2002. Archeologie in de Betuweroute: Het Erfgoed van Eigenblok. Bewoningssporen uit de Bronstijd te Geldermalsen, *Rapportage Archeologische Monumentenzorg* 86, Rijksdienst voor het Oudheidkundig Bodemonderzoek, Amersfoort.

Karg, S. 2007. Direct evidence of heathland management in the early Bronze Age (14th century B.C.) from the grave-mound Skelhøj in western Denmark, *Vegetation History and Archaeobotany* 17, 41-49.

Kinnes, I. A./I. H. Longworth/I. M. McIntyre/S. Needham and W. A. Oddy 1988. Bush Barrow gold, *Antiquity* 62, 24-39.

Klok, R. H. J. 1982. Oude graven tussen IJssel en Valley: prehistorische grafheuvels uit de steen- en bronstijd op de Veluwe, *Schaffelaarreeks* 11, Barneveld BDU, Barneveld.

Kooi, P. 1979. *Pre-roman urnfields in the north of the Netherlands*, Wolters-Noordhoff, Groningen.

Kort, de J.-W. 2007. De vegetatieontwikkeling rondom de Zevenbergen bij Oss, circa 1800-500 v.Chr. Een inspiratiebron voor natuurontwikkeling en landschapsbeheer. In R. Jansen and L. P. Louwe Kooijmans, *Van contract tot wetenschap. Tien jaar archeologisch onderzoek door Archol BV, 1997-2007*, Archol BV, Leiden, 221-234.

Koster, E. A. 2009. The "European Aeolian Sand Belt": Geoconservation of Drift Sand Landscapes, *Geoheritage* 1, 93-110.

Kranendonk, P./P. van der Kroft/J. J. Lanzing and B. H. F. M. Meijlink 2006. Witte vlekken ingekleurd: archeologie in het tracé van de HSL-Zuid, *Rapportage Archeologische Monumentenzorg 113*, Rijksdienst voor Oudheidkundig Bodemonderzoek, Amersfoort.

Kristiansen, K. 1998. The Construction of a Bronze Age Landscape. Cosmology, Economy and Social Organisation in Thy, Nortwestern Jutland. In B. Hänsel, *Mensch und Umwelt in der Bronzezeit Europas*, Oetker-Voges, Kiel,

Kristiansen, K. and B. Larsson 2005. *The rise of Bronze Age society. Travels, Transmissions and Transformations*, Cambridge University press, Cambridge.

Kuchler, S. 1987. Malangan: Art and Memory in a Melanesian Society, *Man* 22, 238-255.

Lagerås, K. E. 2002. Visible intentions? Viewshed analysis of Bronze Age burial mounds in Western Scania, Sweden. In C. Scarre, *Monuments and landscape in Atlantic Europe, perception and society during the Neolithic and the Early Bronze Age*, Routledge, London, 179-191.

Lake, M. 2007. Viewing space, *World Archaeology* 39, 1-3.

Lanting, J. N. 1973. Laat-Neolithicum en Vroege Bronstijd in Nederland en N.W.-Duitsland: Continue ontwikkelingen, *Palaeohistoria* XV, 216-313.

Lanting, J. N. 2007/2008. De NO-Nederlandse/NW-Duitse klokbekergroep: culturele achtergrond, typologie van het aardewerk, datering, verspreiding en grafritueel, *Palaeohistoria* 49/50, 11-116.

Lanting, J. N. and J. D. van der Waals 1971a. Ede, *Archeologisch Nieuws in het Bulletin van de Koninklijke Nederlandse Oudheidkundige Bond* 70, *125-*126.

Lanting, J. N. and J. D. van der Waals 1971b. Laat-neolithische grafheuvels bij Vaasen en Maarsbergen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* 52, 93-127.

Lanting, J. N. and J. D. van der Waals 1972a. Bennekom, *Archeologisch Nieuws in het Bulletin van de Koninklijke Nederlandse Oudheidkundige Bond* *129.

Lanting, J. N. and J. D. van der Waals 1972b. Renkum, *Archeologisch Nieuws in het Bulletin van de Koninklijke Nederlandse Oudheidkundige Bond* *131-*132.

Lanting, J. N. and J. D. van der Waals 1974. Oudheidkundig onderzoek bij Swalmen, *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden* 55, 1-111.

Lanting, J. N. and J. D. van der Waals 1976. Beaker Culture Relations in the Lower Rhine Basin. In J. N. Lanting and J. D. Van der Waals, *Glockenbecher Symposium Oberried 1974*, Fibula-Van Dishoek, Haarlem, 1-80.

Lanting, J. N. and W. G. Mook 1977. *The pre- and protohistory of the Netherlands in therms of radiocarbon dates*, s.n., Groningen.

Lanting, J. N. and H. van der Plicht 2001. De ^{14}C-chronologie van de Nederlandse pre- en protohistorie, III: Neolithicum, *Palaeohistoria* 41/42, 1-110.

Lanting, J. N. and H. van der Plicht 2003. De ^{14}C chronologie van de Nederlandse Pre- en Protohistorie IV: Bronstijd en Vroege IJzertijd, *Palaeohistoria* 43-44, 117-261.

Lanting, J. N./A. Aerts-Bijma and H. van der Plicht 2001. Dating of cremated bones, *Radiocarbon* 43, 243-254.

Last, J. 2007. *Beyond the grave, new perspectives on barrows*, Oxbow Books, Oxford.

Lawson, A. J. 2007. *Chalkland: an archaeology of Stonehenge and its region*, Hobnob Press, East Knoyle.

Leary, J./T. Darvill and D. Field 2010. *Round Mounds and Monumentality in the British Neolithic and Beyond*, Oxbow Books, Oxford.

Leusen, van M. 1999. Viewshed and Cost Surface Analysis Using GIS (Cartographic Modelling in a Cell-Based GIS II). In J. A. Barcelo/I. Briz and A. Vila, New Techniques for old times (CAA 98), Computer Applications and Quantitative Methods in Archaeology, Proceedings of the 26th Conference, Barcelona, March 1998*, BAR International Series* 757, 215-223.

Leusen, M. van 2002. *Pattern to Process: methodological investigations into the formation and interpretation of spatial patterns in archaeological landscapes*, Groningen (PhD thesis).

Linde, van der C. and D. R. Fontijn 2011. Mound 1 - A monumental Iron Age barrow. In D. R. Fontijn/Q. P. J. Bourgeois and A. Louwen, *Iron Age Echoes. Prehistoric land management and the creation of a Funerary Landscape - The "Twin Barrows" at the Echoput in Apeldoorn*, Sidestone Press, Leiden, 33-64.

Littleton, J. 2007. From the perspective of time: hunter-gatherer burials in south-eastern Australia, *Antiquity* 81, 1013-1028.

Llobera, M. 2000. Understanding movement: a pilot model towards the sociology of movement. In G. Lock, *Beyond the Map: Archaeology and Spatial Technologies*, IOS Press, Amsterdam, 65-83.

Llobera, M. 2001. Building Past Landscape Perception With GIS: Understanding Topographic Prominence, *Journal of Archaeological Science* 28, 1005-1014.

Llobera, M. 2003. Extending GIS-based visual analysis: the concept of visualscapes, *International Journal of Geographical Information Science* 17, 25-48.

Llobera, M. 2005. The Nature of Everyday Experience: Examples from the Study of Visual Space. In P. Fisher and D. J. Unwin, *Re-Presenting GIS*, John Wiley & Sons, Chichester.

Llobera, M. 2006. What you see is what you get? Visualscapes, visual genesis and hierarchy. In T. L. Evans and P. Daly, *Digital Archaeology: Bridging method and theory*, Routledge, London, 148-165.

Llobera, M. 2007a. Modeling visibility through vegetation, *International Journal of Geographical Information Science* 21, 799-810.

Llobera, M. 2007b. Reconstructing visual landscapes, *World Archaeology* 39, 51-69.

Llobera, M./D. Wheatley/J. Steele/S. Cox and O. Parchment 2010. Calculating the inherent visual structure of a landscape ('total viewshed') using high-throughput computing. In F. Niccolucci and S. Hermon, *Beyond the Artifact: Digital Interpretation of the Past. Proceedings of the CAA 2004, Prato 13-17 april 2004*, Archaeolingua, Budapest, 146-151.

Lock, G. and T. Harris 2000. Beyond the Map: Archaeology and Spatial Technologies. Introduction: Return to Ravello. In G. Lock, *Beyond the Map: Archaeology and Spatial Technologies*, NATO Science Series A: Life Sciences IOS Press, Amsterdam, xiii-xxv.

Lock, G. and J. Pouncett 2010. Walking the Ridgeway Revisited: The Methodological and Theoretical Implications of Scale Dependency for the Derivation of Slope and the Calculation of Least-Cost Pathways. In B. Frischer/J. Webb Crawford and D. Koller, *Making history interactive. Computer applications and quantitative methods in archaeology (CAA). Proceedings of the 37th international conference, Williamsburg/VA, United States of America, March 22-26, 2009*, Oxford, 192-203.

Lohof, E. 1991. *Grafritueel en sociale verandering in de bronstijd van Noordoost-Nederland*, Amsterdam (PhD thesis).

Lohof, E. 1994. Tradition and change. Burial practices in the Late Neolithic and Bronze Age in the north-eastern Netherlands, *Archaeological Dialogues* 1, 98-119.

Lohof, E. 2000. Dodenhuisjes, brandstapels en heilige huisjes, *Nieuwe Drentse Volksalmanak* 117, 36-51.

Lohof, E./T. Hamburg and J. Flamman 2011. Steentijd opgespoord. Archeologisch onderzoek in het tracé van de Hanzelijn-Oude Land, *Combined Archol rapport & ADC rapport* 138 & 2576, Archol, Leiden.

Louwe Kooijmans, L. P. 1973. Een grafheuvelgroep uit het laat-neolithicum en de Bronstijd in het terrein van de Romeinse castra te Nijmegen. In W. A. van Es/A. V. M. Hubrecht/P. Stuart/W. C. Mank and S. L. Wynia, *Archeologie en historie. Opgedragen aan H.Brunsting bij zijn zeventigste verjaardag*, Fibula-Van Dishoeck, Bussum, 87-125.

Løvschal, M. in press. Ways of wandering - In the Late Bronze Age Barrow Landscape of the Himmerland-area, Denmark. In D. R. Fontijn and K. Wentink, *Beyond Barrows*, Sidestone Press, Leiden,

Lowenborg, D. 2009. Landscapes of death: GIS modelling of a dated sequence of prehistoric cemeteries in Vastmanland, Sweden, *Antiquity* 83, 1134-1143.

Lucas, G. 2005. *The Archaeology of Time*, Routledge, London.

Mathiassen 1948. *Studier over Vestjyllands Oldtidsbebyggelse*, Gyldendalske Boghandel, Nordisk Forlag, Copenhague.

Meganck, M. 2006. Detailinventarisatie van circulaire structuren in Oost- en West-Vlaanderen gefotografeerd in 2003, *Lunula Archaeologia Protohistorica* XIV, 121-123.

Meijden, van der R. 2005. *Heukels' Flora van Nederland [23rd edition]*, Wolters-Noordhoff, Groningen.

Meijlink, B. H. F. M. and P. Kranendonk 2002. Archeologie in de Betuweroute: Boeren, erven, graven. De Boerengemeenschap van De Bogen bij Meteren (2450-1250 v. Chr.), *Rapportage Archeologische Monumentenzorg 87*, Rijksdienst voor het Oudheidkundig Bodemonderzoek, Amersfoort.

Metcalf, P. and R. Huntington 1991. *Celebrations of Death, the anthropology of mortuary ritual (2nd revised edition)*, Cambridge University Press, Cambridge.

Metz, W. 1993. *Luchtfoto-archeologie in oostelijk West-Friesland: mogelijkheden en resultaten van archeologische remote sensing in een verdwijnend prehistorisch cultuurlandschap*, Universiteit van Amsterdam, Amsterdam (PhD thesis).

Meurkens, L. 2010. The late medieval / Early Modern reuse of prehistoric barrows as execution sites in the southern part of the Netherlands, *Journal of Archaeology in the Low Countries* 2, 5-29.

Meurkens, P. 1993. *De dagboeken P.N. Panken 1819-1904. Memorieboek van een Branbantse schoolmeester*, *Eerste band: 1819-1858*, Eindhoven.

Midgley, M. S. 2008. *The Megaliths of Northern Europe*, Routledge, London.

Mizoguchi, K. 1993. Time in the Reproduction of Mortuary Practices, *World Archaeology* 25, 223-235.

Mlekuz, D. 2004. Listening to Landscapes: Modelling Past Soundscapes in GIS, *Internet Archaeology* 16.

Modderman, P. J. R. 1953. Een bronstijdgrafheuvel op "De Lillen". Vessem (Noord-Brabant), *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 4, 8-9.

Modderman, P. J. R. 1954. Grafheuvelonderzoek in Midden-Nederland, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* V, 7-44.

Modderman, P. J. R. 1955. Oudheidkundige verschijnselen. In W. J. van Liere and G. G. L. Steur, Een bodemkartering van de gemeente Epe en een bodemkundige verkenning van een deel van de gemeente Heerde, De *Bodemkartering van Nederland* 16, Den haag, 58-63.

Modderman, P. J. R. 1957. Een dodenhuis op de Gelpenberg bij Aalden, *Nieuwe Drentse Volksalmanak* 75, 19-22.

Modderman, P. J. R. 1962-1963. De verspreiding van de bekerculturen op de Veluwe, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 12/13, 7-24.

Modderman, P. J. R. 1967. The Kattenberg and the 'De Paal' urnfield near Bergeijk (North-Brabant), *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 17, 59-63.

Modderman, P. J. R. 1975. Bodemvorming in grafheuvels, *Analecta Praehistorica Leidensia* VIII, 11-21.

Modderman, P. J. R. 1982. *Ermelo*, grafheuvels op de heide, *Archeologische Monumenten in Nederland* 10, Terra, Zutphen.

Modderman, P. J. R. 1984. Intermediaire standgreppels in grafheuvels? Nee!, *Analecta Praehistorica Leidensia* 17, 57-64.

Mook, W. G. and H. T. Waterbolk 1985. Radiocarbon dating, *Handbooks for archaeologists* 3, European Science Foundation, Strasbourg.

Moore, J. D. 2010. Making a huaca: Memory and praxis in prehispanic far northern Peru, *Journal of Social Archaeology* 10, 398-422.

Mulder, de, G. 2011. *Funeraire rituelen in het Scheldebekken tijdens de late bronstijd en de vroege ijzertijd. De grafvelden in hun maatschappelijke en sociale context*, Gent (unpublished PhD thesis).

Müller, S. 1904. Vei og Bygd i Sten- og Bronzealdern, *Aarbøger for Nordisk oldkyndighed og historie* 1904, 1-64.

Mullin, D. 2001. Remembering, forgetting and the invention of tradition: burial and natural places in the English Early Bronze Age, *Antiquity* 75, 533-537.

Needham, S./A. J. Lawson and A. B. Woodward 2010. 'A Noble Group of Barrows': Bush Barrow and the Normanton Down Early Bronze Age Cemetery Two Centuries on, *The Antiquaries Journal* 90, 1-39.

Needham, S./K. Parfitt/A. Birchenough and B. Corke 2006. *The Ringlemere cup: precious cups and the beginning of the Channel Bronze Age*, British Museum, London.

Nora, P. 1989. Between Memory and History: Les Lieux de Mémoire, *Representations* 26, 7-24.

Ogburn, D. E. 2006. Assessing the level of visibility of cultural objects in past landscapes, *Journal of Archaeological Science* 33, 405-413.

Parker Pearson, M. 2005. *Bronze Age Britain [2nd edition]*, Batsford, London.

Petersen, F. 1972. Traditions of multiple burial in Later Neolithic and Early Bronze Age England, *Archaeological Journal* 129, 22-55.

Picardt, J. 1660. *Korte Beschryvinge van Eenige Vergetene en Verborgene Antiquiteten Der Provintien en Landen Gelegen tusschen de Noord-Zee, de Yssel, Emse en Lippe. Waer by gevoegt zijn Annales Drenthiae, dat zijn Eenige Aenteyckeninghen en Memorien, van sommige gedenckwaerdige Geschiedenissen, gepasseert in het Antiquiteet-rijcke Landscape Drenth, van de Geboorte Christi af, tot op desen tijdt. Mitsgaders een korte beschrijvinge der Stadt, des Casteels, en der Heerlickheyt Covorden*, Tymon Houthaak, Amsterdam.

Pleyte, W. 1877-1903. *Nederlandsche oudheden van de vroegste tijden tot Karel de Groote*, Brill, Leiden.

Pollex, A. 1999. Comments on the interpretation of the so-called cattle burials of Neolithic Central Europe, *Antiquity* 73, 542-550.

Porr, M. 2010. Palaeolithic Art as Cultural Memory: a Case Study of the Aurignacian Art of Southwest Germany, *Cambridge Archaeological Journal* 20, 87-108.

Remouchamps, A. E. 1923. De cultuur der koepelgrafheuvels. Opgravingen nabij Ermelo, *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden. Nieuwe Reeks* IV, 1-26.

Remouchamps, A. E. 1928. Grafheuvel-onderzoekingen, *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* 9, 58-73.

Renfrew, C. 1976. Megaliths, territories and populations. In S. J. d. Laet, *Acculturation and continuity in Atlantic Europe*, De Tempel, Bruges, 198-220.

Reu, de, J./M. Bats/P. Crombé/M. Antrop/M. Court-Picon/P. de Mayer/P. de Smedt/P. Finke/M. van Meirvenne/J. Verniers/I. Werbrouck/A. Zwertvaegher and J. Bourgeois 2011a. Een GIS benadering van de bronstijdgrafheuvels in Zandig-Vlaanderen: enkele voorlopige resultaten (België), *Lunula Archaeologia Protohistorica* XIX, 3-8.

Reu, de, J./E. Deweirdt/P. Crombé/M. Bats/M. Antrop/P. de Maeyer/P. de Smedt/P. Finke/M. Van Meirvenne/J. Verniers/A. Zwertvaegher and J. Bourgeois 2011b. Les tombelles de l'âge du Bronze en Flandre Sablonneuse: un *Status Quaestionis*, *Archäologisches Korrespondenzblatt* 41, 491-505.

Roddick, A. P. and C. A. Hastorf 2010. Tradition Brought to the Surface: Continuity, Innovation and Change in the Late Formative Period, Taraco Peninsula, Bolivia, *Cambridge Archaeological Journal* 20, 157-178.

Roessingh, W. 2010. Bronstijdbewoning in West-Friesland. Archeologisch onderzoek in het plangebied "Kadijken" in Enkhuizen (provincie Noord-Holland, Nederland), *Lunula Archaeologia Protohistorica* XVIII, 63-71.

Roessingh, W. and W. van Zijverden 2011. Begraven in het Westfriese Land. In H. Van der Velde/N. L. Jaspers/E. Drenth and H. B. G. Scholte Lubberink, *Van graven in de prehistorie en dingen die voorbijgaan. Studies aangeboden aan Eric Lohof bij zijn pensionering in de archeologie*, Sidestone Press, Leiden, 115-130.

Rowlands, M. 1993. The role of memory in the transmission of culture, *World Archaeology* 25, 141-151.

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

Roymans, N. and H. Fokkens 1991. Een overzicht van veertig jaar nederzettingsonderzoek in de Lage Landen. In H. Fokkens and N. Roymans, Nederzettingen uit de bronstijd en de vroege ijzertijd in de Lage Landen, *Nederlandse Archeologische Rapporten* 13, ROB, Amersfoort, 1-19.

Roymans, N. and A. Tol 1993. Noodonderzoek van een dodenakker te Mierlo-Hout. In N. Roymans and F. Theuws, *Een en al zand, twee jaar graven naar het Brabants Verleden*, Stichting Brabantse Regionale Geschiedbeoefening, 's-Hertogenbosch, 42-56.

Roymans, N. and F. Kortlang 1999. Urnfield Symbolism, ancestors and the land in the Lower Rhine Region. In F. Theuws and N. Roymans, *Land and Ancestors: cultural dynamics in the urnfield period and the Middle Ages in the southern Netherlands*, Amsterdam University Press, Amsterdam, 22-41.

Runia, L. T. and P. Buurman 1987. The so-called "sekundärpodsolierung" in Burial Mounds: Chemical Data from Dutch Barrows, *Journal of Archaeological Science* 14, 97-105.

Scarre, C. 2010. Rocks of Ages: Tempo and time in megalithic monuments, *European Journal of Archaeology* 13, 175-193.

Schiffer, M. B. 1976. *Behavioural Archaeology*, Academic Press, New York.

Schinkel, K. 1998. Unsettled settlement, occupation reains from the Bronze Age and the Iron Age at Oss-Ussen. The 1976-1986 excavations. In H. Fokkens, The Ussen project. The first decade of excavations at Oss, *Analecta Praehistorica Leidensia* 30, 5-306.

Sherratt, A. 1990. The Genesis of megaliths: monumentality, ethnicity and Social Complexity in Neolithic North-West Europe, *World Archaeology* 22, 147-167.

Sherratt, A. 1997. *Economy and society in prehistoric Europe: changing perspectives*, Edinburgh University Press, Edinburgh.

Smaele, de, B./S. Delaruelle/C. Thijs/S. Verdegem/S. Scheltjens and J. van Doninck 2011. Een grafveld uit de bronstijd aan de Krommenhof in Beerse (prov. Antwerpen, België), *Lunula Archaeologia Protohistorica* XIX, 9-14.

Smith, A. T. 2003. *The political landscape: constellations of authority in early complex polities*, Uniersity of California Press, Berkeley.

Smits, E. 1994. Verslag van de heranalyse van de crematieresten uit de grafheuvelcluster te Toterfout-Halve Mijl (unpublished report), Amsterdam.

Sopp, M. 1999. Die Wiederaufnahme älterer Bestattungsplätze in den nachfolgenden vor- und frühgeschichtlichen Perioden in Norddeutschland, Antiquitas Reihe 3 (Serie in 4to): *Abhandlungen zur vor- und frühgeschichtliche, zur Klassischen und Provinzial-Römischen Archäologie und zur Geschichte des Altertums* 39, Dr. Rudolf Habelt Gmbh., Bonn.

STIBOKA 1973. *Bodemkaart van Nederland Schaal 1:50 000. Toelichting bij de kaartbladen 39 West Rhenen en 39 Oost Rhenen*, Van der Wiel-Luyben B.V., Arnhem.

Stortelder, A. F. H./J. T. de Smidt and C. A. Swertz 1996. Calluno-ulicetea. In J. H. J. Schaminée/A. F. H. Stortelder and E. J. Weeda, *De vegetatie van Nederland, deel 3. Plantengemeenschappen van graslanden, zomen en droge heiden*, Opulus Press, Uppsala, 287-316.

Stortelder, A. F. H./J. H. J. Schaminée and P. W. F. M. Hommel 1999. *De vegetatie van Nederland. Deel 5: Ruigten, Struwelen, Bossen*, Opulus Press, Uppsala.

Strydonck, van M./M. Boudin and G. de Mulder 2009. ^{14}C dating of cremated bones: the issue of sample contamination, *Radiocarbon* 52, 578-586.

Taylor, R. E. and M. J. Aitken 1997. *Chronometric dating in archaeology*, Plenum, New York.

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

Theunissen, E. M. 1995. Bronstijdgrafheuvels in het zuiden van de Lage Landen: een heranalyse van het grafveld Toterfout-Halve Mijl (Noord-Brabant, Nederland), *Lunula Archaeologia Protohistorica* 3, 1-3.

Theunissen, E. M. 1999. *Midden-bronstijdsamenlevingen in het zuiden van de Lage Landen. Een evaluatie van het begrip 'Hilversum-cultuur'*, Leiden (PhD thesis).

Thomas, J. 1996. *Time, Culture and Identity. An interpretitive archaeology*, Routledge, London.

Thomas, J. 2004. *Archaeology and modernity*, Routledge, London.

Thrane, H. 1998. The effects of the Bronze Age on the environment and culture in Scandinavia. In B. Hänsel, *Mensch und Umwelt in der Bronzezeit Europas*, Oetker-Voges, Kiel, 271-280.

Tilley, C. 1994. *A phenomenology of Landscape. Places, Paths and Monuments*, Berg, Oxford.

Tilley, C. 2004a. *The Materiality of Stone. Explorations in Landscape Phenomenology: 1*, Berg, Oxford.

Tilley, C. 2004b. Round Barrows and Dykes as Landscape Metaphors, *Cambridge Archaeological Journal* 14, 185-203.

Tilley, C. 2005. Phenomenological Archaeology. In C. Renfrew and P. Bahn, *Archaeology: The Key Concepts*, Routledge, London, 201-207.

Towers, J./J. Montgomery/J. Evans/M. Jay and M. P. Pearson 2010. An investigation of the origins of cattle and aurochs deposited in the Early Bronze Age barrows at Gayhurst and Irthlingborough, *Journal of Archaeological Science* 37, 508-515.

Tschan, A. P./W. Raczkowski and M. Latalowa 2000. Perception and viewsheds: are they mutually inclusive. In G. Lock, *Beyond the Map: Archaeology and Spatial technologies*, IOS Press, Amsterdam, 28-48.

Tuan, Y.-F. 1977. *Space and Place, The Perspective of Experience*, University of Minnesota Press, Minneapolis.

Tureckij, M. A. 2004. Wagengräber der grubengrabzeitlichen Kulturen im Steppengebiet Osteuropas. In M. Fansa and S. Burmeister, Rad und Wagen: Der Ursprung einer Innovation. Wagen im Vorderen Orient und Europa, *Beiheft der Archäologische Mitteilungen aus Nordwestdeutschland* 40, Philipp von Zabern, Mainz am Rhein, 191-200.

Turek, J. 2006. Beaker barrows and the houses of dead. In L. Šmejda, *Archaeology of Burial Mounds*, Dryada, Plzeň, 170-179.

Uslar, von V. R. 1972. Zu den tumuli paganorum und corpora flamma consumpta. In E. Ennen and G. Wiegelmann, *Festschrift Matthias Zender. Studien zu Volkskultur, Sprache und Landesgeschichte*, Ludwig Röhrscheid Gmbh., Bonn, 481-489.

Vansina, J. 1985. *Oral tradition as history*, University of Wisconsin Press, Madison.

Veen, M. van der and J. N. Lanting 1991. A group of tumuli on the Hooghalen estate near Hijken, municipality of Beilen, prov. Drenthe, NL, *Palaeohistoria* 31, 191-234.

Verwers, G. J. 1964. A Veluvian Bell Beaker with remains of a cremation in a tumulus near Meerlo, *Analecta Praehistorica Leidensia* 1, 17-24.

Verwers, G. J. 1972. Das Kamps Veld in Haps in Neolithicum, Bronzezeit und Eisenzeit, *Analecta Praehistorica Leidensia* V, 1-176.

Verwers, W. J. H. 1990. *Archeologische Kroniek van Noord-Brabant 1985-1987*, Bijdragen tot de studie van het Brabantse Heem Stichting Brabants Heem, Waalre.

Verwers, W. J. H. and P. W. van den Broeke 1985. Het Bossche Broek opgerold. Een archeologisch onderzoek in Den Dungen, *Tijdschrift van de Heemkundevereniging 'Den Dungen'* 10, 11-20.

Waals, van der J. D. 1964. *Prehistoric disc wheels in the Netherlands*, Wolters, Groningen (PhD thesis).

Wandsnider, L. 1998. Regional Scale Processes and Archaeological Landscape Units. In A. F. Ramenofsky and A. Steffen, *Unit Issues in Archaeology. Measuring Time, Space, and Material*, The University of Utah Press, Salt Lake City, 87-102.

Waterbolk, H. T. 1954. Palynological investigations of the barrow cemetery between Toterfout and Halve Mijl. In W. Glasbergen, Barrow excavations in the Eight Beautitudes, The Bronze Age cemetery between Toterfout & Halve Mijl, North Brabant, *Palaeohistoria* 3, Groningen, 105-122.

Waterbolk, H. T. 1961. Bronzezeitliche dreischiffige Hallenhäuser von Elp (Drenthe), *Helinium* 1, 126-132.

Waterbolk, H. T. 1964. Podsolierungserscheinungen bei Grabhügeln, *Palaeohistoria* 10, 87-102.

Waterbolk, H. T. and W. van Zeist 1961. A Bronze Age sanctuary in the raised bog at Bargeroosterveld (Dr.), *Helinium* 1, 5-19.

Watson, A. 2001. Round barrows in a circular World, monumentalising landscapes in Early Bronze Age Wessex. In J. Brück, *Bronze Age Landscapes, tradition and transformation*, Oxbow Books, Oxford, 207-216.

Wentink, K. in prep. *The biographies of grave goods and the identity of the dead (working title)*, Sidestone Press, Leiden (PhD thesis).

Wheatley, D. 1995. Cumulative Viewshed Analysis: a GIS-based method for investigating intervisibility, and its archaeological application. In G. Lock and Z. Stancic, *Archaeology and Geographical Information Systems: a European perspective*, Taylor & Francis, London, 171-186.

Wheatley, D. 2004. Making Space for an Archaeology of Place, *Internet Archaeology* 15.

Wheatley, D. and M. Gillings 2000. Vision, perception and GIS: developing enriched approaches to the study of archaeological visibility. In G. Lock, Beyond the map: archaeology and spatial technologies, *NATO Science Series A*, Life Sciences IOS Press, Amsterdam, 1-27.

Wheatley, D. and M. Gillings 2002. *Spatial Technology and Archaeology. The archaeological applications of GIS*, Taylor and Francis, London.

Whittle, A. 1996. *Europe in the Neolithic: the creation of new worlds*, Cambridge University Press, Cambridge.

Wilhelmi, K. 1986. Ältebronzezeitliche Grabanlage mit Pfostenzuwegung in Westniedersachsen und ihre englischen Muster, *Helinium* 26, 58-66.

Williams, H. 1998. Monuments and the past in Early Anglo-Saxon England, *World Archaeology* 30, 90-108.

Włodarczak, P. 2009. Radiocarbon and Dendrochronological Dates of the Corded Ware Culture, *Radiocarbon* 51, 737-749.

Woodward, A. 2000. *British Barrows, a matter of life and death*, Tempus Publishing, Stroud.

Woodward, A. B. and P. J. Woodward 1996. The topography of some Barrow Cemeteries in Bronze Age Wessex, *Proceedings of the Prehistoric Society* 62, 275-291.

Yoffee, N. 2007. *Negotiating the past in the past: identity, memory, and landscape in archaeological research*, University of Arizona Press, Tucson.

Appendices

All datasets used in this book have been deposited in EASY, the online archiving system of Data Archiving and Networked Services (DANS). The dataset is freely accessible from the website https://easy.dans.knaw.nl/ and will remain safely stored for the long term:

http://persistent-identifier.nl/?identifier=urn:nbn:nl:ui:13-qde7-l6

Appendix A

Database of all excavated burial mounds in the Low Countries (589 records).

Appendix B

Overview of all recorded mounds within the case studies and relevant data.

Appendix C

All available radiocarbon dates in association with burial monuments in the Low Countries.

Appendix D

All artefacts recovered in association with burial monuments in the Low Countries.

Samenvatting (Dutch summary)

Het grafritueel in het 3de en 2de millennium voor onze jaartelling wordt gekenmerkt door het bouwen van zichtbare grafmonumenten. Gedurende deze twee millennia werden duizenden heuvels van plaggen opgeworpen, die allen een graf bedekken. Over heel Noord-West Europa zijn tienduizenden van deze grafmonumenten nog steeds zichtbaar in het hedendaagse lanschap. Het is dan ook niet verbazingwekkend dat ze al meer dan honderd jaar de basis van onze kennis over het Laat-Neolithicum en de Bronstijd vormen. Er zijn er honderden opgegraven en we weten vaak vrij goed wat er in zo'n grafheuvel ligt.

Deze honderden en duizenden grafheuvels liggen verspreid door het landschap en in vele gevallen vormen ze uitgebreide zones met grafmonumenten; zogenaamde grafheuvellandschappen. Dit zijn plekken in het landschap waar los verspreid tientallen (groepen) grafmonumenten liggen. Deze zones kunnen soms verschillende vierkante kilometers bedekken. Toch is het vrij moeilijk om dit soort verspreidingen van grafheuvels te begrijpen. Waarom liggen sommige grafheuvels bijvoorbeeld in kleine rijen, terwijl anderen weg van deze structuren liggen? Centraal in dit proefschrift staat de vraag hoe het grafheuvellandschap ontstond en hoe het door de tijd heen ontwikkelde.

Het is duidelijk dat het grafheuvellandschap een palimpsest is, waar gedurende duizenden jaren heuvels aan toegevoegd werden en waar inmiddels duizenden heuvels zijn verdwenen. Het palimpsest karakter van grafheuvellandschappen maakt het moeilijk om dit soort landschappen te begrijpen. In eerdere studies is zelden rekening gehouden met de betekenis en de implicaties van dit palimpsestkarakter. In veel gevallen benaderde men grafheuvellandschappen retrospectief, vanuit de eind-situatie, zonder rekening te houden met de complexe ontstaansgeschiedenis van het grafheuvellandschap (Hoofdstuk 2).

Een gedetailleerde analyse van de chronologie van grafheuvellandschappen toont dat er verschillende periodes zijn waarin grafheuvels gebouwd werden (Hoofdstuk 3). Een hernieuwde analyse van alle beschikbare ^{14}C dateringen toont verschillende periodes waarin de bouw van grafheuvels varieerde in intensiteit. De vroegste grafheuvels werden gebouwd rond 2900-2800 v.Chr. Gedurende 800 à 900 jaar werden er continu nieuwe heuvels aan het grafheuvellandschap toegevoegd. Na deze periode van intensieve grafheuvelbouw volgde een periode van 200 jaar (de Vroege Bronstijd) waarin er bijna geen nieuwe grafheuvels gebouwd werden. Er zijn wel aanwijzingen dat eerdere monumenten nog herkend werden als dusdanig en dat er herbegraven werd in deze bestaande monumenten.

Na deze afname in grafheuvelbouw werden in een relatief korte periode weer honderden grafheuvels gebouwd (met name de periode tussen 1800 en 1400 v.Chr.). Waar er eerder nog een chronologisch onderscheid werd gemaakt tussen grafheuvels omgeven met ringsloten en grafheuvels omcirkeld met palenkransen, moet er op basis van een ^{14}C analyse geconcludeerd worden dat deze vormen van grafheuvels grotendeels contemporain waren.

Na 1400 v.Chr. werden er weer aanzienlijk minder grafheuvels gebouwd dan in de periode daarvoor. Gedurende driehonderd jaar, tot de opkomst van urnenvelden, werden bijna geen nieuwe grafheuvels gebouwd, net als in de Vroege Bronstijd.

Deze veranderingen in grafritueel en de specifieke periodes waarin ze voorkomen reflecteren fundamentele veranderingen in de perceptie van grafheuvels en hun rol in het landschap.

Een belangrijk punt is wel dat grafheuvellandschappen die we nu nog kunnen onderzoeken millennia lang onderhevig zijn geweest aan kaartbeeldvervormende processen (Hoofdstuk 4). Niet alleen zijn er continu grafheuvels aan toegevoegd, er zijn er ook duizenden verdwenen door natuurlijke en antropogene processen.

Een evaluatie van alle verstorende processen toont dat de ongeveer 4000 overgebleven grafheuvels in de Lage Landen, slechts een fractie zijn van de hoeveelheid heuvels die ooit gebouwd is. Natuurlijke processen, zoals erosie door rivieren en stuifzand, hebben zeker een rol gespeeld in het verdwijnen van vele grafheuvels. Daarnaast hebben menselijke activiteiten zoals landbouw en urbanisatie zonder twijfel ook een enorme impact gehad op het archeologische databestand. Met name in de zones rond steden en gehuchten waar zich *essen*, een typisch laatmiddeleeuws landbouwsysteem, hebben ontwikkeld, vinden we nu bijna geen grafheuvels meer terug. Het merendeel van de grafheuvels dat hedendaags nog zichtbaar is ligt dan ook in zones die in de 19de eeuw nog bos of heide waren. Grote concentraties grafheuvels zijn nu slechts te vinden in natuurgebieden.

De hernieuwde chronologie en een analyse van de kaartbeeldverstorende patronen is toegepast op vier voorbeeldstudies (Hoofdstuk 5). Voor elk van deze studies is geprobeerd om de ontwikkeling van het grafheuvellandschap te ontrafelen. Er werden drie gebieden op de Veluwe geselecteerd (Epe-Niersen, Renkum en Ermelo) en één in de Kempen (Toterfout).

De analyses van deze vier voorbeeldstudies brachten vergelijkbare ontwikkelingen aan het licht. In alle drie de voorbeeldstudies op de Veluwe zijn lange rijen van grafheuvels aangetoond. Al deze rijen zijn aangelegd in het Laat-Neolithicum A, en kunnen worden gezien als de eerste funeraire structuren in het landschap. De gelijkenis tussen de verschillende rijen, in termen van lengte en de afstand tussen de heuvels, doet vermoeden dat ze onderdeel zijn van een bepaalde visie en een concept van grafheuvellandschappen dat typisch is voor het Laat-Neolithicum A.

Tijdens de klokbekerperiode worden de rijen verder uitgebouwd. Tegelijkertijd worden er verschillende heuvels in nieuwe gebieden aangelegd, waar voorheen nog geen grafheuvels aanwezig waren. In de voorbeeldstudies op de Veluwe is ook in enkele gevallen het hergebruik van bestaande grafheuvels vastgesteld, iets wat niet of nauwelijks voorkomt in de voorafgaande periode.

In de Vroege Bronstijd zijn er slechts sporadisch aanwijzingen van grafheuvelbouw en hergebruik van grafheuvels. In enkele grafheuvels zijn wel deposities van aardewerk aangetroffen, wat er op wijst dat men de heuvels nog steeds herkende en respecteerde.

Vanaf de Midden-Bronstijd nam grafheuvelbouw exponentieel toe. In een relatief korte tijdsspanne werden duizenden heuvels gebouwd. Met name nabij Ermelo en Toterfout kon worden vastgesteld hoe er in een relatief kort tijdsbestek vele nieuwe heuvels aangelegd werden. Niet alleen grafheuvelbouw nam opnieuw toe, maar ook het hergebruik van oudere monumenten. In zowat elke goed bewaarde en volledig opgegraven grafheuvel zijn secundaire graven en ophogingen daterende in de Midden-Bronstijd aangetroffen. Dit hergebruik beperkte zich niet alleen tot de oudere (Neolithische) heuvels, maar ook tot de nog maar kort daarvoor aangelegde grafheuvels. Vanaf omstreeks 1400 v.Chr. nam grafheuvelbouw opnieuw sterk af en zijn er maar sporadisch aanwijzingen voor de bouw van nieuwe grafheuvels. Pas rond 1100 v.Chr. werden er opnieuw grafheuvels gebouwd. Een belangrijk verschil met de vorige perioden is dat er vanaf dan alleen maar op bepaalde locaties in het landschap nieuwe heuvels werden gebouwd. Sommige van deze locaties ontwikkelden zich door de tijd heen tot grote urnenvelden, waarbij tientallen kleine heuveltjes aansluiten bij enkele oudere heuvels.

In Hoofdstuk 6 wordt ingegaan op de vraag wat de visuele rol van een grafheuvel in het landschap is. Een grafheuvel, hoe klein ook, markeert een bepaalde plek in het landschap. Nadat een heuvel eenmaal is opgeworpen blijft men deze locatie herkennen. Op deze manier transformeert een grafheuvel een plek in het landschap tot een betekenisvolle locatie.

Het opwerpen van een heuvel zorgt ervoor dat deze plek ook herkenbaar blijft. Dit is duidelijk naar voren gekomen in een GIS-studie waarbij grafheuvels gemiddeld beduidend zichtbaarder blijken te zijn dan elke andere locatie in het landschap. Verdere analyse toont wel dat we dit moeten nuanceren. Sommige heuvels zijn zichtbaar van veraf, terwijl het merendeel van de heuvels dat niet is. Met name grafheuvels die dusdanig op de rug van een helling zijn geplaatst, dat ze onderdeel van de horizon vormen (*cresting*), zullen van veel grotere afstanden zichtbaar geweest zijn.

Zeker in de context van de grafheuvelrijen uit het Laat Neolithicum A, zijn er aanwijzingen dat deze visuele hiërarchie gemanipuleerd werd. Enkele monumenten waren zo geplaatst dat ze over grote afstanden langs de lengte van de hele *alignment* zichtbaar geweest zullen zijn. Andere monumenten daarentegen zullen alleen maar zichtbaar zijn geweest door langs de grafheuvelrij te lopen, waarbij de opeenvolging van grafmonumenten relevant was.

In het laatste deel van het proefschrift is geprobeerd om de patronen in de case studies in een context te plaatsen. Als eerste heb ik gekeken naar hoe prehistorische gemeenschappen reageerden op al bestaande monumenten (Hoofdstuk 7). Met name de houding ten opzichte van eerdere monumenten in de Midden-Bronstijd was fundamenteel anders dan die in de voorafgaande periodes. Waar herbegraving in bestaande monumenten sporadisch voorkwam in het Laat-Neolithicum en de Vroege Bronstijd, was die in de Midden-Bronstijd eerder regel dan uitzondering. Het merendeel van de bestaande grafheuvels wordt in de periode tussen 1800 en 1400 v.Chr. opgehoogd of gebruikt voor secundaire begravingen.

In sommige gebieden, waar dit goed gedocumenteerd is, is in bijna alle grafheuvels minstens een secundaire begraving aangetroffen. Elke grafheuvel die op een heideveld lag werd in een bepaalde mate opnieuw geïncorporeerd en voorzien van een Midden-Bronstijd interpretatie. Deze attitude ten opzichte van bestaande grafheuvels is typisch voor de Midden-Bronstijd. In latere periodes bijvoorbeeld, spelen bestaande grafheuvels nog steeds een belangrijke rol, maar krijgen slechts enkelen extra aandacht. In de Late Bronstijd en de Vroege IJzertijd spelen oudere monumenten een belangrijke rol in de organisatie van een urnenveld. Dit betreft echter een selectie van het totale aantal grafheuvels en omvat niet het hele grafheuvellandschap. De overige grafheuvels spelen dan geen actieve rol meer in het dodenlandschap.

De Midden-Bronstijd attitude tot het grafheuvellandschap toont op deze manier hoe in elke periode een specifiek beeld bestond bij hoe een grafheuvellandschap er uit diende te zien (Hoofdstuk 8). In het Laat-Neolithicum A lag de focus vooral op het creëren van lange grafheuvelrijen. Dit concept van lineariteit en het bewegen langs een as gemarkeerd met grafmonumenten is niet alleen te zien op de Veluwe, maar ook ver daarbuiten. De grafheuvelrijen, komen niet alleen voor op de Veluwe, maar overal waar *Corded Ware* grafheuvels voorkomen, onder andere in Denemarken en Centraal Europa. Er zijn verschillende aanwijzingen dat dit een fenomeen is dat typisch was voor het Laat-Neolithicum A, en dat mogelijk gekoppeld kan worden aan de rol van mobiliteit in het grafritueel.

Vanaf het Laat-Neolithicum B werd het concept van grafheuvelrijen losgelaten. Er werden nog steeds grafheuvels bij of op de bestaande rijen aangelegd, maar daarnaast werden ook tientallen heuvels weg van deze rijen gebouwd. Grafheuvels werden wel nog steeds in heidelandschappen aangelegd. Heides zijn dus een constant gegeven zijn in het grafritueel tijdens het 3de en 2de millennium v.Chr. In die zin kunnen we dus misschien ook spreken van heidegemeenschappen. In het Laat-Neolithicum B en de Midden-Bronstijd kan gesteld worden dat de rol van heide als een dodenlandschap misschien bepalend was voor de locatiekeuze van een grafheuvel.

In het laatste hoofdstuk wordt dieper ingegaan op waarom de grafheuvellandschappen zich op deze manier ontwikkelden. Belangrijk punten hierbij zijn dat de ontwikkeling van het grafheuvel landschap een process van honderden jaren omvat, maar ook dat elke grafheuvel door een groep mensen werd gebouwd, een gemeenschap. Parallellen in de uitwerking van het grafritueel, de choreografie, en het idiosyncratische karakter ervan wijzen op het bestaan van verschillende grafheuvelgemeenschappen. Groepen mensen die samen grafheuvels bouwen.

Door een grafheuvel te bouwen, manifesteerde een gemeenschap zich fysiek in het landschap. Door het manipuleren van de positie van een grafheuvel in dat landschap, werden betekenisvolle relaties uitgedrukt. Zo kan het aansluiten bij een rij grafheuvels bepaald worden volgens genealogische banden, of op andere momenten een uitdrukking zijn van een hiërarchie. Deze duizenden locatiekeuzes hebben geleid tot het creëren van een visueel gestructureerd landschap.

De rol van heidevelden bleef door de eeuwen heen bepalend voor waarom mensen juist hier bleven begraven. Deze heidevelden werden breed gedefinieerd als begravingszones, waar de voorouders lagen. De grafheuvelgemeenschappen keerden er steeds opnieuw naar terug om hun doden te begraven.

Door telkens terug te keren naar deze heidevelden herinterpreteerden de gemeenschappen steeds opnieuw de eeuwenoude relicten en incorporeerden deze in een collectief geheugen. Sommige grafheuvels werden hergebruikt, anderen weer niet. Nieuwe heuvels werden gebouwd, om langzaam weer onderdeel te worden van het collectief geheugen. Door nieuwe heuvels te bouwen herstructureerden en definieerden grafheuvelgemeenschappen zich opnieuw rond de (eeuwen-)oude grafmonumenten.

Acknowledgements

The last four years of working on this PhD have been, without a doubt, wonderful years. Many people helped me throughout the entire process and it is my pleasure to thank them here. I hope I am not forgetting anyone!

A first big thanks should go to my partners in the *Ancestral Mounds* project, Karsten Wentink, Marieke Doorenbosch, Corrie Bakels and Annelou van Gijn. Our many fruitful discussions have made this project better than the sum of its parts.

Many other people also helped in some way or another. Marco Langbroek with the calculations of celestial bodies (Chapter 8). I would like to thank Alexander Verpoorte, Miguel-John Versluys, Erik van Rossenberg, Erik Drenth, Eric Lohof, Hans Kamermans, Martijn van Leusen, Roy van Beek and Stijn Arnoldussen for several discussions and pointers. Interesting (sometimes unrelated) discussions with my fellow PhD's, Maikel Kuijpers, Patrick Valentijn and Sasja van der Vaart. Leendert Louwe Kooijmans for insisting on writing a concise PhD. Maarten Wispelwey, Masja Parlevliet, Liesbeth Theunissen, Erik Dullaert and Luc Amkreutz for all helping with and facilitating parts of this work.

I must not forget to mention my partners-in-crime during our many barrow excavations, Arjan Louwen, Cris van der Linde, Maurits Pruysen and André Manders. Much fun we had!

Several people also contributed to the final stages of this work, Pjotter Tomas-Sannen for proof-reading the text and the crew at Sidestone for the final touches.

An extra mention must go to my promotor Harry Fokkens. The at times harsh discussions on preliminary chapters have certainly shaped and modified this book for the better!

A special thanks I reserve for my mentor David Fontijn, who was involved from the very first baby-steps in the direction of this PhD. I will never forget the many beautiful moments we had throughout the years. The many thought-provoking discussions and the wonderful excavations with all their ups and downs.

And of course not only colleagues were involved in this work. I will not forget the moral support from **Donnie, Gerard, Laura and Miriam. The at times necessary** escapes were very much appreciated.

My parents and my sister, firstly for their unrelenting support throughout the years and secondly for supporting me in the choice to live abroad amongst these funny Dutchmen. I would especially like to thank my father for introducing me to archaeology in the first place.

And lastly Marjolein. I feel that the entire acknowledgements could be dedicated to her, without doing justice to the help she provided me. The many evenings and weekends she spent alongside me editing the entire book, reading (very) early drafts, keeping me healthy and fed throughout the last year, months, weeks and days of this work, being so crazy as to join me in getting up at 4 in the morning to take pictures of barrows but especially for morally supporting me through the arduous process of writing and for just being around. Thank you.

Curriculum vitae

Quentin Bourgeois was born in 1982 in the city of Gent (Belgium). As the son of an archaeologist and a historian, his interest in the past was quickly awakened. From 1994 to 2000 he went to the Koninklijk Atheneum Voskenslaan in Gent, graduating in Latin and Modern Languages. In 2000 he started his studies at the Faculty of Archaeology, Leiden University. He graduated in august 2004 in the field of pre- and protohistory of North-Western Europe. The subject of his *doctoraal*-thesis was the long-term occupation of the *Maashorst* in the Southern Netherlands. In 2003 and 2004 he was employed by Archol bv, where he participated in several excavations at Nistelrode. From 2005 until 2008 he was employed as a researcher at the Faculty of Archaeology, Leiden University. During that time he created a database of all excavated barrows in the Low Countries, co-authored several papers, substituted and taught a number of classes and organised and co-led five excavations on barrows. In 2008 he started his PhD at the Faculty of Archaeology at Leiden University within the framework of the NWO-funded *Ancestral Mounds*-project. Throughout his PhD he continued to participate on excavations on barrows, co-authored several papers and co-edited a book on one of these excavations. As of October 2012, he is employed part-time at the Faculty of Archaeology as coordinator of the Honours Class.

Monuments on the Horizon

Barrows, as burial markers, are ubiquitous throughout North-Western Europe. In some regions dense concentrations of monuments form peculiar configurations such as long alignments while in others they are spread out extensively, dotting vast areas with hundreds of mounds. These vast *barrow landscapes* came about through thousands of years of additions by several successive prehistoric and historic communities. Yet little is known about how these landscapes developed and originated.

That is what this research set out to do. By unravelling the histories of specific barrow landscapes in the Low Countries, several distinct activity phases of intense barrow construction could be recognised. Each of these phases contributed to how the barrow landscape developed and reveals shifting attitudes to these monuments.

By creating new monuments in a specific place and in a particular fashion, prehistoric communities purposefully transformed the form and shape of the barrow landscape. Using several GIS-techniques such as a skyline-analysis, this research is able to demonstrate how each barrow took up a specific (and different) position within such a social landscape. While the majority of the barrows were only visible from relatively close by, specific monuments took up a dominating position, cresting the horizon, being visible from much further away.

It is argued in this research that these burial mounds remained important landscape monuments on the purple heathlands. They continued to attract attention, and by their visibility ensured to endure in the collective memory of the communities shaping themselves around these monuments.

After studying archaeology at Leiden University and obtaining his doctoraal (2000-2004), Quentin was employed as researcher at the Faculty of Archaeology, Leiden University and participated in fieldwork on several burial mounds. In 2008 he started his PhD within the framework of the NWO-funded Ancestral Mounds-project and this book is the result of that work.

Sidestone Press

ISBN: 978-90-8890-104-1

Bestelnummer: SSP131520001