



ARJAN LOUWEN & DAVID FONTIJN (EDS)

DEATH REVISITED

The excavation of three Bronze Age barrows and surrounding landscape at Apeldoorn-Wieselseweg

DEATH REVISITED

The excavation of three Bronze Age barrows and surrounding landscape at Apeldoorn-Wieselseweg



DEATH REVISITED

The excavation of three Bronze Age barrows and surrounding landscape at Apeldoorn-Wieselseweg

ARJAN LOUWEN & DAVID FONTIJN (EDS)

© 2019 Individual authors

Published by Sidestone Press, Leiden
www.sidestone.com

Lay-out & cover design: Sidestone Press

Photograph cover: K. Wentink

ISBN 978-90-8890-580-3 (softcover)

ISBN 978-90-8890-581-0 (hardcover)

ISBN 978-90-8890-582-7 (PDF e-book)

The research was part of the Dutch Organisation of Scientific Research (NWO) funded projects 'Ancestral Mounds' (no. 360-60-080) and 'Economies of Destruction' (VICI no. 277-60-001).

Contents

Contributors and excavation teams	11
Preface and acknowledgments <i>David Fontijn & Arjan Louwen</i>	13
1 Introduction <i>David Fontijn & Arjan Louwen</i>	15
1.1 New discoveries in barrow landscapes	15
1.2 The Apeldoorn-Wieselseweg sites	16
1.3 The Ancestral Mounds project	18
1.4 Research area	19
1.5 Study design and reading guide	19
2 Research plan and methodology <i>Cristian van der Linde & Arjan Louwen</i>	21
2.1 Research plan and methodology	21
2.1.1 Trial trenches to the north of AMK-monument 145	21
2.1.2 Southwest quadrant Mounds 1, 2 and 3	22
2.1.3 Trial trenches Mounds 1, 2 and 3	25
2.2 Methodology physical-geographical and pedological research	26
2.3 Sampling program	26
2.3.1 Pollen samples	26
2.3.2 Ecological samples	27
2.3.3 General samples	27
2.3.4 Texture samples	27
2.4 Dating	27

3 Physical geography and site formation processes **29**

Arjan Louwen

3.1 Physical geography and soil features	29
3.1.1 Pleistocene	29
3.1.2 Holocene	30
3.1.3 Known physical geographical and pedological features of the Wieselseweg	31
3.2 Historical land use	32

4 Archaeological and historical context **35**

Arjan Louwen

4.1 Introduction	35
4.2 Archaeological framework	35
4.2.1 Visible archaeology	35
4.2.2 Middle Neolithic B (3400–2900 BC)	36
4.2.3 Late Neolithic–Early Bronze Age (2900–1800 BC)	37
4.2.4 Middle Bronze Age (1800–1100 BC)	37
4.2.5 Late Bronze–Late Iron Age (1100–12 BC)	37
4.2.6 Archaeology at the Wieselseweg	38
4.3 Historical framework	39
4.3.1 The Royal Domain (het Kroondomein)	39
4.3.2 1906: Pioneer research at the Royal Domain	42

5 Landscape research: results **43**

Arjan Louwen, Cristian van der Linde, Marieke Doorenbosch & Hans Huisman

5.1 Introduction	43
5.2 Palaeogeography	43
5.3 Results pedological analysis	44
5.3.1 Location AMK-monument 145	44
5.3.2 Mounds 1, 2 and 3 and their surroundings	49
5.4 Soil micromorphology (Hans Huisman)	52
5.4.1 Introduction	52
5.4.2 Sample treatment	52
5.4.3 Results	53
5.4.4 Interpretation/discussion	53
5.4.5 Conclusions	54
5.5 Palynological research (Marieke Doorenbosch)	54
5.5.1 Palynological analysis of the Wieselseweg barrows	54
5.5.2 Material and methods	54
5.5.3 Results	54
5.5.4 Absence of pollen grains in barrows	55
5.5.5 Conclusion	56

6 The surroundings of the four barrows of AMK-Monument 145 **59**
Arjan Louwen, David Fontijn & Cristian van der Linde

6.1 Introduction	59
6.2 Features and structures	59
6.2.1 A 20 th century fence	59
6.2.2 Fire/hearth pit	61
6.2.3 Oxes and swine: traces of reclamation and the current inhabitants	63
6.2.4 Prehistoric features	65
6.2.5 Other features	65
6.3 Find material	66
6.3.1 Pottery	66
6.3.2 Stone	66
6.4 Phasing and dating	66
6.5 Conclusion	67

7 Mound 1 **69**
Arjan Louwen, Quentin Bourgeois & David Fontijn

7.1 Introduction	69
7.2 Structure of the barrow	72
7.3 Features and structures	73
7.3.1 Grave 1	75
7.3.2 Large pit with stakes/small posts (complex S15)	79
7.3.3 Middle Bronze Age pits	84
7.3.4 A palisaded ditch	87
7.3.5 Other features under the mound	90
7.3.6 Other features in the edge zone of the mound	90
7.4 Find material	91
7.4.1 Pottery	91
7.4.2 Flint & stone	95
7.5 Phasing and dating	99
7.5.1 Scenario I: a low Late Neolithic barrow with a second use and mound phase in the Middle Bronze Age	101
7.5.2 Scenario II: a Late Neolithic monument as focus for ritual activities and the erection of a barrow during the Middle Bronze Age	101
7.5.3 Scenario III: a Middle Bronze Age barrow with accidental Late Neolithic intrusion	101
7.6 Conclusion	102

8 Mound 2

103

*Arjan Louwen, David Fontijn, Cristian van der Linde, Maurits Pruijsen,
Liesbeth Smits & Erica van Hees*

8.1 Introduction	103
8.2 Structure Mound 2	104
8.3 Features and structures	105
8.3.1 Graves	105
8.3.2 Other features	118
8.4 Find material	120
8.4.1 Pottery	120
8.4.2 Flint & stone	121
8.4.3 Worked animal bone	122
8.5 Phases and dating	124
8.6 Conclusion	125
8.6.1 Burial mound or cemetery?	125
8.6.2 The burial ritual	125

9 Mound 3

127

*Arjan Louwen, David Fontijn, Cristian van der Linde, Patrick Valentijn,
Liesbeth Smits & Erica van Hees*

9.1 Introduction	127
9.2 Structure Mound 3	129
9.3 Features and structures	130
9.3.1 Graves	130
9.3.2 Other features	143
9.4 Find material	146
9.4.1 Pottery	146
9.4.2 Flint & stone	148
9.5 Phasing and dating	149
9.5.1 Events precedent the erection of Mound 3	149
9.5.2 The sequence of the burials	149
9.5.3 Iron Age	151
9.6 Conclusion	151
9.6.1 Concluding remarks	151
9.6.2 Funerary ritual	152

10 The surroundings of the Wieselseweg barrow group	153
<i>Arjan Louwen, David Fontijn & Cristian van der Linde</i>	
10.1 Introduction	153
10.2 Features and structures	153
10.2.1 Square structure?	153
10.2.2 Plough marks	155
10.2.3 A fifth pit with broken stones	155
10.2.4 Cart tracks	163
10.2.5 Other features	163
10.3 Find material	164
10.3.1 Prehistoric pottery	164
10.3.2 Pottery and glass from the Modern era	164
10.3.3 Stone	164
10.3.4 Amber spacer-plate	165
10.4 Phasing and dating	165
10.5 Conclusion	166
11 Revisiting death. The funerary landscape of Apeldoorn-Wieselseweg	167
<i>David Fontijn & Arjan Louwen</i>	
11.1 Introduction	167
11.2 Poorly preserved, inconspicuous, but highly significant	167
11.2.1 The mounds	167
11.2.2 The environment of the barrows	168
11.3 The deep history of the three-barrow group	168
11.3.1 Late Neolithic beginnings?	168
11.3.2 Middle Bronze Age A – flat cemeteries that came to be covered with mounds	168
11.3.3 Mound 1 in the Middle Bronze Age: a deceased buried on the location of a mythical past?	169
11.3.4 Mound 1 – a barrow as a stage for a special funerary performance?	170
11.3.5 Burial practices: close links between Mounds 2 and 3	171
11.3.6 Later histories of the mounds	171
11.4 The barrow landscape: anchoring ancestral communities	172
11.5 Revisiting death	173

Bibliography	175
App. 1 Summary physical anthropological analysis of cremated remains	179
<i>Liesbeth Smits</i>	
Mound 1	179
Mound 2	179
Mound 3	181
App. 2 Microwear analysis of flint, amber, stone and bone artefacts	185
<i>Annelou van Gijn & Annemieke Verbaas</i>	
Method of analysis	185
Bone tools	185
Amber	185
Flint artefacts	186
Stone artefacts	186

Contributors and excavation teams

Editors:	D. Fontijn A.J. Louwen
Authors:	Q. Bourgeois M. Doorenbosch D. Fontijn E. van Hees H. Huisman A.J. Louwen M. Pruijsen L. Smits P. Valentijn C. van der Linde A.L. van Gijn A. Verbaas
Figures:	J. van Donkersgoed A.J. Louwen S. van der Vaart-Verschoof
Object drawings:	A.J. Louwen R. Timmermans
Photography:	Q. Bourgeois J. van Donkersgoed
Project administration/ authorization:	D. Fontijn
Translation & copy editing:	S. van der Vaart-Verschoof

Fieldwork team 2008: S. van As (student)
Q. Bourgeois (field archaeologist and PhD candidate)
M. Doorenbosch (PhD candidate)
D. Fontijn (project leader)
E. Jacques (student)
S. Lemmers (student)
C. van der Linde (fieldwork leader)
M.V. Klinkenberg (student)
M. Knul (student)
A.J. Louwen (student-assistant)
A. Manders (volunteer)
M. Pruijsen (volunteer)
S. van der Vaart (student)
P. Valentijn (student-assistant)
S. van Velzen (student)
T. Verhoef (student)
W. Verschoof (student)
K. Wentink (PhD candidate)
M. de Wilde (operator mechanical excavator)
M. van der Wees (volunteer)

Fieldwork team 2009: Q. Bourgeois (field archaeologist and PhD candidate)
M. Doorenbosch (PhD candidate)
H. Fokkens (acting project leader)
D. Fontijn (project leader)
Mw. D. de Haan (student)
A. Heijnis (student)
D. Ingenegeren (student)
E. Jacques (student)
S. Lemmers (student)
C. van der Linde (fieldwork leader)
A.J. Louwen (student-assistant)
M. Luijten (student)
A. Manders (volunteer)
M. Pruijsen (volunteer)
K. Salomons (student)
T. Verhoef (student)
W. Verschoof (student)
M. de Wilde (operator mechanical excavator)

Preface and acknowledgments

David Fontijn & Arjan Louwen

This book has been a long time in the making. When we left the field for the final time in 2009 we could only guess at what exactly we had found – we did not even have firm dates for most of the graves discovered. The post-excavation analysis of the finds and features proved to be a challenging task, and our interpretations had to be adjusted several times. This was for an important part due to the very complex soils and difficult-to-read features that made even the simplest questions such as ‘where does a mound begin and end’ difficult to answer.

A preliminary excavation report in Dutch was finished in 2012/13 and analyses of some aspects of the mounds were used in Quentin Bourgeois’ PhD thesis ‘Monuments on the Horizon’ (2013). However, once finances became available for a full ¹⁴C-dating program of all graves, we decided to once more go through our finds.

For Mounds 2 and 3, we collaborated with dr. Quentin Bourgeois to create a revised chronology (report published on our academia-pages: Louwen *et al.* 2014). Bayesian statistical modelling in 2014 of the revised chronology gave us – for the first time – insights into the chronological relations between Mounds 2 and 3 (Bourgeois/Fontijn 2015), and the conception of barrows as possible anchor points for distinct social groups.

These results also feature in Arjan Louwen’s forthcoming PhD-thesis on urnfields. Another re-analysis in 2017 of the pit row at Mound 1 led to new insights, using a broader survey of such finds from continental Northwest Europe (Løvschal/Fontijn 2018), which brought the research closer to issues of (object) deposition and ritual landscapes – the topic of Fontijn’s current project ‘Economies of Destruction’. Together with some members of our team, we recently also published a summary of the latest results of all these investigations in the 2018 issue of the *Analecta Praehistorica Leidensia* (Fontijn *et al.* 2018).

Eventually we decided in 2018 that this site and all the work done on it over the last decade warranted publishing a full and updated synopsis of all the findings of the Wieselseweg research projects – and that this should be in English in order to make it accessible to the wider research community. We are grateful to dr. Sasja van der Vaart-Verschoof for translating the current volume, which provides the reader with an overview of all field observations and all research conducted at Apeldoorn-Wieselseweg.

We hope to have presented our findings in a clear and verifiable way in this book, including all the uncertainties that this complicated site has left us with. We have no doubt that other researchers may have different interpretations of these data, but we hope to have hereby supplied them with the empirical basis necessary for such future reinterpretations.

Numerous people were involved in excavating and analysing this site, and we are grateful to everyone who made our research and the current volume possible. We would like to thank all the students and volunteers who worked on the excavation campaigns and André Manders who did all the metal detecting. We were guests of the Royal Domain (Kroondomein) 't Loo and we are grateful for their support, in particular dr. ir. J.J. Kuper and Tieke Poelen. Mark de Wilde deserves our thanks for operating

the mechanical excavator, as do prof. Corrie Bakels, prof. Leendert Louwe Kooijmans, prof. Harry Fokkens, dr. Jan Boerma and dr. Joanne Mol for helping us tackle difficult soil-stratigraphical issues. A special word of thanks is also due to the municipality of Apeldoorn, who made this research financially and practically possible. Thank you drs. Maarten Wispelwey, drs. Masja Parlevliet and drs. Janneke Zuiderwijk for helping us bring the prehistoric communities of Apeldoorn back in our history.

Chapter 1

Introduction

David Fontijn & Arjan Louwen

1.1 New discoveries in barrow landscapes

Barrows are the most common prehistoric monuments that can still be found in the European landscape today. Once erected as burial markers during prehistory, burial mounds have since served as important anchors in the landscape. Burial mounds built in the 3rd millennium BC were sometimes used to bury the dead until the 1st millennium BC (Bourgeois 2013; Theunissen 1999). Occasionally, these monuments were also used in Roman times and the Middle Ages, and were sometimes shrouded in superstition and folklore until the 19th century AD (see for example Meurkens 2010). In prehistory, the erection of burial mounds must have been an important act: their visibility almost guaranteed a long history. Strangely enough, however, little is known regarding why the graves of certain decedents were marked with a monument, while those of others were not (cf. Theunissen 1999). Even less is known about the – in our view – remarkably ‘loose’ spatial planning of burial mounds. Walking through the Veluwe, the present-day visitor sees burial mounds almost everywhere, without seeing tight clusters like we imagine a real graveyard to be.

One of the important discoveries that have been made in the last ten years is that there were many more burial mounds than we thought possible. In the Netherlands there were already thousands known and registered as monuments, but with the rise of high quality LIDAR images, large numbers of ‘new’ mounds have been found. The open accessibility of high resolution elevation models (*Actueel Hoogtebestand Nederland* in Dutch; AHN), available for the entirety of the Netherlands (www.ahn.nl), has led to many new discoveries, especially in forested areas that are difficult to access and where visibility of elevations is hindered by trees and brush.

This book presents research into such a discovery: a group of three mounds, two of which are so insignificant in height that they hardly stood out and could only be interpreted as ‘possible’ burial mounds with great uncertainty. Excavations of some of these mounds, however, showed that we are not only dealing with Bronze Age barrows, but above all that there can be surprisingly many graves in apparently insignificant mounds. Research into the surroundings showed that even in a soil archive that has been strongly disturbed by forestry activities, there are still important archaeological traces that offer us remarkable insights into the organisation of a Bronze Age funerary landscape.

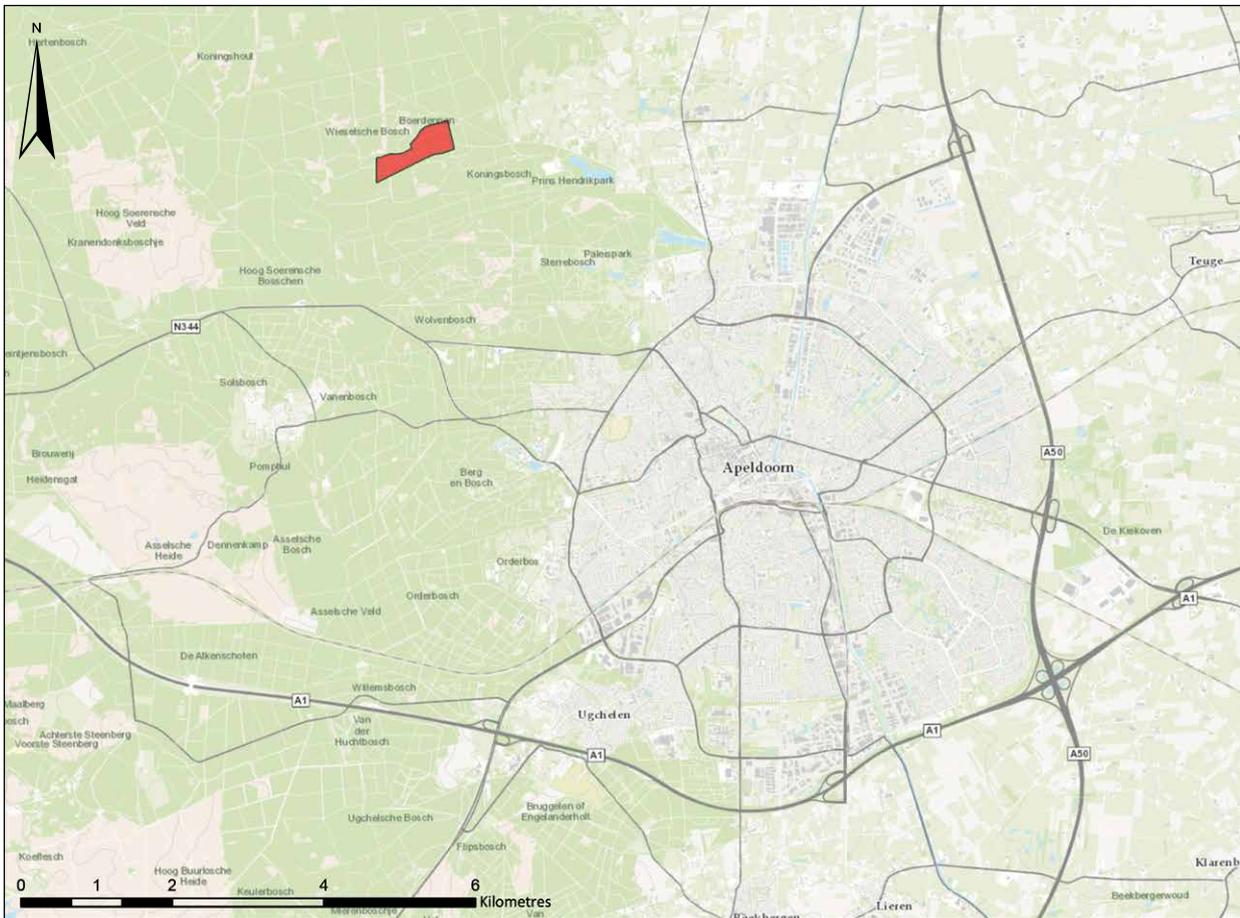


Fig. 1.1: Location of research area (red box) (© OpenStreetMap contributors and the GIS community).

Within the more comprehensive research into the nature and significance of barrow landscapes from later prehistory, the burial mounds along the Wieselseweg offer interesting research opportunities.

1.2 The Apeldoorn-Wieselseweg sites

In the summer of 2008 and 2009, the Faculty of Archaeology, Leiden University carried out an archaeological field study of two burial mound groups by the Wieselseweg in Apeldoorn in two four-week campaigns (Fig. 1.1). Both locations are situated in the woods of the Royal Domain ‘Het Loo’ and are under the direct supervision of the *Koninklijke Houtvesterij*. The research took place within the framework of the Ancestral Mounds project (see Section 1.3) of Leiden University funded by the Netherlands Organisation for Scientific Research (*Nederlandse Organisatie voor Wetenschappelijk Onderzoek* in Dutch; NWO), and was made possible in part by the municipality of Apeldoorn. During the investigation, we worked together with the Cultural Heritage Agency (*Rijksdienst voor het Cultureel*

Erfgoed in Dutch; RCE¹). The municipality of Apeldoorn acted as the competent authority.

The fieldwork came about through a scientific interest of the Ancestral Mounds project regarding the creation of barrow landscapes and the original layout of these landscapes, as well as through questions from public heritage institutions, provinces and municipalities about the importance of these burial mounds. In particular, there proved to be a lot of questions in the field of policy making and the management of burial mound landscapes in the Netherlands in general and in the barrow-rich municipality of Apeldoorn in particular (Fontijn *et al.* 2011). Sealed with a covenant concluded in 2007, Leiden University, the municipality of Apeldoorn and the RCE therefore worked together.

The Wieselseweg burial mounds proved to be highly suitable for further study in several respects. On the one hand, fortunately, many burial mounds had already been

1 At the time of the fieldwork the RCE was still called *Rijksdienst voor Archeologie, Cultuurlandschap en Monumenten* (RACM).



Fig. 1.2: Detail of the research area (black border). The red frame shows the boundaries of AMK-monument 145 with the four protected barrows. The three recently discovered burial mounds (3 circles) are located in the western part of the research area (© www.ahn.nl and Land Registry).

recognized and protected by law. On the other hand, none of these mounds had ever been investigated, which left the most basic questions unanswered – how old are these mounds? How special and valuable are they?

In particular, it was unclear whether archaeological traces were still present around these protected burial mounds. It was possible to explore the area in the immediate vicinity of a row of four barrows in more detail (AMK²-monument 145; Fig. 1.2). Interestingly, by studying the AHN a second burial mound group was discovered close by, which until then had been completely unknown. At this second location, some 500 metres west of the first one (Fig. 1.2), a round elevation in the landscape was discovered. It was suspected that this round elevation represented an unknown burial mound (Mound 1 in this publication). During a field inspection in the company of the

then Royal *Houtvester* Dr. Ir. J.H. Kuper, two other possible burial mounds were recognized within a stone's throw (Mounds 2 and 3). These were, however, relatively low mounds, of which Mound 3 in particular had an irregular shape. Corings in Mounds 1 and 2 yielded charcoal – which made identification as an anthropogenic mound probable. In the case of Mound 3, the results of the coring study were less clear: apart from a tiny amount of charcoal, no clear indications were found that this was an anthropogenic mound. The corings by the Leiden University team were later repeated by colleagues of the RCE (pers. comm. J.W. de Kort), with exactly the same results and conclusions.

If insignificant and irregular mounds like Mound 3 can turn out to be the remains of prehistoric barrows, how many possible burial mounds have escaped attention so far? Also in this second barrow group there was the possibility to explore the surroundings. All in all, this location proved to be an opportunity to evaluate three possible burial mounds with new field techniques and to place them in a

2 Archaeological Monuments Map; *Archeologische Monumenten Kaart* in Dutch).

broader landscape and archaeological context by means of an inventory field study (*inventariserend veldonderzoek* in Dutch). With the permission and generous cooperation of the Royal Domain 'Het Loo', it was therefore decided in the spring of 2008, in consultation with all the parties mentioned above, to proceed with an archaeological excavation at the Wieselseweg.

1.3 The Ancestral Mounds project

The Ancestral Mounds project was initiated in 2007 by the first author of this chapter (Faculty of Archaeology, Leiden University) and has been funded by the NWO since 2008. The project has now been officially completed (2013). The main goal of the project was to achieve an understanding of the genesis of burial mound landscapes and the design of these landscapes. While burial mounds are among the best known and most common prehistoric monuments in Northwest Europe, active systematic and scientific research into these monuments has stagnated in many countries over the past decades. In addition, most of the research in the past focused on the barrows themselves rather than on the environment in which these burial monuments were situated. Therefore, our knowledge of the immediate surroundings of burial mounds is very limited.

For example, recent research in Oss-Zevenbergen (Fokkens *et al.* 2009; Fontijn *et al.* 2013b) demonstrated that burial mounds were by no means isolated, but part of an organised funerary landscape. On the other hand, burial mounds in other areas also appear to have been built on settlement sites (Fontijn 2010). The lack of knowledge about the environment of burial mounds also makes it very difficult to make well-founded statements with a view to heritage management for the zones directly outside the burial mounds. The need for such knowledge became apparent when the Archaeological Monument Database was updated in 2006 and decisions had to be made about reducing the size of protected areas around burial mounds. At that time, the zone to be protected around barrows was often set at 10 metres around the mound, without any substantiation being provided to support this size. However, with the excavation results of Oss-Zevenbergen in mind, serious consideration must be given to the fact that there could be substantial structures outside the mounds, such as long post rows, which were part of a prehistoric funeral landscape that as such is virtually unknown in the Netherlands. In the first burial mound excavation of the Ancestral Mounds project in Apeldoorn, at the Echoput site in 2007 (Fontijn *et al.* 2011), large numbers of archaeological traces were even found that until now had not been suspected of having been preserved at all in the forests (Valentijn/Fontijn 2011).

It is also questionable whether our established ideas about the burial mounds themselves are still valid when tested against newly developed research methods. Pollen

charts have now been successfully compiled in Oss-Zevenbergen and Apeldoorn-Echoput that provide insight into the history of the site before the burial mounds were erected (Doorenbosch 2011; 2013ab). Another method of excavation, in which, among other things, all the sods with which mounds were built are carefully examined, as well as detailed analysis of mound material and pyre remains, also appear to provide new insights into burial mounds (Bourgeois/Fontijn 2010; Van der Linde/Fontijn 2011; Fontijn *et al.* 2013b). For example, recent fieldwork at Apeldoorn-Echoput (two kilometres west of the Wieselseweg mounds) revealed that a sods structure can indeed be observed in the so-called 'yellow' burial mounds located on the *stuwwallen* (Van der Linde/Fontijn 2011, 47–9). The use of new dating methods such as OSL (Optically Stimulated Luminescence) also offers opportunities for the dating of burial mounds (Van Mourik 2010, 71–3). For all these studies, however, it is necessary that the burial mounds themselves are also re-examined in the field. In addition to these pragmatic innovations, it is also important that our established ideas about the burial ritual and social and religious significance of burial mounds within the prehistoric cultural landscape are evaluated, as these are also mainly based on old research. A study of this, based on the reinterpretation of many old finds, has also yielded many surprising insights (Wentink *et al.* 2011; Wentink in prep.).

In order to satisfy these different perspectives of renewed burial mound research, three PhD students worked on three different sub-studies of the Ancestral Mounds project. One of these studies is still being completed and focuses on all aspects of the burial ritual found in barrows (Wentink in prep.). A second study focused on the design and creation of the prehistoric funerary landscape (Bourgeois 2013) and a third on the vegetation development and the influence of man on this vegetation of these funerary landscapes (Doorenbosch 2013ab). It goes without saying that the fieldwork carried out on the Wieselseweg is closely linked to these sub-projects.

The central question for the research then focuses on the role of burial mounds in the prehistoric landscape. In concrete terms, the research focuses on the question whether there were activities taking place around the burial mounds that provide more insight into their importance, and can possibly also explain why the mounds were erected exactly here. Did people live around the mounds, for example, as was established in Elst-Rhenen (cf. Fontijn 2010)? Or was there a structured 'funerary' landscape with constructions such as rows of posts and small buildings such as those at Oss-Zevenbergen (Fokkens *et al.* 2009)? It is also possible that the surroundings of these mounds were so disturbed by later forestry activities that there are no longer any archaeological traces. Again, no information was available at the outset of the investigation.

By paying attention for the first time to the mounds along the Wieselseweg itself, it was now also possible to determine how old (and possibly also how special) this burial mound landscape actually was. Mounds 1, 2 and 3 along the Wieselseweg are clearly related to mounds in other parts of the barrow landscape (see Chapter 2). Mound 1, for example, seems to be in line with the mounds of the row east of it (AMK-monument 145) and with burial mounds near the Koningseik to the west (see Figs. 3.2 and 4.2). Last but not least: are ‘insignificant’ mounds like Mounds 2 and 3 really barrows? It has already been noted that the outcome of the prospective coring investigation did not provide any clarification in this respect. If this is the case, it not only has consequences for the effectiveness of coring research, but it could also mean that there may be many more modest prehistoric monuments hidden in the Veluwe forests that we simply do not recognize today.

1.4 Research area

The Wieselseweg runs from the twin village of Wenum-Wiesel (municipality of Apeldoorn, province of Gelderland) from the Zwolseweg in a westerly direction into the heart of the Royal Domain ‘Het Loo’. Of course, the research area does not include the whole Wieselseweg route as it is about 8 kilometres long. The site under investigation roughly consists of a strip 100 metres wide directly south of the Wieselseweg, from the forest plot on which AMK-monument 145 is located to some 600 metres west of it (Fig. 1.2). Within this strip only the forest plot of AMK-monument 145 and the immediate vicinity of the three newly discovered burial mounds were intensively explored. In addition, some attention was paid to the site directly north of the Wieselseweg at the height of the monument.

Although only the area described above has been investigated by means of archaeological fieldwork, the possibility has to be taken into account that the burial mounds of the Wieselseweg are part of a prehistoric landscape that transcends the micro-regional level.

1.5 Study design and reading guide

Before the results of the field study at the Wieselseweg are presented, the following chapters successively discuss the research plan and methodology (Chapter 2), physical geography and site formation processes (Chapter 3) and

Administrative information	
Research type:	Excavation/trial trenching
Project name:	Apeldoorn-Wieselseweg
Executed by:	Faculty of Archaeology, Leiden University
Period of execution:	Field work: 4 July - 1 August 2008; 15 June - 10 July 2009
	Analysis/writing the report: May 2010 - January 2018
Province:	Gelderland
Municipality:	Apeldoorn
Location:	Apeldoorn
Toponym:	Wieselseweg
Coördinates:	SE: 189.700/473.350 SW: 189.500/473.350 NE: 189.650/473.650 NW: 189.500/473.600
Client:	Municipality of Apeldoorn
Client contact person:	Drs. M. Parlevliet
Competent authority:	Municipality of Apeldoorn
Contact persons competent authority	Drs. M. Wispelwey (2008) Drs. S. van der A (2009) Drs. J. Zuyderwyck (2009) Drs. M. Parlevliet (2009)
Archis-investigation report number:	29475
Project code Faculty of Archaeology:	AWW08; AWW09
Management documentation and finds:	Archeologisch Depot Gelderland

Tab. 1.1: Administrative information.

the archaeological and historical context (Chapter 4). In order to discuss the research results, it was decided to discuss the landscape (Chapter 5), the environmental research (Chapters 6 and 10) and the individual burial mounds (Chapters 7, 8 and 9) in separate chapters. The knowledge resulting from these chapters is synthesized and placed in the broader context of Bronze Age barrow landscapes in Chapter 11. Unless otherwise indicated, all photographs were taken and figures made by members of the field team.

Finally, it should be noted that the work in front of you is the most recent field study report in the English-language series of field studies previously carried out for the Ancestral Mounds project (Fontijn 2010; Fontijn *et al.* 2011; Fontijn *et al.* 2013a). Previous publications of data from this fieldwork can be found in Bourgeois 2013, Bourgeois/Fontijn 2015 and Louwen *et al.* 2014.

Chapter 2

Research plan and methodology

Cristian van der Linde & Arjan Louwen

2.1 Research plan and methodology

The fieldwork conducted at the Wieselseweg can be divided into three sub-researches:

- trial trenches in the surroundings of the barrow row known as AMK-monument 145;
- the excavation of the southwest quadrants of the three possible burial mounds;
- a trial trench campaign in the surroundings of the three possible barrows.

The methods used and strategies employed in each sub-project are presented below.

2.1.1 Trial trenches to the north of AMK-monument 145

AMK-monument 145 is a protected archaeological monument, and the fieldwork here therefore was restricted to an exploration of the terrain outside its boundaries. The current monument terrain encompasses the whole southern half of the forest parcel in which the four barrows are located (see also Fig. 1.2). The adjacent parcel to the south is located on a steep incline and it therefore was not possible to excavate here. In the end only the area directly to the north of the monument was suited for trial trenching.

The trial trench campaign focused on the direct surroundings of the barrow row, and the terrain therefore was divided into two large zones that spanned the entire width of the forest parcel (see Fig. 2.1). The southern zone, directly adjacent to the monument, would be investigated with a coverage of 12%, while for the northern zone the coverage would be 4–8%. In order to put this plan into action, it was planned to either widen or narrow the intended coverage as needed when the zone border was reached, depending on the direction in which the trenches were dug. The original plan encompassed at least three north-south oriented trial trenches of at least 2 metres wide with equal distance between them. In addition, at least one trial trench was to be excavated that would intersect with the imaginary axis of the barrow row. If the planned trenches yielded no archaeological features, extra trenches would be dug in order to confirm the absence of archaeological features in the surroundings of the barrows. Finally, it was decided in advance to be flexible with regard to the intended trench plan and adapt this as needed to work around the trees present.

In the end the surroundings of the four barrows of AMK-monument 145 were explored in 2008 through twelve trial trenches (Trench 3 and Trenches 6–16). To avoid confusion with the other barrow location, it was decided to use a continuous numbering system throughout the excavation (Trenches 1, 2, 4 and 5 were dug at the

other location). Despite the presence of several drainage holes and trees, it was only necessary to deviate from the original trench plan in a few instances (see Fig. 2.2). Trenches 8, 9 and 10 fulfilled the above-mentioned intention of widening the planned trenches in the 12% zone. In addition to serving as additional exploration, Trenches 3, 6 and 7 together also yielded a general cross-section of the physical landscape. Trench 6 also served as the mentioned trench intersecting with the axis of the barrow alignment. The other trial trenches (Trenches 11 through 16) were dug in addition to the already mentioned trenches. In total 1088 square metres of trial trenches were dug in the surroundings of AMK-Monument 145. Trenches 3, 6 and 7 (together 238 m²), however, officially are not part of the terrain directly to the north of the barrow row, resulting in a lower coverage: 4.1%. This achieved the minimum of 4%, but was too low for the intended 12% coverage planned for the southern part of the terrain (see Fig. 2.1). However, as will be established

in Chapter 6, the terrain was so heavily disturbed that coverage of 12% was not really needed.

It was expected that any archaeological features present would be located directly underneath the topsoil. In most cases one excavation level would therefore suffice. In some cases a second level would be dug to confirm this. Metal detection continuously accompanied the digging of the trial trenches (CScope CS1220XD). Each layer was photographed in 3 metre segments and finds were collected in 5 metre boxes. Trial trenches that yielded archaeological features were recorded on a field drawing (scale 1:50), those that did not were recorded with a Total Station. All features, excluding those that proved not to be features, were photographed and drawn (scale 1:10).

2.1.2 Southwest quadrant Mounds 1, 2 and 3

The southwest quadrants of all three possible barrows were excavated. Due to earlier experiences during the excavation conducted in 2007 at the Apeldoorn-Echoput site, only

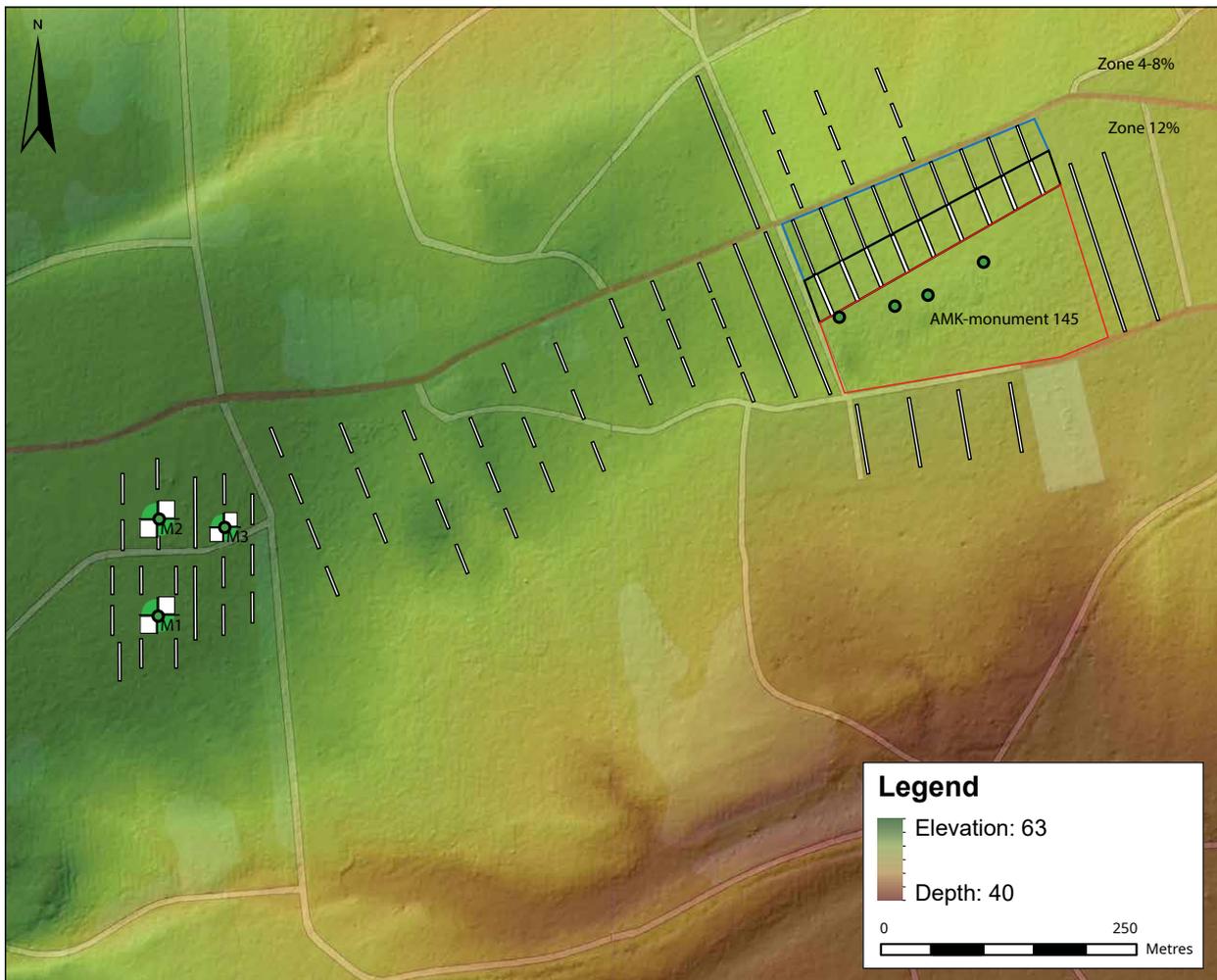


Fig. 2.1: Original trench plan.

2 kilometres west of the Wieselseweg, it was initially expected that the old surface would be encountered rather quickly and that we would be able to also start excavating the northeast quadrants. At the Echopot site the southwest quadrant of the largest mound was excavated by hand to a depth of 1.5 metres in three weeks time. By comparison the Wieselseweg mounds of some 50–90 centimetres high initially appeared less daunting.

Even so, the Wieselseweg barrows were approached with care. With an eye to the research questions formulated regarding the landscape and the position of the mounds within that landscape, there were a number of top priorities during the excavation. A primary/central burial yields the most information regarding the first use phase and/or the creation of a mound. The old surface, locked away under the barrow like a time capsule, in turn provides the best starting points for a vegetation reconstruction. A primary/central burial in turn provides the best anchoring point for dating the vegetation

reconstruction. As a primary grave is of great importance both for dating and understanding a barrow, such a grave needs to be uncovered with great care.

To avoid compromising the above-mentioned priorities due to time constraints, three so-called exit moments were incorporated into the original planning. A first exit moment would be the decision that the northeast quadrants would not be excavated if no central grave was encountered during the first week of fieldwork. The second important exit moment also centred on the primary grave: if a central grave was encountered during the last week of fieldwork, then it would not be excavated and kept *in situ*. The last exit moment concerned the sampling for pollen analysis. Should the old surface still not have been uncovered during the last week of fieldwork, a sondage would be dug in the foot of the mound – outside of the area where one could expect a central grave to be – in order to sample the old surface.

As will be shown in Chapters 7, 8 and 9, the first exit moment would take effect quite quickly. All three



Fig. 2.2: Final trench plan AMK-monument 145.



Fig. 2.3: Deepening the excavation level of Mound 2 by hand (photograph: André Manders).

barrows proved to be so complex that a second excavation campaign was needed in 2009 to properly excavate the southwest quadrants, leaving no time to examine the northeast quadrants. In the following the approaches taken are briefly described per documentation unit.

Levels

Firstly the vegetation was removed from the three mounds. A small mobile excavator was then used to strip the forest soil from the southwest quadrants. With exception of the final control layer, all levels were created horizontally by hand (Fig. 2.3). All excavation levels were recorded photographically (Fig. 2.4), and if archaeological features presented themselves, the levels concerned were drawn as well (scale 1:50). Occasionally, complex features such as graves were left on plateaus in order to be able to proceed to the next level while the features concerned could be excavated with the care they required. The final level was dug with the mechanical excavator.

Graves

As the three barrows were not threatened by any planned building activities, it was possible to spend the needed time (and more) on documenting the graves. All

18 burials found at the Wieselseweg were cremation graves, and there was therefore no need to call a physical anthropologist into the field (as is customary for inhumation graves). The cremation remains were collected in small squares in order to preserve some sense of any possible anatomical connection and distribution. In this manner detailed insights into the distribution of various body parts were generated. This approach enabled a detailed reconstruction of the distribution of the various body parts throughout graves. The cremation remains of all 18 graves were examined and analysed by dr. Liesbeth Smits (University of Amsterdam).

At this stage of the project, the various burials were assigned unique grave numbers, and these are used in this report. These should not be confused with the feature numbers (*spoornummers* in Dutch) assigned in the field. With the exception of a single ploughed-out burial, all graves were assigned local measuring systems. Levels and sections were drawn (scale 1:10) and carefully photographed. In many cases a lot of extra photographs were taken throughout the process. As a result, many elements not present on the conventional documentation can still be consulted. These include detailed photographs of recognizable, large bone fragments that fell apart when



Fig. 2.4: Level 5 of Mound 2. This figure shows three plateaus that were kept from Level 4 as they contain graves that had to be minutely excavated (photograph: André Manders).

they were lifted, as well as striking concentrations of charcoal. Any levels created in-between the main levels were numbered in the double digits. A level under level '5', for example, was given level number '51', with the next 'in-between level' being number '52', and so on. Finally, the complete contents of each grave were sieved (mesh width 2 mm). See Section 2.3 for the sampling approach taken.

Other features

All features were sectioned, photographed and drawn (scale 1:10). Special and/or promising features were sampled and sieved (mesh width 4 mm). The palisaded ditch encountered under Mound 1 was sectioned over its entire length in alternating segments.

Profile sections

Both in 2008 and in 2009 the profile sections of the southwest quadrants were recorded in full, meaning that they were (photogrammetrically) photographed and drawn (scale 1:20). Again, see Section 2.3 for the sampling approach taken. Additionally, several supplementary sections were created outside the barrows. These were recorded in the same manner (excluding the photogrammetry).

2.1.3 Trial trenches Mounds 1, 2 and 3

No trench plan for exploring the surroundings of Mounds 1, 2 and 3 was created prior to the campaign, as it first had to be established whether the three mounds in fact were barrows. Following this, their surroundings would be explored where possible. Additionally, the archaeological features encountered in the barrows or during the first trial trenches would in part determine the location of the trial trenches. A coverage of 10% was strived for.

In the summer of 2008, the status of the barrows was soon confirmed and research into the surrounding areas initialized (Fig. 2.5). In that year Trenches 1, 2, 4, 5 and 17 were dug between the newly discovered barrows. The trenches excavated the following year (Trenches 18–27) mainly served to relate the surroundings to the barrows. For this reason the trenches were dug as extensions to or in the same line as the excavated barrow quadrants. In total 15 trial trenches (964 m²) were dug in the surroundings of the three barrows (Fig. 2.6).

A coverage of 5–6% was achieved when an area of which the outer border is always roughly 50 metres from the foot of the nearest barrow is maintained and



Fig. 2.5: The digging of a trial trench between the trees.

the limitations of the present vegetation is taken into account. This is only half of the coverage density initially intended, resulting in part from the fact that the eastern part of the area was inaccessible for trench digging (see Chapter 10).

For the documentation of the excavation levels and features the same guidelines were used as for the research in the surroundings of the AMK-monument 145 (see Section 2.1.1).

2.2 Methodology physical-geographical and pedological research

In order to examine the physical geography and pedology of the research area, 66 profile sections of roughly a metre wide were set, distributed over the trial trenches (see Figs. 5.5 and 5.10). Their locations were recorded and they were photographed, drawn (scale 1:20) and described with attention for the colour, texture and interpretation of the locally present soils. To achieve a good understanding of the local relief, the profile sections in Trenches 7, 3 and 6 (running north to south) form a continuous cross-section of the part of the elongated ridge upon which the four barrows of the AMK-monument 145 are located.

2.3 Sampling program

2.3.1 Pollen samples

As reconstructing the vegetation present at the time of the barrows' construction formed an important part of the Ancestral Mounds project, an intensive pollen-sampling program was set up. The goal of this was not so much the taking of a high number of samples, but rather a critical analysis of the context from which the samples derived. This process even took place at the level of features: per grave or pit it was not only considered which fill held the highest potential for the presence of pollen, but also which fill would yield the most accurate pollen results, while being wary of any possible 'contaminations' of the pollen present within the feature. This occasionally resulted in taking of a sequence of samples rather than just a single one. In addition to the various graves and pits, the section profiles of the barrows were also intensively sampled. Samples were also taken from the trial trench sections so that these could be compared with the pollen results from the barrows. The pollen analysis was conducted by dr(s). Marieke Doorenbosch as part of her PhD research, under the supervision of prof. dr. Corrie Bakels. The former primarily determined

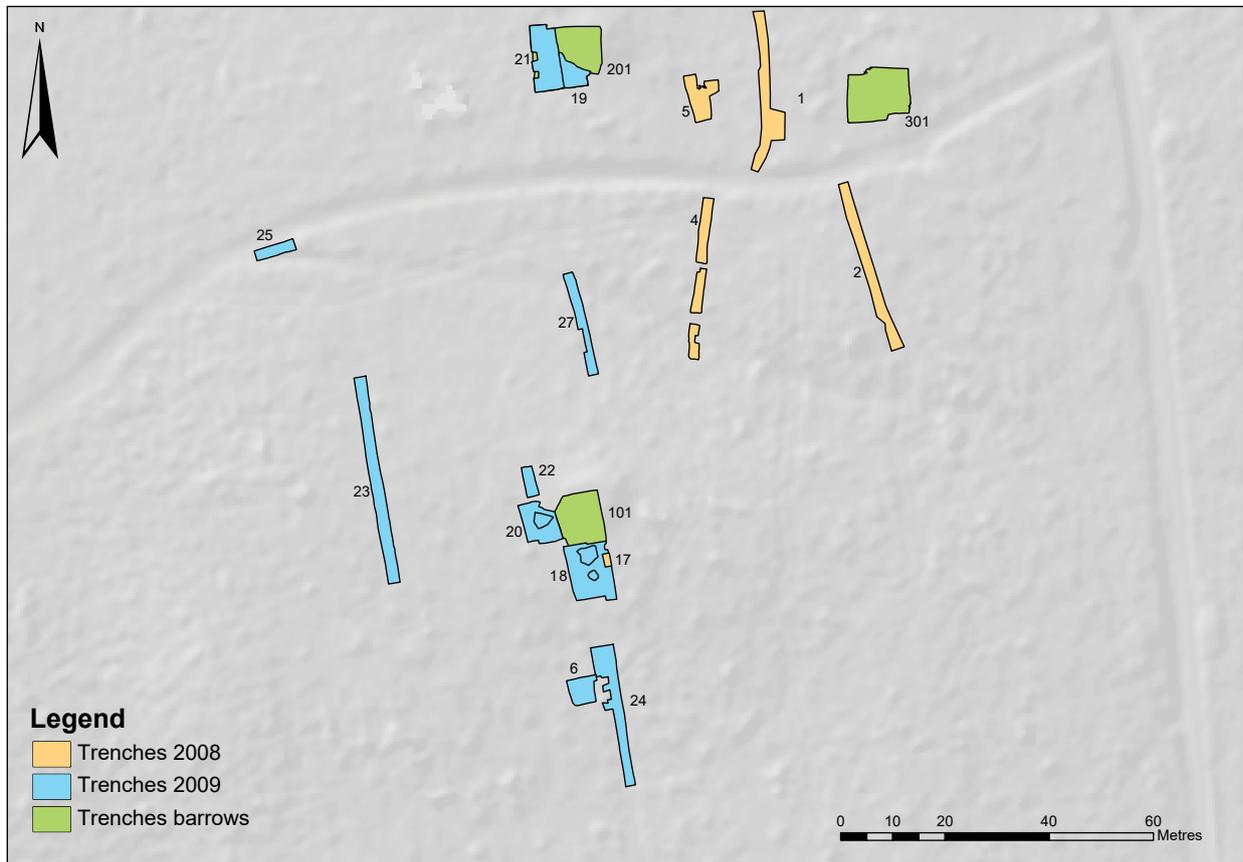


Fig. 2.6: Final trench plan in the surroundings of Mounds 1, 2 and 3.

the sampling locations in the field herself. Remaining samples were taken at her direction. The results of the pollen analysis are discussed in Section 5.5.

2.3.2 Ecological samples

Only two features, both cremation burials, were sampled for archaeobotanical remains. However, no botanical remains were recovered from the samples when they were sieved.

2.3.3 General samples

Samples were taken from multiple features. These samples were all sieved in order to recover smaller find material (mesh size 2–4 mm). Most cremation graves were already sieved during the fieldwork campaign, which is why most general samples derive from the remaining features. In a number of cases an extra general sample was taken from a grave for possible later analysis and research questions.

2.3.4 Texture samples

During the fieldwork a number of key questions arose regarding the podostratigraphy of the barrows. It was

decided to take a series of texture samples from the sections of each barrow in order to answer these questions. These samples were analysed by dr. Hans Huisman and are discussed in Section 5.4.

2.4 Dating

A series of ^{14}C -dates derived from charcoal deemed suited to providing a *terminus ante* or *post quem* date for the use of the barrows formed the first source of information with regards to dating the barrows (see Tab. 2.1). Even more important are the ^{14}C -dates of the burnt bone material from the various burials. Following the protocol of Van Strydonck *et al.* (2009), each grave was dated individually after a physical anthropologist (dr. Liestbeth Smits, University of Amsterdam) selected suitable bone samples for each grave (long bones that were very well burnt). ^{14}C -dates were calibrated using Oxcal 4.2.3. In this manner it was possible to determine the date of each grave. The Centre for Isotopic Research of the University of Groningen conducted both analyses.

In addition to these chemical analyses, the find material offers several insights into the typochronological dates of the various complexes.

	N dates	Laboratory code	Dated material
Mound 1			
Grave 1	3	GrN-32580; GrN-32582; GrA-51705	Charcoal; charcoal; burnt bone
Pit S54	1	GrA-48880	Charcoal
Mound 2			
Grave 2	1	GrA-51581	Burnt bone
Grave 3	1	GrA-51707	Burnt bone
Grave 4	1	GrA-51942	Burnt bone
Grave 5	1	GrA-51700	Burnt bone
Grave 6	1	GrA-51587	Burnt bone
Grave 7	2	GrN-32578; GrA-51712	Charcoal; burnt bone
Grave 8	2	GrN-32581; GrA-51702	Charcoal; burnt bone
Mound 3			
Grave 9	1	GrA-51589	Burnt bone
Grave 10	1	GrA-51963	Burnt bone
Grave 11	2	GrN-32577; GrA-51951	Charcoal; burnt bone
Grave 12	2	GrN-32579; GrA-51953	Charcoal; burnt bone
Grave 13	1	GrA-51721	Burnt bone
Grave 14	1	GrA-51952	Burnt bone
Grave 15	1	GrA-51710	Burnt bone
Grave 16	1	GrA-51696	Burnt bone
Grave 17	1	GrA-51701	Burnt bone
Grave 18	1	GrA-51719	Burnt bone

Tab. 2.1: ¹⁴C-samples Wieselseweg. The outcomes will be presented in the chapters concerned with their context.

Chapter 3

Physical geography and site formation processes

Arjan Louwen

3.1 Physical geography and soil features

3.1.1 Pleistocene

The Wieselseweg barrows are located on the eastern flank of the ice-pushed ridge of the Veluwe (Fig. 3.1). This striking landscape in the middle of the Netherlands was shaped during the second to last ice age: the Saalian glaciation (370,000–130,000 years ago). Three cold phases can be distinguished within the Saalian complex, of which the last phase (Rehburger phase, IOS6, 200,000–130,000 years ago) most strongly shaped the research area. During this period the land ice in the Netherlands extended to the Haarlem–Utrecht–Nijmegen line (Berendsen 2004, 157). The Veluwe is part of the most southerly range of ice-pushed ridges created during this maximum ice formation. While there is some discussion as to the exact sequence of events (Berendsen 2004, 170–2), the formation of the eastern Veluwe moraine is dated to phase 2 of the three-phases model of the glaciation of the Netherlands (Berendsen 2004, 171). The ice-pushed fluvial material primarily consists of early and middle Pleistocene fluvial deposits. For the part of the Veluwe where the Wieselseweg is located, these are generally old Rhine deposits (Berendsen 2004, 160–1; fig. 7.5). As such the Wieselseweg subsoil mainly consists of coarse and gravel-rich sand.

A second important chapter in the physical-geographical history of the research area took place during the most recent ice age: the Weichselian (115,000–10,000 years ago; Berendsen 2004, 183). The Middle Weichselian (OIS 4-3-2h), also known as the Pleniglacial, in particular was key in the development of the research area. Even though the land ice did not extend to the Netherlands during the Weichselian, there was a periglacial climate. Especially during the Early and Late Pleniglacial this meant that the subsoil was permanently frozen in the Netherlands and vegetation scarce. As a result the dry polar winds had free reign and the cover sands were deposited. During the last phase of the Late Weichselian or Late Glacial (12,450–10,150 years ago; Berendsen 2004, 189) the climate in the Netherlands cooled down one more time. The so-called younger cover sands were deposited in this period (Berendsen 2004, 190). Cover sands are also locally present in the research area, though it is unclear whether they are old or young cover sands.

The meltwater valleys in the research area (Fig. 3.2) were also formed during the Weichselian (Berendsen 2004, 194–5). Due to the permafrost, the snow run-off could

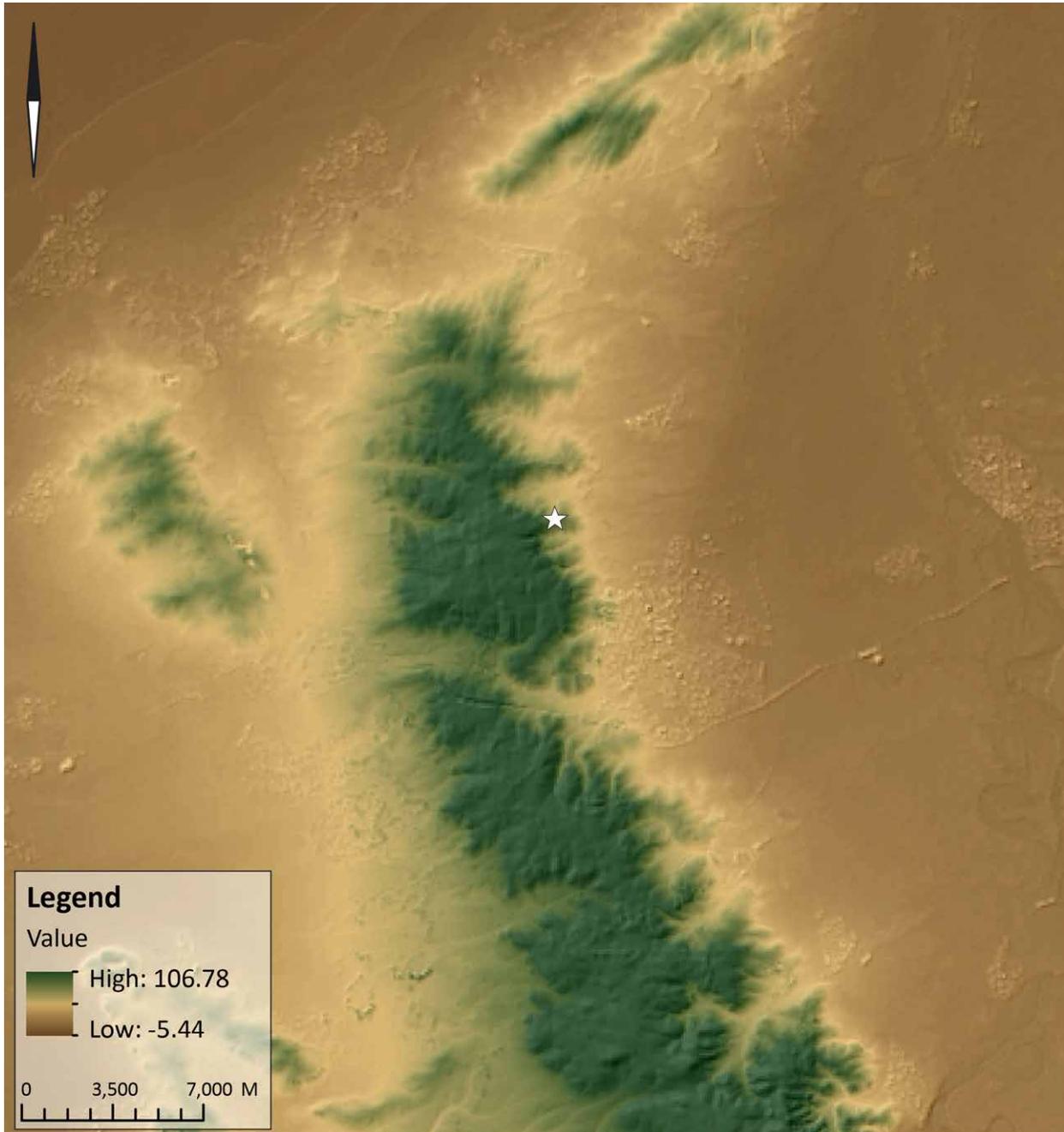


Fig. 3.1: Northern half of the Veluwe ice-pushed ridge. The research area is located on the ridge's eastern flank (© www.ahn.nl).

not penetrate the subsoil and wore deep valleys in the flanks of the ice-pushed ridge. Since the thawing of the permafrost following the Weichselian, the precipitation can now run off through the ground, leaving the valleys mostly dry today. There are impressive examples of such dry valleys both to the north and south of the Wieselseweg.

3.1.2 Holocene

Little of consequence happened in the research area and its surroundings in terms of physical geographical processes during the youngest time period of geological history. The most impactful development took place under direct human influence from the Middle Neolithic onwards, when excessive deforestation for agriculture

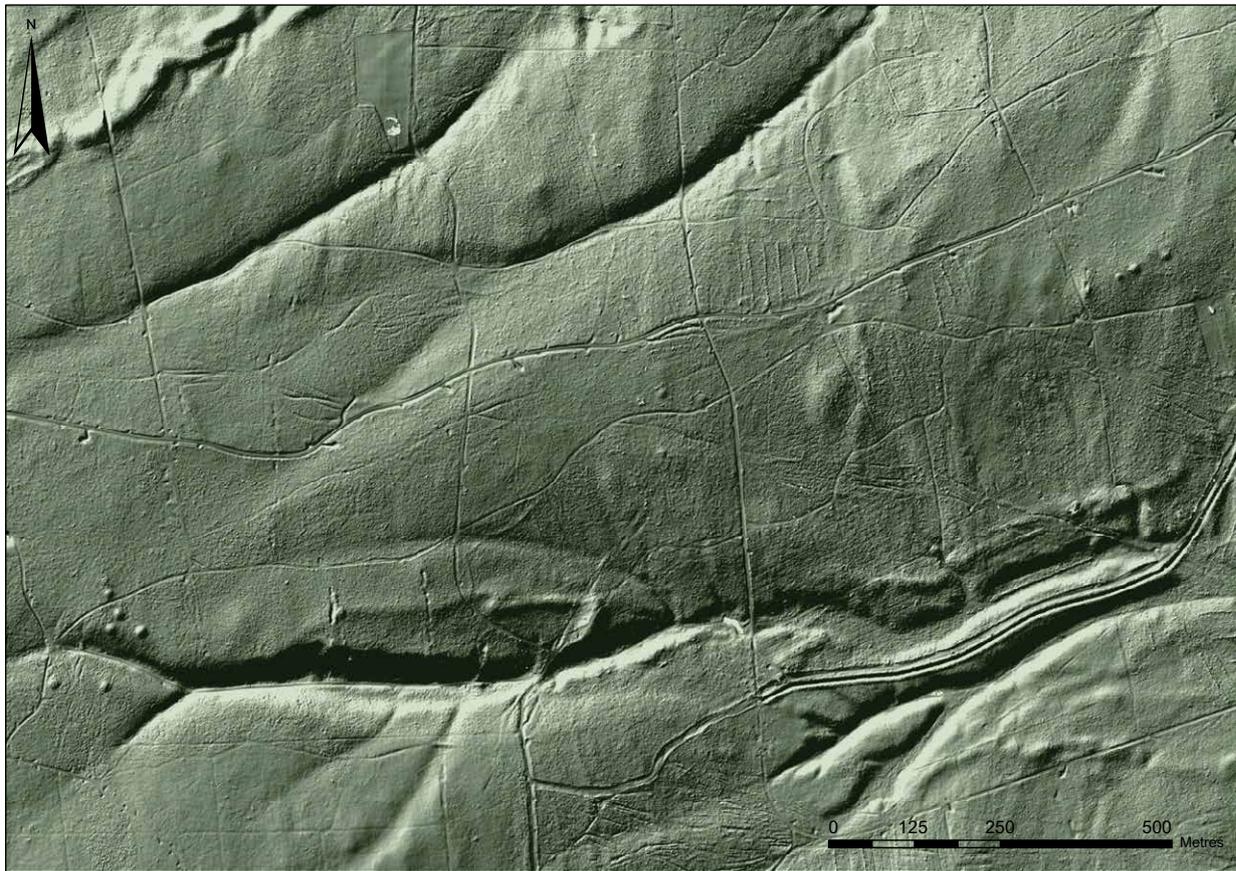


Fig. 3.2: Detail of the local relief in the research area, showing that the Wieselseweg is flanked by dry valleys both to north and south (© www.ahn.nl).

fields eventually resulted in the first heaths. Prior to man really starting to leave its mark on the landscape, there was a gradual change in vegetation in this landscape from the beginning of the Holocene. The slowly rising temperatures gradually resulted in the open landscape of the Late Weichselian, gradually transitioning into birch and pine forests. During the first couple millennia of the Holocene these, young woods developed into the dense deciduous forests that peaked during the Atlantic period (7000–3850 BC). The Veluwe will have also predominantly been deciduous forest during this time period. During the following Subboreal (3850–1100 BC) and Subatlantic period (1100–present day), the landscape slowly regained its open character due to human intervention (Janssen 1974, 57). The deforestation caused the already poor sandy soils to become even less capable of retaining the limited nutrients present, resulting in the impoverishment and acidification of the soil. As a result, the first heaths and lean grasslands formed from the 3rd millennium BC onwards.

For the Wieselseweg detailed information is not available to confirm the scenario described above,

though recent research in the region appears to confirm the presence of open landscapes during the last millennium BC. It has been established that the two Middle Iron Age barrows of Apeldoorn-Echoput were erected in a heathland (Fig. 3.3). This open terrain is estimated to have been somewhere between 200 and 300 metres across (Doorenbosch 2013a, 111). Furthermore, the remnants of a vast Celtic field system were discovered to the south of the Echoput (Van Heeringen *et al.* 2012), a phenomenon likewise dated to the last millennium BC. Both the pollen analysis conducted at the Echoput and the Celtic field suggest a locally open landscape on the ice-pushed ridge of the Veluwe.

3.1.3 Known physical geographical and pedological features of the Wieselseweg

The barrows to the south of the Wieselseweg are located on the eastern flank of the Veluwe ice-pushed ridges. The elevations in the research area slowly increase from east to west: 58–64 metres +NAP (AMK-monument 145) and 68–72 metres +NAP (Mounds 1, 2 and 3). Both the newly



Fig. 3.3: (Vegetation) reconstruction of Apeldoorn-Echoput in the 4th/3rd centuries BC (Mikko Kriek).

discovered mounds as the AMK-monument 145 barrows are located on a long axis on the west-east oriented ridge that is flanked both to the north and south by dry valleys. The subsoil mainly consists of pushed-up fluvialite (Rhine) deposits made up of coarse sands and gravel. The cover sands locally present form a very thin layer. At both excavation locations, Moder Podzols are predominantly present (Y30). In the unexamined area in-between there are also Humus Podzols present (Hd21, *leemarme Haarpodzolbodems* in Dutch). The whole area has groundwater table VII (*grondwatertrap* in Dutch; >80 cm GHG; >160 GLG).

3.2 Historical land use

Archaeological, historical and ecological research shows that habitation became less intensive on the Veluwe from the Roman era onwards. Young trees started to grow in the former heath areas, and some agriculture was practiced in small 'refugia' on the richer sandy soils (Bleumink/Neeffjes 2010, 25). From the Early Middle Ages on, new techniques led to more agriculture being practiced on the wetter borders of the ice-pushed ridge of the Veluwe, instead of the higher sandy soils preferred previously. This was the more so because medieval agricultural systems

increasingly relied on the permanent exploitation of the same fields, for which fertile soils were a prerequisite.

Nonetheless there were still attempts at agriculture on the ice-pushed ridge. In order to establish a system of concentrated agriculture, both forest and heath areas were needed. Sods from both areas were combined with manure and used to enrich the infertile fields. Heath areas were also needed as pasture for animals. Hamlets (so-called *buurtschappen* in Dutch), such as Hoog Soeren, arose around the concentrated agricultural fields (Bleumink/Neeffes 2010). While the research area is not located in the direct vicinity of such a hamlet, it was likely exploited as forest or heath by one in this period. The highly variable relief in the research area likely also would have precluded its use for agriculture.

Other economic activities taking place on the ice-pushed ridge of the Veluwe during the Middle Ages were the exploitation of iron and loam. From the 6th century onwards, the area was searched intensively for so-called '*klapperstenen*' (literal English translation: 'stones that clunk'). They form when limonite (iron solution originating from water) is deposited around a clump of loam. When the loam clump inside the limonite shell dries this become loose, which is why the 'stone' that formed around it literally make a clunking (*klapperend* in Dutch) noise. (Laban *et al.* 1988, 4). 'Klapperstenen' can be found in the loamier layers of the ice-pushed ridge and were used for local iron production (Moerman 1957; Laban *et al.* 1988). Loam itself was also used for various purposes. Among other things, the production of pottery, the reinforcement

of threshing floors, the construction of walls and later also for the production of bricks. Both the loam and iron exploitation locally resulted in deep pits. Several deep pits were present in the research area, especially the terrain to the north of AMK-monument 145, directly alongside the Wieselseweg. Whether these are the result of iron or loam exploitation thus far remains unclear.

Another land use concerns hunting. The forests on the higher parts of the Veluwe moraine harboured a wide variety of game. As such the region has long since been known as eminently suitable hunting terrain. From the 8th century AD onwards, only the nobility were allowed to hunt. The attraction that the Veluwe held even for the highest nobility shows from the construction of the hunting lodge Het Loo in the 15th century AD (Van Everdingen 1984, 56).

Lastly there is forestry. Prior to Queen Wilhelmina and Prince Hendrik purchasing the area at the start of the 20th century, the area was in use for forestry. To this end, among others, large pine trees were cultivated and used to reinforce the mines of Limburg. Miners favoured this kind of wood, as it would crackle when a collapse threatened. A small part of the research area was also used to cultivate oak for kindling (an *eikenhakhoutbos* in Dutch).

The current land use is still related to forestry. The *Koninklijke Houtvesterij* practices nature-led forest management (*natuurvolgend bosbeheer* in Dutch), whereby wood harvesting imitates the natural decline of the forest. A large part of the Royal Domain is furthermore accessible for recreational walks and bicycling for a large part of the year.

Chapter 4

Archaeological and historical context

Arjan Louwen

4.1 Introduction

As far as the Veluwe is concerned, the Apeldoorn municipality has the most barrows within its borders, following the Ermelo municipality (Fontijn 2011, 18; tab. 1.1). Even though the following will show that the Apeldoorn municipality was the birthplace of barrow studies in the Netherlands, the burial mounds here have received little research attention since the 1930s. The following section on the archaeological framework (Section 4.2) discusses the known archaeological features relevant to barrow research in the wider Apeldoorn area. Section 4.3 on the historical framework in turn focuses in more detail on the research area itself.

4.2 Archaeological framework

4.2.1 Visible archaeology

Within the scope of the Dutch national archaeological research agenda (*Nationale Onderzoeksagenda Archeologie* in Dutch) the Veluwe has been grouped under the archaeo-region of the sandy area of Utrecht and Gelderland (NOaA, version 2.0).³ With regards to later prehistory, archaeological evidence from excavations is spread rather thin for the sandy area of Utrecht and Gelderland when compared with other Dutch archaeo-regions. Several causes may lie at the root of this and will be briefly considered below, focusing on the area around Apeldoorn.

Characteristic of this region are the researches conducted thus far that focus on the archaeological features still visible in the landscape (Gerritsen *et al.* 2006, 5), especially the excavation of barrows. For the area around Apeldoorn, most archaeological information regarding prehistory derives from older barrow excavations, most of which were conducted prior to the Second World War (Holwerda 1907; 1908; 1909; 1911; 1912; Van Giffen 1937). These excavations were conducted by the National Museum of Antiquities (Leiden) and the *Biologisch Archeologisch Instituut* (Groningen). Following WWII their interest in the area declined and eventually the then *Rijksdienst voor het Oudheidkundig Bodemonderzoek* (ROB) took the lead with regard to research in the area (Klok 1988; Modderman 1954). The large-scale excavations of prehistoric settlements that were conducted from the 1950s

3 www.noaa.nl.

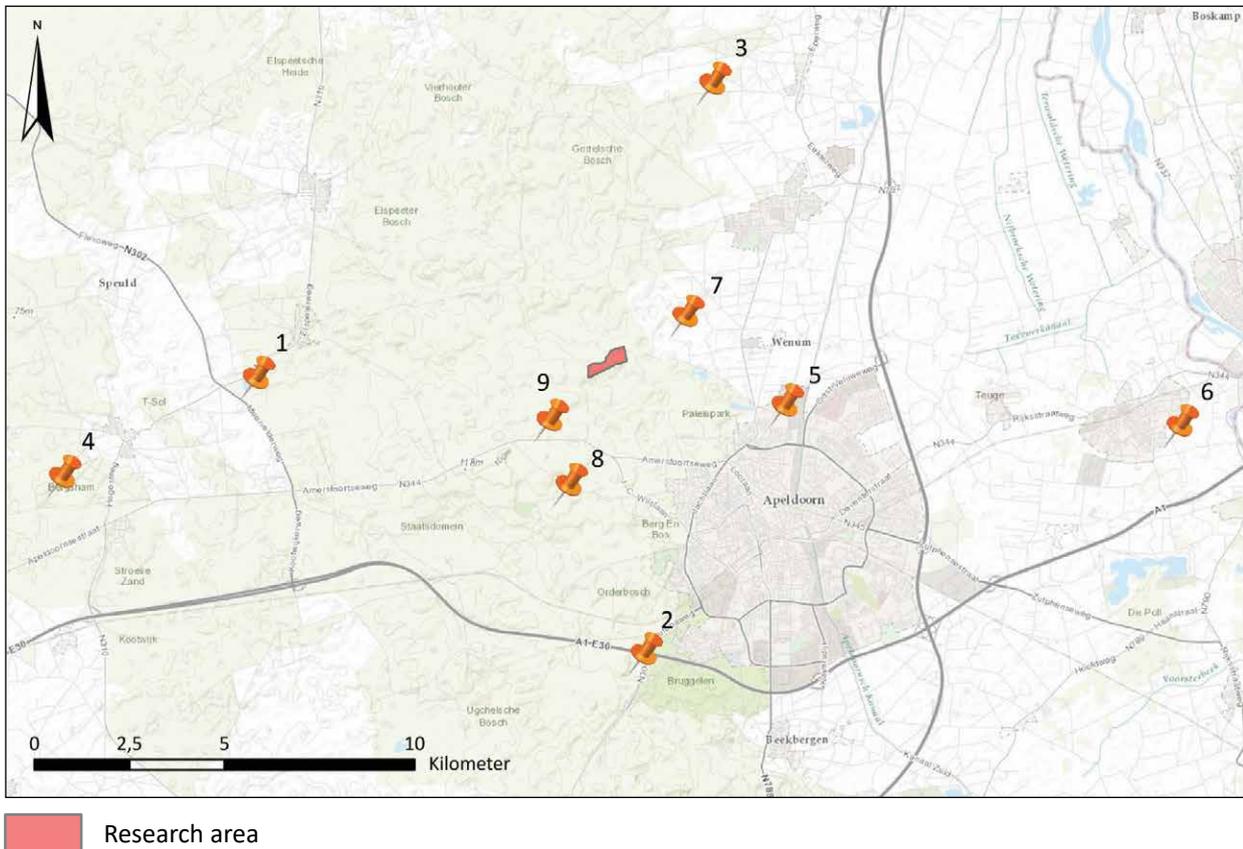


Fig. 4.1: Apeldoorn regions with the sites discussed. 1) Uddelermeer; 2) Ugchelen; 3) Epe/Vaassen (barrow line); 4) Garderen-Bergsham; 5) Apeldoorn-Kleine Fluiterweg; 6) Twello-De Schaker; 7) Wieselse Enk; 8) Apeldoorn-Hoog Soeren; 9) Apeldoorn-Echoput; © OpenStreetMap contributor; © GIS community).

onwards in the rest of the Netherlands never took place in large parts of the Veluwe, nor in the area around present-day Apeldoorn.

The relatively small number of active amateur archaeologist in the region is considered another reason for the relatively limited archaeological dataset. The area to the east of Apeldoorn is even considered a knowledge lacuna (Gerritsen *et al.* 2006, 5).

Nonetheless, a general image of later prehistory in the area around present-day Apeldoorn can be gleaned from the old researches mentioned. The following is based primarily on data from the municipalities of Apeldoorn, Barneveld and Epe.

4.2.2 Middle Neolithic B (3400–2900 BC)

Already at the start of the 19th century, Holwerda excavated the remains of a Funnel Beaker Culture settlement (*Trechterbekercultuur* in Dutch) directly next to the Uddelermeer (Fig. 4.1; Holwerda 1909; 1911; 1912). He also excavated a palisade and small cemetery from the same period. In his dissertation, Bakker (1979, 53)

dates the ceramics found here to the early Havelte phase (3050–2950 BC). The pottery from the Ugchelen 1 and 3 sites, some 7.5 kilometres to the south of the research area (Fig. 4.1: 2), is also dated to this phase (Bakker 1979, 53).

The features at both Funnel Beaker sites are not the earliest traces of human presence in the area around Apeldoorn, as demonstrated by, for example, the Mesolithic pits at the Echoput (Fontijn *et al.* 2011, 61) and various Late Paleolithic sites near the Hunneschans (Van Heeringen *et al.* 2012, 11). However, these are the oldest features that testify to the active organization of the landscape. Especially the Uddelermeer palisade shows the structuring of the living environment during the transition from the 4th to the 3rd millennium BC. Palisades of the Funnel Beaker Culture have otherwise only been found at Anlo (Waterbolk 1960) and recently at Hattem (Lohof *et al.* 2011). These were initially interpreted as corrals (Waterbolk 1960), but at a later stage they started to be interpreted as settlement boundaries (Harsema 1982, 151), or even as defensive structures (Knippenberg/Hamburg 2011, 164). Both the Anlo and the Hattem

palisades demarcated sizable terrains (the longest sides were >90 metres and >73 metres respectively).

4.2.3 Late Neolithic–Early Bronze Age (2900–1800 BC)

As mentioned earlier (Section 3.1.2), the available pollen sequences show the presence of people in the Apeldoorn area of the Veluwe from the start of the 3rd millennium BC. From an archaeological perspective this is confirmed by the presence of Late Neolithic Single Grave and Bell Beaker as well as Early Bronze Age barrows (Bourgeois 2013, 58–63). While traces of settlements from this period are extremely scarce, old barrow excavations do clearly show the presence of people in the same area for extended periods of time from the Middle Neolithic B onwards. The Funnel Beaker cemetery at the Uddelermeer mentioned above shows continuous use at this location prior to the appearance of Single Grave barrows (Holwerda 1909; 1911; 1912). The region north of the research area located between the barrow line of Epe and Nierssen (municipality of Epe; Fig. 4.1: 3) knew a very long use history from the Late Neolithic through to the Middle Iron Age (Bourgeois 2013, 58–66). One of the Late Neolithic barrows on the barrow line is unique with regard to its state of preservation. Due to the high loamy content of the subsoil, the skeletal remains of several individuals were preserved. Such finds offer special insights into Late Neolithic funerary practices (Bourgeois *et al.* 2009; Holwerda 1908).

4.2.4 Middle Bronze Age (1800–1100 BC)

Also for the Middle Bronze, we once again unfortunately have to conclude that the information available for the area around Apeldoorn is limited and we primarily have to rely on those barrows already excavated. Generally speaking, there is a gradual change in funerary practices during the Middle Bronze Age. Cremation becomes ever more common in addition to the inhumation burials, which were the standard up till this period. The number of secondary interments in both old and newly created barrows increase and it appears that there is an increasing emphasis in this sense on group and genealogical connections (Fokkens 2005, 467). This development can also be seen in the barrows in the surroundings of Apeldoorn. Secondary burials dating to the Middle Bronze Age have been observed for the barrow alignment of Epe and Nierssen (Bourgeois 2013, 64). The three Middle Bronze Age barrows of Garderen-Bergsham (municipality of Barneveld; Fig. 4.1: 4) should also be mentioned here as they yielded numerous cremation burials (Bourgeois/Fontijn 2015; Van Giffen 1937). One of the graves at the site of Bergsham even contained the remains of a rare *Wohlde* sword, an exceptional

find for the central Netherlands (Fontijn 2002, app. 5.6; Glasbergen 1954ab). A second *Wohlde* sword was found in the western part of the Veluwe in a barrow at Putten (Elzinga 1957). Finally, a third Bronze Age sword, that had been resharpened so many times it now more resembles a dagger (Fig. 4.2), was recently found by amateur archaeologists in the forests of ‘Het Leesten’, some 2.5 kilometres south of Ugchelen.

Within the Apeldoorn section of the Veluwe there are almost no known Middle Bronze Age settlement traces. Two excavations in the area that did yield Middle Bronze Age features are discussed briefly here. In the winter of 1994–’95 the ROB collaborated with the Archeologische Werkgroep Apeldoorn to conduct a trial trench research at the Kleine Fluitersweg in Apeldoorn (Fig. 4.1: 5). This road lies in the same line as the Wieselseweg itself, some 3.5 kilometres to the east of the research area. Here a concentration of postholes and pits dating to the Middle Bronze Age was found on a local ridge in the landscape. A house plan could not be reconstructed, but the excavators suspect that it indeed does concern a Middle Bronze Age homestead (Groenewoudt/Krauwier 1995, 7). The same research also uncovered a pit with Late Neolithic Single Grave Culture pottery.

At least seven house plans dating to the Middle Bronze Age B–Late Bronze Age transition were recently found spread out over three locations during excavations at Twello-De Schaker, a few kilometres to the east of Apeldoorn (Fig. 4.1: 6). One of these even seems to have been rebuilt at the same location several times. Out buildings, pits and watering holes were found here as well (Meurkens 2014, 105–44).

These two excavations provide some preliminary insights into Middle Bronze Age settlement research here, though it should be noted that both sites are located at the foot of the ice-pushed ridge (Apeldoorn–Kleine Fluitersweg) or even in the IJssel valley (Twello-De Schaker), rather than on the top of the ice-pushed ridge. Whether and how the ice-pushed ridge itself was inhabited during the Middle Bronze Age unfortunately cannot be stated based on available evidence.

4.2.5 Late Bronze–Late Iron Age (1100–12 BC)

The Late Bronze Age in the Netherlands marks the start of the so-called Urnfield Period (1100–500 BC). Urnfields are also known from the Apeldoorn area (Verlinde/Hulst 2010, 77), though unfortunately only one of these has been partially excavated.⁴ As a result, detailed information regarding the dating and use of most of the urnfields in the Apeldoorn area is lacking. Four examples, however, have

4 Verlinde/Hulst 2010, list A1: *Epe-Vaassen* (XXXI).



Fig. 4.2: A Bronze Age sword found in the forests 'Het Leesten', that has been resharpened so many times it resembles a dagger.

been mapped in the last few decades by the then ROB who recorded the still visible mounds.⁵ The other five urnfields are known from old find reports and observations.⁶ Some of these urnfields appear to be isolated, while others seem connected with a much older funerary landscape. In addition to these more classic urnfields, several more deviating burials are known from this period in the Apeldoorn surroundings, such as secondary burials in older barrows⁷ and even solitary barrows.⁸

Burials from the Middle or Late Iron Age are practically unknown in the Apeldoorn area of the Veluwe. Only the Echopot barrows (Fig. 4.1: 9) can be dated to the Middle-Late Iron Age transition (Fontijn *et al.* 2011). The various fibula fragments from one of the burials of the Hoog Soeren urnfield are also more reminiscent of the Late rather than the Early Iron Age (Fig. 4.1: 8; Holwerda 1907).

Unfortunately little is known also of clear settlement traces in the area around Apeldoorn from the 1st millennium BC, although there is a well-known Celtic field at Vaassen (Brongers 1976; Fig. 4.1: 3) in which the local funerary landscape seems to have been incorporated. Various fragments of Celtic field systems

were recently also discovered in the area between Echopot and Hoog Soeren (Van Heeringen *et al.* 2012; see also Fig. 4.1 between nos. 9 and 8). It is likely that the connected farms were located close to these field systems, or even right among them. Lastly, there is one acreage located a kilometre to the east of the research area which seems a likely candidate for the presence of an Iron Age settlement. Several fragments of Iron Age pottery were found during construction of a sewage ditch in the area in question, known as the Wieselse Enk (Fig. 4.1: 7). The area has been designated a terrain with a high archaeological value.⁹

4.2.6 Archaeology at the Wieselseweg

The only recorded archaeological features within the research area are the three barrows themselves (Fig. 4.3).¹⁰ Officially AMK-monument 145 with its four barrows falls outside the research area, but since the surroundings of these four mounds were explored it seems appropriate to mention them here.¹¹ AMK-monument 145 is a protected monument of high archaeological value.¹² In the description of the monument terrain it is noted that the barrows likely date to Late Neolithic and Bronze Age. However, as none of these mounds has ever been investigated all dating options should be kept open.

5 Verlinde/Hulst 2010, list A1: *Dabbelo* (XXVII); *Hoog Soeren* (XXX); *Vaassen-Elspeterweg* (XXXII) and *Epe-Gortelseweg* (XXXIII).

6 Verlinde/Hulst 2010, list A1: *Nieuw-Milligen* (VIII); *Meerveld-Turfweg* (IX); *Loenen* (XXVI); *Ugchelen-Herenhul* (XXVIII) and *Apeldoorn-Loolaan* (XXIX).

7 Verlinde/Hulst 2010, list B2: *Meerveld-Solse Berg* (V–VII).

8 Verlinde/Hulst 2010, list B1: *Ugchelen-Koppelsprengen* (III).

9 AMK-no.: 12.854.

10 Archis nos.: 425.369; 425.371 and 425.373.

11 Archis nos.: 42.508; 42.510; 42.511 and 42.512.

12 AMK-no. 145.

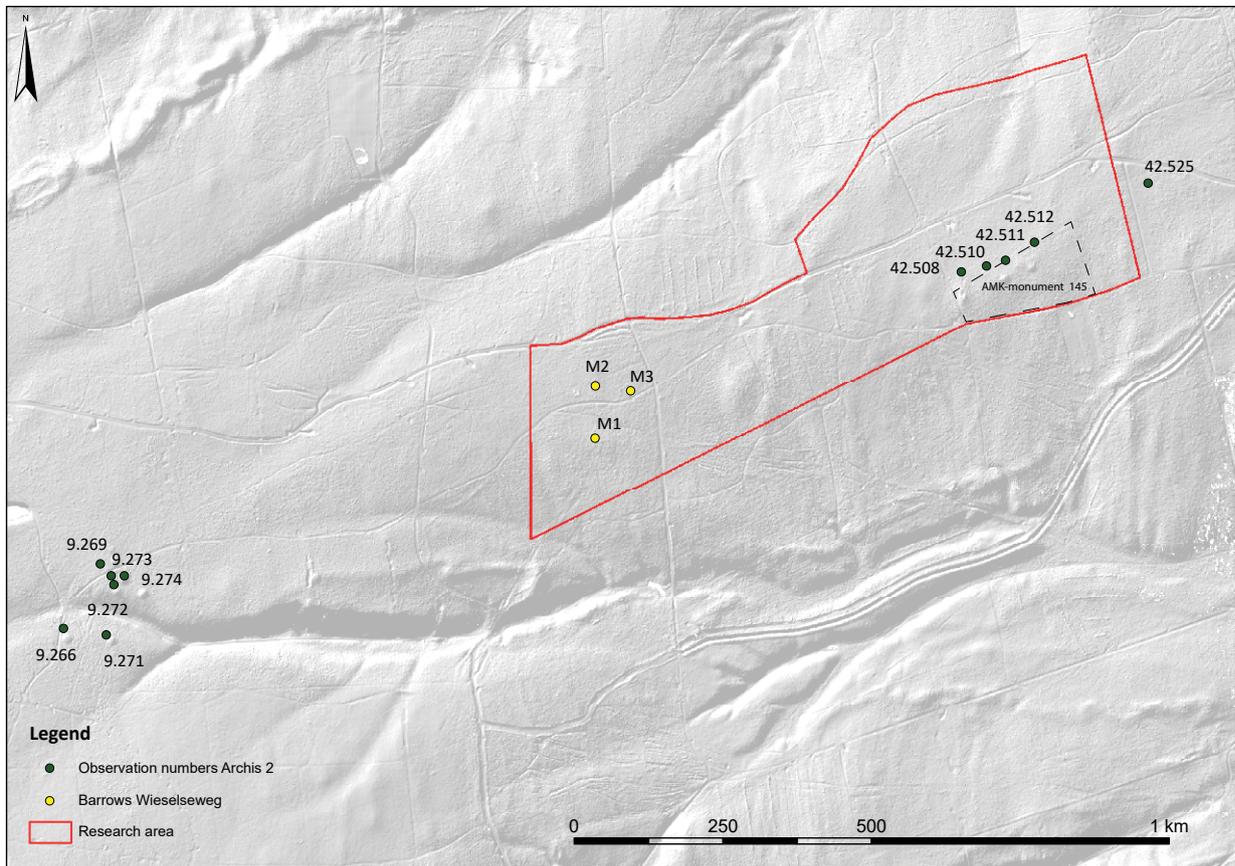


Fig. 4.3: Barrow groups around the Wieselseweg. Far left (west) the barrow group of Koningseik; in the middle Wieselseweg Mounds 1, 2 and 3; far right the barrow row of AMK-monument 145 (© www.ahn.nl).

Mention is also made of damage done to the barrows by rabbits, swine and falling trees.

A number of other observations were done in the direct surroundings of the research area. Several Iron Age pottery sherds and fragments of flint were found on the Wieselse Enk terrain already mentioned. The other archaeological observations done around the Wieselseweg are all mounds. For example, a small barrow supposedly lays some 150 metres to the east of AMK-monument 145.¹³ This example, however, is not included in Klok's (1988) inventory and for this research there is serious doubt that this is a genuine observation. Some 800 metres west-southwest of the research area there is a group of at least six barrows known as Koningseik.¹⁴

When we zoom out to the level at which both the Wieselseweg and the Koningseik barrows are visible, it appears that these three locations form a line (see Figs. 3.2 and 4.2). The most easterly barrows (AMK-monument 145) are all four located on the imaginary line running of the top

of the long ridge, which roughly has the same orientation as the barrow line. The three recently discovered Wieselseweg barrows form the middle group, of which Mound 1 is located exactly on the imaginary line between the three barrow groups. Yet another 800 metres to the west of the three mounds are the Koningseik barrows. These are located on either sides of a dry valley and tower impressively over the surrounding landscape.

4.3 Historical framework

4.3.1 The Royal Domain (*het Kroondomein*)

The research area is located in its entirety within the borders of the Royal Domain Het Loo (*Kroondomein Het Loo* in Dutch). The history of the Royal Domain strongly influenced the research area. The reader is referred to the previously mentioned, comprehensive work by Jan Neeffjes and Hans Bleumink for an extensive history of the Royal Domain (Bleumink/Neeffjes 2010). In the following only a few important chapters in the rich history of the Kroondomein are briefly discussed, based primarily on the fantastic work by Bleumink and Neeffjes.

13 Archis no.: 42.525.

14 Archis nos.: 92.66; 92.69; 92.71; 92.72; 92.73 and 92.74 (AMK-no. 124).

Many history books mark 1684 as the birth year of the Royal Domain. In that year stadtholder (*stadhouder* in Dutch) Willem III bought the hunting lodge *'t Olde Adel-Huijs Loo*, with the accompanying lands and buildings, for 90,000 carolus guilders from Johan Carcelis of Ulft. In preceding years the stadtholder had spent a lot of time hunting the forests of the Veluwe. Already in 1675 Willem III was head huntsman (*opperjagermeester* in Dutch) of the Veluwe, and from 1677 onwards he had his own hunting lodge in the forests of Hoog Soeren. Initially he intended to have a more luxurious home here, but later decided to move to the present-day Loo due to the presence of the so-called *sprengenbeken*. This source of fresh water, combined with the variations in elevation on the terrain of the Loo offered the possibility to have extensive palace gardens with fountains. His new residence had to equal the famous country estate of the French Sun King Louis the XIV in Versailles. After he accepted the English kingship in 1689, the first expansion of the newly built palace and gardens took place. The whole complex soon gained European fame.

The death of king-stadtholder Willem III in 1702 appeared to mark the start of the loss of the Palace Het Loo and its beautiful gardens. In the century of economic decline that followed, stadtholders Willem IV and Willem V made several attempts to maintain the hunting grounds and repair the palace and its gardens. The domains were also significantly expanded during this period, with among others the hamlets Asselt and Hoog Buurlo, the Hof at Uddel and the Hoog Soerense Bos and Soerense Heegde. Following the Batavian Revolution of 1795, the belongings of the stadtholder were confiscated and the palace Het Loo transformed into a hospital for some 3000 French soldiers

When Louis Napoleon, the brother of emperor Napoleon, was crowned as the first king of the Netherlands in 1806, the decline of the palace and the mismanagement of the royal hunting grounds came to an end. The king was popular with the people of the Netherlands and initiated numerous repair works, but was quickly removed from the throne by his brother. In 1813 the first Orange, the later King Willem I, returned from English exile and started the long negotiations



Fig. 4.4: Hoog Soeren 1906. Excavation Holwerda (National Museum of Antiquities, Leiden, B1222).

for the return of the Orange possessions. These did not end before 1822. It is from this year onwards that the area is officially referred to as the Royal Domain. King Willem I was not a fervent hunter and as such invested more energy in the gardens than in the surrounding hunting grounds. His successor Willem II was also not so enamoured with the hunt and was rarely at Het Loo. Willem III, however, was a passionate hunter and military man, as well as interested in new agricultural and forestry techniques. The Royal Domain formed an ideal play area for all his interests. Especially the furnishing of two old farms as modern model farms and the construction of three mock forts formed the embodiment of his interests. The military camp on the Wieselsche Veld, to the northeast of the research area, also stems from the reign of Willem III.

When King Willem III passed away in 1890, his daughter Wilhelmina was only ten years old. When she came of age in 1898 and started her reign, the next important chapter in the history of the Royal Domain soon began. In 1901 Queen Wilhelmina married the duke of Mecklenburg – Count of Schwerin: Prince Hendrik. Both

had a deep-rooted passion for the Royal Domain, which they each shaped their own ways. The Royal couple, for example, bought over 6500 hectares to the north and east of the then Royal Domain between 1901 and 1914. This land was initially private rather than state property. This series of purchases also included the present-day research area. Prince Hendrik was a passionate hunter and loved the woods. As a result much of the newly purchased wild heathland was systematically reclaimed and prepared for the planting of predominantly pine forests. During this process strict land subdivision (*verkaveling* in Dutch) was maintained. Queen Wilhelmina, however, loved the rough heathlands, in particular their open nature and therefore regularly called a halt to her husband's activities. The different preferences of the royal couple resulted in the present-day still strongly variable character of the lands purchased at the time.

The Palace Het Loo and the Royal Domain would go through another dark period when the royal possessions were once again declared forfeit during the Second World War. Initially the palace was used to quarter the German Wehrmacht. In the last year of the War it served as a hospital,



Fig. 4.5: Apeldoorn-Wieselseweg. The field team of 2008 follows in the footsteps Holwerda.

which eventually treated some 800 wounded soldiers. The woods and heathlands of the Royal Domain played host to resistance movements, people in hiding (*onderduikers* in Dutch), large-scale deforestation and massive poaching parties during the Dutch famine (*Hongerwinter* in Dutch). Also, one of the largest munitions depots of Europe (some 50,000 tons of explosives stored over 300 hectares) was located to the east of Hoog Soeren. This depot was partially blown up during the German retreat. The clearing of the remaining munitions continues to this day.

After the war it took some time for Queen Wilhelmina to rekindle her love for Het Loo. Eventually she lived in the palace until her death in 1962. Three years prior to her passing in 1959, she donated the lands purchased by her and Prince Hendrik in their entirety to the State, which is when the research area officially became part of the Royal Domain.

Today the Royal Domain is known as an extensive and diverse nature reserve harbouring many special animal and plant species, and a sustainable method of forestry is practiced here. Additionally the Oude Loo and the Palace Het Loo and accompanying gardens are regularly open to the public, and the extensive woods and heathlands of the Royal Domain are open for recreation during several months of the year. Royal efforts also lie at the root of these, and it is in particular Queen Beatrix who pleaded for the public openings and sustainable forestry approach. There is still hunting on the Royal Domain, though the reasons behind this practice have changed radically in the last few decades. Where before the war, hunting was a royal pastime, today shooting is only done in order to maintain and keep in check the wild animal population, in part as a result of public opinion. While the Royal Domain has increasingly become public property, it is thanks to the passions and efforts of the Oranges that the Wieselseweg has thus far known a peaceful existence.

4.3.2 1906: Pioneer research at the Royal Domain

Over a hundred years ago a veritable pioneer research took place at the Royal Domain. Up till that point the Dutch barrows had been garnering attention from academics, clergy and nobles as well as looters, but they had never been systematically examined from a scientific standpoint. This trend came to an end when the young curator of the National Museum of Antiquities (RMO) in Leiden, prof. Jan Hendrik Holwerda, developed an interest in Dutch archaeology. To be able to give substance to this interest, he had himself schooled in field archaeology in Germany and published an article in 1906 in which he argued for the need for professional archaeological excavations in the Netherlands (Holwerda 1906). This article peaked Queen Wilhelmina's interest, who invited him to Palace Het Loo. The honoured Holwerda was charged with mapping and evaluating the archaeology present on the Royal Domain. A number of test pits were dug in a barrow at Hoog Soeren as part of this inspection (Fig. 4.4). While Holwerda's approach differed quite strongly from the methodology described in Chapter 2 of the fieldwork at the Wieselseweg mounds, this trench in the Hoog Soeren barrow can be seen as the start of a long and intriguing series of systematic barrow excavations conducted in the Netherlands straight through to the 1970s. During these seven decades, techniques and strategies with regards to barrow research were developed thanks to the spirited leadership of many renowned Dutch archaeologists. The Ancestral Mounds projects (Fig. 4.5) added a new chapter to this research history, in which these barrows are no longer viewed as separate research units, but rather are viewed in their spatial and cultural context. As such it is all the more fitting that for this new chapter we returned to the place where it all started: the Royal Domain at Apeldoorn.

Chapter 5

Landscape research: results

Arjan Louwen, Cristian van der Linde,
Marieke Doorenbosch & Hans Huisman

5.1 Introduction

The research questions regarding the landscape context in which the barrows are situated (see Chapter 2) are primarily geared towards the pedology of the research area and a reconstruction of the vegetation at the time of the barrows' erection. As there are no research questions regarding the palaeogeography of the research area, Section 5.2 only briefly considers a number of illuminating observations done in the field. This is followed by the results of the pedological analysis in Section 5.3. The soil stratigraphy of the research area proved to be far more complex than initially thought and made interpreting archaeological features difficult. The Cultural Heritage Agency of the Netherlands (RCE; *Rijksdienst voor Cultureel Erfgoed* in Dutch) contributed to this discussion in the form of dr. Hans Huisman, whose analysis of the series of texture samples taken from the profile section of the three barrows can be found in Section 5.4. Finally, Section 5.5 considers the palynological research conducted by dr. Marieke Doorenbosch (Leiden University) as part of her PhD research. This section will also show that researching the Wieselseweg landscape was not without its challenges.

5.2 Palaeogeography

Fluviatile deposits pushed up during the Saalian were regularly observed when digging control levels underneath the barrows. Fine and coarser sands alternated abruptly in swathes of sometimes only 1 metre wide. Underneath Mound 3 a 2.5 metre long sondage was dug perpendicular to the various swathes. In the profile section three layers were observed which followed each other laterally and abruptly (Fig. 5.1). The texture of the three layers varied between coarse sand (Fig. 5.1, far left) and gravel (Fig. 5.1, far right). The layer in-between consisted of coarse sand and included several gravel pavements (1–5 cm).

Silent witnesses to the last Glacial were found both in and between the pits: ventifacts (*windkanTERS* in Dutch). These striking stones are characterized by their flat facets, resulting from the long-term exposure to the abrasive action of sand and wind (Fig. 5.2). They are typical of the periglacial conditions existing in the research area during the Weichselian.

No clear Holocene landscape elements could be identified within research area. Sizable and old tree falls were found under both Mound 1 and Mound 3. The (medieval) drift sand areas hundreds of metres to the east of AMK-monument 145 formed the

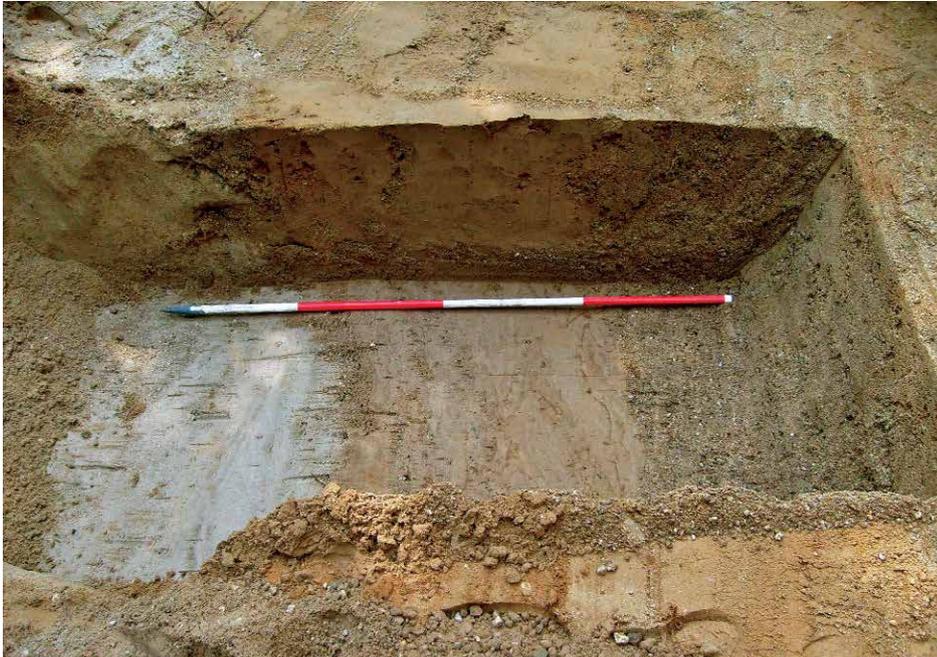


Fig. 5.1: Sondage under Mound 3. Three laterally oriented layers of old river deposits are nicely visible.



Fig. 5.2: Ventifact (*windkanter*) found while digging one of the test trenches north of AMK-monument 145.

first Holocene deposits near the research area. That the landscape continued to be formed during the Holocene was the most clear following a heavy rainstorm during the 2009 campaign. Within the timespan of a weekend, deep ditches (30–50 cm wide, 10 cm deep) formed all along the forest paths (Fig. 5.3). Measuring pins in the trial trenches were washed free up to 10 centimetres underneath the pinheads (Fig. 5.4). Even though the trial trenches and forest were not covered by vegetation, these examples do show how susceptible the subsoil of the research area is to erosion. The local relief as such

will have been much more pronounced at the start of the Holocene than it is now. The barrows present will also have been flattened out through the millennia through these same processes.

5.3 Results pedological analysis

5.3.1 Location AMK-monument 145

A total of 42 profile columns (± 1 m wide) were dug and recorded in order to map the pedology and soilstructure around the barrows of AMK-monument 145



Fig. 5.3: Eroded ditch in the road following heavy rain fall in July 2009.



Fig. 5.4: The measuring pin in this photograph had been placed into the level up to its head prior to the heavy rain fall in July of 2009.

(Fig. 5.5; Tab. 5.1). The 27 profile columns of Trenches 3, 6 and 7 together also formed a profile section over the east-west oriented ridge upon which the four barrows are located. This 'cross-section' ran from the low-lying area directly to the south of the four mounds, passed the most westerly mound until far up the southern flank of the dry valley located to the north and had a total

length of 350 metres. The other 15 profile columns are located spread out over the zone to the north of AMK-monument 145 and formed a representative sample of the general pedomorphology of this terrain.

Unfortunately it already became evident while digging the first test trench (Trench 3) that the terrain had suffered more strongly from the forestry activities in the area than initially expected. Deep plough furrows can be found over almost the entire terrain, which have strongly disturbed the original soil and any archaeological features once present (see Chapter 6). Some of the plough furrows are over a metre wide and extend up to 70 centimetres underneath present-day ground level. Nonetheless a general description of the recorded soil profiles is given in the following.

The entire research area was covered by a thin layer of fallen leaves and organic debris (*bosstrooisel* in Dutch; ± 5 cm thick). The deposits in the top 40–50 centimetres of the subsoil vary in texture between slightly fine sand and fine gravelly sand. A slight loam fraction was observed in a number of profiles (Trench 7). The finest sands occurred at the transition from ridge to dry valley to the north of the Wieselseweg (also Trench 7). The texture of the natural sub soil (> 40–50 cm below ground level) varies between slightly coarse sand and coarse gravelly sand, and is predominantly light in colour (light yellow-brown, light red-brown or light white-brown). The finer texture of the top sections of the subsoil can possibly be explained by the presence of cover sands. However, it could also be colluvial material.

Intact sections of soil profiles between the plough furrows generally showed characteristics of the so-called *Holtpodzols*, a sub-class of the *Moder Podzols* (brown Podzol soils in the European system, *podsoliete Braunerde* in German). *Moder Podzols* developed in the most iron- and mineral-rich fluvial deposits of which the Veluwe ice-pushed ridge consists (Berendsen 2005a, 55). This order of podzols is characterized by a well-developed B-horizon, which is formed by the vertical displacement of non-amorphous humus together with iron particles (Berendsen 2005b, 100–1). *Moder Podzols* can be divided into *Loopodzols* and *Holtpodzols* whereby the main primary difference is the thickness of the A-horizon. The thin A-horizon (5–20 cm) and brown B-horizon (Berendsen 2005b, 100–1) mean that the soils north of AMK-Monument 145 can best be listed under the *Holtpodzols*. Though it should be noted that in the case of the Wieselseweg frequently only a part of the original *Moder* could be observed. The original soil profile frequently proved to be 'decapitated' or a younger soil had developed in the upper regions. Many profiles were therefore no more than a B-*Moder* remnant (Fig. 5.6), which in many cases was strongly weathered as well. This will be discussed further in Section 5.4.



Fig. 5.5: Overview profile locations AMK-monument 145.

Profile	S-type A	S-type B	S-type C	S-type D	S-type E	S-type F
3.1						X
3.2						X
3.3						X
3.4						X
3.5						X
3.6					X	X
3.7	X		X			
3.8				X		
3.9				X		
6.1						X
6.2						X
6.3	X	X				
6.4	X	X				
6.5		X				
6.6		X				
6.7				X		
7.1	X		X			
7.2	X		X			
7.3	X					
7.4	X					
7.5	X		X			

Profile	S-type A	S-type B	S-type C	S-type D	S-type E	S-type F
7.6	X		X			
7.7	X		X			
7.8	X		X			
7.9	X		X			
7.10	X		X			
7.11	X		X			
10.1					X	
10.2					X	
10.3	X					
10.4					X	
13.1					X	
13.2	X					
13.3			X			
14.1				X		
14.2				X		
14.3				X		
14.4	X		X			
15.1					X	
15.2	X					
15.3	X		X			
15.4	X		X			

Tab. 5.1: Distribution of the various soil type at the AMK-monument 145 location. Soil type A: (old) Moder Podzol; soil type B: (well-developed young) Humus Podzol; soil type C: light 'E' in the top of old Moder Podzol; soil type D: disturbed, cannot be further identified; soil type E: ploughed Moder Podzol; soil type F: ploughed Humus Podzol.

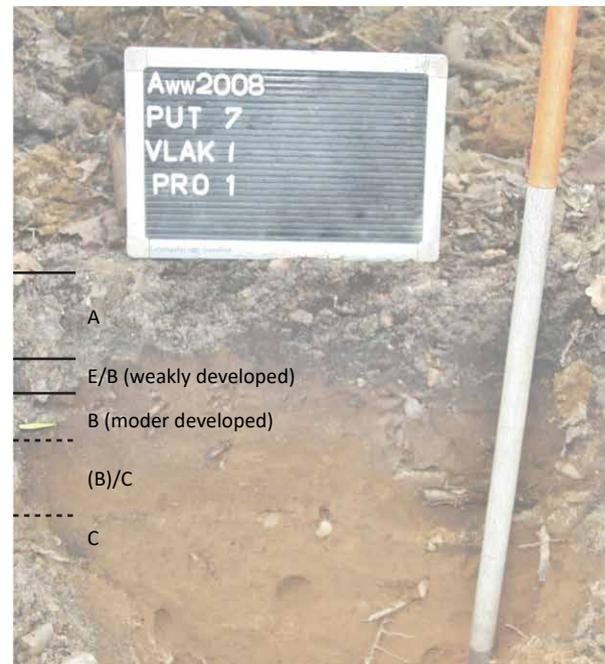


Fig. 5.6: Profile 7.1. Example of a weathered Moder Podzol.



Fig. 5.7: Profile 6.3. Example of a relatively undisturbed Humus Podzol profile.



Fig. 5.8: Profile 6.6. The bottom of the 'A' is a little paler in colour.



Fig. 5.9: Profile 3.1. An inverted Humus Podzol profile is clearly visible in the bottom of the profile.

As already stated, younger soils locally developed in the top regions of the original soil profile. These can be classified as *Haarpodzols*, a subclass of Humus Podzols. These soils are characterized by a thin A-horizon and the presence of an E-horizon between the A- and B-horizons. This E-horizon is grey in colour and consists only of mineral material because all humus has leached out (Berendsen 2005b, 100–1). Such soils were found in particular in the western part of the terrain (Trenches 3, 6 and 7). Sometimes these were well-developed Humus Podzols (Fig. 5.7: profile 6.3), but frequently also no more than a light bleaching at the bottom of the A-horizon (Fig. 5.8: profile 6.6.). In yet other cases the entire soil profile was inverted by the plough, but the light grey E so characteristic of Humus Podzols was often still recognizable (Fig. 5.9: profile 3.1).

The presence of various podzol types within the relatively small research area can be explained by the strong differences in the composition of the pushed-up fluvial deposits of which the Veluwe moraine consists (Valentijn/Fontijn 2011, 95). Moreover, the sporadically occurring Humus Podzols appear to be younger than the ubiquitous Moder Podzols as there is often still a Moder remnant visible under the Humus Podzols (Fig. 5.6). When exactly the Humus Podzols started to develop remains unclear. They were in any case present before the first ploughing took place, as remnants of an E-horizon can be found in all kinds of plough marks.

5.3.2 Mounds 1, 2 and 3 and their surroundings

Surroundings of the barrows

In the vicinity of Mounds 1, 2 and 3 an additional 24 profile columns were dug, in addition to the barrow profile sections (Fig. 5.10; Tab. 5.2). The pedological characteristics are completely comparable to the situation north of AMK-monument 145. Here a considerable part of the terrain was ploughed (Fig. 5.11: profile 24.3), Moder Podzols, weathered and otherwise, were visible over the whole terrain (Fig. 5.12: profile 18.1) and a young Humus Podzol had sporadically developed in the top of the old Moder Podzols (Fig. 5.13: profile 2.1).

Barrows

The three barrows were consistent with the results presented above: all three were damaged by ploughing and in all three mounds a (thin) Moder Podzol had developed in the top of the mound body. Sporadically these Moder Podzols also showed a light bleaching at the bottom of the A (for a more extensive description see the barrow profile section in Chapters 7, 8 and 9). However, it was only with the research into the three barrows that a deviating pedological process was first clearly observed.

Profile	S-type A	S-type B	S-type C	S-type D	S-type E	S-type F
1.1	X					
1.2	X					
1.3	X		X			
2.1		X				
2.2	X	X				
2.3	X	X				
2.4	X	X				
18.1	X					
18.2	X					
20.1	X		X			
22.1	X					
22.2					X	
23.1	X					
23.2					X	
24.1	X					
24.2	X					
24.3					X	
101.3	X					
101.4	X					
201.3	X					
201.4	X					
301.3	X					
301.4	X					
301.5					X	

Tab. 5.2: distribution of the various soil types in the vicinity of Mounds 1, 2 and 3. Soil type A: (old) Moder Podzol; soil type B: (well-developed young) Humus Podzol; soil type C: light 'E' in the top of old Moder Podzol; soil type D: disturbed, cannot be further identified; soil type E: ploughed Moder Podzol; soil type F: ploughed Humus Podzol.

Initially it was assumed that the pedology of the Wieselseweg barrows would be comparable to that of the barrows excavated in 2007 at the nearby Echoput. The expectation was that the sods and the old surface under the barrows would show up as alternating grey-brown (old Moder-A) and brown-yellow bands (old Moder-B), just like the Echoput barrows (Fontijn *et al.* 2011). However, sods were not observed in any of the three Wieselseweg mounds. Instead the entire mound bodies were a homogenous, ruddy/orange-yellow colour (Fig. 5.14). The old surface underneath the three barrows also had this homogenous colour and was only recognizable due to the presence of charcoal. Moreover, the various cremation burials in Mounds 2 and 3 repeatedly seemed to appear out of nowhere: a pit cut or deviating feature fill was rarely observable. Features could only be recognized when they



Fig. 5.10: Overview profile locations in the surroundings of Mounds 1, 2 and 3.

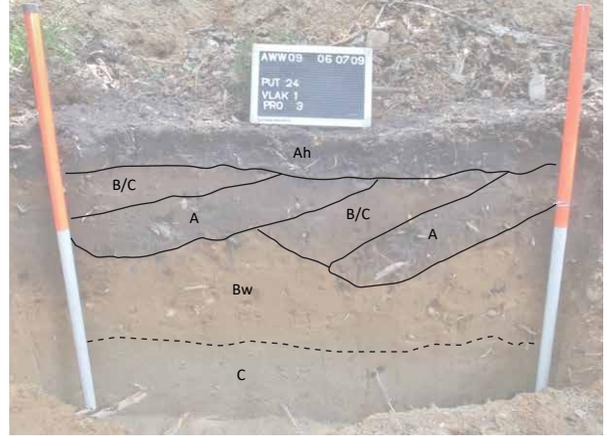


Fig. 5.11: Profile 24.3. Example of completely ploughed soil profile.

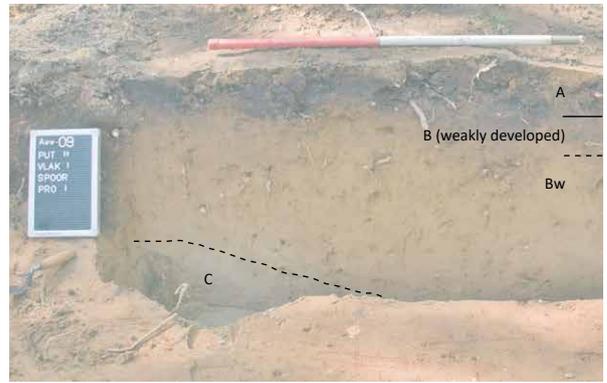


Fig. 5.12: Profile 18.1 Example of weathered Moder Podzol.

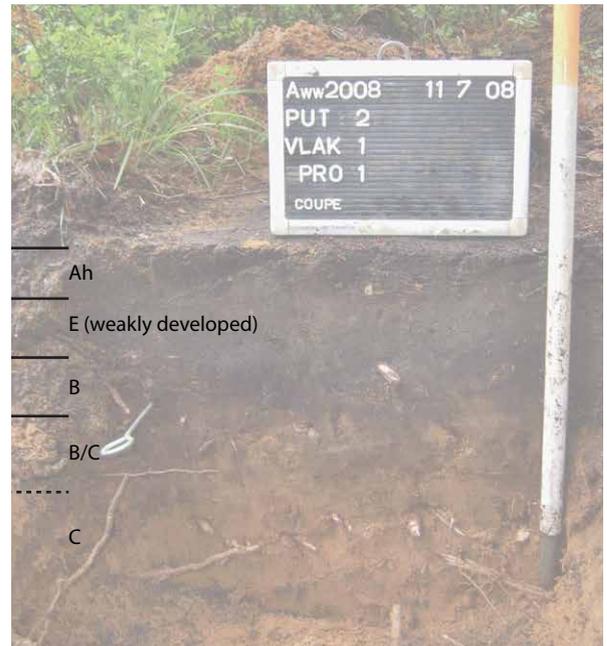


Fig. 5.13: Profile 2.1. Young Humus Podzol.



Fig. 5.14: Southern profile section Mound 1. Both the mound body and the old soil underneath the mound body are completely weathered to a homogenous orange colour.

contained charcoal or cremation remains. The most typical example of the poor readability of the features is Grave 6 in Mound 2 (see also Section 8.3.1), which appeared while digging the control level, far underneath the original old surface underneath the barrow. This burial was not visible in any shape or form at a higher level. It was only when the first cremation remains were uncovered that the burial pit was recognized as such.

Where normally the pedological characteristics clarify a barrow's construction, in the case of the Wieselseweg it was purely the archaeological indicators themselves which allowed any interpretation of the construction of the barrows. In order to establish the cause of this 'handicap', multiple texture samples were taken from profiles and feature fills in all three barrows. The results of the thin section research conducted by the RCE are discussed at length in the following section.

5.4 Soil micromorphology (Hans Huisman)

5.4.1 Introduction

During the fieldwork micromorphological research was conducted on the southern profile section of Mound 1. The

reason for this was the poor visibility of features at this location. Micromorphological research could establish which pedological processes were (or had been) taking place, and to what degree they could have influenced the visibility of the features. In total five samples were taken in 8 × 8 centimetres cardboard sample boxes (see Fig. 7.3 for sample locations). Samples V728, V729 and V730 were taken as a sequence above Feature 54. The top of the feature was so vague that it was impossible to determine its upper border. Micromorphological research here could help establish at which level the feature started. Samples V731 and V732 were taken at the level of the original surface, before the mound was erected, and in the mound body above it.

5.4.2 Sample treatment

The samples were sent to KMS in Bennekom where they were impregnated with artificial resin. Following this a thin section was sawed off which was attached to a glass slide, ground down to a thickness of 30 microns and covered with a glass cover slip. The thin sections thus created were scanned with a flatbed slide scanner, and then studied using a Zeiss Axioskop 40 polarisation microscope and a Leitz/Wildt 420 M Macroscope.

5.4.3 Results

In general the samples gave very similar results: they all consisted of poorly sorted lime-free sand with admixture of gravel. Low concentrations of clay were present in all samples, generally as coatings around the grains. These clay-coatings were heterogeneous, showed no stratification, and appear to be rounded aggregates that have stuck together rather than the illuviated coatings associated with tillage or pedological processes such as clay translocation (Fig. 5.15).

The contents of organic materials levels were very low. The organic matter present usually consisted of tissue fragments, in particular the remains of roots. Some of these tissue fragments were relatively fresh. Sample V729 contained a striking number of fungal hyphae, as well as a number of sclerotia (fungal fruiting bodies). These were rare in other samples.

All samples contained finely distributed charred material, in particular in the clay coatings mentioned. All samples also contained a number of larger charred fragments, but only two samples (V730 and V731) contained fragments that could be identified as charcoal with any certainty. It is striking that the larger charcoal fragments showed a coating of heterogeneous clay – just like the sand grains (Fig. 5.15).

Sample V732 contains a series (ca. 5–10) of small faeces made up of plant material. Pieces of plant tissue could frequently still be identified within these faeces (Fig. 5.16). Two such these faeces were observed in sample V731. These are probably the faeces of small plant-eating burrowing vertebrates, like mice.

5.4.4 Interpretation/discussion

Many of the observations made on these thin sections indicate a high level of biological activity: the turnover rate of organic material in the soil is probably high. This is shown by the thin A-horizon, the thin litter layer, and

the presence of concentrations of fungal hyphae could also be an indication for this. This need not come as a surprise for the well-drained and loamy soil under a deciduous forest. The presence of root remains – also well observable macroscopically – indicates that rooting is a constant, active process. The clayey coatings around the sand grains (and around large pieces of charcoal) as such were likely formed during the multiple mixing activities of the soil by worms and other invertebrates in the ground. The clay became kneaded with the grains. The presence of plant-eating small vertebrates without clearly visible burrows indicates a very high level of bioturbation. The low amounts of organic material therefore are likely the result of the high biological activity; the material is simply converted too fast.

Sampling was in part focused on establishing to what extent a feature (S101.54) could be followed. As a result of the strong bioturbation, however, there is no way to distinguish between the feature and surrounding soil. The poor visibility of the features at this location can in their entirety be linked to the high biological activity in the Wieselseweg soils. This causes organic material – which is frequently the primary cause behind colour differences between feature and soil – to quickly be decomposed, charred material is fragmented and the borders of features become blurred. It is likely that the situation here described is characteristic of nutrient-rich soils with good drainage, in particular when they are located underneath deciduous forests.

The results suggest that visibility of features could be lower in richer, fertile soils. Vice versa this could mean that – as a result of taphonomic processes – features will preserve better in marginal areas and thus gain larger prominence in the archaeological record.

It is interesting that this location was also poor in pollen and other organic remains (Section 5.5). One hypothesis could be that loamy soils with good drainage

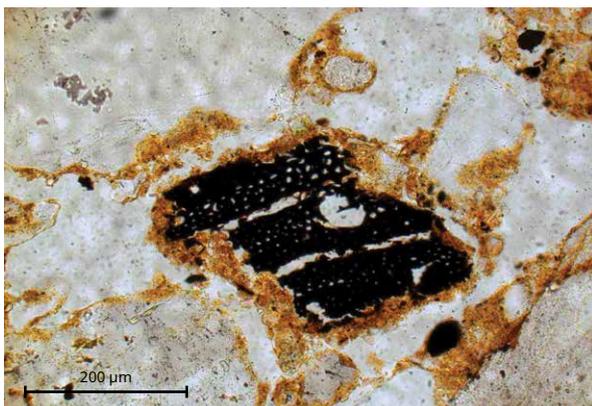


Fig. 5.15: Charcoal fragment.

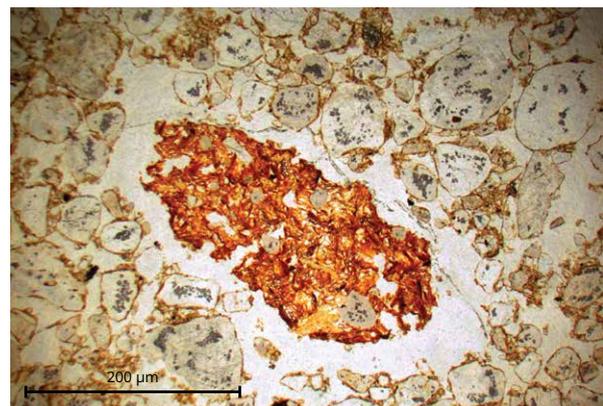


Fig. 5.16: Mouse poop.

frequently show such strong biological activity that both features and pollen disappear. As this could indicate a bias in the archaeological record towards poor soils, this hypothesis warrant further research.

5.4.5 Conclusions

Strong microbiological activity and bioturbation as a result of rooting and the activities of meso- and mega fauna caused the degradation of organic material, the mixing of the soil at a micro-scale and – as result – the poor visibility of soil features. Assuming this is representative of nutrient rich soils with good drainage, this could indicate a bias in the archaeological record, whereby marginal areas are relatively overvalued due to the good preservation of features in them.

5.5 Palynological research (Marieke Doorenbosch)

5.5.1 Palynological analysis of the Wieselseweg barrows

Pollen analysis is a tried and tested method for creating vegetation reconstructions of the surroundings of barrows (Casparie/Groenman-van Waateringe 1980; Doorenbosch 2013a; Van Zeist 1967; Waterbolk 1954). Palynological research can shed light on the question of how a landscape appeared prior to the erection of a barrow or the creation of a new mound phase. Based on these questions the Wieselseweg barrows were sampled for palynological analysis. As part of the Ancestral Mounds project, two barrows at Echopot, some 2 kilometres southwest of the Wieselseweg mounds, were excavated earlier (Fontijn *et al.* 2011). These two Middle Iron Age barrows were palynologically investigated and the results show that these mounds lay in an already old heath, which was probably maintained through grazing. Palynological analysis of other barrows on the Veluwe showed similar results regarding the barrow landscape (Doorenbosch 2011; 2013ab). Most analysed barrows in this area, however, date to the Late Neolithic (not including the Echopot Middle Iron Age mounds). As information regarding the Veluwe barrow landscape during the Bronze Age is currently lacking, researching the Wieselseweg barrows, which date to the Middle Bronze Age A, was expected to provide new insights.

5.5.2 Material and methods

Pollen samples were taken at various locations in and under the mounds. To gain an impression of the vegetation in the period before and at the time of the construction of the barrows, a vertical series of ten sequential samples was taken from the soil profiles of all mounds, where by the fifth sample most likely was taken from the old surface. To this

Sample location		Sample name		
Mound 1	Profile West	Soil profile series	1-10:	5
		S 14, cremation	MP S14	
		S 15, brown fill	MP S15	
	Level 11	S 54	VNR 601	
			VNR 626	
	Level 11, Profile 2	S 56	VNR 743	
	Level 11, Profile 2	S 72	VNR 770	
Mound 2	Profile	Soil profile series	1-10:	5
	Level 51	S 14	VNR 689	
		S 21	VNR 690	
	Level 52	S 26	VNR 789	
Mound 3	Profile west	Soil profile series	1-10:	5
	Level 5-6	S 6	MP S6	
	Level 6	S 15	VNR 619	
		S 17	VNR 683	
	Level 8	S 25	VNR 684	
			VNR 687	
		VNR 688		

Tab. 5.3: Overview of the pollen samples taken. The analysed pollen samples are in bold.

end roughly 10 cubic centimetres were scooped from the profile every centimetre over a height of 10 centimetres. Samples were also taken from various features encountered in and around the mounds. See Table 5.3 for full overview of the samples taken. Samples were selected and prepared for pollen analysis from each barrow.

The pollen samples were prepared by boiling roughly 2 cubic centimetres of earth in a 10% potassium hydroxide (KOH) to remove humus acids after which the samples were sieved. To separate the inorganic material (sand and clay) from the organic material, the samples were then treated with a heavy liquid (bromoform-alcohol, S.G. 2.). Finally they were treated with an acetolysis mixture to remove plant remains.

5.5.3 Results

The samples unfortunately all proved to have little to no pollen, which made it impossible to create a vegetation reconstruction based on palynological information. Additional research was carried out to try and explain the lack of pollen (Doorenbosch 2013a, tab. 5.3). This research is described in the following.

5.5.4 Absence of pollen grains in barrows

Pollen grains are very resilient and frequently survive in a range of different circumstances, but they are

No.	Location	Mound	Sample location	Sample name
1	Echoput	Mound 1	Sod 1	MT 266
2			Sod 2	MT 267
3			Old surface 1	MT 268
4			Old surface 2	MT 269
5		Mound 2	Sod 1	VNR 99
6			Sod 2	VNR 100
7			Old surface 1	A2.1 old surface 2
8			Old surface 2	A2.1 old surface 1
9	Wieselseweg	Mound 1 (T 101)	Profile west	Sample 1
10				Sample 5
11		Mound 2 (T 201)	Profile west	Sample 1
12				Sample 5
13		Mound 3 (T 301)		MT 801
14				MT 802
15				MT 803
16				MT 804
17	Oss-Zevenbergen	Mound 7	Sod 1	VNR 275
18			Sod 2	VNR 276
19			Sod 3	VNR 277
20			Sod 4	VNR 279

Tab. 5.4: Overview of the samples analysed on grain size (after Doorenbosch 2013a, tab. 5.3).

not completely unsusceptible to degradation. Pollen preserves best in waterlogged, so anaerobe, conditions. Under aerobic conditions the pollen grains are subject to oxidation, which can cause the wall of the pollen grain to become thinner (Havinga 1964). Biological activity, such as bacterial degradation, likely plays a role in these circumstances (Havinga 1967; 1984). Pollen can also be mechanically affected during transport (Holloway 1989). When pollen rains down on the surface of a mineral soil, it will be subject to corrosion and partially wash out. Most of the time there will be a balance between the supply of pollen and its disappearance, and pollen present in the top layer of the soil will be representative of the vegetation in the surroundings.

Pollen is frequently present in the soil in and under barrows. As the barrow was built on the old surface upon which the pollen rained down, the soil is closed off from the air. This causes less oxygen to reach it and the biological activity to decrease, making the pollen grains less accessible to corrosion. The odds of pollen being washed out also decrease. That pollen is not always present in the soil under a barrow, was demonstrated by the palynological research conducted at the Wieselseweg.

The reason why pollen was not preserved remains unclear. As was noted in the introduction, the Echoput mounds did contain pollen, in contrast to those of the Wieselseweg. Yet circumstances were not all that different from those at the Wieselseweg.

The texture of the soil might offer a possible explanation. Even though the soils under both mounds were classified as Holtpodzols (gY30, see the soil map of the Netherlands), pedologist J. Boerma classified the soils used to construct the Echoput mounds as loamier than that used to create the Wieselseweg mounds. Moreover, the podzol underneath the Wieselseweg mounds, in contrast to the podzol under the Echoput barrows, was hardly recognizable. It is possible that the soil used to erect the Wieselseweg mounds was a slightly coarser sediment than that of the Echoput mounds, causing a better aeration of the soil and the pollen grains of the former to have been exposed to oxidation more quickly. In addition, the pollen grains could have been washed out easier due to the higher permeability of the soil. In order to test this hypothesis, eight samples were selected at each location for grain size analysis. In addition to the already mentioned location, an additional four samples with well-preserved pollen from a barrow from an entirely different location, Mound 7 of the Oss-Zevenbergen barrow group (Bakels/Achterkamp 2013; Doorenbosch 2013a, tab.12.1), were also subjected to grain size analysis (see Tab. 5.4 for a complete overview). The analysis was conducted in the laboratory for sediment analysis of the VU University Amsterdam with a Laser Particle Sizer Helos KR Sympatec.

Figure 5.17 shows a summary of the results. In this figure the density distribution of all samples is shown plotted against grain size. In order to compare the results in detail, the percentages per classification of the three locations were compared. The results of this are shown in Table 5.5a/b.

As can be seen in Figure 5.17 and Table 5.5a, the differences between Wieselseweg and Echoput in particular are very low. This can also be seen in Table 5.5b, which shows that there were no significant differences between the two locations, with exception of the medium coarse sand fraction. There are significant differences between Oss-Zevenbergen and the other two sites in almost all fractions. The sediment of which the Oss-Zevenbergen barrow consists is primarily fine sand, while the sediments from the other two sites mainly consist of medium coarse and coarse sand. The finer composition of the sediment of the Oss-Zevenbergen barrow could have contributed to the good pollen conservation. However, this cannot explain the differences in conservation between the Wieselseweg and Echoput, and other avenues have to be explored for an explanation. One possibility is that the

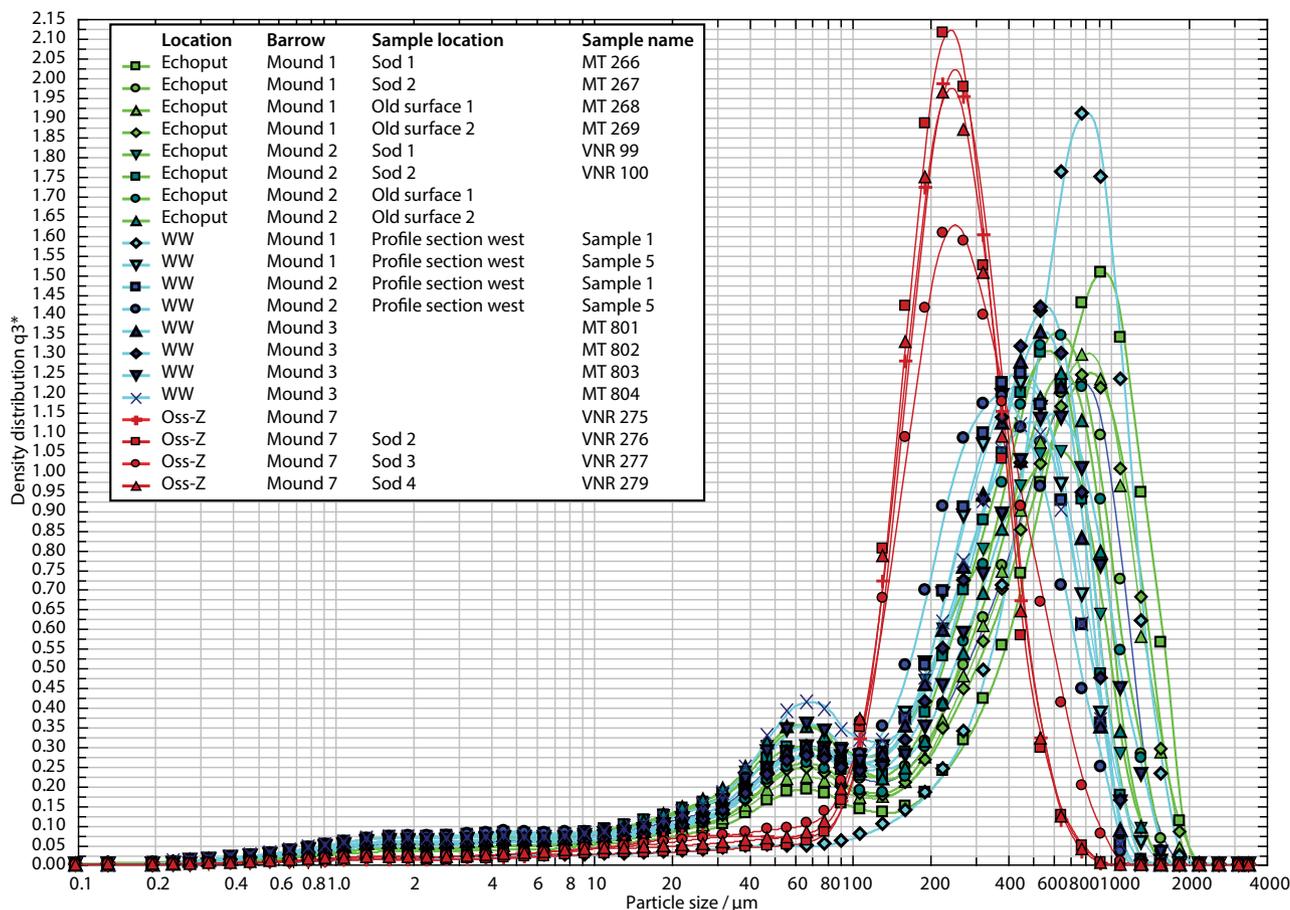


Fig. 5.17: Results of the grain size analysis. The density distribution q_3^* is plotted against the particle size (μm) (after Doorenbosch 2013a, fig. 5.8).

soil of the Wieselseweg is reasonably dry in comparison with that of the Echoput, where the environment is more humid (Fontijn 2011, 30). The subsoil in which the Echoput mounds are situated contains loam, which is not the case for the Wieselseweg subsoil. This difference, however, does not come to the fore in the grain size analysis. It is possible that the loam by the Echoput is located deeper in the subsoil and that this causes it to retain moisture. These more humid, more anaerobic conditions could contribute to the better preservation of the pollen in the Echoput subsoil, while the Wieselseweg subsoil plays host to a stronger disintegration of organic material, including pollen. The Oss-Zevenbergen subsoil is also dry, but at the

same time poorer in nutrients, causing a lower degree of microbiological activity.

5.5.5 Conclusion

Unfortunately, the absence of pollen in the samples from the Wieselseweg barrows made it impossible to make a vegetation reconstruction of the surroundings. This in contrast to the nearby Echoput location, where previous research had established that the soil under these barrows did contain pollen. The additional research conducted to determine whether the absence or presence of pollen could be explained by any difference in sediment texture unfortunately offered no conclusive results.

% Clay (<8 µm)			% Very fine silt (8-16 µm)			% Fine silt (<16-32 µm)			% Coarse Silt (32-63 µm)		
AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z
7.82	6.69	2.56	2.60	2.67	1.23	4.07	4.40	1.48	8.82	8.37	1.90
6.71	5.10	2.67	2.28	1.82	1.33	3.50	2.81	1.84	7.65	5.73	2.52
5.59	6.72	1.75	1.96	2.71	0.81	3.06	4.26	1.02	6.16	7.32	1.33 2.08
6.45	6.83	1.72	2.18	2.69	1.36	3.28	4.14	2.06	6.65	8.01	
8.12	5.11		2.55	1.93		3.36	2.88		6.48	5.58	
7.93	4.79		2.47	1.84		3.20	2.73		6.57	5.11	
6.57	5.98		2.15	2.42		3.08	3.65		6.48	6.81	
1.94	4.05		0.78	1.59		1.03	2.38		1.37	4.43	
% Very fine sand (63-125µm)			% Fine sand (125-250µm)			% Medium coarse sand (250-500µm)			% Course sand (500-1000µm)		
AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z	AWW	Echoput	Oss-Z
10.76	8.59	6.73	13.35	8.90	43.40	28.93	23.16	38.86	22.89	33.11	3.83
9.05	6.50	6.95	9.90	8.31	35.67	24.18	25.85	38.35	30.56	36.44	10.56
7.56	7.61	6.05	11.45	10.67	46.32	30.61	28.51	39.00	31.85	30.32	3.71
8.21	9.22	5.82	12.61	12.77	42.44	30.63	25.13	40.86	28.97	27.73	3.67
8.23	6.22		18.38	7.43		34.18	19.13		18.23	34.74	
8.16	5.77		13.86	7.63		33.51	20.40		23.59	36.18	
8.42	7.62		14.06	8.79		32.66	20.94		24.57	34.49	
1.81	4.84		4.95	5.24		19.05	15.14		51.14	38.17	
						% Very coarse sand (1000-2000µm)					
						AWW	Echoput	Oss-Z			
						0.75	4.12	0			
						6.16	7.45	0.11			
						1.77	1.88	0			
						1.02	3.49	0			
						0.48	16.97				
						0.72	15.55				
						2.03	9.31				
						17.93	24.16				

Tab. 5.5a: Results of the grain size analysis in percentages per grain size (after Doorenbosch 2013a, tab. 5.4a).

Tab. 5.5b: Results of the statistical analysis (tested with an unpaired t-test) of the results of the grain size. X: 'not significantly different'; *: significantly different (p<0.05); **: significantly different (p<0.01); ***: significantly different (p<0.001); ****: significantly different (p<0.0001). Table after Doorenbosch 2013a, tab. 5.4b.

C	Echoput	Oss	VFSi	Echoput	Oss	FSi	Echoput	Oss
AWW	x	***	AWW	x	***	AWW	x	*
Echoput		***	Echo		***	Echo		**
CSi	Echoput	Oss	VFSa	Echoput	Oss	FSa	Echoput	Oss
AWW	x	***	AWW	x	x	AWW	x	***
Echoput		***	Echo		x	Echo		***
MCSa	Echoput	Oss	CSa	Echo	Oss	VCSa	Echoput	Oss
AWW	*	***	AWW	x	**	AWW	x	x
Echoput		****	Echoput		****	Echoput		**

Chapter 6

The surroundings of the four barrows of AMK-Monument 145

Arjan Louwen, David Fontijn
& Cristian van der Linde

6.1 Introduction

The research into the surroundings of AMK-monument 145 was conducted during the first campaign in 2008 and took two weeks to complete. As the trees are relatively widely spaced on this forest plot, it was possible to apply the original trench plans without too many problems (Section 2.1.1). In total twelve trial trenches were dug (see Figs. 6.1 and 6.2). Interpreting the subsoil proved challenging and took some time and effort. This was due not only to the coarse texture of the subsoil which impaired the visibility of archaeological features, but also due to the desired level locations right underneath the thin topsoil which made them difficult to interpret. At this level old root tunnels, tree falls and burrows frequently resulted in a messy feature level. As a precaution not only all clear features were recorded and drawn, but also all other possible ones. In total 31 features were recorded, of which nine were dismissed upon sectioning (Tab. 6.1). Thanks to this thorough approach, it is possible to give a reliable overview of the archaeology present and the state of the terrain north of AMK-monument 145.

Unfortunately it soon became clear that a large part of the terrain had been ploughed out for forestry purposes at the end of the 19th or start of the 20th century. Almost all features recorded date to these recent forestry activities. Several prehistoric pottery sherds were found spread out over the terrain. In the following the most important results of the trial trenching are discussed per context.

6.2 Features and structures

6.2.1 A 20th century fence

The remains of three post rows over a distance of almost 50 metres were observed in Trench 6, directly to the west of AMK-monument 145 (Fig. 6.3). The post rows had roughly the same orientation as the trial trench and the adjacent path (NNW – SSE). The three post rows were positioned only a metre from each other, though they did run on for the same length (west to east: 5 m, 23.5 m and 12 m) and appear to be alternating rather than forming three parallel rows. They are consistently spaced with some 75 centimetres between them.



Fig. 6.1: Overview of all the features found on the terrain north of AMK-monument 145.



Fig. 6.2: The trial trenching in a forest required a flexible approach.

The three rows were assigned joint feature numbers (S6.2, S6.3, S6.4, S6.5 and S6.6 respectively) and a small selection of the postholes was sectioned (Fig. 6.4). The individual posts were almost all between 20 and 30 centimetres in diameter. Given the presence of wooden remains and the fact that the rows follow the land subdivision (*verkaveling* in Dutch), it is highly likely that the post rows are the remnants of fencing from one of the older land subdivision phases. Furthermore, several post were clearly removed, after which the resulting pits filled with humus-rich forest soil.

Given the alternating position of the post rows and the deliberate removal of several posts, the individual rows are interpreted as possible repair phases of the fence work, whereby only sections were fixed rather than the whole fence replaced. The young age of the fencing makes it likely that its original use related to the recent forestry history. Even today fencing is used to protect young trees from game animals.¹⁵ When the young trees

15 Pers. comm. Mr. Tieke Poelen, Koninklijke Houtvesterij, June 2014.

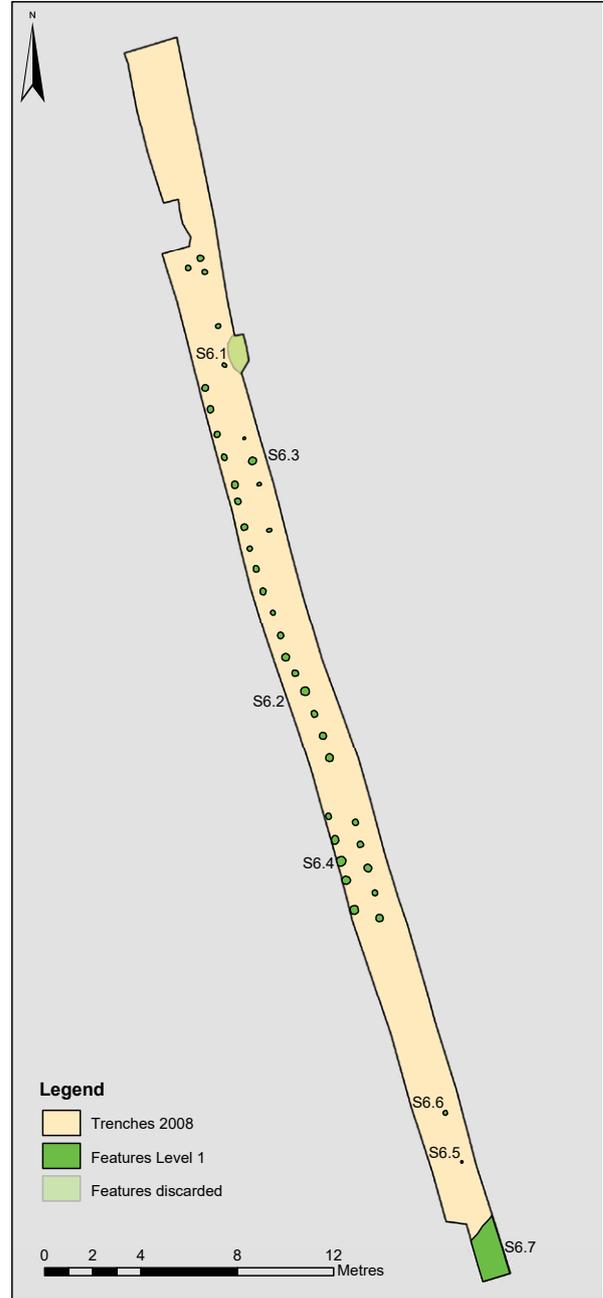


Fig. 6.3: Overview of features in Trench 6.

are big enough the fencing is removed or naturally rots away. It is likely that the fencing from Trench 6 served a similar purpose. Maps from 1900 and 1907 (*Topografische Militaire Kaart*) show the forest parcel border at the same location, and it is possible that the post rows date from the same period.

6.2.2 Fire/hearth pit

In the southern half of Trench 14, a dark pit was uncovered while digging the excavation level, just

Trench	Feature	Level	Interpretation field	Interpretation definite	Depth (cm)	Complex
3	1	1	Plough mark	Reclamation/plough mark		Forestry activities
3	2	1	Plough mark	Reclamation/plough mark	50	Forestry activities
6	1	1	Natural disturbance	Natural disturbance		<i>Discarded</i>
6	2	1	Post row	Post row	10	Post row (probably forestry related)
6	3	1	Post row	Post row		Post row (probably forestry related)
6	4	1	Post row	Post row	14	Post row (probably forestry related)
6	5	1	Post row	Post row		Post row (probably forestry related)
6	6	1	Post row	Post row		Post row (probably forestry related)
6	7	1	xxx	Old watering hole?		Forestry activities
7	1	1	Plough mark	Reclamation/plough mark		Forestry activities
7	2	1	Posthole	Discolouration	15	<i>Discarded</i>
7	3	1	Posthole	Discolouration	12	<i>Discarded</i>
7	4	1	Natural disturbance	Natural disturbance		<i>Discarded</i>
7	5	1	Posthole	Posthole?	16	
7	6	1	Natural disturbance	Natural disturbance		<i>Discarded</i>
7	7	1	Natural disturbance	Natural disturbance		<i>Discarded</i>
7	8	1	xxx	Natural disturbance		<i>Discarded</i>
7	9	1	Ditch	Forestry ditch	26	Forestry activities
7	10	1	Natural disturbance	Natural disturbance		<i>Discarded</i>
7	11	1	Ditch	Forestry ditch	12	Forestry activities
12	1	1	xxx	xxx		<i>Discarded</i>
12	2	1	Plough mark	Reclamation/plough mark		Forestry activities
12	3	1	Plough mark	Reclamation/plough mark		Forestry activities
12	4	1	Plough mark	Reclamation/plough mark		Forestry activities
12	5	1	Plough mark	Reclamation/plough mark		Forestry activities
13	1	1	Plough mark	Reclamation/plough mark		Forestry activities
13	2	1	Plough mark	Reclamation/plough mark		Forestry activities
13	3	1	Plough mark	Reclamation/plough mark		Forestry activities
13	4	1	Posthole	Post/planting hole	53	Forestry activities
14	1	1	Pit	Pit	25	Hearth/fire pit (probably forestry related)
14	2	1	Concentration of pottery	Concentration pottery		Concentration prehistoric pottery

Tab. 6.1: Overview features in the surroundings of AMK-monument 145.

underneath the topsoil. The pit (S14.1) was some 75 centimetres in diameter (Fig. 6.5). In the edge zone of the pit a number of charcoal chunks were encountered, while the centre of the pit seemed somewhat disturbed by root systems. The many beetle tunnels at the edges of the pit initially made the feature appear old, possibly prehistoric. Several pipe stem fragments (V88 and V187) present in the feature, however, indicate much younger use. Sectioning revealed the bottom of the pit to be very irregular: depths over the breadth of the feature varied between 10 and 25 centimetres under the surface of the excavation level.

As to the function of the pit, the charcoal present suggests a use as fire or hearth pit, while the pipe stem fragments suggest a relatively recent usage. During the planting of the woods on the Royal Domain, work regularly continued through the cold winter months and the local communities were mobilized for this work. While Queen Wilhelmina personally ensured that the workers were outfitted with warm clothing following the purchase of the eastern part of the Royal Domain (Bleumink/Neefjes 2010), the workers no doubt welcomed the chance to warm themselves and smoke their pipes in between the busy activities. It is possible that we here have the remains of such a fire.

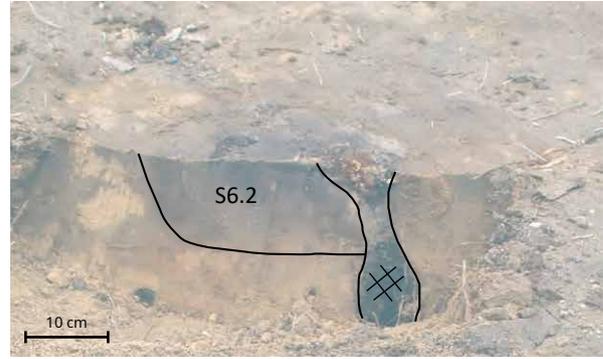


Fig. 6.4: Section of one of the postholes of post row S6.2.



Fig. 6.5: Level S14.1. One of the pipe stems is visible in the middle of the feature (see arrow).

6.2.3 Oxes and swine: traces of reclamation and the current inhabitants

Features from the recent forestry history of the area were encountered over the entire terrain. These were primarily plough marks and forestry ditches and can be considered the cause of most of the disturbances to the original soil profile. Trench 3 in particular showed that the top 40 centimetres of the soil had been completely disturbed in the past (see Fig. 5.9). Here the various plough marks were delineated and showed clearly in the excavation level, even as completely reversed Podzol profiles (see Fig. 6.6).

In other parts of the terrain the plough features were also all too visible (such as in Trench 12; Fig. 6.7), which strongly reduced the odds of finding prehistoric features. The distances between the various plough furrows was always some 1 to 1.5 metres. Widths varied between 20 and 70 centimetres, depending on the depth of the excavation level. In most cases the plough furrows ran straight or diagonally across the trial trenches. In exceptional cases they followed the long axis of the trenches. One trench also yielded a suspected planting hole (Trench 13, S4). These were dug with a wedge shaped shovel, which explains the pointed shape of the hole (see Fig. 6.8).



Fig. 6.6: Plough marks Trench 3.



Fig. 6.7: Plough marks Trench 12.



Fig. 6.8: Planting hole (S13.4).

As the research area was purchased by the royal family at the start of the 20th century, many terrains were prepared for the planting of forests directly after purchasing (Bleumink/Neefjes 2010). More to the north, land was prepared for planting forestry using enormous steam ploughs for the German company Ottomeyer. Up there, however, were extensive heathlands. As the terrain to the north of the AMK-monument 145 was used, among other things, to cultivate oak for kindling (an *eikenhakhoutbos* in Dutch), it was spared the steel machines that ploughed down to 2 metres deep. The plough marks observed in the trial trenches will therefore be from lighter machinery. For the period preceding the 20th century this, for example, could be a plough pulled by a pair of oxen or a horse. Later mechanical ploughs were likely also used. An aerial photo from 1963 shows extensive furrows with roughly the same orientation as the diagonal plough marks in the trial trenches.

Even today the thin topsoil is still regularly 'ploughed'. Wild swine burrow into the ground while looking for food and thereby penetrate to a surprising depth. During fieldwork when we drove through the forest early in the morning, we frequently saw these present-day forest inhabitants hard at work between the trenches.

6.2.4 Prehistoric features

Features predating the late 19th century AD were not found in the trenches. A number of prehistoric pottery sherds were found scattered over the terrain (see Section 6.3.1). In two cases these were stray finds, while in the third case the sherds formed a concentration. Even though the concentration was carefully excavated, no pit or other archaeological context could be discerned around the sherds. The sherds were surrounded by three wide plough furrows, which unfortunately makes it not unlikely that the original context is strongly disturbed. Nonetheless, the various sherds recovered indicate human activity in the direct surroundings of the barrows during late prehistory and may form the paltry remains of any prehistoric features once present.

6.2.5 Other features

Spread out over Trench 7, the most northerly landscape trench, a total of eleven features were recorded during the digging of the excavation level. Expectations initially ran particularly high regarding a cluster of features halfway down the trench, consisting of a large pit and surrounding postholes. In the end only one of these features proved true. The other ten turned out to be natural or the result of recent reclamation activities. Of the remaining feature (S5;



Fig. 6.9: Feature 7.5

Fig. 6.9), a small bowl-shaped pit 38 centimetres across and 16 centimetres deep, it could not be determined with any certainty whether it was really a posthole.

6.3 Find material

6.3.1 Pottery

The most westerly pottery find on the terrain north of AMK-monument 145 is a rim fragment from Trench 3 (V81, see Fig. 6.10a). The paste is tempered with crushed stone and grey/brown-grey in colour. The wall of the pot is 6–7 millimetres and the exterior appears to originally have been polished or burnished. The interior surface is nicely finished. Typologically the rim fragment is reminiscent of a *Schräg Hals*, a typical pot form with a convex shoulder and outward angled rim. Such pot forms are common from the Early Iron Age on (Verlinde 1987, 270–2).

The next ten sherds were found in one of the middle trenches (Trench 14, V166 and V188). They are all strongly weathered and could be from a single vessel. The sherds are on average 8 millimetres thick and have a temper of finely crushed stone. The exterior surface is an orange, sometimes red-brown colour, which appears rough due to the degree of weathering. The interior surfaces and the core of the pottery are predominantly grey. Nail impressions are visible on two wall fragments (see Fig. 6.10b). Sherd V166 in particular gives the impression of a single horizontal chain of impressions. This decoration in combination with the relatively hard, 8 millimetres thick and finely tempered ceramic, indicates that they are most likely Late Bronze Age in date (Hermsen 2007, 110–1).

The final sherd (V165) was found in Trench 14 following a heavy rainfall. It is a rim fragment from a pot with a short erect neck and slightly convex, high shoulder (see Fig. 6.10c). The rim itself is decorated on the top with



very fine nail or spatula impressions. There also appear to be nail impressions on the shoulder, but due to the weathered exterior surface this cannot be determined with any certainty. The exterior surface is grey-brown in colour, with the interior surface being a slightly lighter grey. It is a relatively hard pottery tempered with fine stone dust. Just under the rim the sherd is 4 millimetres thick, and 9 millimetres thick at the height of the shoulder. Both the form and decoration occur in the Middle and Late Bronze Age. The relatively hard ceramic and the fine temper make the Late Bronze Age most likely.

6.3.2 Stone

In total two presumed stone objects were collected while digging trenches (V80 and V188). Upon closer examination both finds turned out not to be artefacts.

6.4 Phasing and dating

Most of the features encountered relate directly to recent forestry activities. For that part of the Royal Domain in which the research area is located, it is primarily in the last century that most structural changes took place. The terrain to the north of the monument was also exploited as woods or heath prior to the 20th century, though no clear physical remains were found of this.

The only silent witnesses to the use of the terrain prior to the reclamation are the scarce prehistoric pottery sherds and the four barrows. As the four mounds have never been investigated, it cannot be stated with any certainty how old the funerary landscape hidden here is. There is, therefore, a chance that the area was in use as early as the Late Neolithic. In any case, the sherds allow us to state that humans were present in the research area between the Middle/Late Bronze Age and the Early/Middle Iron Age.

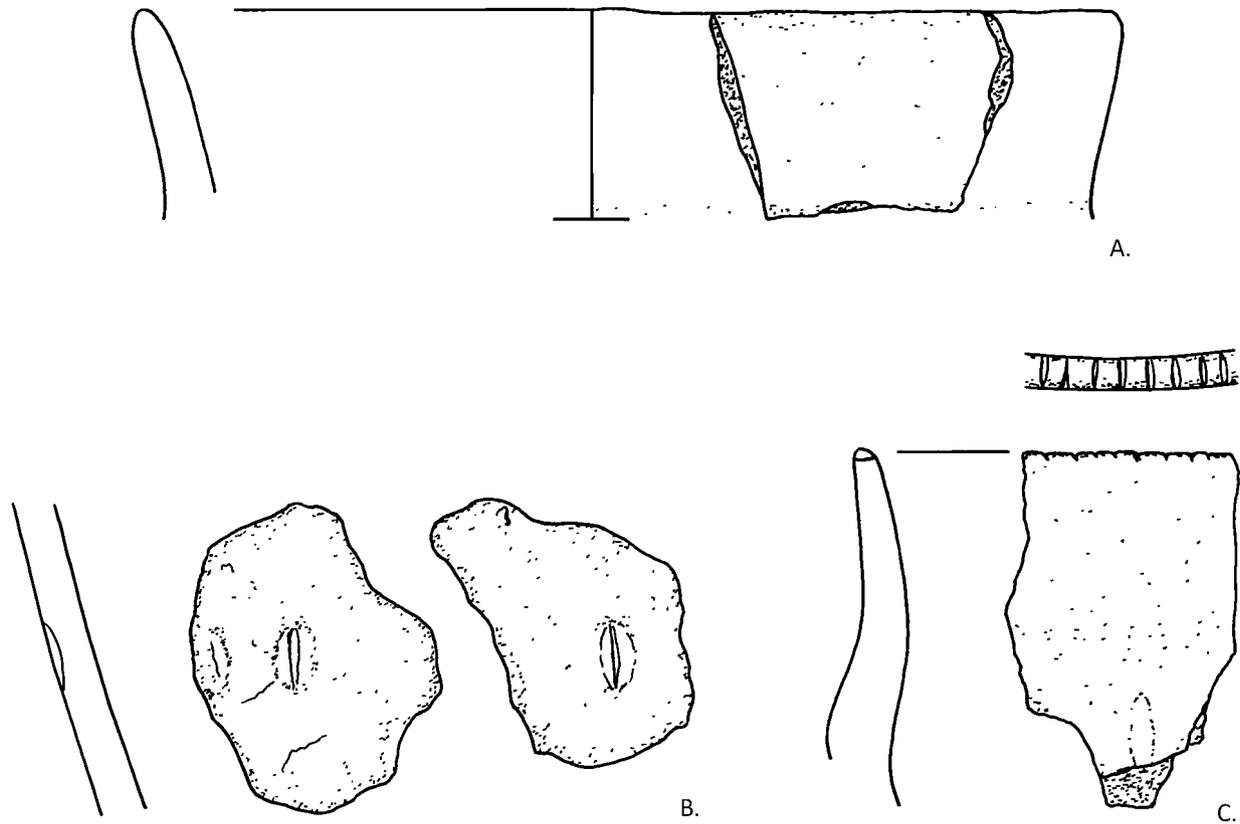


Fig. 6.10: A selection of pottery found on the terrain north of AMK-monument 145 (scale 1:1).

6.5 Conclusion

An important conclusion of the research into the surroundings of the terrain to the north of AMK-monument 145 is that it was seriously damaged by recent forestry activities. Additionally, features predating the planting of the forest were completely absent in the trial trenches. The question that arises is to what degree the latter conclusion is the result of the former. The few prehistoric sherds found in the trial trenches testify to human activity in the surroundings of the barrows, even though the nature of this activity is hard to ascertain.

Though it is striking that all pottery sherds found roughly date to the timespan of the Urnfield Period (Late Bronze–Early Iron Age). Even though this cannot be proven based on a few sherds alone, it is entirely possible that there was once an urnfield in the surroundings of the four mounds. Studies of urnfield locations in various parts of the Low Countries have established that it was common for urnfields to be connected with older funerary landscapes (Gerritsen 2003; 2007; Roymans/Kortlang 1999; Van Beek/Louwen 2012; 2013). As already noted, this cannot be confirmed without the discovery of cremation remains outside of the four barrows.

Chapter 7

Mound 1

Arjan Louwen, Quentin Bourgeois
& David Fontijn

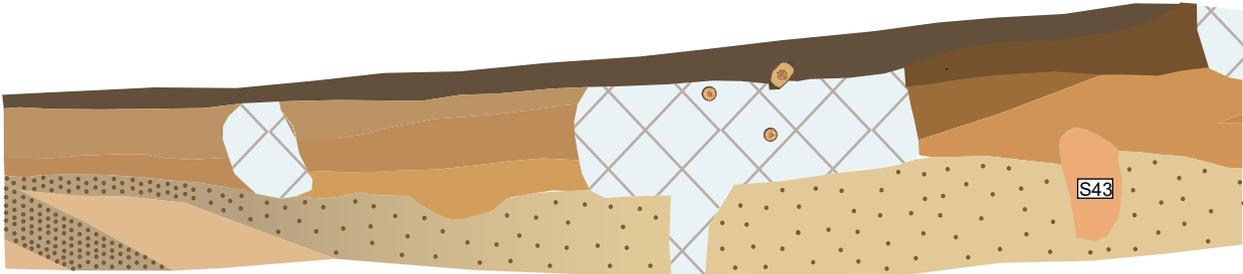
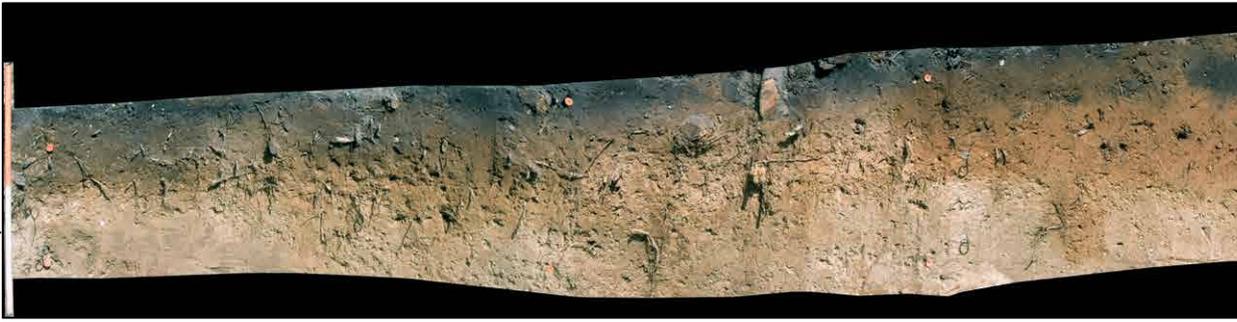
7.1 Introduction

Mound 1 is by far the clearest and best preserved of three barrows (Fig. 7.1). It is round in shape, 13 metres in diameter and 70 centimetres high. Mound 1 is located in a relatively flat forest plot which transitions ever more steeply into the dry valley located to the south. As a result, the silhouette of the barrow shows up well when viewed from the first path located to the north. Mound 1, furthermore, is located in the middle of the imaginary line that can be drawn between the four barrows of AMK-monument 145 in the east-northeast and the Koningseik mounds to the west-southwest (see Fig. 4.3).

The excavation of Mound 1 was restricted to the southwest quadrant (Trench 101). The high number of features and how they related to each other, in combination with the difficult to read subsoil made the fieldwork a complex undertaking. A total of eleven excavation levels were dug. The original plan to also excavate the northeast quadrant had to be quickly discarded. The results of the fieldwork so far leave multiple interpretations, which are presented with their respective argumentations below.



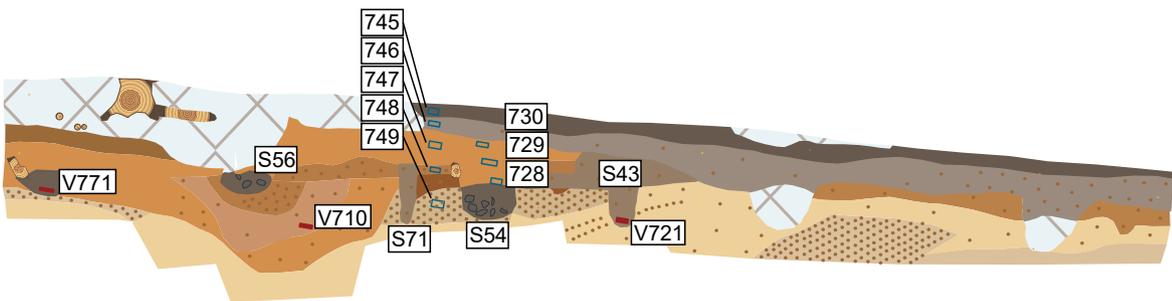
Fig. 7.1: Mound 1 prior to excavation. Photograph taken facing north.



Legend

- Charcoal
- Gravelly
- Find
- ▨ Disturbed
- Wood or root
- ▭ Sample

Fig. 7.2: Profile 1 of Mound 1 (west profile). Photograph taken facing north. Ranging pole is 1 m.



Legend

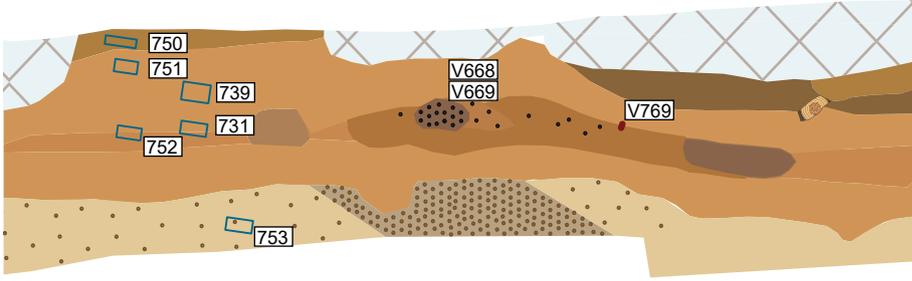
- Gravelly
- Stone
- ▭ Sample
- Wood or root
- ▨ Disturbed

Fig. 7.3: Profile 2 of Mound 1 (south profile). Photograph taken facing east. Ranging pole is 1 m.

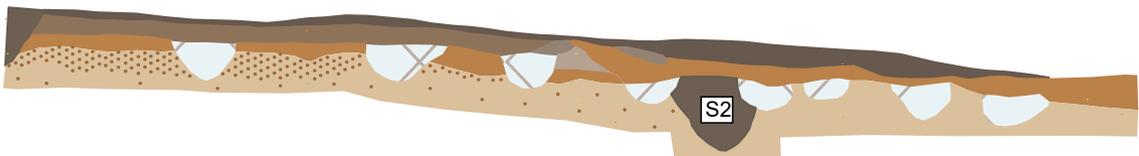
E



65.107
+NAP



65.134
+NAP



7.2 Structure of the barrow

Mound 1 is covered by a humus-rich layer, the result of the present-day vegetation (A0-horizon). This vegetation primarily consists of deciduous forest. The thickness of this dark grey, black layer varied between 10 and 20 centimetres in the southwest quadrant and was present over the entire mound body. As such, Level 1 was dug in this topsoil. While digging this level, the flanks of this mound were cleared of this debris (leaves and branches). The influence of the current vegetation did not stop with the formation of this humus-rich top layer of the barrow. During the forest planting activities in the second half of the 20th century, the barrow was not spared. As a result, a number of root systems managed to penetrate deep into the mound, with some even reaching under the old surface beneath it (see the centre of the mound in Figs. 7.2 and 7.3). Dark grey humus-rich zones formed around these root systems that are comparable to the humus-rich top layer of the mound in terms of genesis (see for example Fig. 7.5). A final element belonging to the most recent history of the barrow was a depression in the centre of the mound, which locally was more than 40 centimetres deep. This was filled with the same humus-rich forest soil and possibly originated around the root system of the tree trunk located here. This would explain why the depression was slightly deeper by the trunk in the southern profile section (see Fig. 7.3). In the western profile section (Fig. 7.2) a partially inverted soil profile was however visible, which would suggest a plough furrow or tree fall. It is possible that the depression is the result of a

number of factors, which can each be related to the recent forestry activities. The discovery of a pipe bowl (V10) found in the fill of the depression at the depth of Level 4 confirmed that the depression in the centre of the mound was formed in recent history. Finally, the western profile section (profile 1, Fig. 7.2) showed that a young soil has formed on top of the inverted soil profile.

The southern profile (Fig. 7.3) in particular showed the remnants of an older soil underneath the humus-rich top layer. This grey-brown band, which became thicker towards the foot of the barrow, is the remnant of an old Moder Podzol which had formed in the top of the original mound body. As barrows have a sloping surface, the displacement of minerals not only takes place vertically, but also diagonally. As a result, an intensified podsolization took place around the foot of the mound body, which explains why the Moder remnant (Bh-horizon) became increasingly thicker towards the foot of Mound 1. Level 2 was dug at the transition between the present-day topsoil and this older Moder Podzol, which is why elements from both layers were visible at this excavation level (Fig. 7.4).

Some grey-brown zones could also be discerned in Level 3 which were part of the old Moder Podzol in the top of the mound. From Level 3, some 30 centimetres under the present-day surface and the following Levels 4 and 5, the mound had a homogenous ruddy orange-brown colour and consisted of medium coarse, slightly gravelly sand with a number of pebbles in various sized. Levels 2 through 5 were all four dug in the original mound body.



Fig. 7.4: Level 2 in Mound 1. Photograph taken facing south.

Unfortunately the depression in the centre of the mound described above means that the original height of the mound body could not be determined with any certainty. Directly to the south of the depression, the mound body (including the present-day topsoil) is 50–60 centimetres high. Sod features were observed neither in the various excavation levels nor in either profile sections (Fig. 7.5). This could mean that the mound was constructed using loose sand. A second, and in our view more plausible explanation for the apparent absence of sods, is that this barrow was constructed using sods, but that these have since completely homogenized (see Section 5.4). The mound body in any case contained much fewer pebbles than the natural sub-soil. The means that the ground from which the barrow was constructed was most likely obtained elsewhere.

Levels 6 through 8 were dug around the depth of the old surface (60–80 cm below the present-day top of the mound). Level 6 is a small sondage, while Levels 7 and 8 are completely documented excavation levels. The old surface also appears to be completely homogenized. Yet still there was a light grey haze visible over the homogenous, ruddy and orange-brown layers at this depth. Moreover, the number of finds (flint and pottery) increased considerable while digging the excavation levels in question, which also indicates a prehistoric surface. The light grey colour was caused by the presence of small charcoal particles and lumps. This latter

observation likewise forms an argument in favour of the presence of an old surface at this depth.

Underneath the old surface the sub-soil again coloured ruddy orange and the number of pebbles increased. Levels 9 and 10 were dug at this depth and yielded by far the most archaeological features. Between 15 and 20 centimetres under the old surface lay a rather abrupt border. The ruddy orange colour of the natural sub-soil underneath the mound transitioned quite quickly into a pale, light grey colour. The sediment here consisted of coarse gravelly, loose sand. In addition, laterally sequential gravel layers were discernable at a slightly deeper level (see Fig. 7.2). Level 11 was dug in the top of this coarse sandy pale sediment, consisting of pushed-up river deposits, and thereby forms the last horizontally documented excavation level of the southwest quadrant of Mound 1.

7.3 Features and structures

In total 72 features were recorded in the southwest quadrant of Mound 1. A number of these features were eventually discarded as they proved to be natural phenomena or disturbances upon sectioning (see Tab. 7.1). Almost all proper features were encountered in the zone around the old surface or became visible immediately beneath it (Levels 9–11; see Figs. 7.6–7.8). The most important features are presented and discussed per context in the following.



Fig. 7.5: Level 5 in Mound 1. Photograph taken facing east.

Trench	Feature	Level	Interpretation field	Interpretation definite	Depth (cm)	Complex
101	1	3	Pit	Natural disturbance		<i>Discarded</i>
101	2	3	Spot	Spot		<i>Discarded</i>
101	3	5	Spot	Spot		<i>Discarded</i>
101	4	6	XXX	Natural disturbance		<i>Discarded</i>
101	5	7	XXX	Layer		<i>Discarded</i>
101	6	7	XXX	Layer		<i>Discarded</i>
101	7	7	XXX	Layer		<i>Discarded</i>
101	8	7-9	Pit	Natural disturbance	18	<i>Discarded</i>
101	9	7	XXX	Natural disturbance		<i>Discarded</i>
101	10	7	XXX	Natural disturbance		<i>Discarded</i>
101	11	8	Ditch	Natural disturbance		<i>Discarded</i>
101	12	8	Spot	Spot		<i>Discarded</i>
101	13	8	Spot	Spot		<i>Discarded</i>
101	14	8	Cremation	Cremation		Grave 1
101	15	9	Pit	Pit	>10	Large pit (S15) with stakes/small posts
101	16	9	Posthole	Spot		<i>Discarded</i>
101	17	9	Posthole	Spot		<i>Discarded</i>
101	18	9	Pit	Pit(?)	8	Features border zone barrow; <i>possibly natural</i>
101	19	9	Pit	Pit	22	Ruddy pit without stones
101	20	9	Pit	Pit	13	Pit with heated/broken stones
101	21	9	Pit	Pit(?)	16	Features border zone barrow; <i>possibly natural</i>
101	22	9	Post pit	Post pit	12	Features border zone barrow
101	23	9	Post pit	Post pit	11	Features border zone barrow
101	24	9	Pit	Pit(?)	11	Features border zone barrow; <i>possibly natural</i>
101	25	9	Natural disturbance	Natural disturbance		<i>Discarded</i>
101	26	10	XXX	Pit	21	Pit with heated/broken stone
101	27	10	Natural disturbance	Natural disturbance		<i>Discarded</i>
101	28	10	Natural disturbance	Natural disturbance		<i>Discarded</i>
101	29	10	XXX	(Post) pit	36	Features under the barrow
101	30	10	XXX	Posthole	33	Palisaded ditch
101	31	10	XXX	Posthole	28	Palisaded ditch
101	32	10	XXX	Posthole	33	Palisaded ditch
101	33	10	XXX	Posthole	30	Palisaded ditch
101	34	10	XXX	Posthole	34	Palisaded ditch
101	35	10	XXX	Posthole	32	Palisaded ditch
101	36	10	XXX	Posthole	20	Palisaded ditch
101	37	10	XXX	Posthole	20	Palisaded ditch
101	38	10	XXX	Discolouration		<i>Discarded</i>
101	39	10	XXX	Post pit?	15	Palisaded ditch
101	40	10	XXX	Posthole	18	Palisaded ditch
101	41	10	XXX	Posthole	21	Palisaded ditch
101	42	10	XXX	Posthole	22	Palisaded ditch
101	43	10	XXX	Posthole	26	Palisaded ditch
101	44	10	XXX	(Post) pit	30	Features under the barrow
101	45	10	XXX	Discolouration		<i>Discarded</i>

Tab. 7.1:
Overview
features
Mound 1.

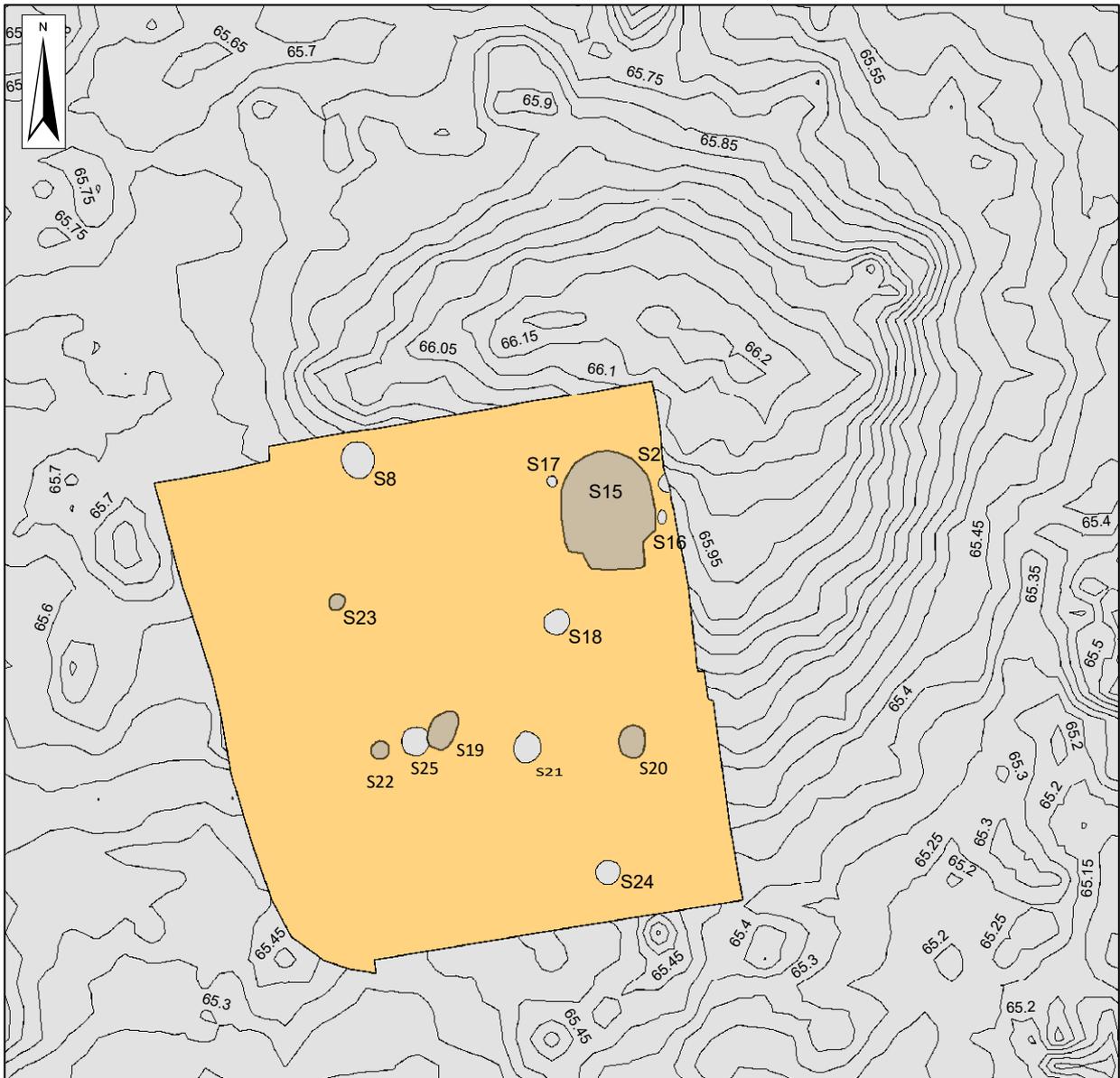
Trench	Feature	Level	Interpretation field	Interpretation definite	Depth (cm)	Complex
101	46	92	XXX	Discolouration		<i>Discarded</i>
101	47	10	Pit	Pit	33	Ruddy pits without stones
101	48	10	XXX	Posthole	35	Palisaded ditch
101	49	10	Pit	Pit	38	Ruddy pits without stones
101	50	10	XXX	Posthole	32	Palisaded ditch
101	51	10	XXX	Posthole	40	Palisaded ditch
101	52	10	XXX	Posthole	30	Palisaded ditch
101	53	10	XXX	Posthole	29	Palisaded ditch
101	54	95	Pit	Pit	>30	Pit with heated/broken stone
101	55	11	Posthole	Posthole	10	Large pit (S15) with stakes/small posts
101	56	11	Pit	Pit	22	Pit with heated/broken stones
101	57	Pro	Pit	Natural disturbance	35	<i>Discarded</i>
101	58	Pro	Posthole	Posthole?	16	Features under the barrow
101	59	11	Posthole	(Post?) pit	10	Features under the barrow
101	60	11	Posthole	Post pit	10	Features under the barrow
101	61	11	Posthole pit	(Posthole?) pit	27	Large pit (S15) with stakes/small posts
101	62	11	Posthole	Posthole	20	Large pit (S15) with stakes/small posts
101	63	11	Spot	Discolouration		<i>Discarded</i>
101	64	11	Posthole	Posthole	8	Large pit (S15) with stakes/small posts
101	65	11	Posthole	Posthole	11	Large pit (S15) with stakes/small posts
101	66	11	Spot	Discolouration		<i>Discarded</i>
101	67	11	Spot	Discolouration		<i>Discarded</i>
101	68	Pro	Spot	Charcoal concentration	Indet.	Grave 1?
101	69	11	Posthole pit	(Post) pit	25	Features under the barrow
101	70	11	Pit	Tree fall	78	<i>Discarded</i>
101	71	11	Posthole	Posthole	52	Large pit (S15) with stakes/small posts
101	72	Pro	XXX	Cremation	Indet.	Grave 1

Tab. 7.1:
(continued).

7.3.1 Grave 1

Some loose cremation remains were found in the corner of the southwest quadrant, at the depth of the old surface, while digging the eighth excavation level. As no pit or anything of that nature showed at this level, the precaution was taken to spare a 75 by 75 centimetres zone around the loose cremation remains (S14), which was divided into segments of 10 by 10 centimetres. The various segments were then troweled individually and sieved (mesh width 2 mm). Several very small concentrations of cremation remains came to light as result, in total some 86 grams. It is therefore clear that this complex is only a small amount of cremation remains and not a complete burial. This suspicion was confirmed when during the last day of fieldwork in 2009, while moving back the southern profile section by S14, the edge of a pit with cremation remains was encountered (S72). The pit was bowl-shaped (35 cm wide, 30 cm deep) and was clearly located underneath the old surface (Fig. 7.3). Roughly 75% of the cremation remains collected under find number S14 were

located in the zone directly in front of the southern profile section, making it a very realistic option that the loose cremation remains were connected with S72. Both the zone of cremation remains (S14) and the pit with cremation remains (S72) were located at an angle underneath a tree trunk, the roots of which roots penetrated deep into the mound body. The zone S14 in particular was strongly rooted through. It is therefore well possible that a large portion of the cremation remains collected as S14 were pushed away and displaced from S72 by root action. Small digging animals such as beetles and mice can also be held accountable for the displacement of cremation remains. These diverse forms of bioturbation could explain both the small amount of cremation remains in S14 as well as the absence of a clear feature. The remaining 25% of the collected cremation remains, however, were located farther from S72, and as such it cannot be completely excluded that they originated from a burial in the unexcavated northwest quadrant. S72 was not excavated but for now preserved *in situ*. ¹⁴C-analysis of the cremation



Legend

- Features Level 9
- Discarded / natural features Level 9
- Level 9



Fig. 7.6: Excavation drawing Level 9.

remains from S14 indicates a date in the Middle Bronze Age A for the grave (see Tab. 7.2). Physical anthropological analysis by dr. Liesbeth Smits (University of Amsterdam) of the cremation remains yielded no information other than that they are likely those of an adult individual (see also App. 1).

In 2008 a few charcoal lumps were encountered in the west profile section at the depth of the old surface, about 110 centimetres to the west of the corner of the quadrant.

From this point a distribution of charcoal about 1 metre wide and 20 centimetres thick became visible, of which the highest concentration was located some 2 metres from the corner of the quadrant. This whole distribution was labelled S68 (Fig. 7.9). Here it was also the case that no pit or pit cut was visible in the mound body above the feature. While putting back the profile section in 2009, this concentration proved to be intact and even appeared to become more compact. It is possible that the concentration

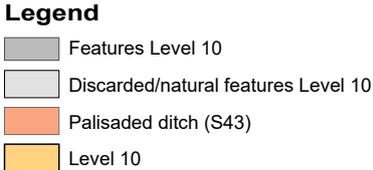
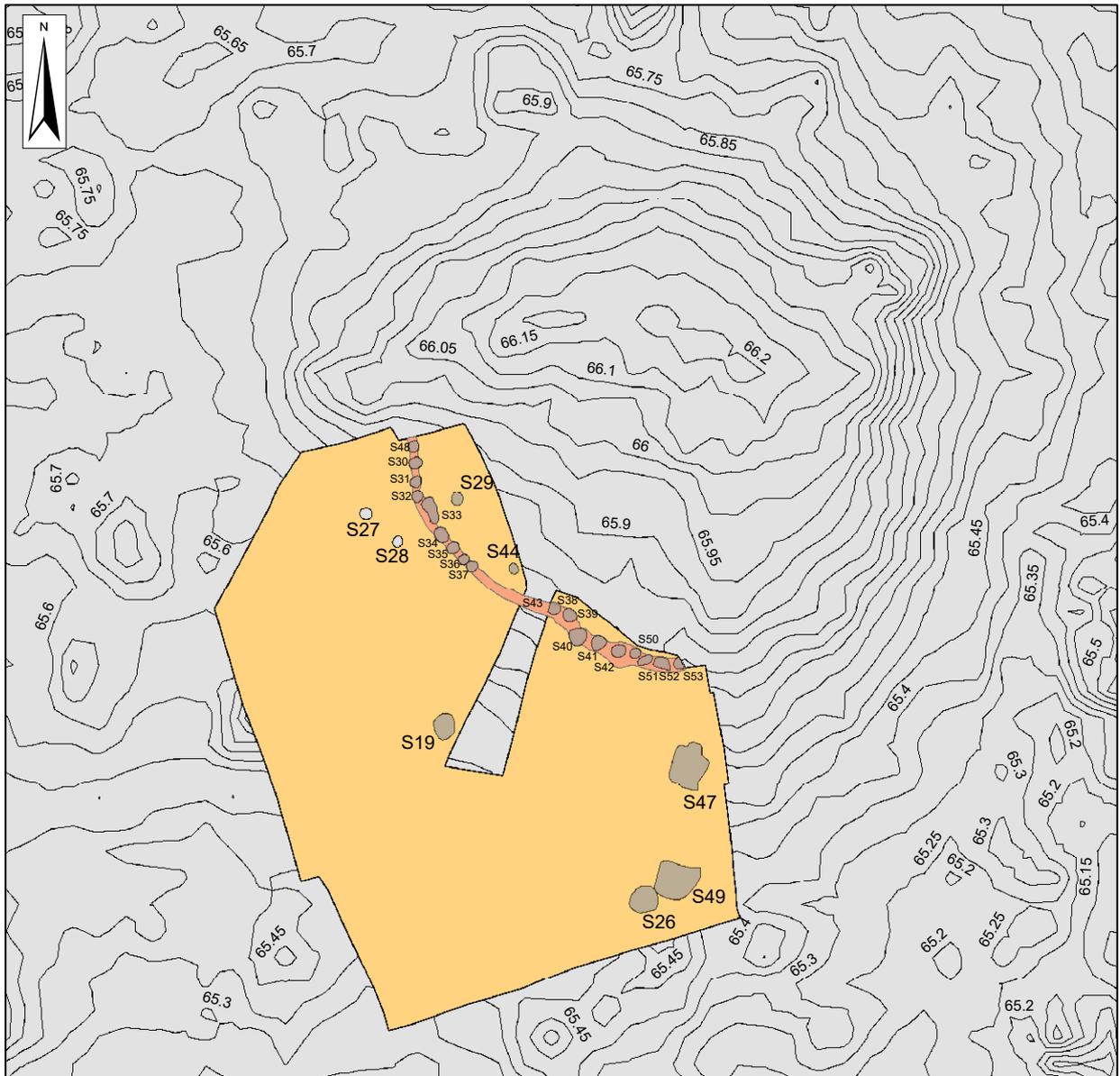
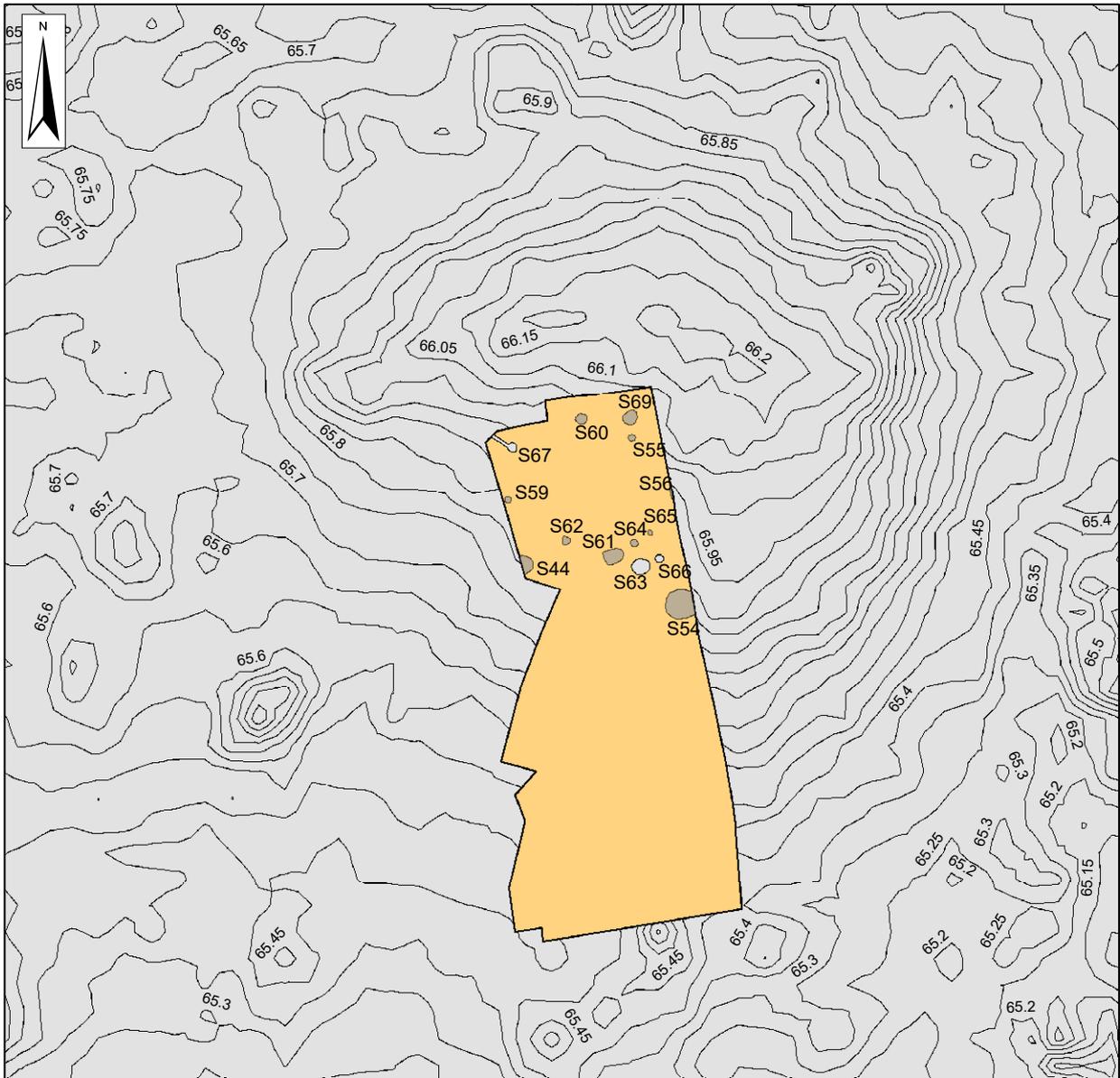


Fig. 7.7: Excavation drawing Level 10.

of charcoal observed formed the edge zone of the charred wood remains located more towards the north. The most westerly cremation remains in S14 were located some 35 centimetres to the east of S68 (Fig. 7.9). A number of small charcoal fragments were furthermore collected while troweling S14 (13 gr.). ¹⁴C-analysis of the charcoal samples from both contexts yielded practically the same dates (Tab. 7.2). The ¹⁴C-date of the cremation remains from S14 mentioned above also falls into the same period.

It is therefore possible that some of the cremation remains from S14 are part of a second grave, the majority of which is still in the unexcavated northwest quadrant.

The discussion is further complicated by the flint arrowhead found while troweling the cremation remains in S14 (V190, see Section 7.4.2; Figs. 7.23 and 7.24). This was located horizontally with the tip facing south, about 15 centimetres from the west profile section. It however



Legend

- Features Level 11
- Discarded/natural features Level 11
- Level 11



Fig. 7.8: Excavation drawing Level 11.

remains the question whether this object belongs to the original inventory of Grave 1. As was already established above, the cremation remains from S14 were most likely not in their original position, but may originate from a grave located further to the east (S72) and/or from an unknown grave (S68) to the north. Furthermore, the arrowhead typologically appears more Late Neolithic than Middle Bronze Age A (see Section 7.4.2). It therefore has to be taken into account that the arrowhead might not belong to the inventory of Grave 1. If this is the case, then the

presence of the find at this specific location would have to be explained in a different manner, with bioturbation once again being a possibility. However, it is striking that the arrowhead was positioned horizontally, as if it had been deliberately placed and left there. Should the latter be the case, then two possible explanations remain: either (1) the arrowhead was lost/left/placed on the old surface in the period preceding the construction of Mound 1; or (2) the arrowhead lay in an unrecognized (burial) pit of which the majority remains in the unexcavated quadrants.

Legend

- Level 9
- Flint
- Cremation remains

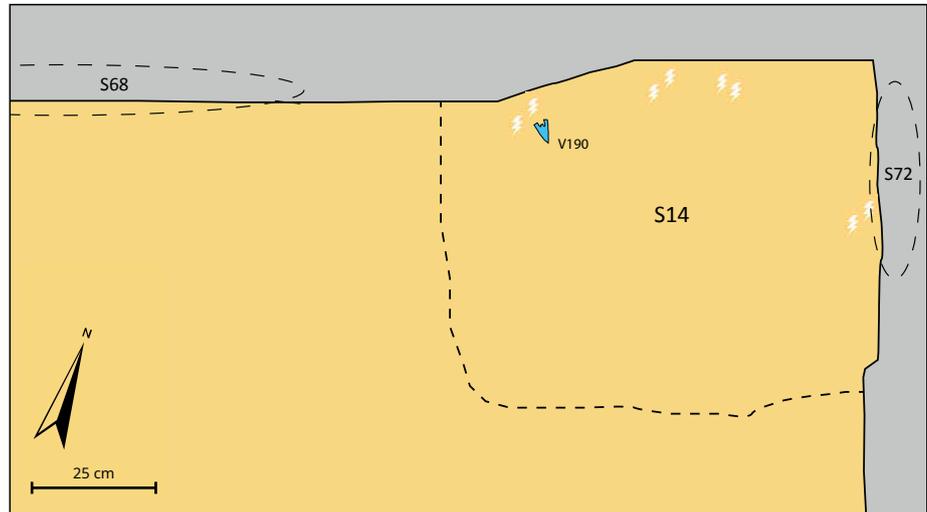


Fig. 7.9: Reconstruction Grave 1. S68 and S72 were only uncovered in the profile section. The ellipses on this reconstruction merely serve to illustrate the (exact) location of both features in relation to the cremation remains and arrowhead recorded under feature number S14 (zone within the dashed line).

Context	Feature no.	Find no.	Lab code	BP	Cal BC 1 σ (68.2%)	Cal BC 2 σ (95.4%)
Grave 1	101.14	686	GrN-32582	3320 \pm 25	1635–1535	1682–1527
Grave 1	101.14	680	GrA-51705	3280 \pm 35	1611–1518	1636–1460
Grave 1?	101.68	668	GrN-32580	3330 \pm 20	1658–1561	1683–1532

Tab. 7.2: ¹⁴C-dates S14 and S68.

It should be apparent from the above that Grave 1 was encountered and uncovered in a particularly unlucky manner, leaving many questions unanswered for now. There is even the possibility that the various elements counted as part of Grave 1 originate from multiple burials. In any case, it can be stated with certainty that both the charcoal and the cremation remains from Grave 1 date to the Middle Bronze Age A. Even though the position of Grave 1 at the depth of the old surface, close to the centre of the mound, forms an important criterion to designate this the primary central burial, this cannot be proven at this stage of the analysis. The flint arrowhead even suggests the possibility of an older use of the barrow. Moreover, the pit with cremation remains in the south profile section (S72) was encountered in the flank and was located at an angle underneath a tree trunk and directly underneath the young depression in the centre of the mound. Because of this it cannot be stated with certainty whether the pit was dug from above through the door the old surface or if the mound body covered it. It, however, remains striking that all three features (S14, S68 and S72) manifested around the depth of the old surface. The most likely scenario, therefore, is that we are dealing with the remains of one cremation grave that was partly disturbed. The arrowhead, then, would represent a displaced element of an older feature situated outside the excavated quadrant.

7.3.2 Large pit with stakes/small posts (complex S15)

At the depth of Level 9 an elongated, oval brown-grey pit (S15) was encountered to the southwest of the centre of the mound (Figs. 7.10a and 7.11a). The pit was roughly 220 \times 160 centimetres on the excavation level. Its longitudinal axis had a north-south orientation. An important observation is that the pit was not present on higher levels, and did not start to show until deepening from Level 8 to Level 9. The pit therefore must predate the erection of the mound body.

Given the size of the pit, a local measuring system was created in case it was an inhumation grave. The pit was then divided into four equal segments and carefully deepened horizontally 10–15 centimetres (see Fig. 7.10a–f). This quickly revealed that the pit was not, in fact, an inhumation burial: there was no trace of a body silhouette, nor was any tooth enamel found. Underneath the brown-grey, vaguely delineated contour that was visible in Level 9, a dark grey-black core with charcoal flecks started to show (see Fig. 7.10b). The pit was surrounded by a red glow in the subsoil, in particular in the north, which may be result of heating. Various small, round features with similar dark grey-black fills started to show around the edges of the pit. These round features had an average diameter of 10 centimetres and more or less followed a



Fig. 7.10: Series of field photographs S15.

straight line along the eastern and southern sides of the pit (Figs. 7.10c–f and 7.11bc).

While further deepening the four segments the dark central core fell apart into multiple smaller, darker cores (Level 91; Fig. 7.11c). The largest of the series of small cores was located at the northern side where a red glow

bordered the dark, and at this point round core. This dark core must have extended some 15 to 20 centimetres from Level 9. The smaller cores in the southern half of the pit also turned out to have small round features at a deeper level. Some 15 centimetres underneath Level 9 these features appear to form a rectangular structure of

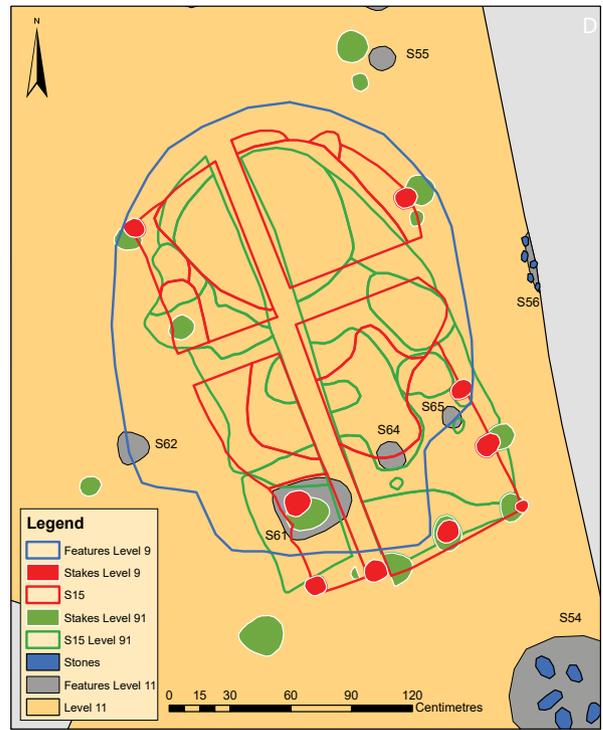
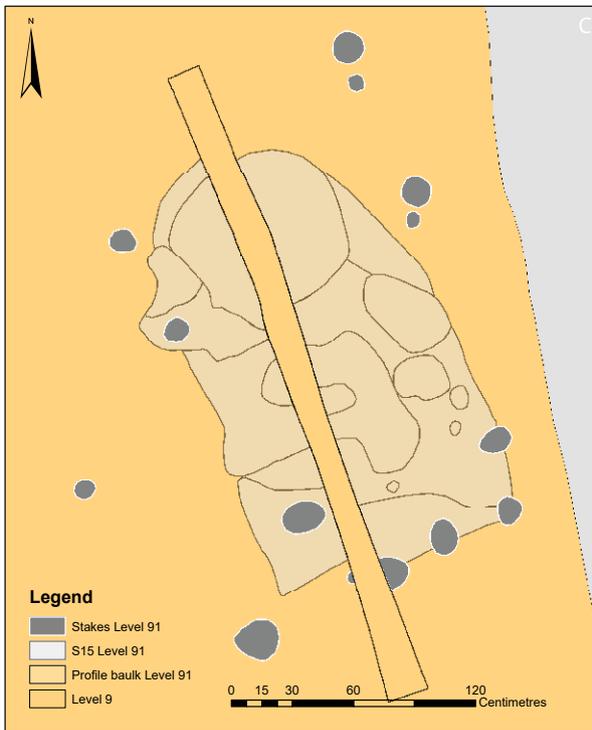
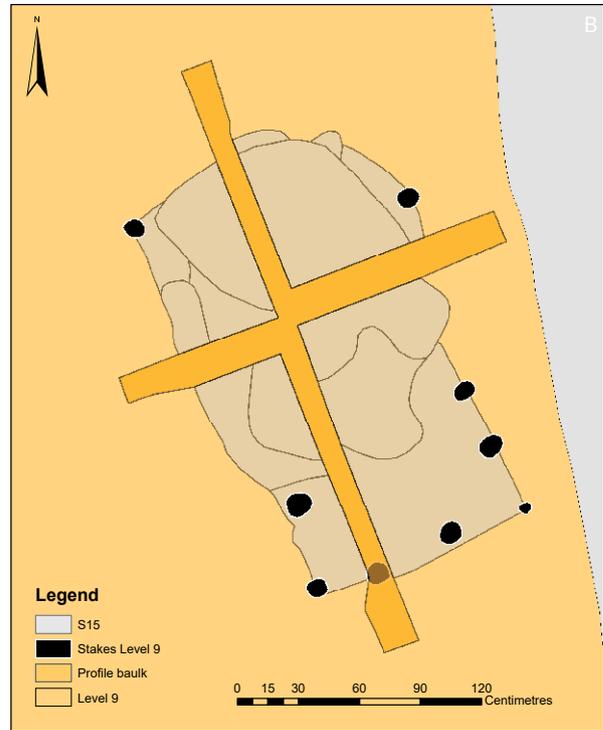
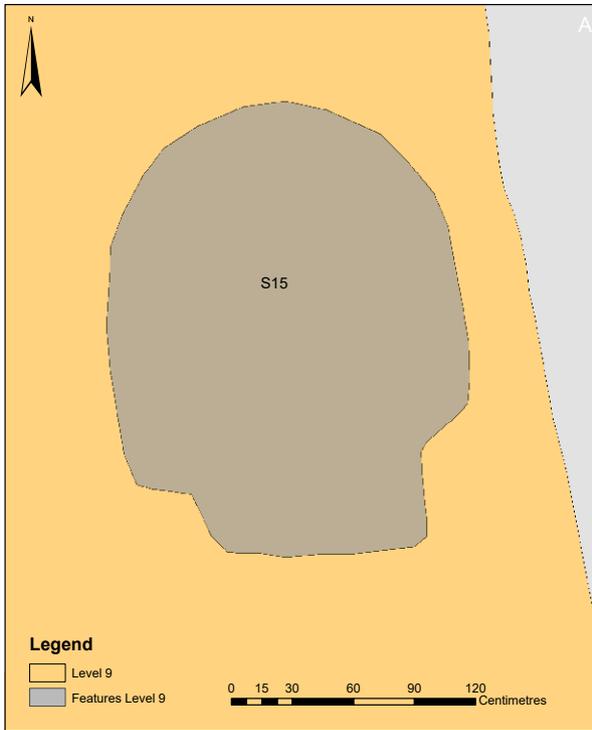


Fig. 7.11: Series of detailed drawings S15.

220 by 100 centimetres (see Figs. 7.10c-f and 7.11c). As the colour and nature of the fills of these round features were the same as the dark fill of the pit itself, they only became visible underneath the cut. The small features

retained their round shapes when this complex was deepened in spits (see Figs. 7.10c-f and 7.11bc). Around rectangular configuration there were also a number of loose features (S55, S62 and S71), which based on their

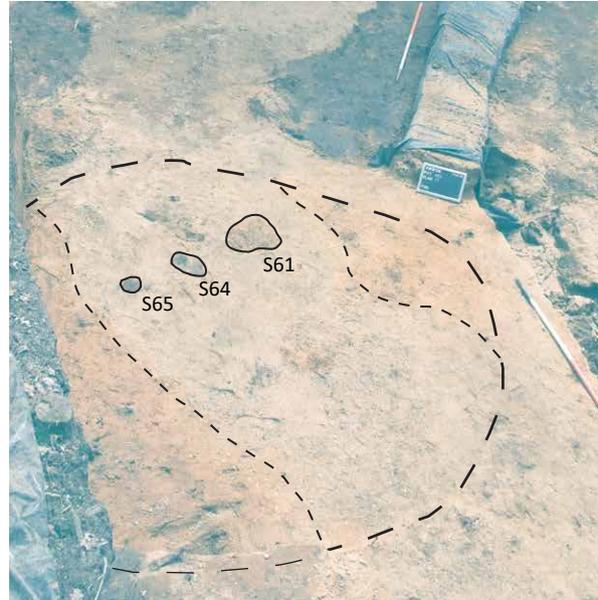


Fig. 7.12: Level 11.

dimensions and appearance also appear to have been part of the complex. As the complex was located directly alongside the southern profile section, the possibility exists that an unknown part of the complex is still located in the southeast quadrant. The features S61, S64 and S65, which were all recorded in 2009 (Level 11, see Fig. 7.12), also belong to the complex. S64 and S65 are two remnants of the small, round features observed in 2008. S61 is also a remnant of S15, but is clearly different in shape and colour (ruddier) than S64 and S65.

But how should we interpret the small round features? As a result of the strategy taken (excavating in horizontal layers), we mainly have detailed information regarding the excavation level (Fig. 7.11a–c), with none of the various small, round features within the bordered of S15 having been sectioned. In the various partial levels it was clear that the form and location of these small, round features remained the same as the level was deepened. Four features eventually were sectioned (see Fig. 7.13): S55 (northeast corner S15), S64 and S65 (bottom round features in S15) and S71 (southern profile section). All four were narrow features with a dark fill, and two of the features (S55 and S71) had a pointed bottom. It is therefore probable that there were pointed stakes located here. The excavation level information of the other small round features is consistent with the diameters of the four sectioned examples. This gives rise to an image of a large pit with small posts or stakes in and around it. It is possible these posts/stakes formed a light structure with an unknown function.

Finally it should be noted that almost the whole complex was located in an old tree fall underneath the

mound. As a result, part of the original soil profile is locally tilted in the level. The tree fall shows up clearly both in the southern profile section (Fig. 7.3) and in Level 11 (Fig. 7.12). The light grey, coarse gravelly sand into which the pit and the structure were dug, are therefore not part of the complex, but rather part of the tilted soil profile.

The original function of the complex can only be guessed at in this stage of the analysis as it continued into the southeast quadrant. Nonetheless, a number of statements can be made based on the documented excavation levels and the find material. To start with the find material, the total amount can be called small: a few small charcoal lumps (10.4 gr. in total), a few small pottery sherds, four flint flakes/splinters, three broken stones and some crushed quartz were found. The pottery and flint in particular are so small in size that they more likely reflect material that was present around the old surface and ended up in the pit fill by accident, rather than deliberately placed there. Find material similar in nature and size was also found around the old surface. This could indicate that the pit lay open for a certain amount of time. Even though care should be taken when interpreting loose sherds, the general impression generated by the pottery that was distributed around the depth of the old surface is that of typologically Middle Bronze Age in date (see Section 7.4.1).

In any case, the scarcity of find material, the elongated shape and the shallow depth of the feature, all argue against it being a simple refuse pit. Other arguments against it being used as a rubbish pit are formed by the location underneath a barrow and inside an intermediary palisaded ditch (Section 7.3.4). The latter two observations

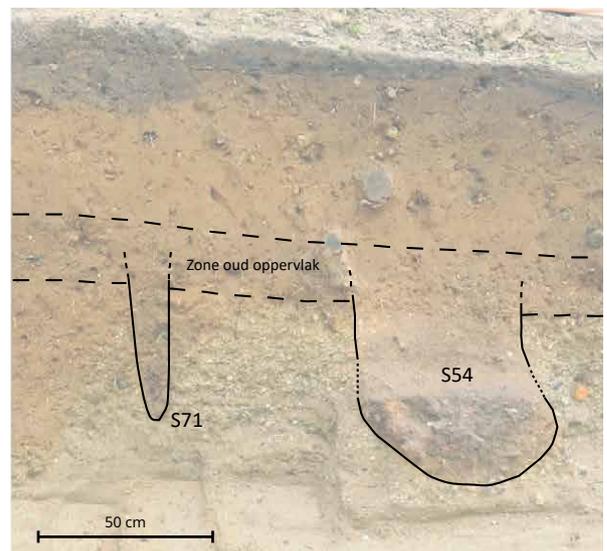
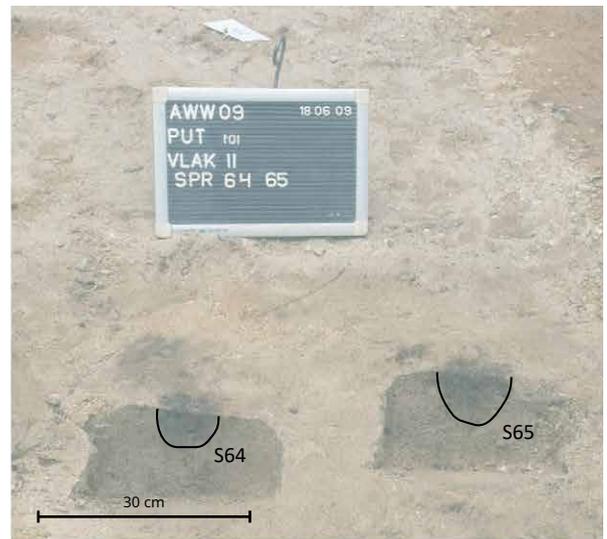
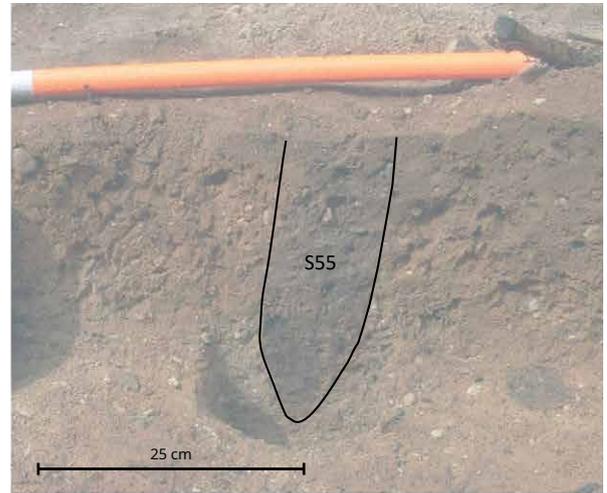


Fig. 7.13: Sections of S55, S64, S65 and S71.

in particular raise the strong suspicion of a connection with the barrow.

In addition, the various posts or stakes suggest that a light structure once stood in the pit. The nature of this structure, however, cannot be determined as it continues into the southeast quadrant. The presence of charcoal in both the pit and the accompanying stakes, however, give the impression that burning or heating played an important role in the original function of the complex. However, this conclusion leaves open numerous possibilities, such as a pyre site, a burned hut or small building, or a hearth for ritual purposes or otherwise. Finally, it is also certainly a possibility that it somehow related to the pits filled with heated and broken stones, given the fact that a few fragmented stones were also found in this large pit (see Section 7.3.3).

Similar elongated pits surrounded by stakes in relation to burial mounds dating to the Bronze Age were previously found at Leusden-Den Treek (Modderman 1955) and Gasteren (Van Giffen 1945). At Leusden-Den Treek, no trace of a burial was found within the pit surrounded by ten small posts or stakes, just like at Wieselseweg. The Drakenstein-urn dug into the same pit and covered with a charred tree trunk, proved to be a later secondary burial that originally did not belong with the pit (Modderman 1955, 59). Yet still the elongated pit with stakes was interpreted at the barrow's primary and central burial at the time (Modderman 1955, 59). Cremation remains were found in the elongated pit surrounded by 28 small charred stakes underneath a barrow at Gasteren (Van Giffen 1945, 73–4; fig. 12). Even though the similarities between the Wieselseweg pit and in particular the example from Leusden-Den Treek are striking, it remains problematic to interpret it as a burial pit given the absence of a corpse shadow or cremation remains.

7.3.3 Middle Bronze Age pits

In Levels 9 through 11 various pits were encountered spread out over the quadrant (Fig. 7.28). These pits were located both under the mound and in its border zone. The various pits can be divided roughly into two groups. A number of them have a dark colour and are filled with broken stones (S20, S26, S54 and S56). Pits with a ruddy colour form a second group, and do not contain broken stones (S19, S47 and S49). The pits from the first group more or less appear to form a line from the centre of the mound towards the south-southwest. The pits from the second group are all located in the edge zone of the mound. Based on the pottery recovered from the various pits, both the dark ones filled with stones and the ruddy examples

can be dated to the Middle Bronze Age (see Section 7.4.1). Moreover, ¹⁴C-analysis of charcoal from S54 supports a date in the Middle Bronze Age (A) op (Tab. 7.3).

Dark pits with broken stones

To start with the description of the pits filled with broken stones, the four pits varied in diameter between 50 and 75 centimetres and between 12 and 30 centimetres in depth. It should be noted that S54 and S56 were both encountered in the southern profile section, which is why they could be measured from a higher level (at least from the old surface). The pits appeared relatively round in the excavation level, with S54 having a slightly more elongated shape. In vertical sections all four of these the pits were (irregularly) bowl-shaped. The broken stones characteristic of these pits were always spread throughout the pit fills and as such appear to have been randomly dumped into the pits (Figs. 7.14 and 7.15). The total weight of the broken stones per pit lay between 3020 and 4439 grams (see also Tab. 7.4). The 2307 grams of broken stones recovered from S56 are not representative as the majority of the feature is still located in the unexcavated southeast quadrant of Mound 1. The dark grey colour of the pits appears to be caused by small charcoal particles. Larger charcoal lumps were also observed in S54 and S56.

It has not been possible to determine with complete certainty whether the pits were dug through the mound or whether they are covered by the mound. As with the features related to Grave 1 (see above), it is worth noting that all four pits were observed only at and below the old surface. Also, no cuts are visible in the southern profile section above the level of the old surface by S54 and S56 (Fig. 7.16). Though it warrants mentioning that S56 is located right below the depression in the heart of the mound body, which could have disturbed any cuts from above if these were ever present. A pit cut above S54 could have become too pale to see in the homogenized mound body. While the homogenized soils at the Wieselseweg complicate interpretation, in summary the visible elements appear to indicate that the pits predate the mound body.

Two things that are immediately noticeable about these four pits are the linear pattern in which the features are positioned, as well as the fact that both stone and pottery found in them were burned. To start with the linear pattern, the distances between the pits increase with half a metre ranging outwards from the centre of the mound: S56 – S54: 1.5 metres; S54–S20: over 2 metres; S20 – S26: over 2.5 metres (see Fig. 7.28). Whether this pattern continues in both directions cannot be ascertained: towards the north lies the unexcavated

Context	Feature no.	Find no.	Lab code	BP	Cal BC 1σ (68.2%)	Cal BC 2σ (95.4%)
Pit with stone	101.54	825	GrA-48880	3285 ± 40	1613–1521	1661–1456

Tab. 7.3: ¹⁴C-date S54.



Fig. 7.14: Detail S20. Photograph taken facing south.



Fig. 7.15: Detail S54. Photograph taken facing east.



Fig. 7.16: S56 and S54 in the southern profile section of Mound 1. Any possible cut through the mound body is not visible. Photograph taken facing east.

quadrant of Mound 1 and Trench 18 to the south of Mound 1 showed several serious disturbances. A pit with comparable contents (S24.1) was found 30 metres to the south-southwest of Mound 1 (Section 10.2.3). When the imaginary northeast–southwest oriented line between the pits is extended under Mound 1, the pit in Trench 24 appears to be part of the same row of pits. It therefore can be argued that the pits were deliberately dug in a linear

pattern and that there is a close connection between the barrow and direct surroundings.

With regards to the function of the pits, the broken stones appear to fulfil an important role. Based on the fracture patterns of the various stones it can be stated that they were heated to high temperatures only to be rapidly cooled (thermal shock). Such rapid cooling likely means water was involved (see Section 7.4.2 for a

Context	Features	Stone		Flint		Pottery		Loam		Other
		N	Gr	N	Gr	N	Gr	N	Gr	
Pit row with heated/ broken stones	101.20	146	4439.0	2	0.7	6	29.1			
	101.26	127	3019.6	1	1.9	11	69.0			
	101.54	179	3590.8	4	6.7	4	141.0	1	0.6	
	101.56	17	2307.3							
	24.1.0	297	7953.0	4	1.7	6	10.9	2	26.2	Amber spacer-plate
Other pits	101.15	20	453.5	4	2.2	12	16.2			
	101.19	1	262.6	4	13.5	35	163.1			Hammer stone (see stone)
	101.47					16	221.9			
	101.49									
	101.69	5	1928							

Tab. 7.4: Overview of the contents of pits. N = number of; Gr = total weight in grams.

more elaborate discussion). Some of the pottery sherds also show signs of secondary burning (Section 7.4.1). In any case, it can be stated with certainty that heat and fire played an important role in creating the material found in the various pits. The pit fills and find material, however, strongly suggest that this burning did not take place in the pits themselves. As was already noted above, pits S54 and S56 only yielded few lumps of charcoal. Even with these two features the amount of charcoal, however, is too little to reflect a hearth. It is far more likely material that came along with the stones. The stones, furthermore, must have been heated to such high temperatures that from a pragmatic point of view (fuel and oxygen), the fire could never have burned in such a pit. It is possible the S15 complex described above fulfilled this role (Section 7.3.2). In any case the stones appear to have been deposited in the pits after having been heated, most likely at a location nearby. Whether the stones were cooled with water while they were in the pits, or prior to being placed in them is difficult to determine. While it is possible that the stones were cooled in the pits, this gives rise to the question of how the hot stones were deposited in the pit. The stone must have been hotter than 540 °C (Section 7.4.2). In any case, huge clouds of steam would have accompanied cooling the stones. It is possible that this steam formation was the desired effect of the whole process, clouding the direct surroundings of the pits with artificial mist.

Middle Bronze Age pits filled with burned stones are also known from elsewhere in the Netherlands. A similar phenomenon, for example, was discovered during the first excavation of the *Ancestral Mounds* project at Rhenen-Elst in the summer of 2006. Under a barrow known as Delfin-190, a number of (likewise) the Middle Bronze Age A features were encountered. A number of these features yielded considerable amounts of heat-fractured stone, in addition to secondarily burnt pottery (Bourgeois *et al.* 2010b, 96–100; Fontijn *et al.* 2010,

66–71). A closer examination of two Middle Bronze Age settlement terrains in the direct surroundings, Rhenen-Remmerden (Van Hoof/Meurkens 2005) and Elst-t Bosje (Meurkens 2009), gave rise to the suspicion that the cluster of features discovered at Rhenen-Elst were typical for Middle Bronze Age A settlements. The find material from the pits under the Delfin-190 mound in question was, as such interpreted as settlement waste, at the time. In light of the new date from the Wieselseweg burial mounds this interpretation of the Rhenen-Elst feature cluster may need to be revisited.

Ruddy pits without broken stones

The three ruddy pits in the edge zone of Mound 1 are slightly larger in size and more irregular in form when compared to the dark pits filled with broken stones. Two examples (S47 and S49) are located some 1.5 metres from each other, while the third pit (S19) is positioned more on its own (Fig. 7.8). S49 moreover is located directly next to one of the pits filled with broken stones (S26, Fig. 7.17). A possible relationship between these features cannot be excluded based on their dates. Yet it still appears that S26 was dug through the edge of S49 and therefore must be slightly younger (Fig. 7.17). S47 and S49 showed as irregular polygons with rounded corners on the excavation level (Level 10), and both features were between 70 and 80 centimetres in diameter. S47 was 30 centimetres deep and had a slightly convex bottom (Fig. 7.18), while S49 proved to be almost 40 centimetres deep with a more bowl-shaped bottom. S19 was recognized at a higher level (Level 9) and appeared to be relatively round. A part of the feature, however, was located in the profile baulk, meaning that S19 was never completely in the excavation level. The profile baulk was needed to help recognize any peripheral structure around the mound and was therefore retained until a later stage at the expense of S19. Initially S19 was recorded as an 80 centimetres wide pit with a flat base 20 centimetres

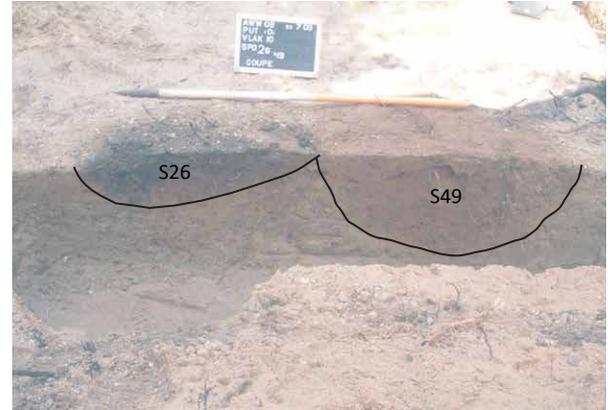


Fig. 7.17: S26 and S49. Photograph taken facing north

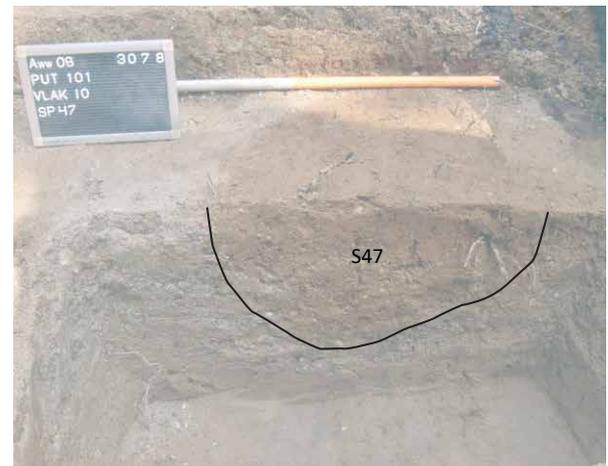


Fig. 7.18: Pit S47. Photograph taken facing east.

under the excavation level (Level 9). While excavating the level it turned out to be quite a bit deeper (50 cm). The flat base was maintained. All three pits had ruddy orange-brown and relatively ‘clean’ fills, in contrast to the four darker pits with broken stones.

Two pits (S19 and S47) additionally contained multiple fragments of burned Middle Bronze Age pottery (Section 7.4.1). The pottery from S47 in particular is especially coarse and thick. The amount of pottery does not stand in relation to the size of the pits. S49 did not even yield pottery. This observation combined with the clean, apparently natural fills of the pits argue against them being simple refuse pits. Here it also does not concern complete pots or other ceramic objects. Additionally the amount is relatively comparable in weight to the pottery recovered from the pits with broken stones. Once again the burnt condition indicates exposure to fire or extreme heat. It is possible that both kinds of pits share a common origin. Unfortunately we also do not know the original function of the ruddy pits.

7.3.4 A palisaded ditch

At the depth of Level 10 a light, ruddy ring ditch started to show, 4 metres (west profile section) to 6 metres (southern profile section) from the corner of the quadrant (S43; Figs. 7.7 and 7.19). As Level 10 was dug at least 20 centimetres below the old surface, the ditch must have been present at a higher level, but was not visible due to the ruddy fill. Level 10 was dug in the pale, light grey/white coarse gravelly sand of the natural sub-soil causing the features filled with the orange-brown/ruddy sand from above to contrast well. At a higher level this contrast naturally is absent causing the features with a clean fill to be difficult to trace.

Even though the ring ditch has a somewhat irregular form, it runs a more or less round course. Extrapolating from this, the diameter of the ring ditch must have been roughly 11 metres. For the placement of the southwest quadrant this means that the southern profile section overlaps for about 1 metre with the northern half of the encircled area. The west profile section, however, must



Fig. 7.19: Level 10.

have been located more than 1 metre in front of the eastern half. This means that the centre of the encircled area is not present in the excavated quadrant.

The various sections dug over the length of the ditch revealed that multiple posts originally stood in the ring ditch. This means we are no longer dealing with a normal ring ditch, but rather a so-called palisaded ditch (*standgreppel* in Dutch). In total at least 17 individual postholes could be discerned (S30–S37, S39–S42, S48 and S50–S53; Fig. 7.20). It is highly likely that there originally were more, but as the fills of the various postholes had the same colour and texture as the ditch, shallow

examples will not always have been recognized. The posts varied between the 20 and 40 centimetres in depth, and between 15 and 30 centimetres in width. The depth of the ditch itself lay between 20 and 30 centimetres underneath Level 10.

Until now such palisaded ditches are unknown for the Middle Bronze Age. In the Late Neolithic, however, they are more common (Bourgeois 2013, 32; Lanting 2007/2008, 62–3). Both the diameter and the location of the ditch on the inside of the present mound foot are consistent with the general image of these so-called palisaded ditches. The presence of a typically Late

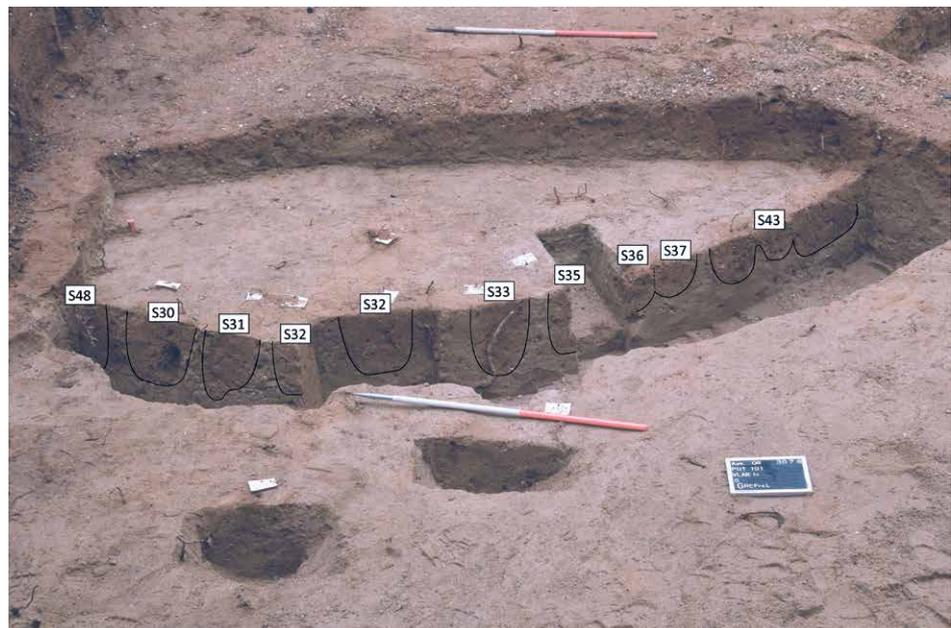


Fig. 7.20: Section through the western half of the intermediary palisaded ditch. Photograph taken facing east.

Neolithic palisaded ditch and ¹⁴C-dated Middle Bronze Age pits described above could mean that Mound 1 knew multiple mound phases. In the profile section, however, no different mound phases can be discerned. Pits S56 and S54 form the only indirect indication for a second mound phase in the profile section. As Figure 7.16 shows, S56 is visible at a slightly higher level than S54. This height difference could be explained by the presence of a low Neolithic mound. As already noted, the homogenized mound body means that it cannot be determined with any certainty from what height the pits were dug. Then there is the typically Late Neolithic arrowhead from Grave 1 (see Sections 7.3.1 and 7.4.2) and a possibly Late Neolithic pottery sherd from the fill of the intermediary palisaded ditch (Section 7.4.1) which both also indirectly indicate a Late Neolithic use phase of the burial mound location. It therefore certainly warrants considering that Mound 1 originates from the Late Neolithic. This is discussed in more detail in Section 7.5.

7.3.5 Other features under the mound

A total of six 'loose' features were also found underneath the mound body. Four features (S29, S44, S58 and S60) are possible (post) pits with a ruddy colour similar to the features belonging to the intermediary palisaded ditch. These features varied in shape and size but in addition to their colour also had in common that they were vaguely delineated. This makes it difficult to determine whether these indeed are postholes, or whether they reflect natural texture differences in the sub-soil.

S59 is the bottom of a bowl-shaped (small) pit and is clearly delineated due to the grey fill. The diameter in excavation Level 11 was 17 centimetres and it was 10 centimetres in depth. The feature has no equal within the excavated quadrant making it unclear whether the pit in question was originally part of a structure.



Fig. 7.21: Pit S69. Photograph taken facing east.

The final feature is a pit with a clear shape (see Fig. 7.21) and a ruddy fill (S69). It was 30 centimetres in diameter and 25 centimetres in depth. A broken stone weighing 1865 grams and some chunks of quartz were found in the pit (Tab. 7.4). It is possible that this is a posthole but that the post was removed after which the broken stone ended up in the pit fill. A small amount of charcoal was also collected from the feature. The presence of a split rock in the pit does suggest a connection with the pits filled with broken stones described above. Yet still the colour of the feature strongly deviated and the single stone is not comparable with those from the other pits in size. Furthermore, this pit was located more or less in line with the row of stakes in/around the heated pit described above (S15). Here it is also true that the feature deviates in colour and size from the S15 complex and a connection cannot be proven.

7.3.6 Other features in the edge zone of the mound

Another six features of various natures were found outside and within the edge of the mound. The increased pedological processes around the foot of the mound makes it difficult to say from what level the features were dug in and whether they are even anthropogenic features.

S8 was a very irregular pit which became visible at the level of the old surface. The position just outside the foot of the mound, however, makes it unclear whether it is related to the barrow. The irregular shape and messy fill also make the anthropogenic origin of the feature questionable.

The next feature (S18) was located more towards the centre of the barrow and must have lain directly above the intermediary palisaded ditch. The feature was bowl-shaped, 27 centimetres in cross-section and 8 centimetres deep. The fill was quite humus-rich and strongly rooted through. It therefore is also possible that S18 is natural in origin.

The next two features (S22 and S23) were both visible from Level 9 and are strongly reminiscent of postholes. The features were respectively 20 and 30 centimetres in diameter and extended another 12 and 11 centimetres in depth. As these are the only two postholes encountered at this level outside of the mound and they do not follow the contours of the mound body, they will not have been part of a post circle and more likely lay on their own.

The final two features (S24 and S21) are shallow pits, respectively 11 and 15 centimetres, with a homogenous, dark grey fill. Here it also cannot be definitively determined whether these are anthropogenic features. The homogenous, dark fill and their position outside of the mound foot, when combined with their relatively undep location underneath the present-day surface, make it impossible to exclude a natural origin.

In summary, only two features included in the category 'other' can be considered as anthropogenic features (S22

and S23). The other four (S8, S18, S21 and S24) should be considered questionable.

7.4 Find material

7.4.1 Pottery

In total 38 find numbers were assigned to pottery discovered in the southwest quadrant of Mound 1. Together these find numbers account for 812 grams of prehistoric pottery. With these amounts it should be noted that for 16 of these find numbers the total weight per find number does not exceed 5 grams. These are frequently only crumbs of pottery with no diagnostic and/or exterior features. These fragments are not included in the following descriptions.¹⁶ The remaining pottery finds are discussed per context below (see Fig. 7.22 and Tab. 7.5).

Pottery from complex S15

The large pit by the centre of the mound yielded a number of small pottery fragments. These were primarily collected from the northeast section of the pit. The majority consists of small crumbs. Two small sherds can be identified as relatively thin-walled pottery (V349: 6 mm; V311: 7 mm), which are both are tempered with fine, slightly angular minerals (1 mm). The exterior surfaces of the sherds are orange-brown in colour, and the interior surfaces are slightly greyer. Both sherds, however, are strongly weathered and show gnaw marks from small rodents. It is therefore uncertain whether the sherds really belong to the S15 complex or whether they are the results of bioturbation. A third sherd (V400, Fig. 7.22a) is more likely to belong with the S15 complex as it has sharp fractures and is clearly less weathered. It is a light brown, flat rim sherd (with rounded edges), tempered with quartz pieces (1–2 mm). The fragment is at least 11 millimetres thick right below the rim. Unfortunately the exterior side of the rim has broken off. Both the paste as the broad flat rim are strongly reminiscent of Middle Bronze Age pottery (compare: Glasbergen 1954ab; fig. 56: type D and E). Though caution is still advised.

Pottery from the palisaded ditch (S43)

Only a single pottery fragment (V666) was found in the fill of the palisaded ditch underneath the mound. It is a fragment that consists of the first 3 centimetres under the original rim of the pot and is decorated with parallel horizontal rows of nail impressions (see Fig. 7.22b). The sherd is 7–9 millimetres thick and has a very finely crushed stone temper (<1 mm). The fragment is beige/light brown in colour. The fracture planes and surfaces are slightly weathered. The decoration in the shape of parallel

rows of nail impressions typologically can be found in several time periods. An early occurrence of this type of decoration can be found on Late Neolithic protruded foot beakers (*standvoetbekers* in Dutch) of type 1E (Lanting/Van der Waals 1976, 4). Encircling rows of nail impressions however also occur during a large part of the Middle Bronze Age (see for example Knippenberg 2008, 121–2; Theunissen 1999, 150–1) and are even typical for the Late Bronze Age (Arnoldussen/Ball 2007, 198; Hermesen 2007, 110). Typologically speaking that means that there are three periods to which the decoration might date. In terms of the finish and the paste, the sherd strongly deviates from other Middle Bronze Age pastes found in Mound 1 (see below). Moreover, the finger tip/nail impressions on Middle Bronze Age pottery tend to be more roughly executed than those on V666. Based on ¹⁴C-dates we furthermore know that Mound 1 was already erected in the Middle Bronze Age, meaning that a Late Bronze Age date can be rejected. The Late Neolithic therefore forms a plausible option for a date.

Pottery from the pits under the mound (S19, S20, S26, S47 and S54)

Most of Mound 1's pottery was found in the series of pits under the mound. Based on a clearly thick-walled and coarsely tempered pottery, the pits can without a doubt all be dated to the Middle Bronze Age. In the following the characteristics of the collected pottery is discussed further per pit.

More than 35 sherds were collected from Feature 19 (S19: V168 and V320, together 161 gr.). For the most part the pottery is quite brittle and appears burnt. Wall thicknesses vary between 7 and 13 millimetres. The temper consists of angular quartz chunks varying between 1 and 8 millimetres in size. The colour of the pottery is predominantly beige/light brown, while some sherds are orange-brown. The pottery originally was likely a little darker in colour, with the current colour being the result of burning. There is only one good diagnostic sherd among the pottery from S19. It is a relatively flat rim fragment decorated with fingertip (incl. nail) impressions (see Fig. 7.22c). The rim is 1 centimetre thick on top of the sherd, and 7 millimetres thick just below the rim. Fingertip impressions on rims occur both during the Middle and the Late Bronze Age (Van Beek 2005, 79). This type of decoration is also regularly found in the Iron Age. The association with the other, thick-walled pottery from S19 argues in favour of the Middle Bronze Age.

S20 yielded three fragments of Middle Bronze Age pottery (V270) and some undeterminable crumbs (V307). Together the sherds weigh 30 grams. Based on the paste it can be stated that the three small fragments originate from at least two different pots. One fragment is entirely beige/light brown in colour, tempered with coarse quartz

16 The following find numbers were not included in the description: V34, V43, V74, V160, V184, V351, V575, V669, V675, V710 and V771.



Fig. 7.22: Selection of pottery from Mound 1.

Tab. 7.5: Overview characteristics of the pottery from Mound 1. Explanation abbreviations:
 F.no. = find number;
 S = Feature number (*spoor* in Dutch);
 N = number of sherds;
 Wght. = weight in grams;
 Surf. fin. = surface finish exterior; Firing cond. = firing conditions.

Explanation other abbreviations and codes:
 Indet. = indeterminable;
 CBDF = cannot be determined further; 999 = not applicable; Ox = oxidizing;
 Red = reduction fire.

Other notes:
 1.) when a number is listed with a pot section (for example 1 Rim), this means that the other fragments with the same find number cannot be identified.
 2.) The firing circumstances are listed from the exterior surface to the interior surface: exterior – centre – interior. If only two variables are listed, the centre is included with the surfaces. If the firing conditions are listed between brackets (for example Ox (Red)) this means that the firing circumstances were primarily oxidising but that there are also reduction zones present and vice versa.

F. no.	Trench	Level	S	N	Wght.	Pot section	Temper	Surf. fin.	Thickness	Firing cond.
34	101	6	4	2	0.9	Indet.	Indet.	Indet.	Indet.	Indet.
43	101	7	999	1	0.6	Indet.	Indet.	Indet.	Indet.	Ox-Red
47	101	7	999	2	6.9	Rim	Crushed quartz	Smooth	5–8 mm	Ox-Red
71	101	8	999	1	6.3	Wall	Crushed quartz/ granite	Smooth	10 mm	Ox-Red-Ox
72	101	8	999	1	4.6	Wall	Crushed quartz	Smooth	7–8 mm	Ox-Red-Ox
74	101	8	999	1	0.4	Indet.	Indet.	Indet.	Indet.	Red
160	101	9	999	1	<0.1	Indet.	Indet.	Indet.	Indet.	Indet.
168	101	9	19	1	5.6	Rim	Crushed quartz	Smooth	7 mm	Ox-Red
168	101	9	19	4	12.2	Wall	Crushed quartz	Smooth	9 mm	Ox-Red-Ox
184	101	9	22	1	1.4	Wall	Crushed stone	Smooth	Indet.	Ox-?
228	101	9	999	1	19.1	Wall	Crushed quartz	Smooth	10 mm	Ox-Red
270	101	9	20	2	18.1	Wall	Crushed stone CBDF/grog	Smooth	12 mm	Ox-Red-Ox
270	101	9	20	1	9.8	Wall	Crushed stone CBDF	Smooth	14–15 mm	Ox
307	101	9	20	3	1.2	Indet.	Indet.	Indet.	Indet.	Indet.
311	101	9	15	1	3.7	Wall	Crushed stone CBDF	Indet.	7 mm	Ox-Red
320	101	9	19	>30	140.4	Wall	Crushed quartz	Smooth	13 mm	Ox
349	101	10	15	1	1.7	Wall	Crushed stone CBDF	Indet.	6 mm	Ox-Red
351	101	999	999	1	0.9	Indet.	Crushed quartz	Indet.	Indet.	Ox
353	101	10	15	3	1.2	Indet.	Indet.	Indet.	Indet.	Indet.
370	101	10	26	1	3.6	Wall	Crushed quartz	Smooth	9 mm	Ox-Red
381	101	10	47	1	61.7	Wall	Crushed quartz	Smooth	23 mm	Ox
391	101	10	47	1	61.7	Wall	Crushed quartz	Smooth	25 mm	Ox
399	101	10	47	2	36.1	Wall	Crushed quartz	Smooth	12 mm	Ox
400	101	93	15	7	9.6	1 Rim	Crushed stone CBDF	Smooth	>11 mm	Ox
415	101	10	47	10	23.7	1 Wall	Crushed quartz	Smooth	25–28 mm	Ox
415	101	10	47	1	63.2	Wall	Crushed quartz	Smooth	12 mm	Ox
416	101	10	47	1	37.2	Wall	Crushed quartz	Smooth	14 mm	Ox
458	101	95	54	3	11.3	Wall	Crushed quartz	Smooth–rough	9–10 mm	Ox-Red-Ox
459	101	10	26	5	15.9	Wall	Gravel/crushed quartz	Smooth	13 mm	Ox
459	101	10	26	4	31.1	Wall	Crushed quartz	Indet.	12–13 mm	Red
459	101	10	26	1	19.4	Wall	Crushed quartz	Smooth	12–13 mm	Ox
575	101	9	14	1	0.6	Indet.	Indet.	Indet.	Indet.	Indet.
625	101	11	54	1	1	Indet.	Crushed quartz	Indet.	Indet.	Ox
653	101	11	999	1	16	Wall	Crushed quartz	Smooth	13 mm	Ox
655	101	9	999	1	8.9	Base	Grog	Smooth	6–9 mm	Ox-Red
655	101	9	999	1	2.6	Wall	Grog	Smooth	Indet.	Ox-Red-Ox
666	101	999	43	1	7.2	Rim	Crushed quartz(?)	Indet.	7–9 mm	Ox-Red
667	101	999	999	>20	44.4	Indet.	Crushed quartz/ grog	Smooth	8 mm	Diverse
675	101	11	999	1	3.8	Wall	Crushed stone CBDF	Smooth	7 mm	Red (Ox)
710	101	11	999	1	2.2	Wall	Crushed stone CBDF	Indet.	7 mm	Red (Ox)
771	101	11	72	1	4.1	Wall	Crushed quartz	Indet.	>11 mm	Ox
825	101	10	54	>100	128.7	Indet.	Crushed quartz	Indet.	13–14 mm	Ox

chunks (2–7 mm) and clearly burned (shrinkage cracks on both the surfaces and the breaks). The other two fragments have a red-brown exterior surface and a grey core. The temper consists primarily of grog with sporadic coarse quartz chunks (8 mm). Exterior and interior surfaces have shrinkage cracks. The first fragment is 15 millimetres thick, the other two fragments are 12 millimetres thick. The pottery cannot be dated any more narrowly than Middle Bronze Age.

Eleven fragments of burned pottery were collected from S26 (V370 and V459). Together the sherds weigh 77 grams. Five small fragments are completely oxidized by burning. The colour is once again beige/light brown. The temper consists of coarse quartz chunks (1–7 mm) combined with fine gravel (5 mm) and the wall thickness is 13 millimetres. The next five sherds were fired in reduction and appear blackened in spots. Coarse quartz chunks were used as temper. The wall thickness could not be determined as the exterior surface of these fragments is absent. The eleventh sherd is 14 millimetres thick, light grey-brown in colour and once again tempered with fine quartz chunks (2–4 mm). The interior surface of the sherd and some of the fracture planes are blackened. Unfortunately these sherds also cannot be dated any more narrowly than Middle Bronze Age.

The sherds from S47 (V381, V391, V399, V415 and V416) together weigh 228 grams and can be traced back to at least two individual vessels. The first is entirely beige/light brown in colour and tempered with crushed quartz (1–6 mm). These sherds are 10–12 millimetres thick and have a smoothly finished interior and exterior surface. The second vessel (see Figs. 7.22d, 7.22e and 7.23) is orange-brown in colour, tempered with coarse quartz chunks and is full of shrinkage cracks resulting from burning. Some recent fracture planes still show a light grey core. The interior and exterior surfaces of this vessel were less well finished than the first one – the quartz chunks penetrate surface in some spots. One fragment is

14 millimetres thick, the other fragments are between 23 and 28 millimetres(!). Several of these thicker fragments were clearly broken on the role. Once again these sherds do not have the necessary characteristics to date them any narrower than Middle Bronze Age.

The last pit (S54) yielded a total of 145 grams of pottery (V458, V625 and V825). The pottery is in very poor condition as a result of having been burned. Both surfaces only survive on four fragments. Wall thicknesses vary between 9 and 14 millimetres. The colour once is again predominantly beige/light brown. In most cases the pottery is completely oxidized. On one fragment a light to dark grey core is still visible. All sherds are tempered with quartz. In addition to the sherds discussed here, the pit also yielded a comparable amount of burned clay and concretised sand.

Loose sherds from the levels around the old surface

In addition to the pottery from features discussed above, another 120 grams of loose sherds were collected from (under) Mound 1. Most sherds were encountered digging Levels 7 through 11. These levels roughly cover the zone around the old surface. No loose sherds were found while digging the first six levels higher up in the mound. It is therefore plausible that the loose sherds recovered are related to the old surface upon which the mound was erected. While these sherds show a wider variation in wall thicknesses, temper and surface finishing than the pottery from the features discussed above, they can generally be likewise dated to the (Middle) Bronze Age. In the following the most relevant features are briefly described.

The first two sherds are two small rim fragments (V47) found while digging Level 7. The first fragment (see Fig. 7.22f) has a flat, slightly outwardly angled rim. The wall thickness just underneath the rim is 7 millimetres. Both fine grog and finely crushed stone

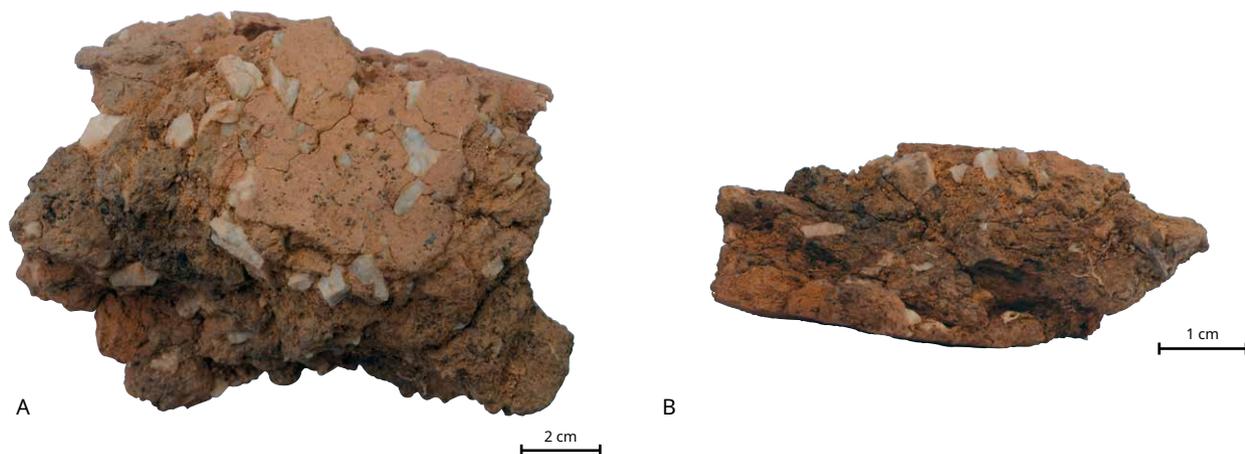


Fig. 7.23: Pottery from S47.

(1 mm) were used as temper. The interior and exterior surfaces are oxidized and beige/light brown in colour, the whole core is dark grey. One of the breaks is likewise oxidized, which indicates exposure to fire after the original pot was already broken. The second rim fragment (Fig. 7.22g) shows the same firing conditions: reduction core, oxidized surfaces. The temper consists of coarse quartz (8 mm) and other crushed stone (probably crushed granite). The rim itself is quite round and thin and is decorated with very fine nail impressions towards the interior of the rim. At the height of the rim itself the wall thickness is barely 5 millimetres, but 2 centimetres below the rim this is already 8 millimetres. It is striking that the coarse quartz temper does not penetrate through the interior and exterior surfaces while the cross-section of the temper particles are almost as big as the wall itself: it appears that the maker intentionally kept the surfaces as smooth as possible.

The next two small (wall) fragments (V71 and V72) were found while digging Level 8. One (V72) is tempered with medium coarse quartz chunks (2–4 mm) and very fine grog and has a wall thickness of 7 millimetres. The other is tempered with finely crushed stone and is 10 millimetres thick. Both fragments are smoothly finished but the temper particles can still be felt through the surface. Both surfaces of sherd V71 are oxidized, while this is only the case for the exterior surface of V72.

A very brittle and strongly fragmented sherd (V667) was found while planing away the profile baulk just outside the intermediary palisaded ditch. It is a relatively thin-walled (7–8 mm), soft paste tempered with coarse to medium coarse quartz chunks (2–6 mm) and very fine grog. The exterior surface is red-brown in colour (possibly as a result of burning), the core is grey to dark grey. The interior surface is slightly oxidized.

While digging Level 9 another three loose sherds were collected (V228 and V655). One of these sherds is a base fragment of relatively fine pottery (V655, see Fig. 7.22h). The base itself is 9 millimetres thick and transitions with a carination into the wall which is 6 millimetres thick just above the base. The paste is tempered with fine grog. Both the interior and exterior surfaces are finished smoothly. The exterior surface is light brown in colour, the interior light grey to grey. The other sherd of V655 is a fragment of the exterior surface of a paste that strongly resembles V667, except that the temper primarily consists of grog. The third fragment is smoothly finished on both the interior and the exterior surface. The sherd is tempered with coarsely crushed stone (6 mm), including quartz, and is 10 millimetres thick. The colour of the exterior surface is light/red-brown, while the interior surface is grey.

The last sherd was found while digging Level 11 and its paste strongly resembles the pottery from the series

of pits described above: completely beige/light brown in colour, 12 millimetres thick and tempered with coarse quartz with an admixture of grog. The exterior surface is smoothly finished, while the interior surface shows a lot of shrinkage cracks between the various temper particles. The resemblance to the pottery from the pits could perhaps be explained by bioturbation causing this loose sherd to move from one of the pits and eventually end up under the mound.

Conclusion on the pottery from Mound 1

In summary, most of the pottery from Mound 1 can be dated to the Middle Bronze Age; in particular the pottery from the pits under the mound which primarily consists of the well-known coarse pastes, meaning that we can be certain of a date in the Middle Bronze Age. The loose sherds from the old surface and around it can also be dated to the Middle Bronze Age without any problems. A number of these sherds appear slightly finer than the coarse pastes from the pits. It is of course possible that there is some admixture of pottery from earlier periods. The barbed wire decorations so typical of the Early Bronze Age, however, were not found, nor were any typical Late Neolithic decorations present. Moreover, finer pastes do also occur in the Middle Bronze Age alongside the predominantly coarse pottery (Hermsen/Louwen 2007). Perhaps the difference between the sherds from the pits and from outside of them may relate to a difference in function of the pottery.

7.4.2 Flint & stone

In total 64 find numbers were assigned to finds belonging to the category 'stone' done in the southwest quadrant of Mound 1. Together these find numbers account for 628 individual pieces of stone, in total 17,824 grams. As the natural sub-soil consisted of pushed-up river deposits, any stones resembling artefacts were collected during the fieldwork so that they could be examined at a later stage. Afterwards 13 find numbers were discarded.¹⁷ A number of pseudo-artefacts were also eliminated from the remaining find numbers. After this thorough examination, only 537 stones remained (52 find numbers, 16,595 gr.). With this number it should be remarked that 483 stones (90%) are broken examples from the pits described above. The remaining 10% primarily consist of flint flakes encountered at the depth of the old surface and probably significantly predate the erection of the mound. A special stone find is the arrowhead from Grave 1. In the following the various stone finds are considered per context.

¹⁷ Discarded find numbers Mound 1 in the category 'stone': V45, V105, V172, V175, V350, V351, V353, V425, V562, V563, V584, V588 and V589.



Fig. 7.24: Photograph arrowhead from S14 (photograph: Joëlla van Donkersgoed).

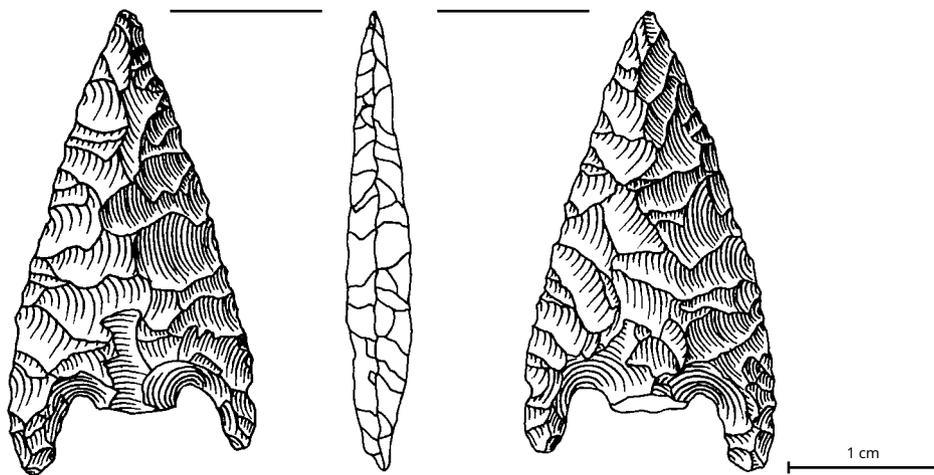


Fig. 7.25: Drawing arrowhead S14 (drawing: Raf Timmermans; scale 2:1).

Flint arrowhead

The arrowhead (V190) found while troweling Grave 1 (S14) is made of a white-grey type of flint (Fig. 7.24). The maximum length is 30 millimetres, the maximum width 15 millimetres and the maximum thickness 4 millimetres. The arrowhead has the shape of a somewhat elongated triangle and also has barbs. From the barbs the edges of the arrowhead bow slightly inwards. The arrowhead originally had a hafting stem, but this has broken off (Figs. 7.24 and 7.25; see also App. 2 by Van Gijn/Verbaas).

Single Grave arrowheads frequently have hafting stems, but not barbs. Bell Beaker culture arrowheads generally have both a hafting stem and barbs. (Middle) Bronze Age arrowheads are generally slim, with barbs but no hafting stems (Butler/Fokkens 2005, 392–3). Purely typologically, the arrowhead from Mound 1 therefore has the most affinity with the Late Neolithic Bell Beaker culture.

Burned/broken stones¹⁸

Four pits yielded a considerable amount of strongly fragmented stones (Section 7.3.3). A similar phenomenon was observed in a larger pit (Trench 24, S1), roughly 30 metres to the south of Mound 1 (Section 10.2.3). Based on pottery that was likewise found in these pits and ¹⁴C-date of charcoal from S54, these find complexes are dated to the Middle Bronze Age (Sections 7.3.3 and 7.4.1). No clear use features were encountered on the stones during an extensive scan of the material from the five pits, beyond the fact that they all have sharp fracture planes. At first glance it here also does not appear to concern used up stone tools. The stone types present include white quartz, quartzite, quartzitic sandstone, sandstone, granite, basalt and tuff. These types of stone are present in the natural

¹⁸ We are grateful to Mr. Hans van Essen for his determination of the types of stones.

sub-soil of the direct surroundings of the Wieselseweg mounds and likely were collected locally. The fact that roughly all types of stone naturally occur in the immediate surroundings of the pits forms an argument against any kind of selection based on the characteristics of the stone. Apparently such characteristics were not required for the eventual use of the stones.

This brings us to the question: what purpose did the stones in the pits serve? The sharp fracture planes present on the various stone remains striking (Fig. 7.26). This clearly sets them apart from the stones naturally occurring in the sub-soil: these only sporadically show fracture planes, primarily the results of freeze-thawing. For reconstructing the function of these stones we must therefore look to these specific fracture patterns. While freeze-thawing could be offered up as the cause of the fracture planes, this would mean that people had scoured the area for stones broken by freeze-thawing. In this kind of scenario multiple fragments of single stones would only rarely have been recovered, something which is not consistent with the stone assemblages found in the various pits. All five pits yielded multiple fragments of the same stones. Moreover, some of the breaks are so fresh that the stones in questions have not even completely fallen apart. In summary, freeze-thawing is therefore not the most plausible explanation for the fragmentary nature of the stones.

Another possibility is that the stones were smashed intentionally. However, the fracture pattern observed is not consistent with a sudden and concentrated impact. A lot of the stones show multiple small fractures that did not continue through. Such small fractures do not result from a powerful impact by which the force enters the stone and then finds its way out. The intentional smashing of the stone therefore also does not form a plausible explanation for the origin of the fragmentation.

What remains as an explanation is that the fragmentation of the stones was caused by heat or burning. The stones, however, could have come into contact with a heat source in various ways and the manner of cooling also plays an important role in whether stones fall apart. If the stones indeed broke as a result of heating, then the fracture pattern could provide insights into the actions which preceded the deposition of the stones in the pits in question. An archaeological experiment by Otis Crandell (2007) offers more insights into this matter. By heating various types of stone (quartz, quartzite, granite, sandstone and slate) in three different ways, Crandell was able to make a number of interesting observations regarding the fracture patterns of stones exposed to heat. The first method applied involved heating the stones by boiling them. The boiling process, however, proved to

generate temperature changes too gradual to generate the internal tension needed to actually break the stones. As the stones from the Wieselseweg are clearly broken, this option can be rejected.

The other two methods of heating both involved heating in a fire. A distinction was made between a fire with relatively low temperature (315 °C) and a fire with relatively high temperature (540 °C). The fire with a low temperature hardly caused any fracturing in the stone, while the hotter fire resulted in numerous small fractures. This has to do with the tensions which occur within a stone when there are internal temperature differences. The higher the temperature, the higher these internal tensions become until the stones breaks to release the accumulated force. The resulting fracture planes are crumbly and irregular, which is the case with a high number of the Wieselseweg stones. The stones remain fragile after heating in a hot fire. The latter is also evident with many of the stones from the pits under and outside of Mound 1 and the example found in Trench 24. A number of stones have so many small cracks that they can easily be broken by hand (Fig. 7.27). A final important conclusion drawn by Crandell related to the heating of stones, is that a normal campfire does not reach the high temperatures needed to break a stone (Crandell 2007, 2). The stones from the Wieselseweg were therefore clearly exposed to hotter than average temperatures.

In addition to heating, the cooling process plays an important role in the creation of fractures. While heating primarily causes small cracks and the sporadic break, most fracturing is the results of the cooling process. Here once again the fast changes in temperatures and the resulting tensions are key. The faster a stone is cooled, the higher the odds that it will fall apart. When a heated stone is cooled in water, the outside of the stone shrinks quicker than the inside as it is closer to the water, which generates so much internal tension that it breaks. Stone heated to a temperature of 540 °C was very strongly affected, while the stones heated to a temperature of 315 °C hardly fractured. Heated stones cooled gradually, so not doused in water, did not fracture as no internal tensions are generated during gradual cooling. Crandell concludes that most of the fractures in his experiment occurred with the stones that were heated to 540°C and then rapidly cooled in water. Stones heated to lower temperatures and stones that are gradually cooled generally will not fracture (Crandell 2007, 3).

In light of the experiments described we can conclude that the stones found in the pits under and outside of Mound 1 were fragmented by being heated to a relatively high temperature and then rapidly cooled with water. The function of the stones must therefore somehow be related



Fig. 7.26: All stones collected from S20 (photograph: Joëlla van Donkersgoed).



Fig. 7.27: Detail of a selection of stones from the various pits. The three stones clearly show the hairline fractures resulting from the internal tension resulting from the temperature differences within the stones (photograph: Joëlla van Donkersgoed).

to the process just described. Use of the stones as cooking stones forms a pragmatic option. Crandell writes in this paper that a stone heated to 540 °C can immediately bring ice water to a boil (Crandell 2007, 3). An argument against

such a use is the fact that such rapid cooling cause a high degree of fragmentation. It can be questioned whether this is desirable when preparing food. In particular white quartz and granite, both found in the pits, tend to break

into very small fragments and are therefore unsuitable for use as cooking stones. Moreover, temperatures of 540 °C are not easily reached in a simple open fire. By heating stones to lower temperatures the cooking process may take longer, but they do not break and can be reused.

By excluding a function as cooking stones and the absence of clear use-wear indicting an original use it remains difficult to assign a correct use to the broken stones. What we have been able to establish is that we are dealing with stones heated to high temperatures and probably rapidly cooled with water, which resulted in the fracture patterns in question. Moreover, a connection with Mound 1 or the ritual landscape in which this is located would seem apparent. It is therefore likely that the original use of the stones was related to some kind of ritual. As was already established in Section 7.3.3, the formation of steam that accompanies the cooling of the stones may have been the desired effect.

Flint and stone from S15

Three fragmented stones were collected from S15. Initially these stones (V136, V233 and V347) were taken to be ceramic objects, or possibly even a casting mould. Further analysis established that the objects are actually fragments of basalt of which the exterior surfaces have become somewhat oxidized/weathered. The fracture patterns of the stones are strongly reminiscent of the heated stones from the five pits under Mound 1 and Trench 24 (see previous section). Small narrow fragments of white quartz were also found in S15 (V174). The disintegration and crumbling could be the result of heat, which is consistent with the other heat-associated phenomena in the pit (Section 7.3.2). Finally, four small flint flakes/splinters (V137, V173, V176 and V269) were collected from S15. As was argued above, these are likely production waste that was present in and around the old surface and ended up in the pit fill by accident.

A hammer stone from S19

A sandstone ventifact (*windkanter* in Dutch; V344) was found in the fill of one of the ruddy pits in the edge zone of Mound 1 (S19). This triangular ventifact (84 × 57 × 47) has a smooth surface, though the shortest side has been completely roughened by use as a hammer/pounding stone. The point of the ventifact also shows a number of concentrated pounding traces. Microscopic analysis yielded no further information.

Flint from the mound body

In the sondage along the southern profile section (Level 6), a fragment of a quern was found (V69). It is a sandstone muller with four level sides and a rectangular cross-section (25 × 54 mm). Both short sides are missing. Three surfaces are smooth, while the fourth surface (one of the

sides) appears to have been roughened. Use-wear analysis suggests that the muller was used to grind up a mineral substance. A miniscule residue suggests that this might have been ochre, but as the natural sub-soil is also rich in iron this cannot be stated definitively.

While digging Level 7, a trapezoid-shaped flint flake was found (V46). Probably the flake came along with the dirt used to build the barrow. The flake has a maximum length of 30 millimetres and a maximum width of 17 millimetres. The flake is 4 millimetres thick by the percussion bulb. Two flake negatives can be discerned on the dorsal side, which also shows a hinge over almost the whole width. The surface has been slightly modified by post-depositional processes. The distal side (directly under the hinge) has been touched up and rounded. Microscopic analysis also established the presence of polish, which is likely the result of contact with a mineral material. In any case the flake was used in a scraping motion at a slight angle.

Flint from the old surface

At the depth of the old surface a total of ten flint flakes/chunks were collected (V62, V73, V75, V77, V79, V100, V103, V104, V138, and V667). One example (V104) has (use) retouche, while the other fragments are production waste. When the various flakes are compared, it is striking how many different types of flint are present. It is clearly flint that was locally collected from the pushed-up river deposits on the moraine. The flint assemblage is too small to make any statement regarding typical knapping techniques that could help date them. Moreover, the flint was not found in features meaning that the find material could just as well represent a palimpsest as a brief human presence. In any case, it is clear that this find material found at the depth of the old surface must predate the erection of the mound body.

Only a single flint flake was discovered higher in the mound body (V27). It is a slightly burned piece of a smooth, homogenous grey type of flint. Originally the fragment was assigned to S3, but this feature was later discarded. The flake therefore will have ended up in the mound body when it was erected and therefore likely predates the building of Mound 1.

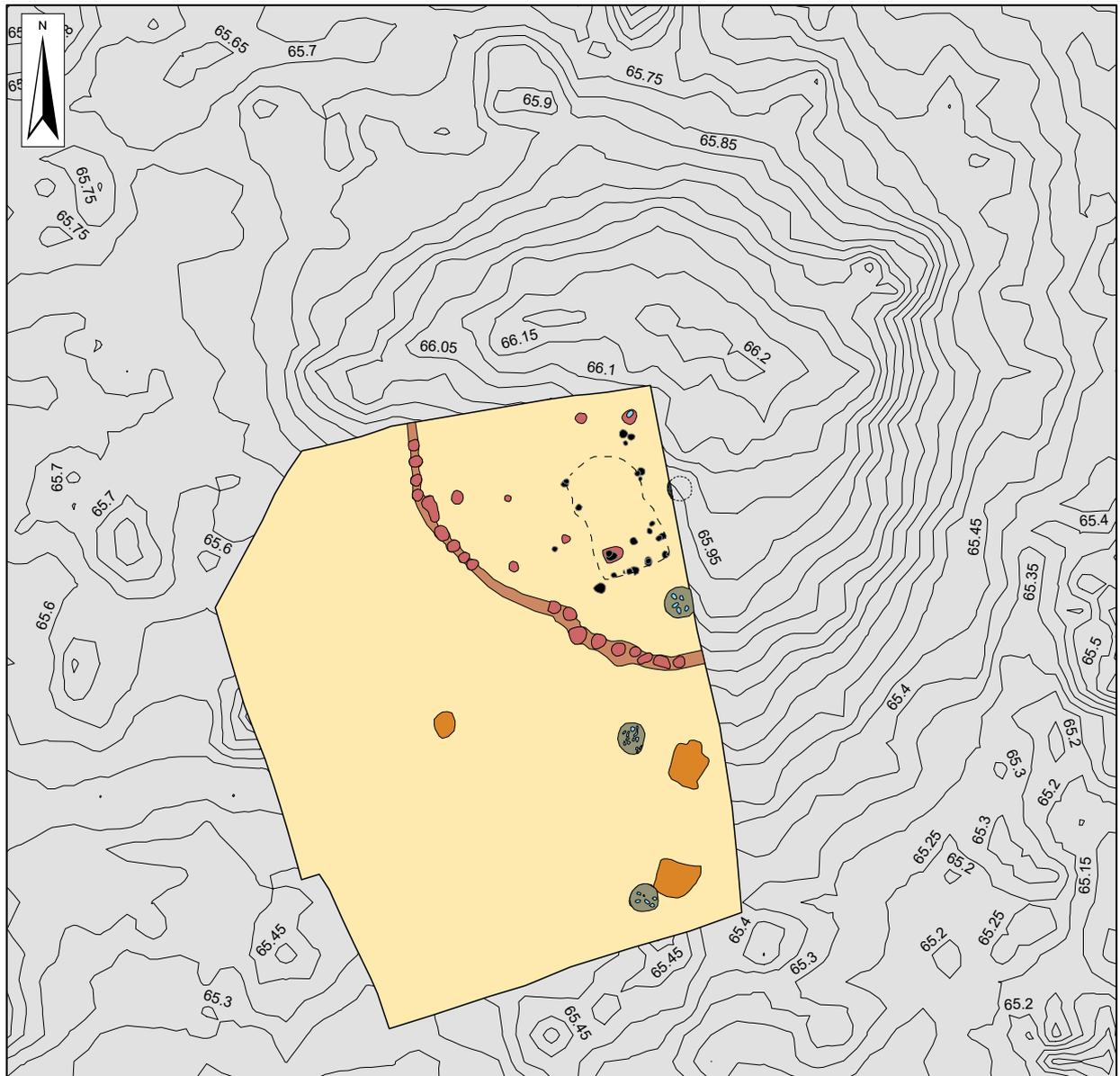
7.5 Phasing and dating

As was established above, the features and finds found in the southwest quadrant of Mound 1 and those just outside of the barrow form a complex whole (Fig. 7.28). It is clear that there are elements from multiple periods, but these are difficult to relate to each. In particular the poor 'readability' of both the mound body and the natural sub-soil complicates the interpretation of the various elements.

Summarizing, the problems revolving the interpretation of the excavation data comes down to the following. There

are three typological arguments which could indicate human activities at the location of Mound 1 during the Late Neolithic. The first is the palisaded ditch, which typologically are only known from the Late Neolithic (see

Section 7.3.4). There are also the flint arrowhead from Grave 1 (Section 7.4.2) and possibly the sherd from the palisaded ditch (Section 7.4.1) which can be linked to the Late Neolithic. In addition to these suspected Late Neolithic



Legend

- Stones
- Dark pits with broken stones
- Stakes
- (post)pits
- pits
- Palisaded ditch
- Contour S15
- Trench 101



Fig. 7.28: Compilation drawing of the features from Levels 9, 10 and 11 under Mound 1.

elements, there are also numerous ones that without a doubt can be dated to the Middle Bronze Age. There are the ¹⁴C-dates related to Grave 1 which all three place it in the Middle Bronze Age A (Section 7.3.1), the series of pits with Middle Bronze Age pottery (Sections 7.3.3 and 7.4.1) and the Bronze Age sherds from the old surface (Section 7.4.1). On their own these various elements from both the Late Neolithic and the Middle Bronze Age do not have to cause any phasing problems, except for the fact that all these different elements appear to manifest at the same depth. This brings us to the heart of the problem: *the homogenized mound body and the soil under Mound 1 simply do not allow one to differentiate between the features from the different periods.* Neither profile sections shows any signs of a later raising of the mound body which could separate the Late Neolithic features from the Middle Bronze Age ones. The only clue for the possible presence of a low mound body is the slightly higher position of S56 in relation to S54 (Fig. 7.16). There are also no pit cuts visible in the mound body which could explain how the Middle Bronze Age features could manifest at the same level as the Late Neolithic ones. In short, the current dataset does not allow for the reconstruction of a definitive narrative for Mound 1.

Even after many extensive discussions among the excavators during the fieldwork and the post-excavation analysis of these issues, we have yet to reach a consensus. In the following we therefore present three possible scenarios, including the arguments in favour and against each.

7.5.1 Scenario I: a low Late Neolithic barrow with a second use and mound phase in the Middle Bronze Age

In the first scenario Mound 1 starts as a low Late Neolithic barrow with a palisaded ditch. A first use as a barrow in the Late Neolithic would explain all three Late Neolithic elements uncovered during the excavation of the southwest quadrant. Moreover, it is known from elsewhere on the Veluwe that Late Neolithic burial mounds can be only a few decimetres high (Modderman 1954, pl. XXXIII). This barrow marked the beginning of the Wieselseweg as a funerary location and place of other (spi-)ritual meaning and was therefore maintained as such. During the Middle Bronze Age several elements were added to this low barrow. Firstly there are the pits filled with heated and broken stones which may fulfilled a ritual purpose with Mound 1 as an important focus. These pits were dug straight through the low Late Neolithic mound body. After some time, or possibly at the same time, a secondary burial was dug into the mound (Grave 1), which was raised to its current proportions. As a result of the homogenisation which later occurs, both mound phases and the soil under the old surface bleach out, making it impossible to differentiate between multiple mound phases. A Middle Bronze Age mound body also explains

why the various Middle Bronze Age elements were all only found at a low depth (Levels 9–11).

An important argument in favour of this scenario are the two pits filled with broken stones: S56 and S54. Both pits were encountered in the profile section, but neither pit had a visible pit cut above the level of the stones. What was well visible (see Fig. 7.16), was the more centrally located pit (S56) higher up in the profile and the pit (S54) located more towards the edge of the mound. This small difference in height could be explained by the presence of an originally low mound body whereby the more centrally located pit must naturally have been dug in at a higher level than the more peripherally located pit.

7.5.2 Scenario II: a Late Neolithic monument as focus for ritual activities and the erection of a barrow during the Middle Bronze Age

The second scenario also assumes that the location of Mound 1 was already a place of greater importance during the Late Neolithic, only this time without a mound body. Even though different Late Neolithic elements are present at the Mound 1 location, no grave has been found to confirm its use as burial location in the Late Neolithic. It possible that the intermediary palisaded ditch did not mark a grave but rather a place of a different ritual meaning. This place must then have been maintained until the Middle Bronze Age without the marker of an earthen mound body. One could think of the wooden posts in the palisaded ditch, which were replaced from time to time, or a different kind of marker that did not stand the test of time. During the Middle Bronze Age new ritual elements were added to the place in question in the shape of the pits filled with heated and broken stones pits (just like in scenario I) to finally give new meaning to this place by constructing a barrow.

Just like the first scenario, this second one accounts for how the various elements from the different periods could manifest at the same level. An important element worth noting with this scenario is that the location of Mound 1 would have had to been recognizable from the Late Neolithic until the Middle Bronze Age without presence of an earthen mound body to mark the location. This is a period of at least 300 years during which people in some manner kept the (future) Mound 1 location visible in some manner.

7.5.3 Scenario III: a Middle Bronze Age barrow with accidental Late Neolithic intrusion

The third scenario assumes that the Mound 1 location was first used during the Middle Bronze Age. In this scenario the palisaded ditch, where in the case of the Mound 1 no absolute dates are available, is considered part of the Middle Bronze Age mound. The flint arrowhead and the possible Late Neolithic pottery

sherd are considered accidental intrusions from earlier human activities at this specific place.

In this last scenario a simple explanation is offered to explain the presence of Middle Bronze Age elements at the depth of the old surface. The largest objection to this option, however, is that the palisaded ditch in this scenario would be the first Middle Bronze Age example ever found in the Netherlands.

7.6 Conclusion

Based on the data available, none of the three scenarios can be entirely excluded. The first one (Late Neolithic barrow with second phase in the Middle Bronze Age) best fits both the available data and general insights on barrow characteristics from both the Late Neolithic and Middle Bronze Age. We therefore see this as the most plausible hypothesis, which could be further tested in the future if information from the other quadrants becomes available. Even so, the excavation of the southwest quadrant and the direct surroundings of Mound 1 generated a lot of new insights into the developments of the Wieselseweg barrow landscape (see also Chapter 10). Not only does Mound 1 appear to have been used as a funerary location for a long period of time, possibly extending as far back as the Late Neolithic, it also appears to be part of a wider Middle

Bronze Age ritual landscape. Future analysis may reveal how the various Late Neolithic elements exactly relate to the Middle Bronze Age features.

This brings us to an important methodological conclusion. The excavation of a single quadrant can yield a lot of new and useful information regarding the condition, structure and history of a barrow. However, when a primary central burial is not uncovered, as was the case with Mound 1, it is impossible to definitively state the age of the barrow in question. As such multiple scenarios remain possible for the internal relationships of the features. The excavation, or at least partial uncovering of a primary central burial is of crucial importance to truly understand a barrow. This is actually also true for any other elements present in a barrow. In this manner it cannot be stated for Mound 1 whether the large pit with a rectangular stake-/post configuration (S15) is an independent phenomenon or is part of a larger complex that in part still lies hidden in the southeast quadrant. The same is true for the charcoal concentration in the west profile section.

From the above we can conclude that the excavation of a single quadrant suffices to evaluate the condition of a barrow and the elements present within it. To achieve a conclusive and complete narrative of a barrow, then it must of necessity be completely excavated.

Chapter 8

Mound 2

Arjan Louwen, David Fontijn,
Cristian van der Linde, Maurits Pruijsen,
Liesbeth Smits & Erica van Hees

8.1 Introduction

Mound 2 is located some 90 metres to the north of Mound 1 and is positioned against the edge of a densely wooded plot with young pine trees (Fig. 8.1). Older deciduous trees grow around the barrow itself with significantly larger spacing between them. Multiple trees also grew on the mound body itself. The terrain has a slight incline to the south of the wood path, and Mound 2 as such is just visible between the trees from this path. The present-day southwest flank of the mound gradually transitions into this slight slope, while the eastern flank is still relatively round and steep. The mound body is still some 50 to 60 centimetres high. Due to the slope of the terrain it is difficult to ascertain where the natural relief transitions into the barrow itself. The current diameter is at least 8 metres.



Fig. 8.1: Mound 2 prior to excavation. Photograph taken facing north.

At Mound 2 the eight weeks of fieldwork also proved very much necessary in order to properly excavate and document even only the southwest quadrant (Trench 201). In total seven excavation levels were dug and seven Middle Bronze Age A cremation burials exposed. The internal connections and correlation of the various graves and how they related to the mound body are discussed in this chapter. As was also the case at Mound 1, both the natural subsoil and the mound body appear to have become completely homogenized, which made interpreting the various features relatively challenging.

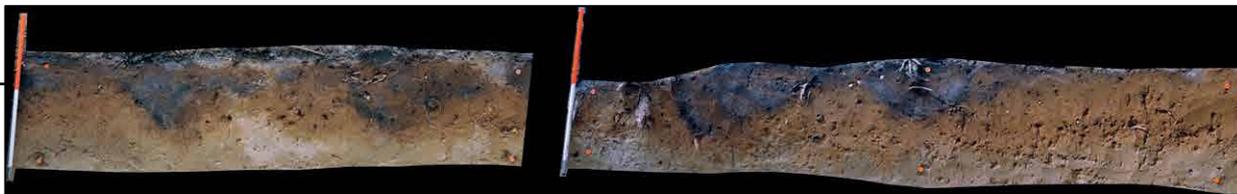
8.2 Structure Mound 2

Prior to the start of the fieldwork, the entire southwest quadrant of Mound 2 was cleared of leaves, wood and loose debris. The resulting level (1) followed the contour of the mound and as such is the only non-horizontal level. A young soil had formed in the uppermost regions of the subsoil over the entire mound body (Fig. 8.3). This

young soil, consisting of a dark grey-black, humus-rich top layer (A0-horizon) with underneath it a homogenous brown illuvial layer (B-horizon), forms the uppermost 15–20 centimetres of the barrow. The presence of a number of plough marks that date to the 20th century underneath this soil show it to be a young one.

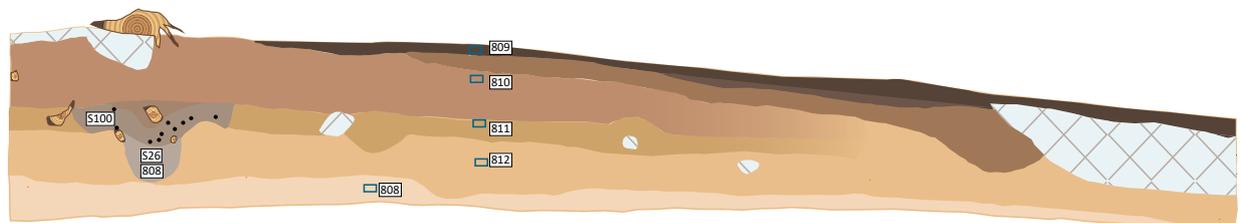
The remnants of an older Moder Podzol are extremely vaguely visible underneath the young soil. This old Moder remnant shows up as a vague light brown/beige horizon at least 15 centimetres thick. The bottom of the old Moder Podzol gradually fades into the homogenous ruddy, light brown yellow mound body. Level 2 (Fig. 8.4) was dug just underneath the young soil in the top of the barrow and was partially located in the old Moder remnant. The just mentioned homogenous ruddy, light brown yellow complex extends some 60–70 centimetres under the top of the barrow and together with the already mentioned layers forms the original mound body. The texture of the mound body can best be described as slightly loamy sand with fine gravel. Pebbles are sporadically present

W



N

S



throughout the entire barrow. Level 3 was dug halfway through the original mound body.

Some 60 to 70 centimetres under the top of the mound there is a greyish haze to the ruddy, light brown yellow colour of the mound body (see Figs. 8.2 and 8.3). It is also from this level onwards that multiple features became visible, including a concentration of flint (see Section 8.3.2). The number of surface finds while digging excavation Levels 4 and 5 also markedly increased. These observations indicate that the old surface must have been located at roughly this level. In the profile section this zone was between 10 and 20 centimetres thick (Figs. 8.2 and 8.3). Level 4 (Fig. 8.5) was dug in the top of this complex, with Level 5 dug some 10 centimetres lower. The texture of the zone around the old surface is consistent with that of the mound body. As can be seen in Figure 8.6, the various plough marks have penetrated through the mound to the depth of Level 5. A number of root systems also left their marks to a depth of the old surface underneath the barrow.

Underneath the old surface the subsoil has the same ruddy, light brown-yellowish colour as the mound body,

only with a more gravelly texture. Level 6 was dug at this depth. Roughly 1 metre underneath the present-day barrow top the subsoil finally changes to a pale, light grey coarse sandy complex with gravel and pebbles. Level 7 was dug as a final control level underneath this complex (Fig. 8.7).

8.3 Features and structures

In total 27 feature numbers were assigned for Mound 2 (Trench 201) (see Tab. 8.1). Seven of these features are cremation burials and another eleven features belong to Grave 8. Two features were eventually discarded, two belonged to forestry activities and four features are likely natural in origin. The last feature concerns a concentration of flint on the old surface. The various features are discussed per context in the following.

8.3.1 Graves

In total seven cremation graves were found in the southwest quadrant of Mound 2. The various burials were located both in and under the barrow, but all seven date to the Middle Bronze Age A (see Tab. 8.3). In

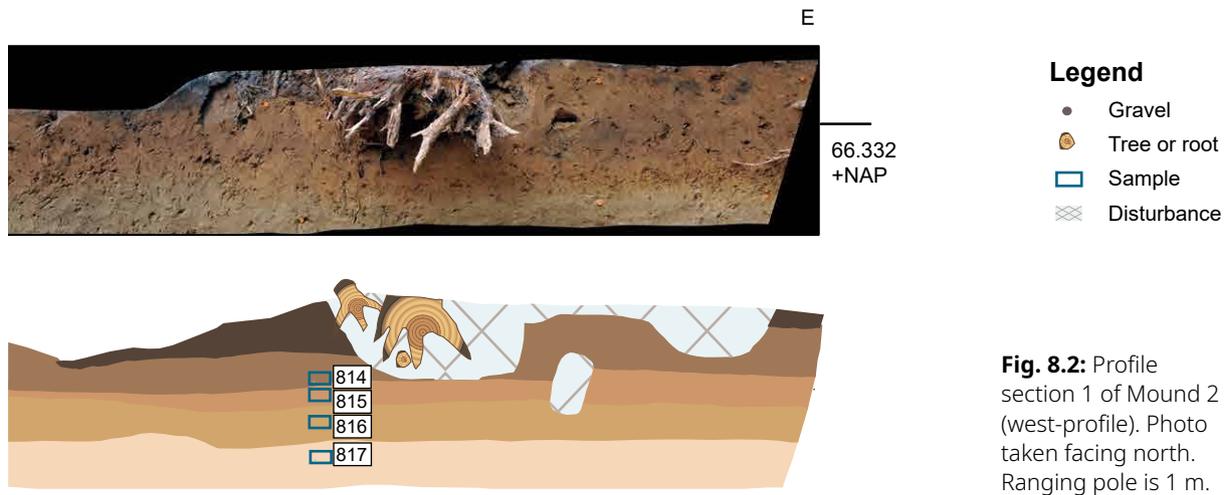


Fig. 8.2: Profile section 1 of Mound 2 (west-profile). Photo taken facing north. Ranging pole is 1 m.

- Legend
- Charcoal
 - Sample
 - Tree or root
 - ▨ Disturbance

Fig. 8.3: Profile section 2 of Mound 2 (south-profile). Photo taken facing east. Ranging pole is 1 m.



Fig. 8.4: Level 2.



Fig. 8.5: Level 4.



Fig. 8.6: Level 5.



Fig. 8.7: Level 7.

addition several features without cremations remains are linked with the various graves (Tab. 8.1). These will be discussed in the following alongside the burials to which they relate. As was already noted, it was decided to number burials sequentially throughout the three barrows, which is why the numbering for Mound 2 does not start with Grave 1. The physical anthropological analyses were conducted by dr. L. Smits (University of Amsterdam), and the reader is referred to App. 1 for more information.

Grave 2

Grave 2 was encountered quite high in the mound body. There was a square feature located centrally in the top of the barrow (S2, Fig. 8.8), which was excavated in four equal segments. Initially this was thought to maybe be a burial pit, but later it was established to be a series of

plough furrows. In the feature the reversed topsoil was clearly visible. A very small amount of cremation remains were collected from this ploughed out area (20 gr.). These were found both in the ploughed topsoil, as in the ploughed mound body. At Level 2 the plough furrows extended some 20 centimetres deep. This must therefore be the remains of a disturbed cremation grave. Grave 2 should therefore not be considered a closed context, but rather a collection of loose cremation remains displaced from elsewhere.

Graves 4 and 8 were located in the direct vicinity of Grave 2. Both burials, however, were located at a lower depth in or under the barrow. The bone remains from Grave 4, however, have a characteristic ruddy colour that the bones from Grave 2 do not. Moreover, Grave 8 was covered by a number of charred beams and located too deeply to have been disturbed by ploughing. It is therefore impossible that the bone remains from Grave 2 originate

Trench	Feature	Level	Interpretation in the field	Interpretation definitive	Depth (cm)	Complex
201	1	2	Plough mark	Reclamation/plough mark	n.a.	Forestry
201	2	2	Cremation	Cremation	19	Grave 2
201	3	4	Cremation	Cremation		Grave 3
201	4	4	Cremation	Cremation	30	Grave 4
201	5	4	Recent	Reclamation/plough mark	9	Forestry
201	6	4	XXX	XXX		Discarded
201	7	4	Flint concentration	Flint concentration		Flint concentration
201	8	5	Cremation	Cremation		Grave 5
201	9	5	Natural disturbance	Natural disturbance	n.a.	Discarded
201	10	5	XXX	Top charred beam		Grave 8
201	11	5	XXX	Top charred beam		Grave 8
201	12	5	XXX	Top charred beam		Grave 8
201	13	6	Cremation	Cremation	10	Grave 6
201	14	5	Posthole	Top charred beam		Grave 8
201	15	4	Cremation	Cremation	40	Grave 7
201	16	5	XXX	Top charred beam	22	Grave 8
201	17	7	Pit	Pit??	16	Probably natural
201	18	7	Pit	Pit??	18	Probably natural
201	19	7	Posthole	Pit??	14	Probably natural
201	20	7	Pit	Pit??	26	Probably natural
201	21	51	Charcoal concentration	Charred beam	n.a.	Grave 8
201	22	51	Charcoal concentration	Charred beam	n.a.	Grave 8
201	23	51	Charcoal concentration	Charred beam	n.a.	Grave 8
201	24	51	Charcoal concentration	Charred beam	n.a.	Grave 8
201	25	51	Charcoal concentration	Charred beam	n.a.	Grave 8
201	26	52	Cremation	Cremation	>30	Grave 8
201	100	5	Charcoal concentration	Charred beam	n.a.	Grave 8

Tab. 8.1: Overview features Mound 2.

Fig. 8.8: 'Grave' 2.
The more or less square feature on this photograph is made up of three parallel plough furrows. The cremation remains designated Grave 2 were found in these furrows. Photograph taken facing west.



from either of these graves. Grave 2 therefore must be the disturbed and moved bone remains of an unknown grave. In any case, the high position of the cremation remains from Grave 2 suggest that this is not a primary grave, but rather a secondary burial dug into the mound body. While physical anthropological analysis of such a small amount of bone remains could yield only limited results, the robusticity of the bones suggest an adult individual (see also App. 1).

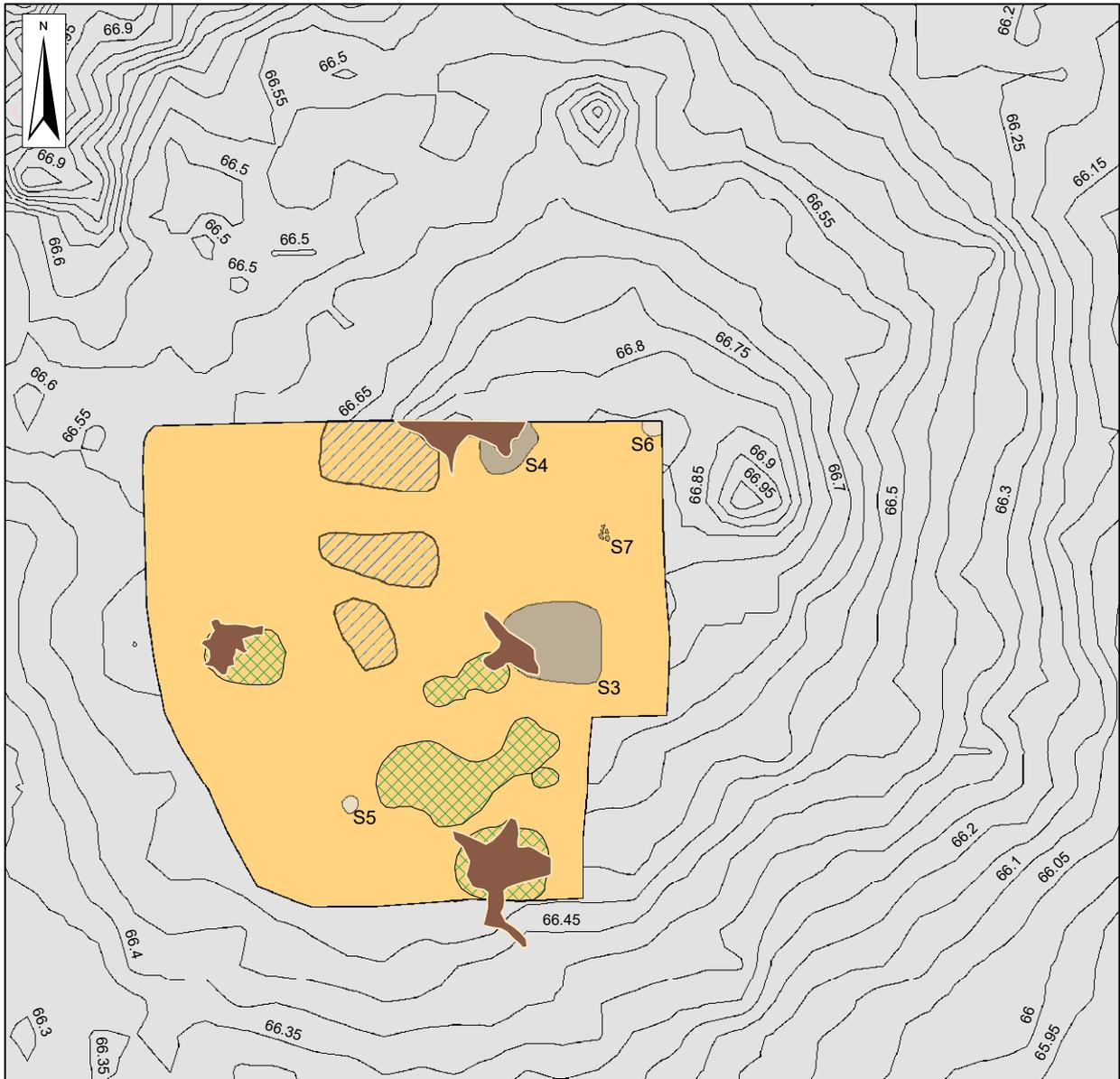
Grave 3

Several graves started to show in the excavation level at the depth of Level 4 (Fig. 8.9). One of these was Grave 3 (S3), which was located some 3.5 metres from the centre of the mound. The grave, likely that of a female some 20–30 years old at the time of her death (see App. 1), initially took the shape of a zone with cremation remains which were excavated in four equal segments. From Level 5 and the sub-levels 51 through 53, clear concentrations of bones also became visible (Fig. 8.10). Both in the various excavation levels as in the sections, however, no pit could be observed. Yet still the various compact concentrations of sometimes some 10 centimetres thick indicate that the bone remains really were located in a pit. A scatter on the old surface would have resulted in a more diffuse distribution of the bone material. It is also possible that the cremation remains were originally deposited in an organic

container, which later fell apart. The fact that the bone concentrations were found between Level 4 and 5 (the old surface zone), however, suggests that any such container originally would have been partially buried.

To summarize, there is only indirect evidence of a burial pit. The distribution of the bone material, however, does argue against the idea of a bone scatter on the old surface. We are in the dark with regards to the shape and dimensions of the pit. In any case the outer limits of the zone containing the cremation remains were some 95 by 65 centimetres. In addition, the cremation remains were found at a depth of 30 centimetres underneath Level 4. The largest concentrations were found some 10 to 20 centimetres underneath that excavation level. The original dimensions of the burial pit with regards to Level 4 will have had the maximum dimensions noted above as (some) bone remains are always moved from their original context through taphonomic processes.

With regards to the mound body, there are also some difficulties. It is clear that the grave was not centrally located underneath the barrow, but more towards the foot of the mound. The question remains whether the foot of the barrow is located over the grave, or whether the grave was dug in through the barrow foot. It is striking in this regard that the grave only became visible at the depth of the old surface. A counterargument is the fact that the mound body at the location of the grave would



Legend

- Features Level 4
- Discarded features Level 4
- Plough marks level 4
- Disturbances Level 4
- Tree trunks
- Level 4

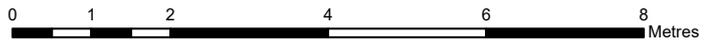


Fig. 8.9: Field drawing Level 4.

have been several decimetres thick at the most. It is important to note that both options are equally possible.

Grave 4

Underneath the tree trunk located some 2 metres from the centre of the mound in the western profile, a vaguely

delineated pit became visible at the depth of Level 4 (S4). The pit was only distinguishable from the surrounding matrix as the fill was a slightly more ruddy colour. In this pit a significant amount of cremation remains from a 20–30 year old female were found, in addition to pottery fragments (Figs. 8.11 and 8.22). An object was



Fig. 8.10: The concentration of cremation remains in Grave 3. Photograph taken facing northwest.

also found among the cremation remains (Figs. 8.24 and 8.25), which could perhaps be a (cloak) pin/buckle or an awl (Section 8.4.3).

A slightly oval zone some 50 by 70 centimetres with a ruddy colour vaguely showed on the excavation level. Within it, there was a clear concentration of cremation remains with both a horizontal and a vertical distribution of some 20 centimetres (Fig. 8.12). Fragments of burnt bones were also found outside of this concentration in a number of spots. Even the cremation remains had a ruddy colour. The original cut of the pit was disturbed by tree roots and as result could not be recorded with any accuracy. Still, the ruddy coloured fill made it possible to establish that this grave was dug through the mound body and as such concerns a secondary burial. The cut was visible some 5 centimetres under the depth of excavation Level 5. It is unclear what caused the ruddy colour of the fill. A possible explanation is that the pottery from Grave 4, which has the same ruddy colour, was largely disintegrated through taphonomic process and became distributed through the surrounding soil. Texture analysis of the Wieselseweg soils confirms the extreme processing by animals (see Section 5.4). Almost 4 grams of loose crushed quartz was collected from the pit fill, also suggesting a certain disintegration of the original pot.

It, of course, remains the question whether the pottery present was part of an urn or a grave gift. The largest surviving fragment was found with the outside facing

down, directly under and slightly to the northeast of the concentration of cremation remains. The lack of both a pot base underneath the concentration cremation remains and a significant portion of the vessel wall around the cremation remains seems to argue against a function as urn. In light of the theory offered above regarding the disintegration of the pot, this statement does not appear to hold up. It is still worth noting that the surviving pot segment was found lying flat, with the outer side down, outside the cremation remains. Use of the pot as urn would only have been possible if there was open space around the urn for a longer period of time, allowing it to slowly fall apart, after which all other parts gradually disappeared, leaving only this part of the pot. Such a series of events, however, is highly unlikely.

A far more plausible explanation would be that the sherds were originally not part of an urn, but rather a grave good which had been fragmented prior to being deposited in the grave. Parts of this grave gift then gradually disintegrated while part survived. Moreover, the surfaces of the old breaks on the pottery are completely oxidized while the core of the sherds was fired in reduction. This observation indicates exposure to fire after fragmentation. It therefore is quite possible that the pottery accompanied the deceased on the pyre and was later collected and mixed with the cremation remains. This observation also argues against a use as urn. It is more likely that this concerns a grave good that was burned on the pyre.



Fig. 8.11: Grave 4. Unfortunately the photograph does not properly show the ruddy colour of the pit. What is clearly visible is how a large sherd is located right next to and underneath the cremation remains. Photograph taken facing west.

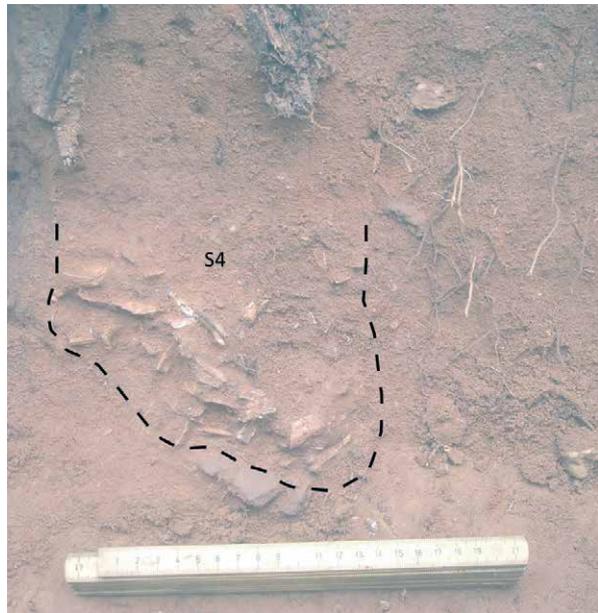
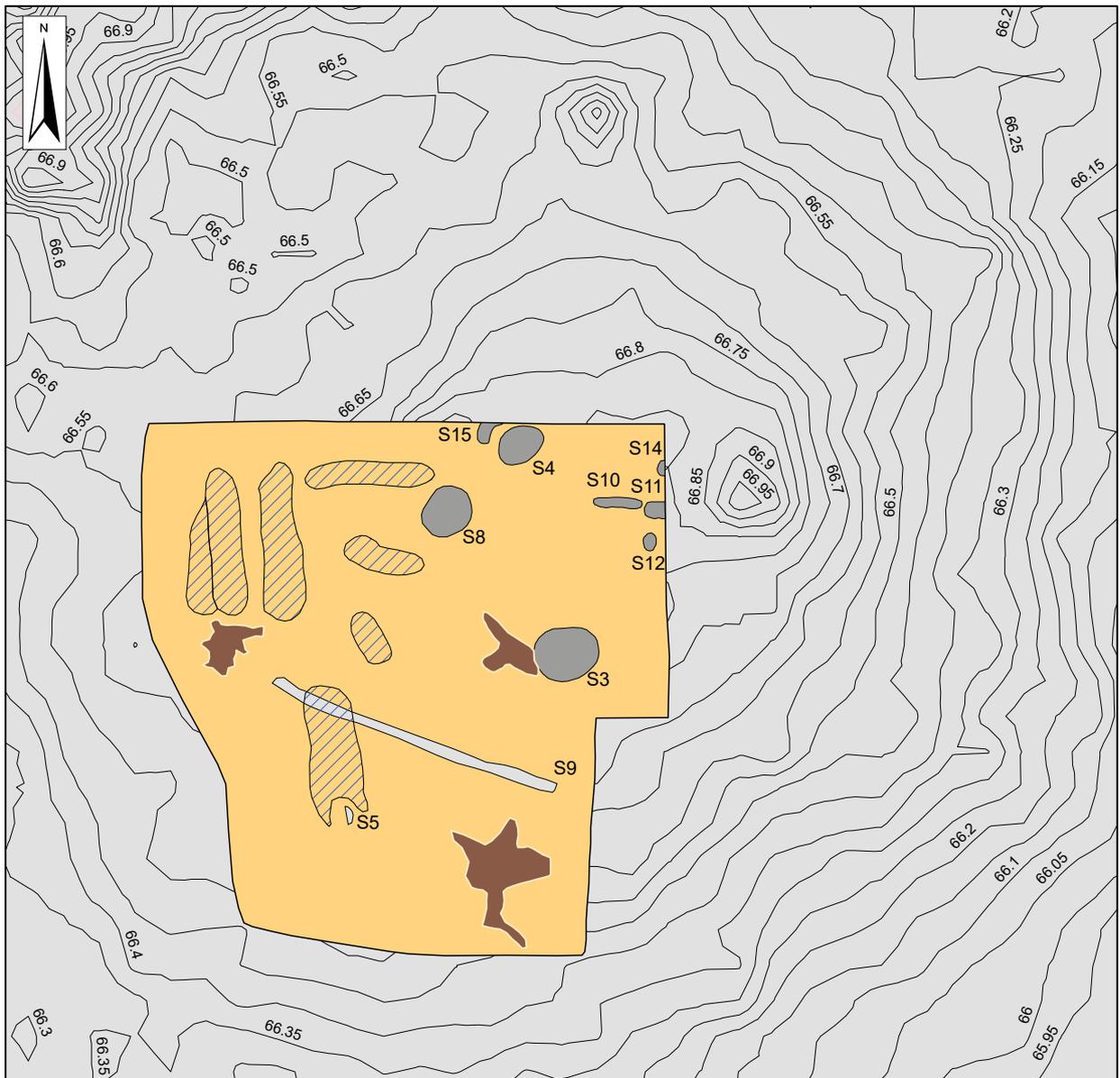


Fig. 8.12: Detail of the distribution of the concentration of cremation remains in Grave 4. Photograph taken facing west.

Grave 5

Some 50–75 cm southwest of Grave 4, roughly 3 metres from the centre of the mound, at the depth of Level 5 (Fig. 8.13), a new concentration of cremation remains was encountered (S8, Fig. 8.14). As was also the case with Grave 3, the edges of the feature were not easily distinguishable in the excavation level or in the section.

Most of the cremation remains (978 gr. in total), originating from an adult individual who was between 20–40 years old at the time of death (see App. 1), were found in a zone of 55 × 35 centimetres (Fill 1). It is likely that the roots resulted in a wider distribution of the bone remains outside of the original grave. Within this zone (Fill 1), two compact concentrations of clearly larger bone fragments could be



Legend

- Features Level 5
- Discarded features Level 5
- Plough marks Level 5
- Tree trunks
- Level 5

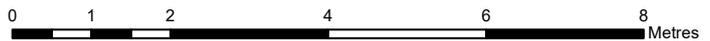


Fig. 8.13: Field drawing Level 5.

distinguished. Both concentrations (segments 2 and 4) were excavated in 5 × 5 centimetres squares. Unfortunately it could not be determined whether the cremation remains were scattered or originally deposited in an organic container. While once again no direct physical evidence for the presence of a grave pit could be recorded, the two concentrations of cremation remains some 5 centimetres

thick at a depth of 5–10 centimetres below Level 5 does suggest that the cremation remains were buried. Here it also remains the question whether this complex was dug into the ground from the old surface underneath the barrow, or at later stage from a higher level. It is striking that, as was the case with Grave 3, it appears to have been dug deeper than the old surface underneath the mound.

Grave 6

The excavators were astounded to find a fifth grave (Grave 6, S13, Fig.8.15) while digging a control level (Level 6) far beneath the old surface underneath the mound. The extremely vaguely defined pit (75 × 85 cm) must have been located some 5 metres from the centre of the mound and had not been visible at all at a higher

level. The considerable amount of cremation remains (1582 gr.) was spread throughout the entire pit and formed a slight concentration in the northern half. Amongst the cremation remains a burnt bone needle was found (Figs. 8.26 and 8.27) as well as another worked piece of animal bone of which the original function remains unclear (Fig. 8.28). Also in section the pit proved to be



Fig. 8.14: The largest concentration of cremation remains in Grave 5 (segment 2). Photograph taken facing west.



Fig. 8.15: Grave 6 directly after digging the excavation level, showing once again no clear burial. Photograph taken facing south.

very vaguely defined. In any case, the cremation remains were found up to 10 centimetres below Level 6. The bone remains were collected in squares of 15 × 15 centimetres. The distribution of the cremation remains recorded here indicates a bone scatter in a pit. Analysis of the cremation remains later revealed that two individuals had been interred in the grave: A young woman 17–24 years old at the time of her death, and a second woman who could not have been more than 40 years old at the time of death (see also App. 1). Grave 6 thus far remains the only grave of the Wieselseweg in which the remains of multiple individuals were found.

In appearance Grave 6 is comparable with Graves 3 and 5. Once again it concerns a poorly to not visible pit in which the cremation remains were left. Different from Graves 3 and 5 is that the cremation remains appear to

be more equally distributed over the pit. It is striking that all three graves only became visible when the first cremation remains were uncovered.

Grave 7

Grave 7 (S15) is a concentration of cremation remains (568 gr.) without clear borders, which was partially exposed in the western profile section (Fig. 8.16). The grave was located underneath the same tree trunk as Grave 4 and as a result suffered damage from the same root systems (Fig. 8.17). Initially it was thought that this burial related to Grave 4. While Grave 7 also contains the remains of a 20–30/40 year old female, the physical anthropological analysis established that Grave 4 and 7 contain the remains of different individuals (see App. 1). The characteristic ruddy colour of both the pit fill and the

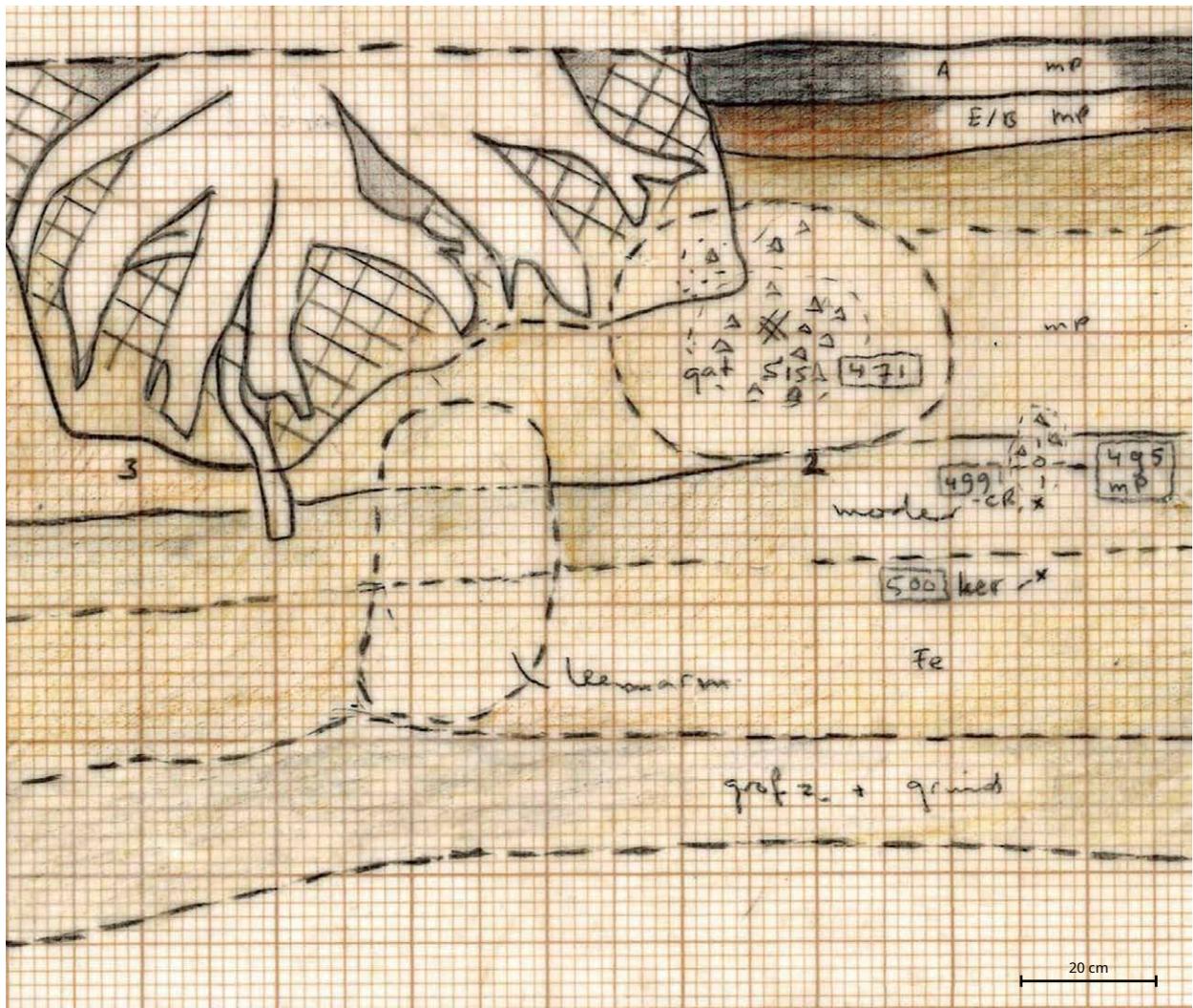


Fig. 8.16: Field drawing profile section 1 (west-profile) of Mound 2. The speckled zone 'S15' marks the location of Grave 7. The horizontal bands below with the word 'moder' mark the zone of the old surface under Mound 2 (drawing: Cristian van der Linde and Fleur Jacques).

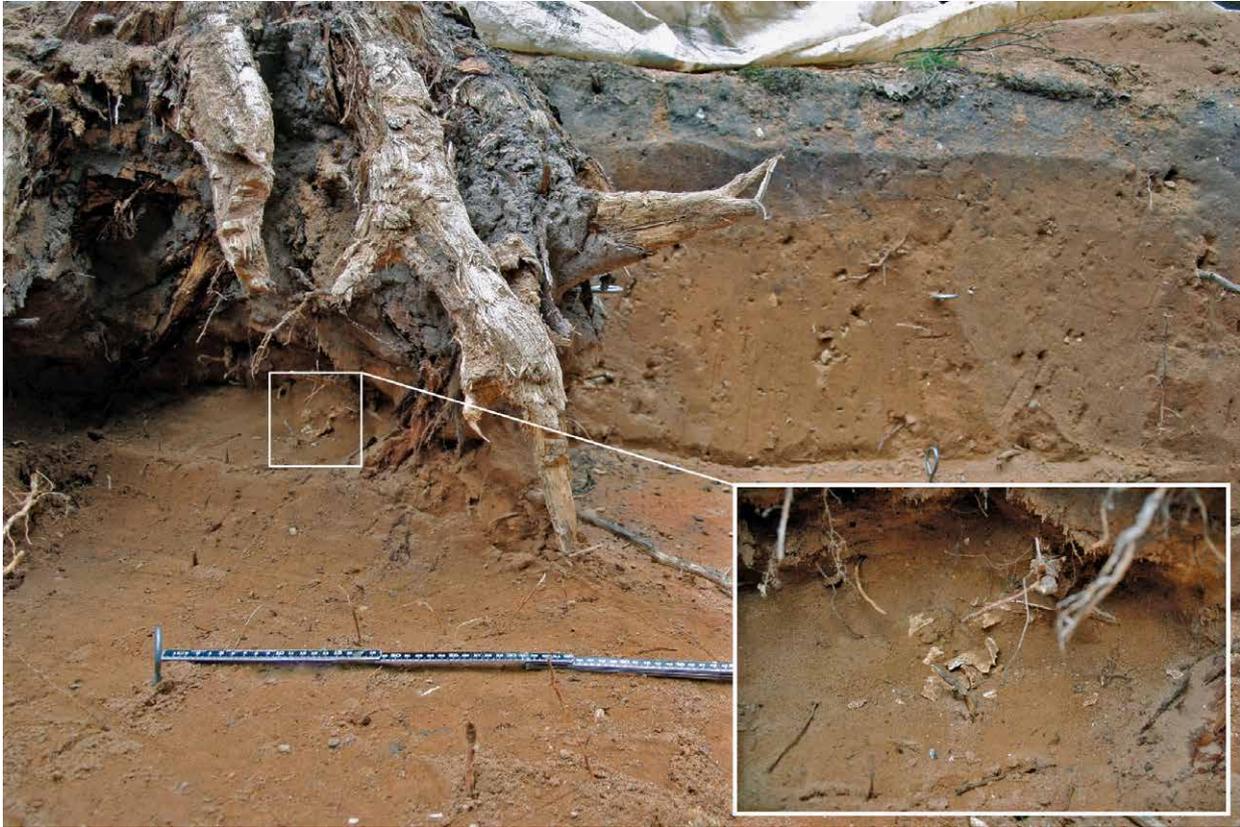


Fig. 8.17: Grave 7 is just visible underneath the tree trunk. Photograph taken facing north (edited by Joëlla van Donkersgoed).

bone remains of Grave 4 are also not present in Grave 7. A 5 centimetres wide band of charcoal specks, however, was observed directly to the west of the cremation remains at Level 5. While Grave 7 was only partially exposed as part of it is located in the unexcavated northwest quadrant, it could be established that it is a secondary burial dug into the mound body, as the cremation remains were observed more than 30 centimetres above the probable old surface (Fig. 8.16).

Grave 8

Multiple dark grey spots started to show on Level 5 in the corner of the southwest quadrant, at the centre of the mound (S10, S11, S12, S14 and S16). The grey colour of these was the result of charcoal specks in the features. Surrounding these features was a zone, with a radius of 2 to 2.5 metres from the corner of the quadrant, that was slightly darker than the ruddy subsoil present at the foot of the mound (see Figs. 8.3 and 8.13). This dark zone and accompanying features were clearly covered by the mound body. As the features, furthermore, were located in the centre of the mound, care was taken that this could be a central burial. As these features were uncovered late

in the 2008 field campaign, it was decided to wait and further excavate them in 2009.

This proved to be a wise decision when we returned to the field in June 2009. The careful excavation of this zone revealed that the charcoal rich features were horizontally positioned charred beams. The complex was oriented east-west and continued into the unexcavated southeast quadrant (Fig. 8.18). The various pieces of wood were given their own new feature numbers in 2009 (S21–S25), and the whole complex of charred beams additionally was labelled ‘S100’. The maximum length of this complex (from the most westerly edge to the southern profile section) measured 105 centimetres. While initially five separate pieces of wood could be distinguished, it originally likely were two larger beams, of which the northern example fell apart into several pieces (S21, S23, S24 and S25). The southern beam (S22) was clearly distinct from the rest and runs into the southern profile section in parallel to the northern beam. Analysis showed them to be oak (*Quercus*).¹⁹ The fact that multiple beams

¹⁹ Analysis of wood fragments conducted by Erica van Hees BA (Leiden University).



Fig. 8.18: Photo series charred beams in Grave 8.

run horizontal and in parallel, make it likely that they were positioned with care.

At a deeper level (Level 51) several fragments of cremation remains were observed between the beams (Fig. 8.19). Upon removal of the charred beams, the edge of a cremation pit showed underneath the level of the wood (S26). This was only partially present in the southwest quadrant, and as such it cannot be stated with

any certainty whether it was a round or elongated pit. By the southern profile section the pit was 34 centimetres wide and 22 centimetres deep (see Fig. 8.20). In total 'only' 372 grams of cremation remains were collected from S26. It is likely that a considerable portion of the cremation remains is still present in the unexcavated southeast quadrant. The relatively small amount of bone remains allows only very cautious statements regarding sex and



Fig. 8.19: Detail Grave 8. Sketch with the charred beams covering a pit cremation remains.

age. It is possible that these are from a man who was older than 20 years at the time of his death (see App. 1).

While Grave 8 was not completely excavated, the data collected thus far enable us to make a few statements regarding the funerary ritual. For example, we are certain that the burned beams do not indicate the presence of a funeral pyre at this location. The cremation remains are not located amongst the wood remains, but were clearly carefully sorted before being buried in a small pit. Following this, the burned beams were carefully placed over the grave. These must have been partially dug in, as they were found below the level of the ancient surface (see Figs. 8.3 and 8.20). The mound body is clearly located over Grave 8. It is not unlikely that these beams originate from the pyre as this is a cremation grave. Yet still it is striking that the beams were carefully positioned in/over the grave. It even appears that they were an important part of the grave inventory. As will also be shown in Chapter 9 on Mound 3, the placing of (probable) pyre remains in cremation graves is not exceptional for the barrows of the Wieselseweg. A final important conclusion regarding Grave 8, is its relation to Mound 2. The whole complex is positioned under the centre of the barrow and therefore could be both the

primary and central burial of Mound 2. Should this be the case, then both the primary central burial as well as the secondary burials in the mound body date to the Middle Bronze Age A (see Table 8.3).

8.3.2 Other features

Concentration of flints at the depth of the old surface

A concentration of ten flint fragments was encountered when digging from Level 4 to Level 5 (Fig. 8.21). This concentration (S7) was located some 2 metres from the corner of the southwest quadrant, is 13 centimetres in diameter and appears to have been left on the old surface. Cuts from a pit were not visible in higher levels. The function of this strange concentration of flint is unclear. In any case there were no artefacts among the flint assemblage of S7. Refitting did show that six of the flakes originated from two larger chunks. The other four fragments were all small cores (see also Section 8.4.2). All fragment are larger than 1 square centimetre, and splinters and small flakes are noticeably absent. The flint therefore was likely not knapped here. Additionally, the concentrated distribution of



Fig. 8.20: Grave 8 in profile section 2 (southern profile section) of Mound 2, clearly showing how the charred beams cover a pit with cremation remains. Photograph taken facing east.

the various fragments would seem to suggest that they were consciously placed in this manner. Finally, it is striking that the concentration stopped roughly at the southwest corner of Grave 8. A relationship with this burial cannot be established. It is likewise difficult to date the flint assemblage, though the ‘ad hoc’ manner in which the flint was worked, especially the four small cores, is consistent with Bronze Age flint knapping (Van Gijn 2010; Van Gijn/Niekus 2001, 307). It is therefore not impossible that it is contemporaneous with one of the graves underneath Mound 2.



Fig. 8.21: Concentration of flints on the old surface. Photograph taken facing south.

Vague pits in Level 7

When digging the control level (Level 7), four ruddy-coloured features were uncovered at the western (S18, S19 and S20) and southern (S17) foot of the mound. Initially these features were interpreted as possible pits. However, the features are very irregular in shape and yielded no finds. All four features were sampled for pollen analysis. But as was already shown in Chapter 5, pollen analysis at the Wieselseweg did not yield any satisfying results. It therefore very much remains in question whether these features are anthropogenic. Similar, natural soil features were also found in the control levels dug under Mounds 1 and 3.

8.4 Find material

8.4.1 Pottery

A total of 231 grams (15 find numbers) of prehistoric pottery was collected in the southwest quadrant of Mound 2 (Tab. 8.2). Of that, 208 grams originate from a small pot from a secondary burial and another 10 grams is an indeterminate ceramic chunk from S15 (V372). The remaining 13 grams primarily consist of indeterminate crumbs (V131, V245 (both S3), V501 (S13) and V788

(S100)) and a loose wall sherd with crushed granite temper of unknown origin (V500). Only the small pot from the secondary burial remains to be described of the pottery from Mound 2.

Pottery from Grave 4

In Grave 4 (S4) the fragile remains of a pot were found directly underneath and adjacent to the cremation remains. In total nine find numbers (V41, V42, V146, V147, V163, V288, V289, V292 and V497) were assigned to the various sherds that are certainly from the same vessel. Unfortunately it is not possible to reconstruct a complete profile (Fig. 8.22), though some statements can be made regarding the original vessel shape based on the various sherds. It must have been fairly irregular with a slightly protruding and somewhat pinched outward rim. Close underneath this rim (estimated to be 2–3 cm) there is a thickening in the wall profile. This thickening forms the transition from the weakly profiled shoulder and is decorated with a single, horizontal row of rough fingertip impressions. In some spots the wall thickness just above the thickening is only 6–7 millimetres. The wall thickness at the height of the fingertip impressions is 8–9 millimetres. Whether this is a raised cordon is difficult to say based

F. no.	Trench	Level	S	N	Wght.	Pot section	Temper	Surf. fin.	Thickness	Firing cond.
41	201	4	4	>20	24.2	Wall	Crushed quartz	Smooth	8–10 mm	Ox-Red
42	201	4	4	6	15.7	Wall	Crushed quartz	Smooth	10 mm	Ox-Red
131	201	52	3	2	1.9	Indet.	Bone or shell	Indet.	4 mm	Ox-Red-Ox
146	201	4	4	>100	43.8	Indet.	Crushed quartz	Indet.	Indet.	Ox
147	201	4	4	>5	38.2	Wall	Crushed quartz	Smooth	8–9 mm	Ox (Red)
163	201	5	4	1	1.1	Indet.	Crushed stone, CBDF	Indet.	Indet.	Ox-Red-Ox
245	201	4	3	1	1.5	Wand	Bone or shell	Smooth	4–5 mm	Red
288	201	4	4	1	1.1	Indet.	Crushed stone, CBDF	Smooth	5 mm	Red
289	201	4	4	>35	.30	Wall/rim	Crushed quartz	Smooth	6–11 mm	Ox-Red
292	201	4	4	7	7.7	3 Wall	Crushed quartz	Indet.	Indet.	Ox-Red
372	201	4	15	1	9.8	Indet.	Indet.	Indet.	Indet.	Ox
497	201	5	4	2	0.8	Indet.	Crushed stone, CBDF	Indet.	Indet.	Ox
500	201	999	999	1	6.9	Wall	Crushed granite	Smooth	6 mm	Red (Ox)
501	201	6	13	1	0.5	Indet.	Indet.	Indet.	Indet.	Red
788	201	53	100	6	1.9	Indet.	Crushed stone, CBDF	Smooth	3 mm	Red

Tab. 8.2: Overview characteristics of the pottery from Mound 3. Explanation abbreviations: F.no. = find numbers; S = Feature number (*spoor* in Dutch); N = number of sherds; Wght. = weight in grams; Surf. fin. = surface finish exterior; Firing cond. = firing conditions. Explanation other abbreviations and codes: Indet. = indeterminate; CBDF = cannot be determined further; 999 = not applicable; Ox = oxidizing; Red = reduction fire. Other notes: 1.) when a number is listed with a pot section (for example 1 Rim), this means that the other fragments with the same find number cannot be identified. 2.) The firing circumstances are listed from the exterior surface to the interior surface: exterior – centre – interior. If only two variables are listed, the centre is included with the surfaces. If the firing conditions are listed between brackets (for example Ox (Red)) this means that the firing circumstances were primarily oxidising but that there are also reduction zones present and vice versa.

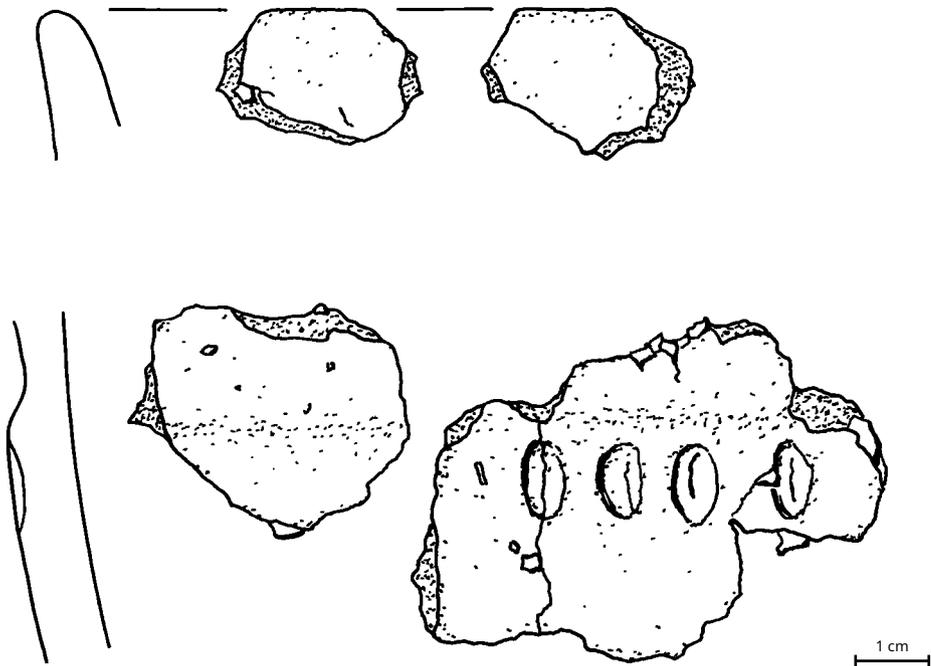


Fig. 8.22: Ceramics
Grave 4 (scale 1:1).

only on the weathered sherds. Also, the wall thickness remains the same for at least 2 centimetres underneath the fingertip impressions. The ceramic is tempered with very coarse quartz (2–8 mm) and the colour on both the interior and exterior surfaces varies between red-brown, light brown and grey. The ruddy colour on both the exterior surface and the broken edges appears to be caused by (partial) secondary burning. Despite the coarse temper, both surfaces are relatively smoothly finished. The very coarse ceramic indicates a date in the Middle Bronze Age. The row of fingertip impressions running around the pot at the height of the shoulder supports this. With regards to the latter, it should be noted that such rows of fingertip impressions running around the pot also occur during the Late Bronze Age. However, the combination of this decoration form with the coarse ceramic makes a Middle Bronze Age date the most likely.

8.4.2 Flint & stone

In total 22 find numbers were written out for finds from Mound 2 belonging the category ‘flint & stone’. Eight of these were discarded after analysis. With one exception, all remaining stone finds were from features. The various stone finds are discussed per context below.

Flint and stone from Grave 3

Two stone finds were done in the fill from Grave 3. Neither find was directly related to the grave. They were found because the entire fill of the grave was sieved. Such finds are present in the natural sub soil or around the surface and were found at locations that were sieved. It is

therefore not unlikely that similar finds would have been done if the surrounding square metres of Grave 3 had been sieved as well.

The first find is a small flint flake, or rather splinter (V237), of a light brown flint and measures 5 × 7 × 2 millimetres. Such splinters are typical waste products of flint knapping and can be transported over great distances underground through various taphonomic processes.

The second stone find (V243) was collected due to its peculiar concentric shape reminiscent of material related to metalworking. It is a broken fragment (maximum measurements: 20 × 12 × 6 mm) of something that had formed a shell (5 mm thick) around an object that has disappeared. However, it soon became clear that it was a typical so-called *klappersteen* (see Section 3.2). These occur plentifully in this area with pushed up river deposits. The small fragment from Grave 3 was likely present in the old pushed-up river deposits of the natural subsoil and will have ended up among the cremation remains of Grave 3 by accident.

Stone from Grave 4

The stone finds in the fill of Grave 4 do relate to the burial itself. The first of two find numbers (V497) was 3.9 grams of loose finely crushed quartz from the pot used to deposit the cremation remains in the grave. As was already noted (Sections 8.3.1 and 8.4.1), this pot was in extremely poor condition as a result of burning and the strong degree of soil processing. The loose quartz underlines the possibility that the pot was deposited in a far more complete state than it currently is, but partially disintegrated.

The second find number (V42) likewise concerns an interesting phenomenon. The sieved fill of the burial put yielded three pieces of quartzitic sandstone (together 84.6 gr.) that show exactly the same fracture patterns as the stones recovered from the pit row underneath Mound 1. As was already argued, such sharp and angular fracture planes can only result from heating to a high temperature followed by rapid cooling (see Section 7.4.2 for a more elaborate explanation). Given that Grave 4 dates to the same period as the pits underneath Mound 1, the three stones could be silent witnesses of a comparable, if difficult to comprehend, ritual.

Concentration of flint on the old surface (S7)

The concentration of flint found at the depth of the old surface consists of ten fragments. Four of these fragments (V49, V51, V55 and V59) are cores of different kinds of flint. The original (small) nodules of flint will have been locally collected as such flints are common in the pushed-up old river deposits that make up the Veluwe ice-pushed ridge. The flint varies in colour from light grey-brown to homogenous grey. The maximum lengths of the small cores are quite close together: 26 millimetres (V49), 30 (55) and 32 millimetres (V51 and V59). One of the cores (V59) was clearly bipolarly knapped using an anvil (Fig. 8.23).

After refitting the remaining six fragments turned out to originate from two nodules. The two fragments listed under find numbers V50 and V53 fit together and form part of the exterior of the original nodule, likewise rolled flint from the moraine. The colour (homogenous grey) of the flint is very similar to one of the cores (V49). Initially V50 was interpreted as a flake, but later turned out to

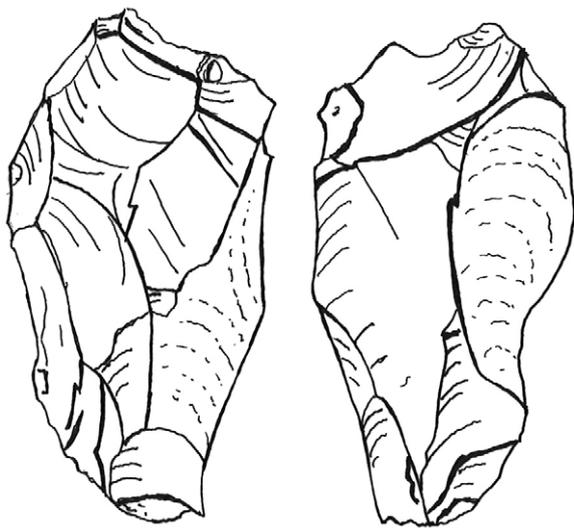


Fig. 8.23: Bipolar core (V59) from S7 (scale 1:1; drawing: Arjan Louwen).

have flaked off the other fragment (V53) through freeze-thawing. While the splitting of these fragments has a natural cause, both fragments were collected and left with the other eight flint fragments of S7.

The final four fragments (V38, V48, V52 and V54) together formed part of (80 × 48 × 32 mm) the exterior surface of a pockmarked module of dark grey, rolled and poor quality flint full of chalk inclusions. Nonetheless, both a whole side and the small core of the original module are missing, presumably because the knappers were able to obtain a usable flake from the core.

The various flakes and cores were not worked where they were deposited, as small flakes and splinters are not present. The random collection of flint was intentionally left on the old surface in this configuration. The apparently opportune manner in which this flint was locally collected is entirely consistent with Bronze Age 'ad hoc' technology (Van Gijn/Niekus 2001, 307).

Granite muller

While digging Level 7 a fragment of a granite grinding stone was found (V609). It is a round muller the size of a fist (intact cross-section: 86 (width) x 58 mm (height); broken cross-section (length): > 72 mm). The natural surfaces are smooth and round. Two sides are flat and slightly roughened. Microscopic research did not yield much detailed information except that the stone was (not intensively) used to grind up a mineral or hard plant material.

8.4.3 Worked animal bone

Worked animal bone was found in Grave 4 (S4) and Grave 6 (S13). The bone material survived as it was burned on the pyre. None of the objects were recognized in the field: they all came to light during the physical anthropological analysis of the cremation remains.

A bone (cloak) pin or awl from Grave 4

Among the cremation remains of Grave 4 was a long, flat and hollow piece of bone (V163; Figs. 8.24 and 8.25), of which one end has been ground to a point. The other end had been shaped to a semicircle. The object is 81 millimetres long and the maximum width is 12 millimetres. It is not unlikely that the object shrunk a little as a result of being burned. It was probably made from a piece of a rib from a middle-large animal (sheep/goat or boar?). Use-wear analysis yielded no results as the object is completely weathered as a result of burning.

The shape of the object is reminiscent of several different things. For example, it is well possible that it is a (cloak) pin or closing. It is however also possible that this object is an awl. If it was a (cloak) pin or closing, the object may have been part of the clothing or shroud that was worn/covered the deceased female during cremation. If it is an awl then



Fig. 8.24: Bone pin (V163).

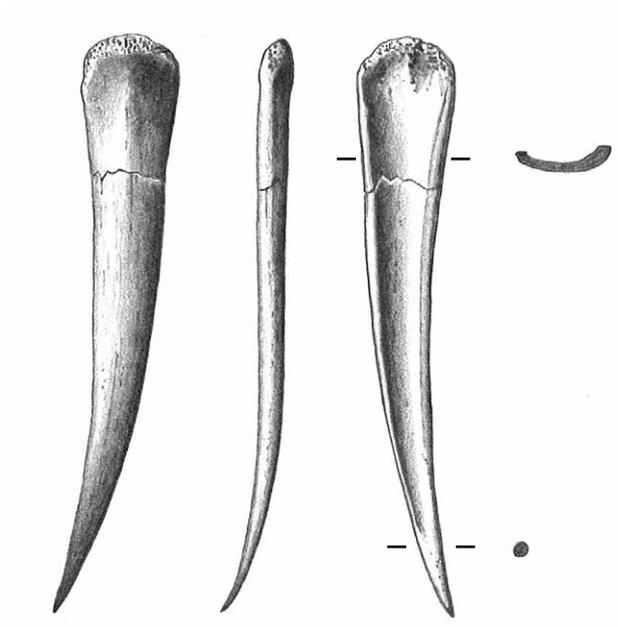


Fig. 8.25: Bone pin (V163; scale 1:1).

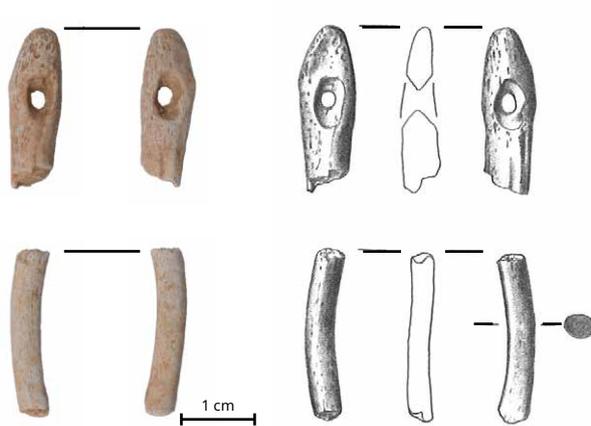


Fig. 8.26: Bone needle (V515).

Fig. 8.27: Bone needle (V515; scale 1:1).

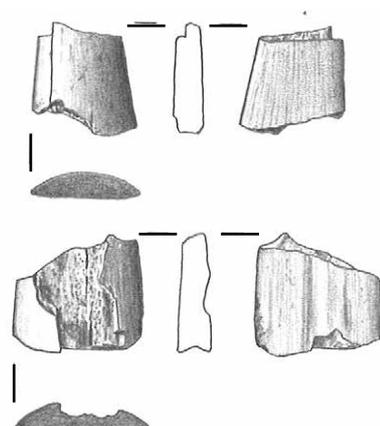


Fig. 8.28: Worked animal bone, function unknown (V501; scale 1:1).

that would make it a tool that was deliberately placed on the pyre, and eventually was collected, intentionally or otherwise, and deposited in the grave.

Lastly, a number of other fragments of animal bone were found in Grave 4 that could not be further identified (also V163).

A bone needle from Grave 6

Two fragments of a bone needle were recovered from the cremation remains of Grave 6 (V515, Figs. 8.26 and 8.27). The interpretation of this object as a needle is based on the presence of an intact thickening at the end of one of the fragments with a biconically drilled hole. Furthermore, both fragments are long and thin (round cross-section of 4 mm). It should be noted that the point

of the needle was not recovered. Microscopic research by Van Gijn and Verbaas (see App. 2) established that the eye only shows very light use-wear traces. The second fragment, part of the actual needle, however, shows heavy use-wear traces of more frequent use. This second fragment is also slightly bent, and this curved shape is probably the result of burning. The use-wear traces described are consistent with use as a needle: the needle itself must have been in frequent contact with cloth, while the thread in the eye only lightly rubbed up against the edges of the eye. The gloss on the needle is not consistent with contact with plant material or hide, which makes it tempting to assume it was used with wool. However, this cannot be supported with concrete observations.

Other fragments of worked animal bone were also found in this grave (V501, Fig.8.28). However, it was unfortunately not possible to determine what kind of object these fragments were originally from.

8.5 Phases and dating

As with Mound 1, a number of flints were found on the old surface underneath Mound 2, which may predate

the erection of the barrow. The flint from S7 possibly dates to the period immediately preceding the mound's construction. There are no other indications of this location being used prior to the erection of Mound 2.

This brings us to the barrow itself. In total there are nine ¹⁴C-dates available for the seven graves (Fig.8.29) found in the southwest quadrant. These all clearly point to a date in the Middle Bronze Age A for the barrow (see

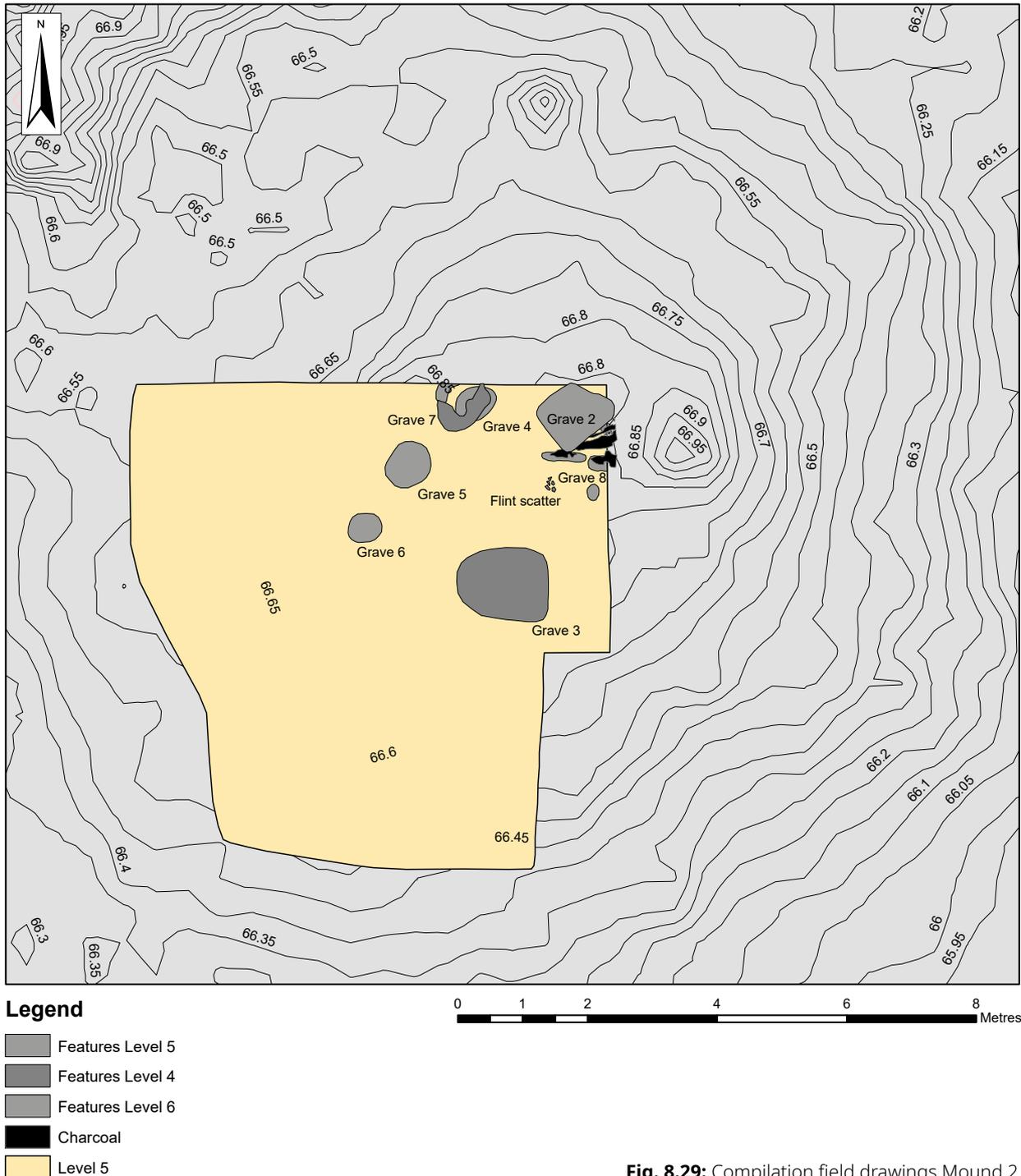


Fig. 8.29: Compilation field drawings Mound 2.

Context	Feature no.	Find no.	Lab code	BP	Cal BC 1σ (68.2)	Cal BC 2σ (95.4%)
Grave 2	201.2	20	GrA-51581	3280 ± 35	1611–1518	1636–1460
Grave 3	201.3	123	GrA-51707	3275 ± 30	1608–1511	1626–1462
Grave 4	201.4	291	GrA-51942	3315 ± 30	1629–1534	1665–1510
Grave 5	201.8	273	GrA-51700	3295 ± 35	1615–1530	1660–1499
Grave 6	201.13	522	GrA-51587	3380 ± 35	1734–1630	1762–1562
Grave 7	201.15	471	GrN-32578	3295 ± 15	1611–1535	1621–1526
Grave 7	201.15	471	GrA-51712	3285 ± 30	1611–1529	1629–1500
Grave 8	201.22	672	GrN-32581	3345 ± 20	1662–1616	1728–1546
Grave 8	201.26	828	GrA-51702	3280 ± 35	1611–1518	1636–1460

Tab. 8.3: ¹⁴C-dates of the graves in Mound 2. See also Table 2.1.

Tab. 8.4). The dates, however, are so close together that it is impossible to reconstruct a reliable sequence of events for Mound 2 based on these dates alone. Moreover, determining this is further complicated by the not always clear stratigraphic position of the graves (Tab. 8.4). In any case, it is clear that Grave 8 is covered by the mound body and therefore predates its construction. Graves 2, 4 and 7 were dug into the barrow and are therefore secondary burials. How Graves 3, 5 and 6 relate to the mound body, however, is harder to determine. These three graves were found far from the centre of the mound and only became visible at the depth of the old surface or deeper. In none of the three cases was a pit cut visible above the old surface. As already noted, the subsoil at the Wieselseweg is strongly homogenized and due to the soil formation processes that occur more strongly at the edges of an inclined surface such as a barrow, it is entirely possible that a pit cut would have disappeared. Graves 3 and 5 as such could still have been dug through the mound body. Grave 6, however, was located so deep underneath the old surface that this seems very unlikely. We therefore should take into account that there may never have been pit cuts and that these graves were also covered by the mound body. Given the careful manner in which the excavation levels were dug, we favour the latter option. This means that Graves 3, 5 and 6 could predate the construction of the mound body.

With the exception of the various 20th century plough furrows, no other anthropogenic features were encountered in the southwest quadrant that could post-date the Middle Bronze Age A.

8.6 Conclusion

8.6.1 Burial mound or cemetery?

For Mound 2, Grave 8 at first glance appears to qualify as the so-called ‘primary central grave’. This grave is clearly located in the centre of the mound and is covered by the mound body. In the case of Mound 2, however, there are a further three burials (Graves 3, 5 and 6) that likewise appear to be covered by the mound body. In short, the southwest quadrant of Mound 2 alone already yielded four

	Prior to erection of the mound	Secondary burial	No stratigraphic relationship	Relationship unclear
Grave 2		X		
Grave 3				X
Grave 4		X		
Grave 5				X
Grave 6			X	X
Grave 7		X		
Grave 8	X			

Tab. 8.4: Graves Mound 2 in relation to the mound body.

graves that all could predate the erection of the barrow. The question that arises is whether Mound 2 was erected as a monument solely for Grave 8 or whether Mound 2 fulfilled this function for a small grave field in its entirety. In light of these findings, we must once again question what exactly a barrow represented and meant to Middle Bronze Age society. In this case, was it a marking of a grave or was the erection of a mound body an act that went with a certain use-phase of a cemetery?

8.6.2 The burial ritual

Even though all graves found in and underneath Mound 2 were cremation burials, there are also some differences identifiable in the nature of the graves, which in turn indicate differences in funerary ritual. For Mound 2 at least three ‘forms’ of graves can be distinguished, with nuanced differences between them. A first form is characterized by the presence of the remains of a pyre. For this form of burial the cremation remains were searched through with care and buried in a (small) pit, after which the selected remains of the funerary pyre were used to cover the burial pit. For Mound 2 only Grave 8 was created in this manner. A second form is bone scatters or bone packings in a fair-sized pit (50–100 cm in cross-section). Graves 3, 5 and 6 belong in this category of burials. It is furthermore striking that it is exactly these three graves that are suspected to predate the erection of the barrow. The last burial form



Fig. 8.30: Visualization of Mound 2. The white figures represent the individuals identified through the excavation. Figure by S. van der Vaart-Verschoof.

that can be distinguished for Mound 2 is a shaft or pit dug into the mound body, in which cremation remains were deposited. Graves 4 and 7 belong to this form of burial, but was too heavily disturbed to make any definitive interpretations. Within these three forms of burial there are also minor differences, such as the incidental presence of pottery funerary goods (Grave 4) and bone objects (Graves 4 and 6). It is worth noting that bone grave goods were found only in female burials and in both cases it is possible that they were fine tools used to work textiles. It

is also possible, however, that the object in Grave 4 was a personal ornament such as a (cloak) pin or closing.

The fact that the dates for the various graves in Mound 2 are so close together, makes it likely that the people buried in Mound 2 belonged to the same community, and may even have known each other (see also Bourgeois/Fontijn 2015). While the above mentioned differences between the graves can be noted, fact remains that they are *all* cremation burials created in or under the same barrow. The roles fulfilled in life by the deceased may account for the variations in burial form and grave goods.

Chapter 9

Mound 3

Arjan Louwen, David Fontijn,
Cristian van der Linde, Patrick Valentijn,
Liesbeth Smits & Erica van Hees

9.1 Introduction

Mound 3 is located 50 metres to the east of Mound 2 and to the north borders on the edge of the same forest plot with young pine trees as Mound 2. Even though this mound is located practically next to the forest path and only a few trees grow here, one would still easily pass it by without noticing it (Fig. 9.1). The current mound body is not even 50 centimetres high, and has suffered heavily from ploughing, leaving it irregular in shape. As such it is difficult to determine its original diameter. The profile sections indicate that this was 9 metres at most. The (south) west flank of the mound gradually transitions in the slightly sloping relief of the surrounding terrain. The northern and eastern mound flanks, in contrast, are steeper and rounder in shape and as a result somewhat better visible. Overall there initially was some doubt as to whether the modest Mound 3 was in fact a barrow. Some charcoal particles found in a coring of the mound and its presence

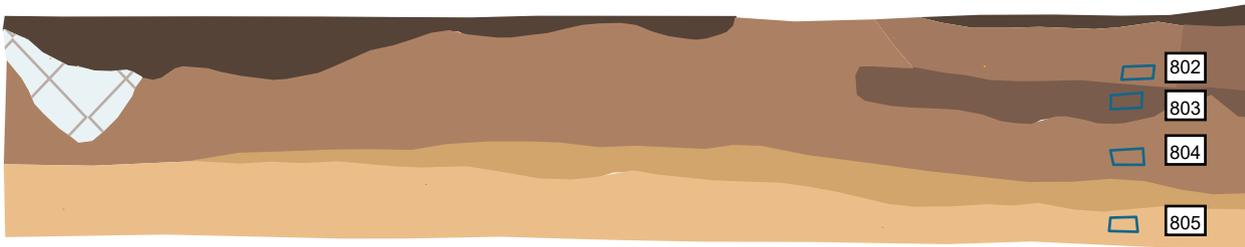


Fig. 9.1: Mound 3 prior to excavation. Photograph taken facing east.

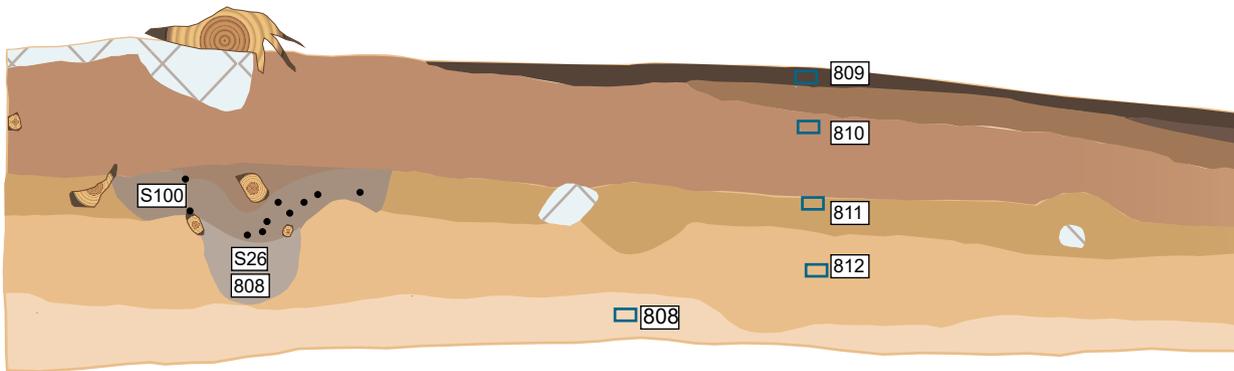
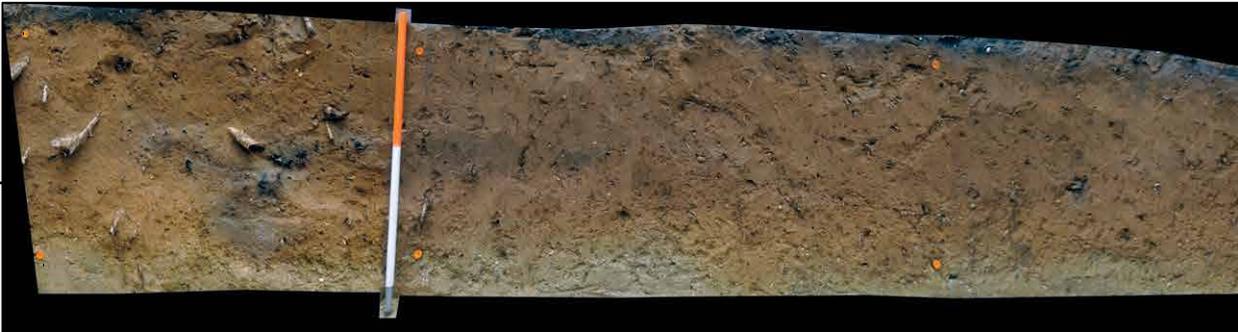
in the direct vicinity of Mounds 1 and 2 led us to give Mound 3 the benefit of the doubt. As such excavation of the southwest quadrant of Mound 3 (Trench 301) started in 2008. As the results described below will show, it

exceeded all expectations. In total the two field campaigns uncovered ten Middle Bronze Age A cremation burials. In addition, the only indications for a human presence of this terrain during the Iron Age were found here.

W



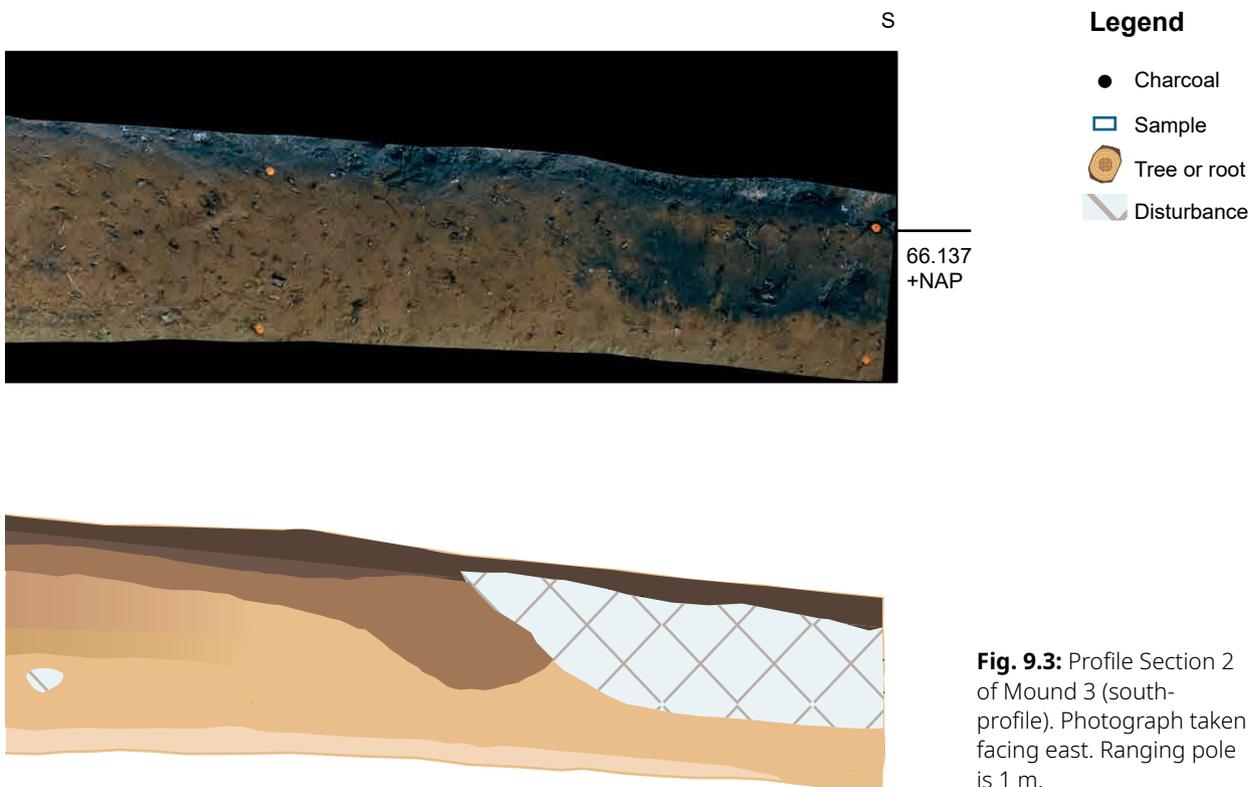
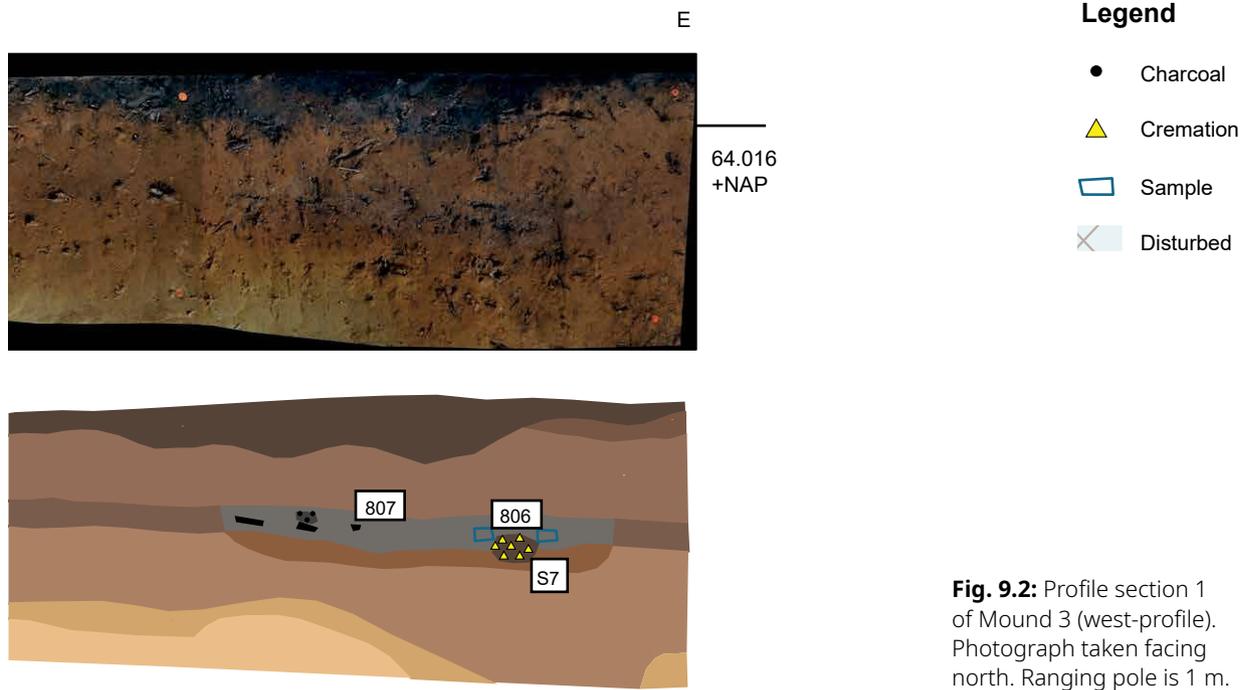
N



9.2 Structure Mound 3

The structure of Mound 3 strongly resembles Mound 2 (see Figs.9.2 and 9.3). In total eight excavation levels were dug in order to document the structure of this

barrow. Underneath the debris on top of the mound a young dark grey/humus-rich layer was encountered. Level 1 was dug in the top of this layer. The humus-rich top varied in thickness between 5 and 15 centimetres.



In spots the bottom of this layer was slightly bleached. Directly underneath this complex of young forest ground, the remains of an older Moder Podzol were visible. This Moder remnant also varied in thickness between 5 and 15 centimetres. Level 2 was dug in the transition of the young forest ground layer to the older Moder in the top of the mound. Underneath the Moder remnant the mound body had the characteristic ruddy, light brown yellow colour (see also Chapters 7 and 8). The texture of the mound body can also best be described as slightly loamy with fine gravel. Excavation Levels 3 (Fig. 9.4) and 4 (Fig. 9.5) were dug in the mound body. When digging these levels it quickly became clear how severely the barrow had been disturbed in the last century: the plough furrows were visible till Level 4.

Between Levels 4 and 5 light grey shades were also visible in the ruddy main colour of the subsoil. This light grey colour was caused by the predominantly small, but sporadically also larger charcoal particles. The presence of features and finds also drastically increased from Level 5 downwards. The layer, or rather zone, with charcoal particles varied between 10 and 20 centimetres in thickness. The old surface must have been in this region. Level 5 was dug in the top of this complex, and Level 6 at the bottom. Underneath the zone around the old surface, the subsoil initially coloured ruddy again (as it did in Mounds 1 and 2), followed by a pale and coarse sandy layer with a high gravel component. Level 7 was dug in the ruddy layer underneath the old surface, and Level 8 was dug as a control level in the pale, coarse sand soil (Fig. 9.6).

9.3 Features and structures

9.3.1 Graves

In total the remnants of ten cremation graves were uncovered in the southwest quadrant of Mound 3. Once again, interpreting these graves was not without problems due to the poor readability of the features and subsoil. A number of features proved so complex or disturbed in the field, that it took both field campaigns to excavate them. In the following each grave context is described and the features interpreted. The physical anthropological analyses were conducted by dr. L. Smits (University of Amsterdam), and the reader is referred to App. 1 for more information.

Grave 9

Some loose cremation remains were already encountered when digging the second excavation level, about a metre from the centre of the quadrant. The zone with cremation remains was labelled S2 in the field. The cremation remains (only 58 gr.) were clearly not located in a feature. Deepening the excavation level by the cremation remains revealed four plough furrows (Fig. 9.4). The burnt bone remains therefore were likely moved from elsewhere, probably a grave located high in the mound body. It was briefly thought that this could be Grave 16, which was located close by (Fig. 9.25). This grave, however, is located quite a bit deeper in the mound and analysis of the cremation remains established that the bone remains originate from different individuals. The cremation remains from Grave 2 cannot be linked to one of the



Fig. 9.4: Level 3.

graves in the southwest quadrant and therefore must be from a disturbed grave located elsewhere in the barrow. The high position in the mound body makes it likely that this is a secondary burial, rather than a primary burial. Due to the very small amount of bone remains it can only be established that this likely concerns an adult individual who was between 20 and 40 years old at the time of death (see App. 1).

Grave 10 and Grave 17

Grave 10 was also encountered high in the mound body (2008, Level 3) around the northern roots of the tree trunk

located in the centre of the quadrant (Fig. 9.25) and most likely is also a secondary burial in the mound body. A clearly delineated feature, however, was not visible, and there were also many disturbances from the top visible at this depth (Fig. 9.7). For this reason the whole zone with cremation remains was labelled S3. In total a little over 200 grams of burnt bone material was collected from this zone. It is important to note that the tree trunk in question was not removed from the quadrant till 2009 after it had been completely uncovered. As a result more cremation remains were assigned to Grave 10 in 2009. In addition, a second concentration of cremation remains was



Fig. 9.5: Level 4.



Fig. 9.6: Level 8.



Fig. 9.7: Grave 10 was encountered quite high in the mound body and turned out to be heavily disturbed. The white-grey cremation remains show up well against the dark colour of the disturbance, which is likely a result of ploughing and root systems. One of the roots of the tree trunk located in the centre of the quadrant is just visible in the bottom right corner of the photograph, which was taken facing north.



Fig. 9.8: Grave 17. Photograph taken facing east.

encountered among the roots of the same tree trunk in 2009 at the depth of Level 6 (S24, Grave 17, Fig. 9.25). This concentration (804 gr.) was located more on the west side of the tree trunk at a clearly deeper level in the mound/subsoil (Fig. 9.8). It was furthermore striking that there was a large concentration of pebbles right underneath the cremation remains (Fig. 9.9). As no pit cut or fill could be discerned, it is impossible to say whether the pebbles were part of Grave 17 or a natural concentration in the subsoil.

While freeing the tree trunk it briefly appeared that the roots of the tree had pushed apart a single cremation burial and that the cremation remains from Grave 10 (S3) and Grave 17 (S24) were originally from a single grave. Analysis of the cremation remains, however, established that the bone remains from the two contexts are really from separate individuals. Grave 10 contained the remains of a likely adult, female individual. In Grave 17 a more certainly adult female some 20–40 years old at the time of death was buried (see App. 1).

Now that we can exclude that there was any direct relationship between Grave 17 and Grave 10 based on the cremation remains, we may assume that the concentration of cremation remains of Grave 17 were for the most part still in their original position. As no pit cut could be discerned and



Fig. 9.9: Detail of the concentration of pebbles underneath the cremation remains of Grave 17. Photograph taken facing east.

the cremation remains were not encountered till Level 6, there are two possible scenarios regarding the nature of the grave. A first scenario is that Grave 17 is a secondary burial that was dug straight through the mound and into the old subsoil. However, as already noted, no pit cut was observed to strengthen this argument. It is therefore just as possible that Grave 17 was actually a shallow burial that predates the erection of the barrow.

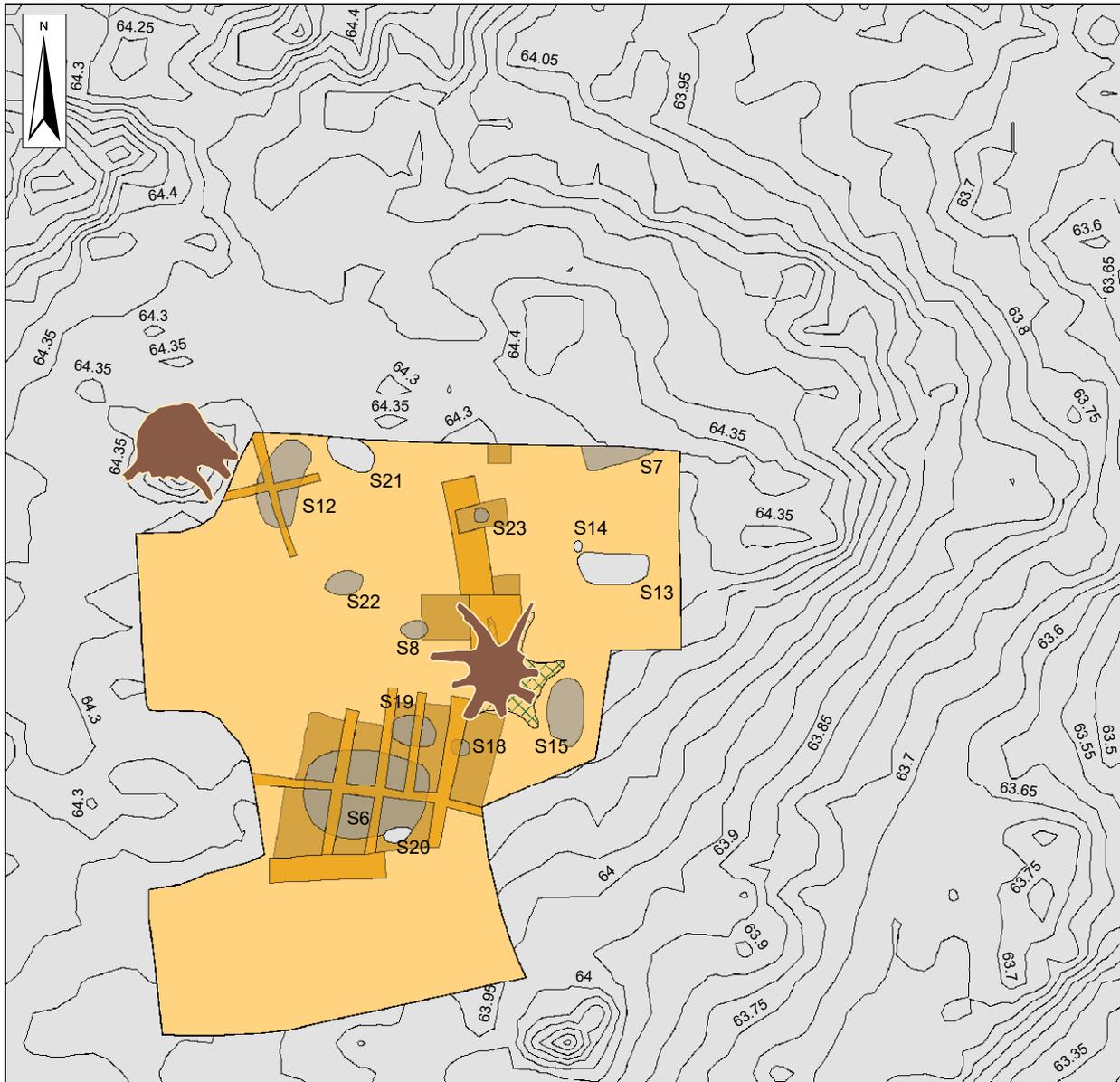
Grave 11

The next grave (S6) was located far outside the centre of the barrow, in the zone where the mound flank transitions into the terrain outside of the barrow (Fig. 9.10). It is even in question whether the mound body ever extended this far. From Level 4 on, the first indications for the presence of a cremation burial were encountered at this location in the form of some loose cremation remains. In Level 5 a homogenous grey zone was visible between the roots and remnants of the plough furrows. This colour was caused by the presence of fine charcoal particles. The zone in question had an elongated shape, oriented southwest – northeast (Fig. 9.11). The maximum length was 230 centimetres, and the maximum width was 150 centimetres. At the northeast side the zone had a small extension with some lumps of charcoal at its core. This ‘extension’ was recorded as S19 and does not appear to be part of Grave 11. The homogenous grey zone with fine charcoal particles (Fill 2) just described had a clear core (160 × 80 cm) with a slightly darker colour (Fill 1). The darker colour of this core was the result of a much higher concentration of charcoal particles. The grave was located at the very heart of this core. The cremation remains were scattered in a swatch of 15 centimetres wide on average and a length of almost 1 metre and oriented southwest – northeast. In total there were 454 grams, likely of a man who was 20–40 years old at the time of his death (see App. 1; Figs. 9.12 and 9.13). It is also possible that the cremation remains were once in a long stretched out organic container that has since decayed. Directly to the southeast of the swatch of cremation remains was a zone with the same length and orientation with a very high concentration of charcoal lumps (± 700 gr.). This zone, or rather wide swatch, was 40 centimetres at its widest.

When taken as a whole the cremation remains and charcoal lumps form a long, stretched out zone of circa 60 × 100 centimetres with a southwest – northeast orientation, and a clear separation into a compartment with cremation remains and one with charcoal (Fig. 9.13). As with most features at the Wieselseweg, no visible pit cut or feature was visible. The strict separation of the cremation remains and the charcoal chunks raises the suspicion that the grave was once delineated. The vertical distribution of the cremation remains and charcoal lumps (nowhere more than 15 cm deep) also suggest that the

whole was contained in some manner. A pit with originally a rectangular shape seems the most plausible explanation for the typical distribution of the cremation remains and lumps of charcoal. As noted it is also possible that the whole was packed in an organic container of a similar shape.

This of course does not explain the grey (Fill 2) or the dark grey (Fill 1) ground around the grave. As was touched upon above, the greyness appears to be the result of fine charcoal particles. This is based on the fact that this phenomenon only occurs at the Wieselseweg



Legend

- Features Level 6
- Discarded features Level 6
- Disturbances Level 6
- Deeper sections Level 6
- Profile section baulks
- Tree trunks
- Level 6



Fig. 9.10: Digitized excavation drawing of Levels 5–6.

around features with (minuscule) charcoal particles (see for example also S1 in Trench 24; Chapter 10). It is striking that with these features the grey colouring forms a kind of 'aureole' around the features in question. At Grave 11 there is furthermore a difference in colour observable: it grows lighter towards the outside. Moreover, the 'aureole' follows the exact same orientation as the grave itself. The most plausible explanation for the gradual lightening in

colour or the subsoil around Grave 11 is bioturbation, by which the finer and lighter material in particular is transported from the archaeological context to far outside it. Towards the outside the density of this material gradually diminishes, which causes the lightening of the colour. One argument in support of this explanation is the distance from the outer edge of the grey discolouration and the heart of the feature, in other words the cremation

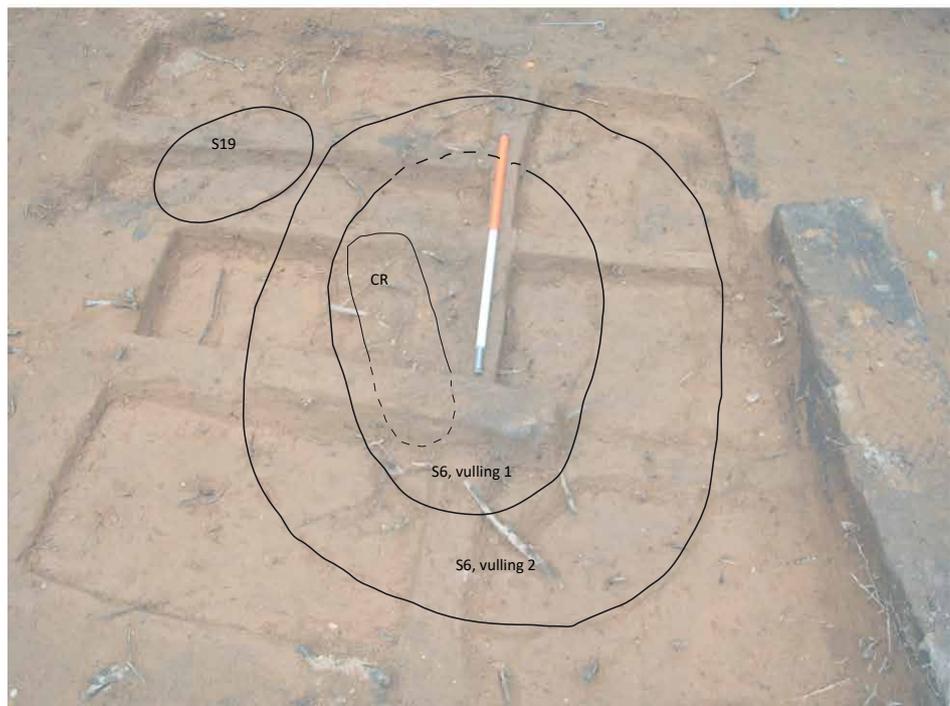


Fig. 9.11: Overview Grave 11. Photograph taken facing East.



Fig. 9.12: Detail cremation remains in Grave 11.

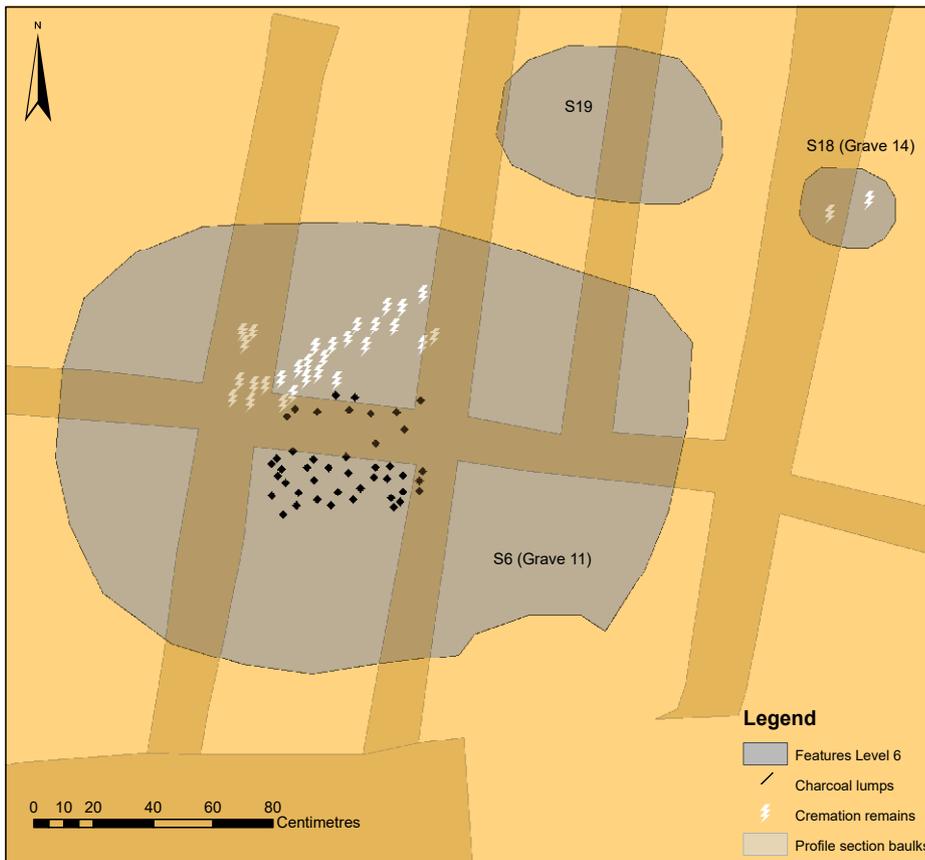


Fig. 9.13: Digitally altered detail excavation drawing of Grave 11.

remains and charcoal lumps. This is between 40 and 50 centimetres in every direction (Fig. 9.13).

The taphonomic processes bring us to the location of the grave in relation to the mound body. The core of Grave 11 is located some 7.5 metres from the centre of the southwest quadrant. The diameter of Mound 3 was likely no more than 9 metres. This means that Grave 11 must have been located outside of Mound 3. The low depth of the grave from the original/present ground level must have made Grave 11 extra vulnerable to the taphonomic processes described above. As will become clear in the following, Grave 12, located centrally underneath the mound body, was of similar nature and dimensions as Grave 11. Grave 12, however, is much less 'faded' or 'wiped out' and disturbed as it was protected by the mound body. A question that follows from this is how Grave 11 relates to Mound 3. This will be addressed later in this chapter (Section 9.5).

Grave 12

Already in 2008 a small concentration of cremation remains was found at the depth of Level 5, directly alongside the western profile section of the quadrant (Grave 12, Figs. 9.10 and 9.14). In that year it was decided not to excavate the concentration (S7) due to the risk of running out of time. A high plateau therefore was left around the concentration (90 × 75 cm). This proved to be a wise decision when we reopened the mound in 2009, as another two weeks were spent documenting this grave in that year.

Upon reopening Trench 301 in 2009, the plateau was immediately cleaned up. At this point the rest of the excavation level had been deepened another 10 centimetres below the level of the plateau. Directly to the east of the plateau, more cremation remains were found which were likely from the same context. On the plateau itself small charred beams (20–30 cm in length) started to be uncovered in addition to the cremation remains. In order to document the grave, a local measuring system was created with the main measuring tape running over the longest axis of the grave (WSW – ENE). The grave itself was divided into four main sections. The subsoil surrounding the plateau formed the fifth section. The three sections south of the main measuring tape (sections 1, 2 and 5) were each excavated to the depth of Level 6. This revealed a long, stretched out spread of cremation remains (15 × 100 cm, 1237 grams; Figs. 9.14 and 9.15). This spread was collected in individual sections of 10 × 10 centimetres, so that it would be possible to study the distribution of the cremation remains in the burial pit. Little to no charcoal was found among the cremation remains.

In contrast, charcoal is all that was found when the northern sections (3 and 4) were excavated. Initially four

more substantial small beams could be discerned in the distribution of the charcoal (V662, V663, V664, V665). These did not form clear units but were concentrations of at most 10 × 40 centimetres of charcoal lumps and snippets of which the direction of the grain and the distribution indicated that they were originally small beams (Figs. 9.14 and 9.15). These units, or rather concentrations, could even have originally been a single whole which later disintegrated in the grave. Wood analysis determined that the individual samples were oak (*Quercus*). It is furthermore worth noting that the beams placed in the grave have the same orientation as the swatch of cremation remains and the grave pit itself (WSW – ENE). One of the aforementioned burnt beams (V665) was located on top of the cremation remains (Fig. 9.16). Finally, a small concentration of charcoal snippets (V621) was observed some 30 centimetres south of Grave 12. Given the distance between these snippets and the grave they likely never lay in the grave, though a relationship with Grave 12 cannot be excluded.

To sum up, there was a rectangular grave pit of about 1 metre long with a WSW – ENE orientation visible at the depth of Level 6 (Figs. 9.14 and 9.15). The northern half of this pit is still in the northwest quadrant of Mound 3. Within this pit there was a clear division into a section with well-sorted cremation remains of 15 × 100 centimetres, with a section with charred oak beams to the north. The borders of the burial pit were clearly visible by the cremation remains. It was harder to discern the edge of the pit by the charcoal as it extended up to 20 centimetres beyond the western edge of the cremation remains (Fig. 9.14). As the charcoal and the cremation remains were located at the same level, the charcoal originally was likely in the burial pit as well. The information recorded in the western profile section (see Fig. 9.2) confirms this assertion. One of the oaken beams likely rolled onto the cremation remains when the pit was filled up.

This brings us to the position of the grave in relation to the mound body. Grave 12 is the most centrally located grave of Mound 3. Moreover, the grave was clearly covered by the mound body (see Fig. 9.2). The latter also explains the good state of preservation Grave 12 when compared with most of the other graves found in and underneath Mound 3. Whether this indeed was the primary grave of Mound 3 will be discussed later in this chapter (see Section 9.5). For now we will limit ourselves to the interpretation of how the grave itself was created.

It is clear that the grave was dug in from the old surface underneath the mound. The cremation remains, probably those of a man some 20–40 years of age at the time of death (see App. 1), were collected and placed in the elongated burial pit with care. We saw something comparable before with Grave 11. Here it is also the question whether the cremation remains were scattered



Fig. 9.14: A series of photographs of the excavation of Grave 12. Photographs a-d taken facing south, photograph e taken facing north.

in the pit or were placed in the pit packed in an organic container. Detailed analysis of the cremation remains revealed that these were neither in their anatomically correct position, nor where they placed in the grave in any particular order. While no definitive answer can be given regarding the question posed above, the cremation remains must have been transported from the pyre location to Mound 3 in some manner. Whether the remains were then unpacked and scattered or whether they were placed in the grave in an organic container

unfortunately cannot be determined based on the surviving remains. What is clear is that also in Grave 12 the suspected remains of the pyre played an important role. The charred beams were placed in the burial pit with the same care as the cremation remains.

Grave 13

At the western edge of Mound 3, possibly even entirely outside of the original mound, a long stretched out and irregular scatter of cremation remains and charcoal was

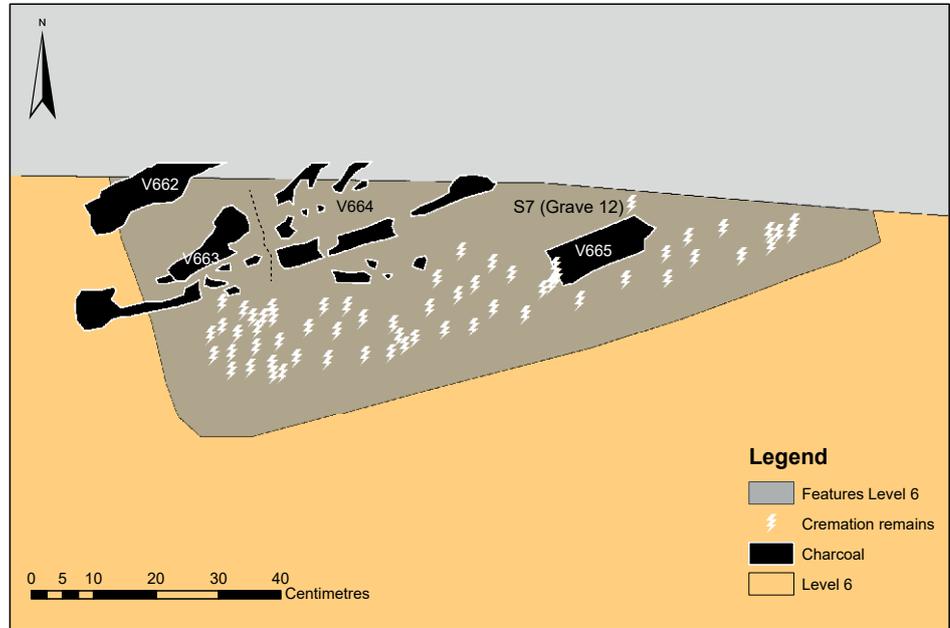


Fig. 9.15: Digital detail drawing of excavation level of Grave 12.



Fig. 9.16: Charred beam (V665) lying on top of the cremation remains. Photograph taken facing north.



Fig. 9.17: Series of photograph of the excavation of Grave 13.

found at the depth of Level 4 (S12, Grave 13; Figs. 9.17 and 9.18). Due to its vulnerable location just underneath the present-day ground level, the burial proved to be heavily damaged. Multiple plough furrows and tree roots crisscrossed the paltry remains of Grave 13. The grave was recovered under very dry and warm conditions in 2008. The whole was divided into four segments. The two section baulks between the four segments formed the fifth and sixth segments. The grave was disturbed to such a degree that any finer division into smaller segments to map the cremation remains (only 103 gr. in total) was not

deemed worthwhile. Extra care was taken with regards to the location of the charcoal concentrations and the global distribution of the cremation remains. Grave 13 is furthermore the only grave of Mound 3 in which multiple pottery fragments were found (Fig. 9.23).

As noted, Grave 13 consisted of a long stretched out spread of charcoal and cremation remains. This scatter had a SSW – NNE orientation and a maximum length of 130 centimetres. The width of the scatter varied between 35 and 55 centimetres. This variation in width was primarily the result of the direction in which the grave

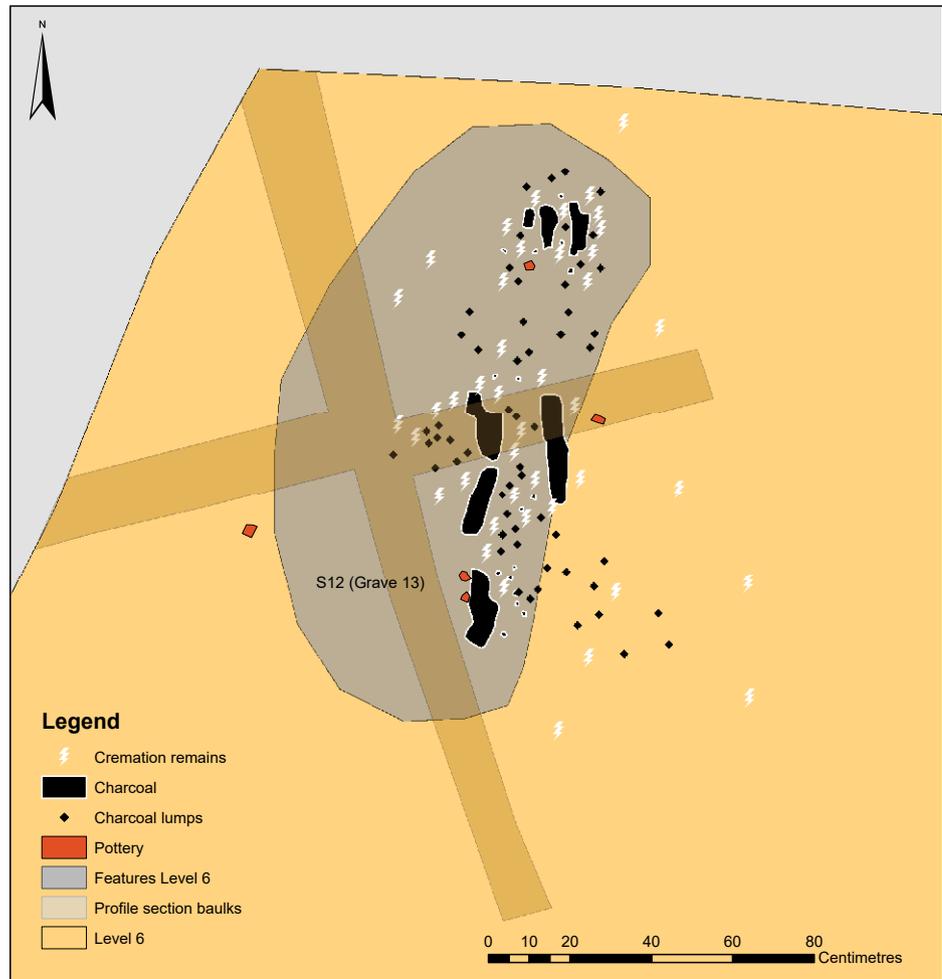


Fig. 9.18: Digital interpretation of the detail drawing of the excavation level of Grave 13.

was hit by the plough: perpendicular to the longitudinal axis of the original grave, which caused the contents of the grave to be pulled away in both directions. As a result, a sherd (V114) originating from Grave 13 was found some 60 centimetres outside of the original grave, and a second sherd at a comparable distance (V250). A clear pit cut of the grave was not visible, but the vertical distribution of the whole does indicate that the complex was dug in and buried. The cremation remains were found between Levels 4 and 6 and widely dispersed throughout the grave. Clear concentrations were not present. Sherds from one and the same pot were also recovered scattered throughout the grave. The burned fracture planes indicate these accompanied the deceased on the pyre. Charcoal was also present in all preserved parts of the grave.

At first glance the distribution of the various find categories appears somewhat messy and random. However, when the distribution and vertical position of the charcoal is considered, while also taking into consideration that we are likely missing a large part of the original burial, Grave 13 does appear to have a

certain ordering to it (Figs. 9.17 and 9.18). Distributed over the full length of the grave, were seven larger charred beams. These must have been located just above the bottom of the original grave (on average 15 cm beneath Level 4). When we then consider the direction of the individual beams and the direction of the wood grain, the various wood fragments turn out to lie one after another. Gaps only occur in those places where the plough hit the grave. When we furthermore consider that the whole also extends into the plough furrows, it strongly appears that the bottom of the grave was once 'paved' with the charred beams. They likely formed the selected remains of the pyre. The cremation remains were those of child some 1–4 years of age at the time of death (App. 1) and were scattered on the burned beams with the burned potsherds, or interred in an organic container. As the cremation remains and potsherds were located at a higher level in the grave, these were less well preserved. It is once again striking that the suspected pyre remains played a role in the funerary ritual. Apparently these were an important part of the grave inventory, as were the human remains.

Grave 14

In the edge zone of the mound, 120 centimetres northeast of Grave 11 (Figs. 9.10 and 9.25), there was a small pit filled with a modest amount of cremation remains (36.8 gr.). These turned out to belong to a child of around 2 years old at the time of death (18 months \pm 6; see App. 1). The feature (S18) was over cut by a plough furrow. Even so, a vague pit 25 centimetres wide and a surviving depth of 20 centimetres was visible (Fig. 9.19). The cremation remains were spread out through the fill of the pit. Even though Graves 11 and 14 were positioned close together it is difficult to say whether there was any relationship between them. It is clear that these concern two different individuals (a toddler and likely male adult; App. 1). With regards to the relation of the small



grave to Mound 3, it remains the question whether the grave was ever covered by the mound body. In any case, it was not possible to determine whether this grave predates construction of the mound or whether it is a secondary burial based on stratigraphy.

Grave 15

The next grave (15) was found in the zone around the foot of the barrow (Figs. 9.10 and 9.25) and was uncovered at the level of the old surface. The feature (S22) in question was a pit some 45 centimetres in diameter, which continued another 40 centimetres under the old surface. The fill of the pit was a slightly greyer colour than the surrounding matrix due to the presence of ash. In particular the

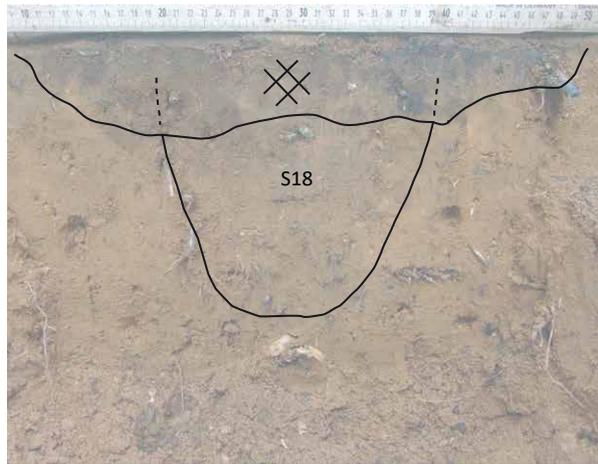


Fig. 9.19: Grave 14. Photograph taken facing west.

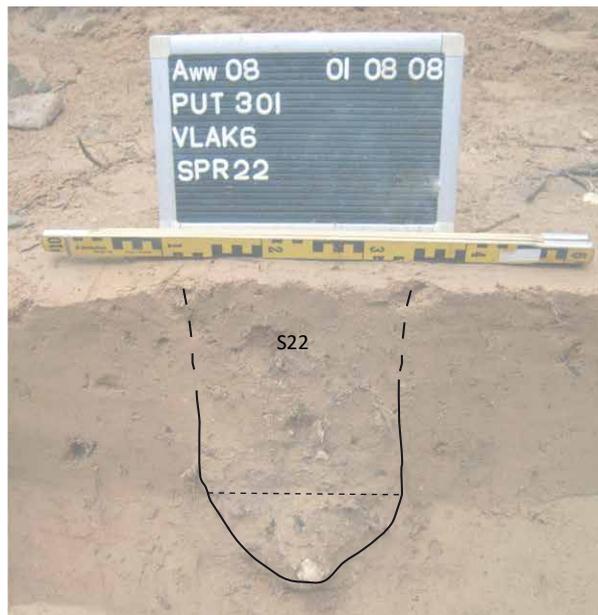


Fig. 9.20: Grave 15. Photograph taken facing north.

bottom half of the pit contained a clear concentration of cremation remains (ca. 20 × 20 cm; Fig. 9.20). The width of the pit and the clear concentration of cremation remains (784 gr.) on the bottom of the pit make it likely that we are dealing here with a so-called orb-cremation, whereby the cremation remains originally were deposited in the pit in something organic, like a textile cloth. The relationship to the mound body could not be determined based on stratigraphy, due to its position in the edge zone of the barrow. Analysis of cremation remains established this to be the grave of an adult female (20–40 years old at the time of death; App. 1). Green discolourations found on parts of the arm and the skull could indicate the presence of bronze grave goods on the pyre.

Grave 16

A small scatter of cremation remains were encountered (S23, Level 6) some 3 metres from the centre of the mound (Figs. 9.10 and 9.25) at the depth of the old surface. No clear pit or concentration could be discerned while deepening the excavation level around the scatter. The subsoil had locally been strongly disturbed by tree roots. The cremation remains, which later would be determined to be those of a child 2–6 years old at the time death (App. 1), had become spread out over a zone 40 centimetres wide



Fig. 9.21: Grave 18. The photograph shows the compact orb of cremation remains. Photograph taken facing south.

and 30 centimetres deep. In total only 82 grams of burnt bone remains were collected. It is possible that the loose cremation remains found without any context at a higher excavation level (Level 5, V90, V180 and V326) belong to the same grave. But even then it would still only amount to 150 grams. In addition to the cremation remains, a number of small charcoal lumps were collected (3.3 gr.). The original shape and size of Grave 16 unfortunately cannot be established. A secondary burial in a small pit seems to be the most plausible option.

Grave 18

The last grave (18) was a small pit (S26) some 45 centimetres in diameter and was not encountered until Level 7. The grave was located roughly 3 metres from the centre of the mound (Fig. 9.25) and contained a well-preserved orb-cremation (997 gr.). The orb located on the bottom of the pit contained the remains of a (probable) female who was 20–40 years old at the time of death (App. 1; Fig. 9.21). This pit extended another 18 centimetres beneath the seventh excavation level. No trace of the grave could be discerned above Level 7, which makes it highly likely that the grave was covered by the mound body – although one should be wary of the strongly weathered soils of the Wieselseweg (see also Section 5.4).

9.3.2 Other features

In total 30 feature numbers were assigned to phenomena in and around Mound 3 during the two field campaigns. Of these 30 features, 14 were later discarded as they proved to be natural phenomena or recent plough marks. Of the remaining 16 feature numbers, ten were assigned to the graves described above. The remaining six features are briefly discussed in the following. There is reasonable doubt regarding four of these six features whether they are anthropogenic.

A very irregular pit (S8) without a clear cut was encountered in Level 5 in the edge zone of the mound. The feature had a maximum diameter of 46 centimetres and a maximum depth of 22 centimetres. The fill of the pit differed from the surrounding orange-brown subsoil – the presence of some charcoal speckles had coloured it slightly greyer. The texture (slightly gravelly, somewhat loamy sand) was consistent with the surrounding subsoil. As noted above, the feature was located in the edge zone of the mound and was very irregular in shape. Moreover, the feature was located only a few decimetres from the tree trunk in the centre of the quadrant. When all this is taken into consideration, it remains very much the question if this is indeed an anthropogenic feature. It is also entirely possible that small charcoal fragments were moved from the old surface deeper into the subsoil through some form of bioturbation and there appear to form a pit that deviates from the contrastingly clean sand.

Trench	Feature	Level	Interpretation field	Interpretation definite	Depth (cm)	Complex
301	1	2	Recent	Reclamation/plough mark		Forestry activities
301	2	2	Cremation	Cremation		Grave 9
301	3	3	Cremation	Cremation		Grave 10
301	4	4	Recent	Reclamation/plough mark		Forestry activities
301	5	4	Recent	Reclamation/plough mark		Forestry activities
301	6	4	Cremation	Cremation	26	Grave 11
301	7	5	Cremation	Cremation		Grave 12
301	8	5	Pit	Pit??	22	Probably natural
301	9	5	Ditch	Layer	11	<i>Discarded</i>
301	10	5	Pit	Pit	18	Grave 10?
301	11	5	Natural disturbance	Natural disturbance		<i>Discarded</i>
301	12	5	Cremation	Cremation	35	Grave 13
301	13	6	XXX	Discolouration		<i>Discarded</i>
301	14	6	XXX	Discolouration		<i>Discarded</i>
301	15	6	XXX	Pit	35	Pit under barrow
301	16	7	Pit	Pit??	38	Probably natural
301	17	7	Natural disturbance	Natural disturbance	16	<i>Discarded</i>
301	18	6	Cremation	Cremation	20	Grave 14
301	19	5	Pit	Pit	14	Grave 11?
301	20	5	Discolouration	Discolouration		<i>Discarded</i>
301	21	5	Discolouration	Discolouration		<i>Discarded</i>
301	22	6	Cremation	Cremation	40	Grave 15
301	23	5	Cremation	Cremation	30	Grave 16
301	24	6	Cremation	Cremation	>20	Grave 17
301	25	7	Natural disturbance	Old tree fall		<i>Discarded</i>
301	26	7	Cremation	Cremation	18	Grave 18
301	27	7	Discolouration	Discolouration		<i>Discarded</i>
301	28	7	Pit	Pit??	28	Probably natural
301	29	8	Discolouration	Discolouration		<i>Discarded</i>
301	30	8	Discolouration	Discolouration		<i>Discarded</i>

Tab. 9.1: All features Mound 3.

In 2008 several vague, light grey discolourations and areas with cremations remains were encountered around the tree trunk located in the centre of the quadrant. One of these vague, light grey coloured spots was S10, which was 11 centimetres deep from Level 5. Several small fragments of burnt bone were noted in the field in this spot. However, these were so small that they could not be collected. The feature was not clearly delineated and once again could only be differentiated from the surrounding subsoil due to the presence of tiny charcoal and cremation specks. As would become clear later (2009), the (infamous) tree trunk had strongly disturbed two burials (Graves 10 and 17). As we were simultaneously working on multiple levels in 2008, S10 was at the time recorded as a separate feature. However, when S10 is projected under S3 (Grave 10), both features

turn out to be located at roughly the same spot in the mound, just at different levels. This makes it highly likely that S10 is not a separate grave, but rather a small part of the disturbed Grave 10 (S3).

In contrast to most of the features described in this section, S15 was in fact a convincing pit. The feature was encountered in 2008 while excavating from Level 5 to 6 and was clearly visible thanks to its dark grey colour. The many charcoal fragments present in the pit caused this dark grey colour. It is striking that the pit was definitely completely absent in Level 5. The mound body therefore must have covered this pit. In Level 6 the pit had a long, oval shape some 75 centimetres in length and over 50 centimetres in width. While sectioning the feature it proved to have an irregular bowl-shape (Fig. 9.22). The pit extended another 35 centimetres underneath

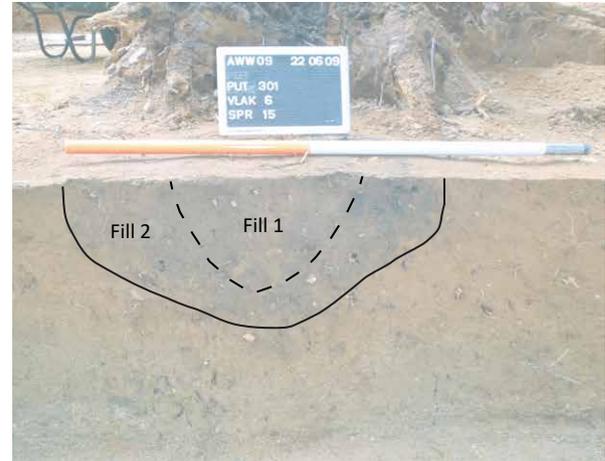


Fig. 9.22: Section S15. Photograph taken facing west.

Level 6 and had two fills. The inner, likewise bowl-shaped centre (Fill 1) was 25 centimetres in diameter and 22 centimetres deep. The surrounding, other fill of the pit was designated Fill 2 as a whole. Both fills were lightly gravelly, somewhat loamy sand. The inner fill (1) differed from the outer fill (2) in that it was somewhat more homogenous in colour. Both fills were designated as lightly or somewhat humus-rich, likely appearing so as a result of the many charcoal particles. The feature was completely sieved (mesh width 3 mm), whereby no finds other than some larger charcoal lumps (37 gr.) were done. The function of the pit remains unclear. As not a single fragment of burnt bone was encountered in the pit fill, it cannot be established whether we are dealing with the remains of a pyre, leaving several options. The charcoal from the pit was unfortunately not ¹⁴C-dated, so with regards to its age it can only be stated that the feature must predate the erection of Mound 3.

When digging a small profile section pit alongside the southern profile in 2008 to gain a quick impression of mound, two very vague, red-brown features (S16 and S17) were encountered at the depth of what would later be Level 8. Both features were excavated and recorded in 2008. At the time, S17 was already considered doubtful due to its shallow depth (8 cm) and very irregular shape. S16 in contrast was somewhat more regular in shape and extended another 20 centimetres in depth, and at the time was recorded as a small pit. The eventual Level 8 (far underneath the mound) was only dug late in 2009 and revealed several such 'features'. They were all red-brown, irregular features that showed up due to the contrast they made with the surrounding, light, coarse gravelly sand. Such 'features' were also encountered underneath Mound 2 (see also Section 8.3.2) and were interpreted as natural phenomena. In hindsight S16 very likely also falls into this category of pseudo-features.

The next feature (S19) has already been mentioned in the description of Grave 11 (S6). It is a charcoal concentration located directly northeast of the cremation grave in question. The concentration itself was modest in diameter (20 cm) and extended another 10 centimetres under Level 5. Like with Grave 11, it seems that bioturbation is responsible for distributing small charchaol specks outside the original concentration of 20 centimetres, forming the aforementioned 'aureole' around the original feature. This was some 50 centimetres in cross-section. In this manner S19 became 'attached' to S6 (Grave 11) while they are in fact separate features.

The last feature is a large pit (S28) uncovered far outside (several metres) the western foot of the mound while digging Level 7. As with the natural features S16 and S17, this also concerned a red-brown feature that contrasted well with the surrounding light, coarse gravelly sand. A big difference with the other red-brown, natural features, however, was its size (85 cm in diameter) and the presence of charcoal specks in the fill. The cross-section of the pit was a regular bowl-shape, which at its deepest point extended 28 centimetres underneath Level 7. Whether in this case we are dealing with an anthropogenic pit remains the question. It is worth noting, for example, that the many small roots that extend to the bottom of the pit more or less follow the shape of the pit. A small tree fall into which some very small charcoal specks blew, would be as plausible an explanation for the appearance and contents of the pit as human intervention.

In summary, of the category 'other features', only the pit with charcoal (S15) and the charcoal concentration by Grave 11 (S19) can definitely be considered anthropogenic. All remaining features in this category appear to more likely be natural in origin or are fragments of strongly disturbed archaeological contexts like S8 and S10.

9.4 Find material

9.4.1 Pottery

In terms of weight, the amount of prehistoric pottery found in Mound 3 is almost exactly the same as in Mound 2: 229 grams (17 find numbers). Of this 130 grams originates from a single feature (S12, Grave 13). The other sherds, with the exception of one small fragment (V481), are all loose finds from the mound body. The mentioned sherd V481 likely originates from Grave 16, but cannot be ascribed to this burial with any certainty.

Pottery from Grave 13

In total eight loose sherds were found spread throughout Grave 13 (V248, V249, V250, V251, V252, V323, V366 and V375), which can all be identified as being from the same vessel based on their paste. A ninth sherd (V114) was encountered earlier outside of the feature and it is without a doubt from the same vessel. The rounded and oxidized fracture planes confirm that the pot was broken prior to being exposed to fire, possibly on the pyre. The pottery is beige/light brown in colour. On a recent break, however, there is a dark grey colour visible. This means that only the exterior surfaces were oxidized and were likely much

darker in colour in an earlier stage. The pottery is more solid than that from Mounds 1 and 2 and tempered with a combination of finely powdered granite-/quartz (1–2 mm) and grog. The thickness of the wall is 7–8 millimetres. Both the interior as exterior surface is smoothly finished. One fragment (V249) even still shows fine lines of a cloth (or fingers) used to smooth the exterior surface. The sherds show no indications of rim or wall decorations. Neither a complete profile nor the diameter could be reconstructed. Nonetheless, one of the rim sherds does confirm it to originally have been a weakly profiled, neckless vessel with a high shoulder (see Fig. 9.23). Such a shape is not uncommon for the Middle Bronze Age, which conforms well with the ¹⁴C-dating of cremation remains from Grave 13.

Sherds from the mound body and the old surface

As a slip finish is considered characteristic of Iron Age pottery (Van den Broeke 2005, 608), three sherds from the top of Mound 3 (V6, V12 and V767) form the first (and only) convincing indications of human activity at the location of the Wieselseweg barrows during the Iron Age. All three sherds were encountered high in the mound body.

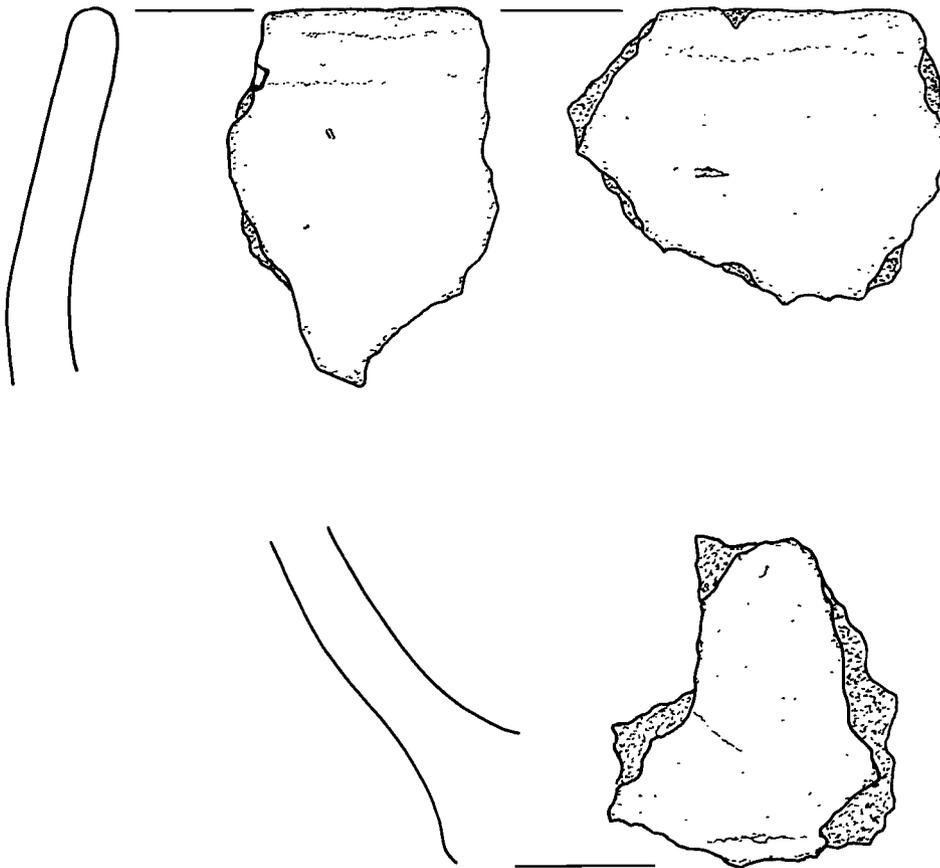


Fig. 9.23: Pottery from Grave 13 (scale 1:1).

It is therefore well possible that the sherds ended up in the barrow from the surface through ‘trampling’ or the rooting wild boars. However, it cannot be excluded that that the sherds represent secondary burials from the Iron Age that were disturbed. Two of the three sherds, V12 and V767 (Fig. 9.24b) appear very similar and were both found along the southern profile section. It is therefore well possible that they are from the same pot. They are tempered with medium-coarse quartz (3 mm), between 8 and 9 millimetres thick and orange/light brown in colour. The third sherd (V6) has the same colour and thickness but a different temper: small pieces of gravel. The slip of this sherd is also much finer and the interior surface is much coarser when compared with the other sherds. Moreover, the V6 sherd is weathered, while sherds V12 and V767 have old but straight fracture planes. It is clear that the three Iron Age sherds originate from at least two vessels.

The next two sherds (V24 and V26) both were found while digging Level 4. The first fragment (V26) was found by Grave 13 and is a rim fragment with a relatively small wall thickness (5–6 mm; Fig. 9.24a). The shape and temper (finely crushed granite) is consistent with the two rim

fragments found in Grave 13, but the firing conditions and surface finish differ. Both the interior and exterior surface of the sherd are rougher than those found in Grave 13 and the colour of the pottery, grey brown to dark grey at the core, reveal that they were fired under reduction, more so than the pottery in Grave 13. Given the shallow depth of the find underneath the current (and old) surface it should be taken into consideration that the sherd could have ended up in its find location in several different ways. The second fragment was found slightly more towards the centre of the mound and is strongly weathered. The paste is tempered with crushed stone and 7 millimetres thick. The exterior surface is rough, oxidized and beige/light brown in colour, while the core and interior surface are dark grey. Both fragments offer no clues to date them any more narrowly than prehistoric.

The final two pottery fragments (V94 and V112) were found at least 80 centimetres from each other, but do fit together. The sherds were found while digging Level 5 at the depth of the old surface. They are a relatively hard paste, tempered with medium coarse quartz (2–4 mm). The sherds are 8–9 millimetres thick, entirely beige/light brown

F. no.	Trench	Level	S	N	Wght.	Pot section	Temper	Surf. fin.	Thickness	Firing cond.
6	301	2	999	1	12.5	Wall	Gravel	Slip	8–9 mm	Ox
12	301	2	999	1	17.3	Wall	Crushed quartz	Slip	9 mm	Ox
24	301	4	999	1	6.3	Wall	Crushed quartz	Rough	7 mm	Red (Ox)
26	301	4	999	1	7.5	Rim	Crushed stone, CBDF	Smooth	5–6 mm	Red (Ox)
94	301	5	999	1	13.0	Wall	Crushed quartz	Slip	8–9 mm	Ox
112	301	5	999	1	5.2	Wall	Gravel	Smooth	8 mm	Ox
114	301	5	999	1	12.5	Wall	Crushed stone, CBDF	Smooth	7 mm	Ox-Red-Ox
248	301	5	12	1	15.3	Rim	Crushed quartz/granite	Smooth	7–8 mm	Ox-Red-Ox
249	301	5	12	1	19.6	Rim	Crushed quartz/granite	Smooth	8 mm	Ox-Red-Ox
250	301	5	12	1	25.4	Wall/base	Crushed quartz/granite	Smooth	7–15 mm	Ox-Red-Ox
251	301	5	12	1	14.0	Wall	Crushed quartz/granite	Smooth	6 mm	Ox-Red-Ox
252	301	5	12	1	9.3	Wall	Crushed granite	Smooth	8 mm	Ox-Red-Ox
323	301	5	12	1	5.3	Wall	Crushed quartz/granite	Smooth	8 mm	Ox-Red-Ox
366	301	5	12	1	8.8	Wall	Crushed granite	Smooth	8 mm	Ox-Red-Ox
375	301	5	12	1	16.5	Wall/base	Crushed granite/pottery	Smooth	8–15 mm	Ox-Red-Ox
481	301	6	22	1	1.6	Wall	Indet.	Smooth	4–5 mm	Red
767	301	999	999	1	35.0	Wall	Crushed quartz	Slip	8 mm	Ox-Red

Tab. 9.2: Overview characteristics of the pottery from Mound 3. Explanation abbreviations: F.no. = find number; S = Feature number (*spoor* in Dutch); N = number of sherds; Wght. = weight in grams; Surf. fin. = surface finish exterior; Firing cond. = firing conditions. Explanation other abbreviations and codes: Indet. = indeterminable; CBDF = cannot be determined further; 999 = not applicable; Ox = oxidizing; Red = reduction fire. Other notes: 1.) when a number is listed with a pot section (for example 1 Rim), this means that the other fragments with the same find number cannot be identified. 2.) The firing circumstances are listed from the exterior surface to the interior surface: exterior – centre – interior. If only two variables are listed, the centre is included with the surfaces. If the firing conditions are listed between brackets (for example Ox (Red)) this means that the firing circumstances were primarily oxidising but that there are also reduction zones present and vice versa.

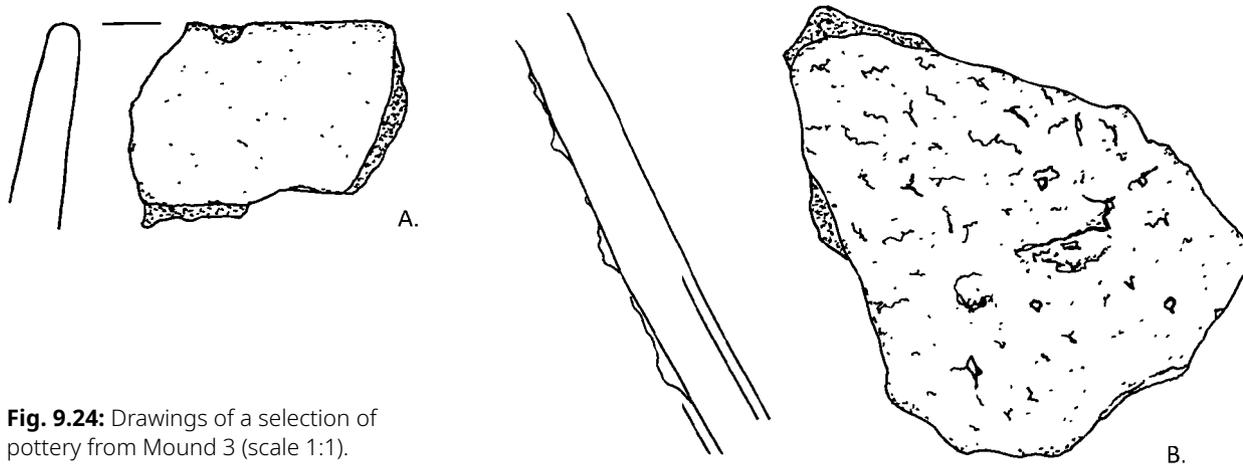


Fig. 9.24: Drawings of a selection of pottery from Mound 3 (scale 1:1).

in colour and have strongly weathered fracture planes. The exterior surface has a light slip, which indicates a typological date in the Iron Age. This date has consequences with regards to the origin of the sherds as they were found near the old surface and all the Mound 3 graves date to the Middle Bronze Age A. The sherds therefore must have worked their way into the mound from outside of it. Given the exact location of the sherds, 5–6 metres outside the centre of the barrow, this is well possible. Also the strongly weathered breaks indicate that the sherds moved around before ending up at their eventual find location.

9.4.2 Flint & stone

For Mound 3 a total of 48 find numbers were assigned in the category 'stone'. Also for Mound 3 it is true that 'likely' stones were collected as a precaution and examined in detail upon conclusion of the fieldwork. After analysis a substantial number of find numbers (32) were discarded as the stones proved to be pseudo-artefacts. These finds now labelled 'natural' are not discussed further. The remaining finds are described per context in the following. Here it once again will be noted that many of the finds were done in grave fills. As with Mounds 1 and 2, the sieving of the grave contents is the cause of the concentrated distribution of stone finds done here.

Flint from Grave 10

Among the cremation remains from Grave 10, four burnt flint fragments were found while sieving: V28, V40 and V722 (2 pieces). Of the larger fragment, the largest diameter is 22 millimetres. On all four fragments fracture planes caused by frost fission or heat are present. While it is clear that these are not worked flints, it is striking that four burnt fragments were found so close together. It is possible that they were taken to be cremation remains due to their white colour and shrinkage fissures and as such were collected from the pyre location and transported to Mound 3 with the cremation remains.

Flint stone from Grave 11

A burnt '*Maaseitje*' ('Meuse egg') was found (V144) while deepening Grave 11 by hand in spits. This rolled flint measures 29 × 26 × 24 millimetres, is broken open halfway and strongly weathered and crushed around the break surface. The many fracture planes are all rounded and appear to be natural in origin rather than the result of any kind of human intervention. The only possibly anthropogenic features on the stone, are those of burning, which could even be natural in origin. But as with Grave 10, it can be considered striking that the burnt stone was found in a context in which burning played an important role.

Flint from Grave 13

A total of five flint fragments were collected from the fill of Grave 13. The largest diameter of the largest example is 26 millimetres. The other four fragments are significantly smaller (largest diameters < 17 mm). None of these five fragments show clear signs of working. They did all five show signs of frost fission or splitting due to heat. The flint of V253 and V301 has turned white and has shrinkage cracks, showing they were clearly burned. Two other fragments are completely (V369) or partially (V254) milky white in colour. It is possible this colour also results from burning. These two fragments, however, show no signs of shrinkage cracks or potlits. Finally, the flint of V419 is red-brown in colour and is the only example that is clearly not burnt. Once again it is the question here whether the flints are actually part of Grave 13. The flint of V419 shows no signs of working or burning and therefore likely will have been already present in the natural subsoil. The other four fragments, however, are so white that they could easily have been mistaken for burnt bone and interred with cremation remains Grave 13. The fragments of V253 and V301, moreover, are very strongly burnt. Additionally, similar fragments were also found in Graves 10 and 11.

One other noteworthy stone find was done in the fill of Grave 13. It concerns a fragment of quartzite sandstone (V367) with a sharp and angular fracture pattern similar to the stones found in the pits underneath Mound 1. As has been extensively argued in Section 7.4.2, such fracture patterns can only occur in stone when it is heated to a high temperature and then rapidly cooled down. The stone cannot handle the internal tension and fractures. While it is only one such stone, it is striking that a similar stone pops up in a context that is consistent with the remarkable phenomenon underneath Mound 1 in terms of its date. Three similar finds were also done in Grave 4 (Mound 2; Section 8.4.2), and as will become clear in the following, Grave 13 is not the only context of Mound 3 to yield burnt stone.

Flint from Grave 18

A fragment of burnt flint (V635) was also found among the cremation remains in Grave 18. The fracture planes were caused by freeze-thawing and/or heat. In any case, it is not a worked piece of flint. The small fragment was collected outside of the orb-cremation of Grave 18, and was therefore probably present in the natural subsoil before Grave 18 was dug.

Flint and stone finds Mound 3

A small flint core (V3) was found in the top of the mound while digging the first excavation level. The small core measures 17 × 20 × 12 millimetres and is a homogenous dark grey colour. One facet still has a small bit of rounded cortex in the same colour. This indicates that it is rolled flint, which was likely locally collected. Given the location of the find in the top of the mound, it is difficult to determine the core's origin. It is possible that it came along with the sods that the mound was (likely) constructed with or was later worked into the mound from the top.

A burned and broken piece of quartzite sandstone was also collected under the same find number (V3). As with the flint core this could have ended up in its eventual location in the top of the mound in several different ways.

In addition to the two finds done in the top of the mound, two stone finds were done at the depth of the old surface. The first find (V85, Level 5) is a small flint flake (18 × 11 × 4.5 mm) with a milk white colour. The second find (V389) is yet again a fragment of heated and rapidly cooled fractured quartzite sandstone. This example still has part of the original smooth exterior surface of the pebble. One facet is an older fracture plane which has already become somewhat rounded. The four other facets have the same typical straight and angular fracture pattern as the stones underneath Mound 1. As was already noted earlier in this section, it is difficult to state whether we are dealing with a similar ritual as suggested for Mound 1 based on only a few loose stones. Nonetheless, it is very much a striking

phenomenon that such stones also turned up in Mounds 2 and 3. It cannot be excluded that we in fact are dealing with the remains of a similar ritual.

9.5 Phasing and dating

9.5.1 Events precedent the erection of Mound 3

With the exception of the various burials, few indications of human activities were found in and under Mound 3. The only feature under Mound 3 that cannot be linked directly to a grave is the bowl-shaped pit with charcoal fragments (S15; Section 9.3.2) to the south of the centre of the mound. The function of the pit is difficult to establish and unfortunately no ¹⁴C-date is available for this feature. What is clear is that the feature is covered by the barrow and therefore must predate it. It is, however, equally possible that it is a Mesolithic hearth as a feature related to the barrow.

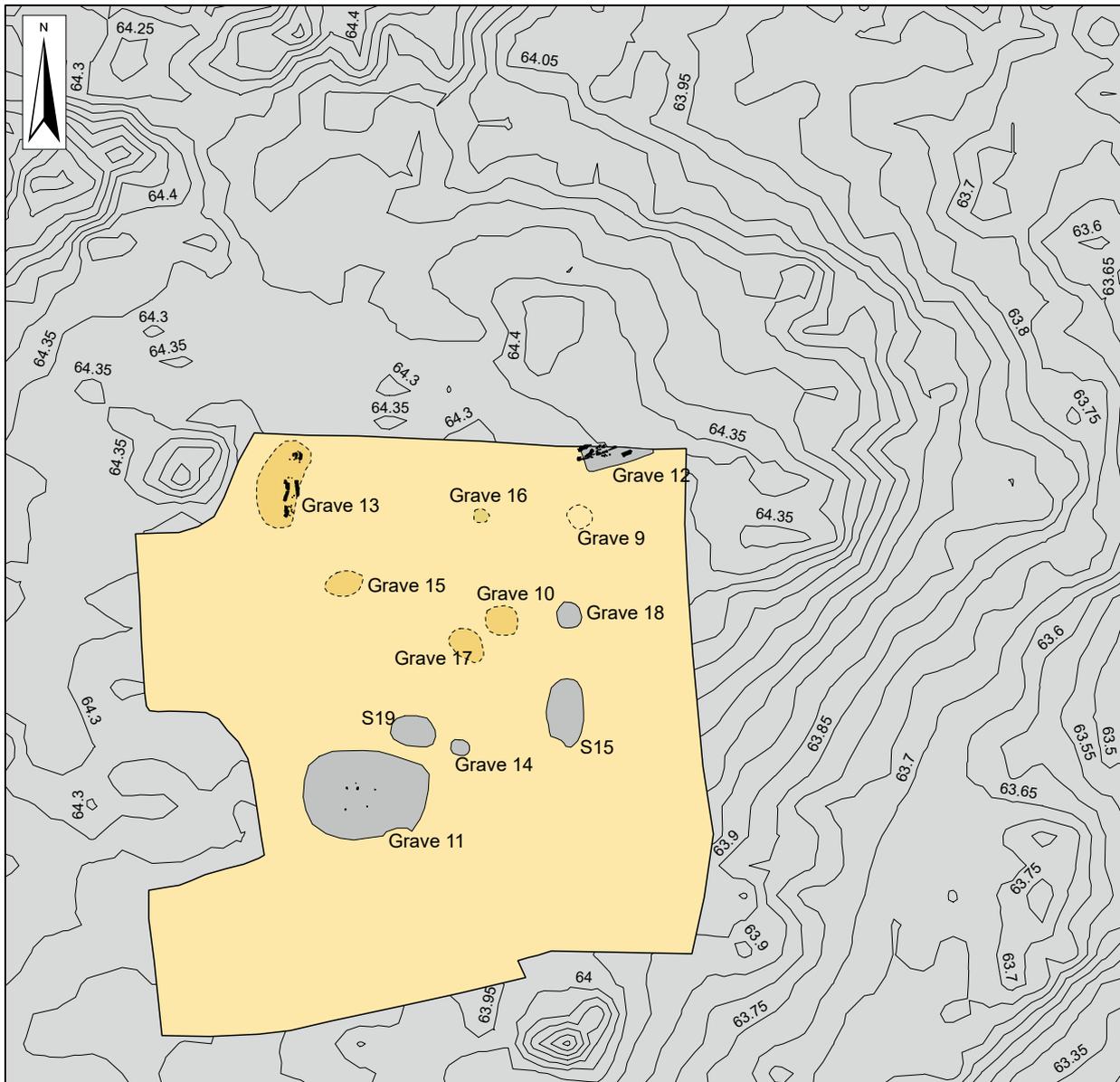
A second feature that cannot be directly linked to a grave is the charcoal concentration (S19; Section 9.3.2) northeast of Grave 11. This feature, however, was located so far outside of the centre of the mound that it was not possible to stratigraphically determine whether the mound covered it or whether it originally lay outside of it. Unfortunately there is also no ¹⁴C-date of the charcoal available. While it is argued above that the charcoal concentration cannot be linked with the close by Grave 11 (or Grave 14), it cannot be excluded that it related to one of the cremation burials.

A final event predating the construction of Mound 3 is formed by the precipitation of charcoal specks at the depth of the old surface. It is possible that these charcoal fragments originated from a nearby funerary pyre and were blown in this direction by the wind. It was thanks to these small charcoal fragments that we were able to recognise the old surface underneath the mound.

9.5.2 The sequence of the burials

Bone material from all ten cremation graves found in the southwest quadrant of Mound 3 was ¹⁴C-dated. In addition charcoal from two of the burials was also dated (Tab. 9.3). All ten graves proved to date to the Middle Bronze Age A. Once again the various graves so clearly date together that no sequence of events can be reconstructed based on ¹⁴C-dates alone. In only a few cases do the stratigraphic positions of the various graves provide insights into the order in which graves were created. When the position of the graves in relation to the mound body is taken into account, this yields comparable results as with Mound 2.

Graves 9 and 10, for example, were found so high in the mound body that they must be secondary burials dug into the mound body. Of the other graves, the barrow undoubtedly covers only Grave 12. Graves 11 and 13, which manifested at the same depth as Grave 12, were



Legend

- Charred wood
- Grave
- Grave; pit not visible
- Grave/feature
- Trench 301



Fig. 9.25: Compilation field drawing Mound 3.

located so far outside of the centre of the barrow that they originally could not have been in or under the mound. How these graves then relate to Grave 13 located under the centre of the mound therefore cannot be determined based on stratigraphy. Then there are the five smaller pits with concentrations of cremation remains, which all only became visible from the level of the old surface

(Graves 14–18). Grave 14 was located directly to the east of Grave 11 and therefore most likely also originally lay outside of the barrow. Graves 15, 16 and 17 could both be secondary burials dug deep into the barrow or burials dug into the old surface. It remains striking that they only became visible from the depth of the old surface onwards. Finally, Grave 18 was located so deep under

Tab. 9.3: Overview ¹⁴C-dates of the graves in Mound 3. See also Table 2.1.

Context	Feature no.	Find no.	Lab code	BP	Cal BC 1σ (68.2%)	Cal BC 2σ (95.4%)
Grave 9	301.20	11	GrA-51589	3240 ± 35	1600–1451	1611–1439
Grave 10	301.30	722	GrA-51963	3360 ± 30	1688–1622	1742–1546
Grave 11	301.60	443	GrN-32577	3305 ± 20	1617–1535	1631–1521
Grave 11	301.60	409	GrA-51951	3395 ± 30	1740–1644	1756–1620
Grave 12	301.70	664	GrN-32579	3345 ± 20	1662–1616	1728–1546
Grave 12	301.70	700	GrA-51953	3340 ± 30	1683–1565	1729–1531
Grave 13	301.12	419	GrA-51721	3325 ± 35	1658–1534	1690–1513
Grave 14	301.18	332	GrA-51952	3330 ± 30	1661–1546	1689–1528
Grave 15	301.22	452	GrA-51710	3370 ± 35	1730–1623	1749–1546
Grave 16	301.23	378	GrA-51696	3345 ± 35	1688–1565	1737–1530
Grave 17	301.24	734	GrA-51701	3385 ± 35	1736–1636	1769–1565
Grave 18	301.26	678	GrA-51719	3365 ± 35	1727–1620	1746–1535

Tab. 9.4: Relationship between the graves of Mound 3 and the mound body.

	Prior to erection of the mound	Secondary burial	No stratigraphical relationship	Relationship uncertain
Grave 9		X		
Grave 10		X		
Grave 11			X	X
Grave 12	X			
Grave 13			X	X
Grave 14			X	X
Grave 15				X
Grave 16				X
Grave 17				X
Grave 18				X

the mound and the old surface (Level 7!) that it seems very unlikely that this burial is a secondary burial dug through the mound body. Though still, even for Grave 18 this possibility cannot be excluded.

In summary, Grave 12 is a candidate for primary central burial of Mound 3, and Graves 9 and 10 appear to be secondary burials in the mound body (Fig. 9.25). How the other seven graves temporally relate to the primary central burial remains difficult to ascertain (Tab. 9.4). This will be addressed further in the concluding discussion of this chapter.

9.5.3 Iron Age

Various pottery sherds with slips (Dutch: *bismeten*) were found in the upper layers of the mound body (both in the top and around the foot of the barrow). The two clearest examples were found close together in the top of the mound, to the south of the centre. It is possible that these are the remains of an Iron Age urn present in one of the unexcavated quadrants that was ploughed apart. They, however, could also be the leftovers of other activities. In Rhenen, for example, loose Iron Age sherds were also found in the top of an Early Bronze Age barrow which

were clearly not from a grave (Bourgeois *et al.* 2010a, 74–6). Exactly which activity the Iron Age sherds in the top of Mound 3 reflect, unfortunately remains unclear. In any case, it is apparent that the Wieselseweg were also visited by people during the Iron Age and likely were also recognized as burial mounds at that time.

9.6 Conclusion

9.6.1 Concluding remarks

Mound 3 is small barrow some 50 centimetres high, 8 to 9 metres in diameter and dates to the Middle Bronze Age A. The irregular shape of the present-day mound body appears to be the result of 20th century disturbances. Thanks to this irregular shape, the excavated southwest quadrant may have covered more than just the southwest quarter. No sods or mound phases could be discerned due to the strongly weathered soil. In total ten cremation burials were found, which also were all dated to Middle Bronze Age A. The nature and distribution of the graves of Mound 3 are strongly reminiscent of nearby Mound 2. At Mound 3 the various graves are distributed throughout and underneath the mound body and it remains very



Fig. 9.26: Visualization of Mound 3. The white figures represent the individuals identified through the excavation. Figure by S. van der Vaart-Verschoof.

much the question whether all graves were originally covered by the barrow (Graves 11 and 13). Once again the possibility should be taken into consideration that the barrow itself formed a monumentalization of an existing cemetery. How the various graves exactly relate to each other and to the mound body is difficult to determine due to the weathered soils and lack of stratigraphic insights. Grave 12 in any case is clearly covered by the barrow, and Graves 9 and 10 in turn reflect secondary burials in the mound body. For the other seven graves no definitive answer can be given. A number of pottery sherds with slips were found spread out through the barrow reveal that Mound 3 was also visited in the Iron Age. The nature of the activities that took place at this location during the Iron Age is likewise difficult to determine. It is possible that the sherds originate from a secondary burial that was ploughed apart, although it is not unusual to find Iron Age sherds to be found loose in older barrows.

9.6.2 Funerary ritual

All burials of Mound 3 are also cremation graves and once again different forms can be discerned. In three graves suspected pyre remains play an important role: large amounts of charcoal were found both in the centrally located Grave 12 as in the more peripherally positioned Graves 11 and 13. In Graves 12 and 13 it was even possible to discern multiple small charred beams. In Grave 11 and 12 cremation remains and suspected pyre remains were placed next to each other in a pit. The cremation remains in these graves were distributed in swatches of 15–20 centimetres wide and 100 centimetres long. They were not in their anatomically correct position. It is suspected that they were strewn into a burial pit or placed into the grave in an elongated container. In Grave 13 there once again seems to have once been a certain ordering of cremation remains and (suspected) pyre remains, but

this was disturbed by ploughing activities in the 19th and 20th centuries AD. In any case, the bottom of the elongated burial pit appears to have been ‘paved’ with charcoal and the cremation remains strewn over this. Several pottery sherds were also found spread out through the burial pit. These sherds are all from the same pot, which was fragmented prior to burial. Grave 13 is the only grave of Mound 3 to feature pottery. Graves 11, 12 and 13 have relatively large burial pits (± 100 cm in length).

For at least six of the remaining seven graves it can be stated that we are dealing with significantly smaller burial pits (in as far as can be reconstructed: 20–50 cm in cross-section) and, in contrast to Graves 11, 12 and 13, that charcoal played no important role in their final creation. Grave 9 is too disturbed to make any such statements about, but it is clear that the cremation remains were located so high in the mound body that it has to be a (disturbed) secondary burial. Regarding the other six graves, only in Grave 18 could a clear compact ‘orb’ of cremation remains be discerned which matched the size of the pit in terms of its dimensions. The cremation remains were probably packed in an organic container and placed on the bottom of a small pit. Graves 10 and 17 could have been similar in grave form but were both heavily disturbed by the roots of the tree trunk located in the centre of the quadrant. The other graves (14, 15 and 16) all yielded more diffuse distributions of cremation remains throughout the pit. None of these seven graves yielded grave goods.

Even though more differences can be discerned between the various cremation graves of Mound 3 it is still likely that members of the same community were buried here. The ¹⁴C-dates of the various graves lie so close together that the dead could have known each other in life. They also reflect the sex and age of a local community or even household, more so than at Mound 2: men, women and children are all represented.

Chapter 10

The surroundings of the Wieselseweg barrow group

Arjan Louwen, David Fontijn
& Cristian van der Linde

10.1 Introduction

Four test trenches were dug in the surroundings of the three burial mounds during the summer of 2008 (Trenches 1, 2, 4, 5) as well as a small sondage (Trench 17). These trenches were all located between the barrows in (see Fig. 10.1). It soon became clear that the terrain had suffered heavily from the forestry activities that took place here in the past centuries. In 2009 the research into the barrow surroundings was continued outside of the terrain with the three mounds (Trenches 18–27). As part of this, a number of trenches were dug in the extension of the southwest quadrants as well as a few farther removed from the mounds (Fig. 10.1). Most of these Trenches also proved to be empty or disturbed. Only Trench 24 yielded an important discovery. Hidden amongst the roots of a tree lay a pit, which based on its contents and appearance clearly relates to the pits discovered underneath Mound 1 (see Chapter 7). The results of the research into the surroundings of Mounds 1, 2 and 3 are discussed further per context below.

10.2 Features and structures

10.2.1 Square structure?

In Trench 5 a three- possibly four-post structure was encountered right underneath the thin topsoil (Fig. 10.2). Three postholes (S5.1, S5.2 and S5.3) were located 2 to 2.5 metres from each other and appear to form a square structure. There was a tree exactly where one would expect to find a fourth corner post, which meant it could not be confirmed whether this was in fact a four-post square structure. The same grey discolouration noted in the three other features, however, was observed among the roots. S5.2 and S5.3 were postholes, while S5.1 was a posthole pit. The features were between 25 and 35 centimetres in cross-section, and the deepest feature (S5.1) extended 11 centimetres underneath the excavation level. All three features have a messy, dark grey fill and as such do not appear to be old. However, no find material was recovered from the features to confirm this.

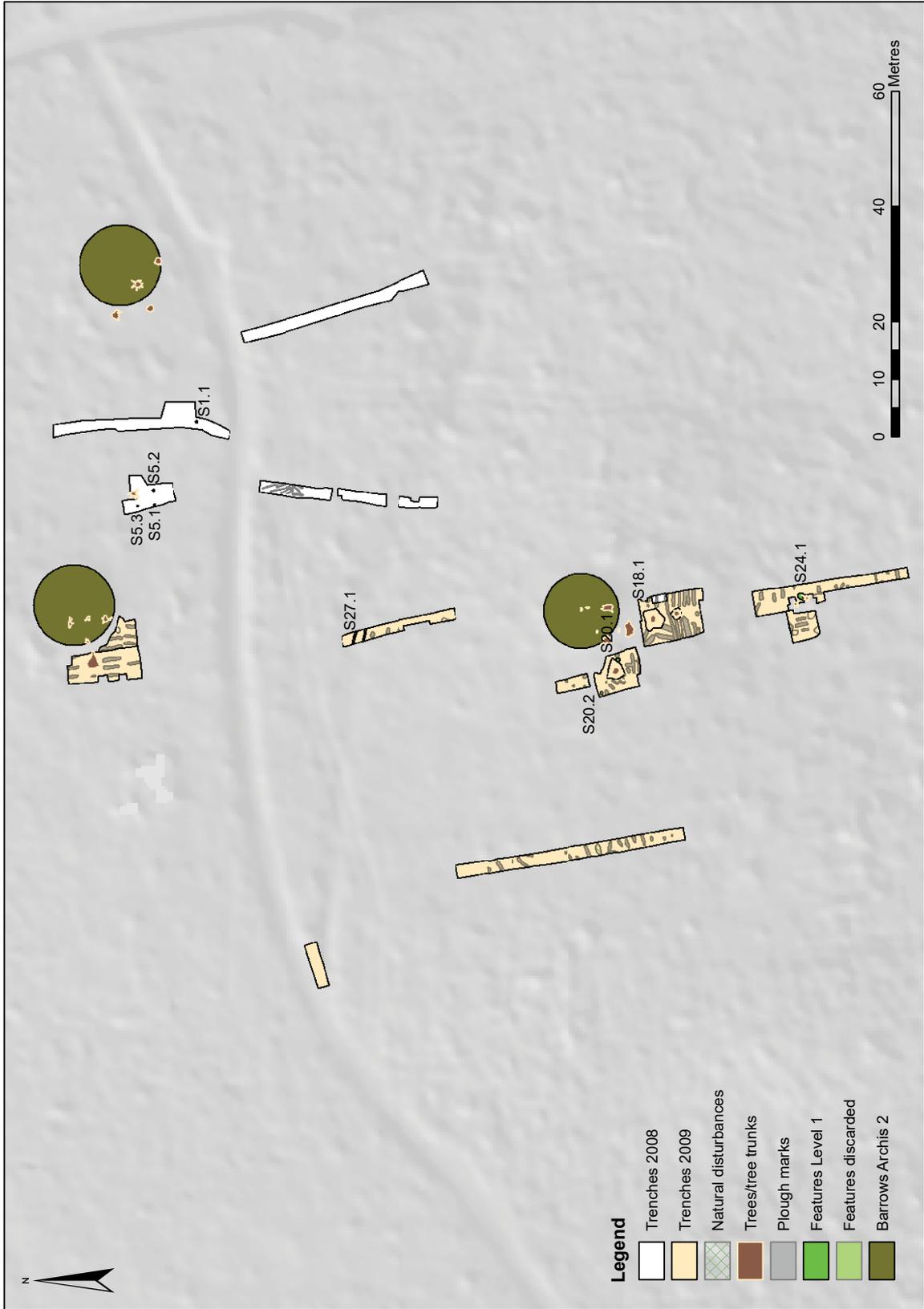


Fig. 10.1: All Trenches-/features map surroundings of Mounds 1, 2 and 3.

Trench	Feature	Level	Interpretation field	Interpretation definite	Depth (cm)	Complex
1	1	1	Posthole	(Post) pit	7	
1	2	1	Plough mark	Reclamation/plough mark	21	Forestry activities
1	3	2	Plough mark	Reclamation/plough mark		Forestry activities
1	4	2	Plough mark	Reclamation/plough mark		Forestry activities
1	5	2	Plough mark	Reclamation/plough mark		Forestry activities
1	6	2	Plough mark	Reclamation/plough mark		Forestry activities
5	1	1	Posthole	Posthole (pit)	11	Possible square structure
5	2	1	Posthole	Posthole	7	Possible square structure
5	3	1	Posthole	Posthole	8	Possible square structure
18	1	1	xxx	Natural disturbance		<i>Discarded</i>
18	2	2	Pit	Pit?	66	
18	3	2	Post pit	(post) pit	18	
20	1	1	Pit	Pit?	25	
20	2	1	Plough mark	Reclamation/plough mark		Forestry activities
24	1	1	Pit	Pit	42	Pit with heated/broken stones (Mound 1)
27	1	1	Ditch	Cart tracks		Cart path

Tab. 10.1: All features in the surroundings of Mounds 1, 2 and 3.

10.2.2 Plough marks

Various kinds of plough marks were observed over the whole terrain. Some, such as those in Trench 4, were relatively thin and have a somewhat random orientation (Figs. 10.1 and 10.3). Other examples, like those in Trench 18 (Figs. 10.1 and 10.4), were more than 50 centimetres wide and formed regular, straight patterns in a locally narrow grid. The different patterns, sizes and orientations of the plough marks likely reflect different phases in the history of planting and maintaining the forest.

10.2.3 A fifth pit with broken stones

Some 30 metres to the south of Mound 1 (see Fig. 10.5), a substantial pit filled with a large concentration of broken and burnt stones was discovered between the roots of a harvested tree (Fig. 10.6). Similar collections of burnt and broken stones were already encountered in pits under Mound 1. With this in mind, uncovering the stone concentration was undertaken with great care. When during this process an amber spacer-plate was found (Fig. 10.10; V725, see also Section 10.3.4), we became even more alert and sieved the entire contents of the pit at the site (mesh width 2 mm). No other amber fragments were encountered during this process. The pit did prove to contain a few small fragments of pottery and burnt loam, in addition to the in total 297 (7953 gr.) broken and burnt stones.

As this pit was located halfway underneath a tree trunk, the top half in particular had been heavily disturbed. The section shows a light grey-brown top fill (2) right underneath the young topsoil (Fig. 10.7). No finds were done in this top fill. In the excavation level the pit showed up relatively round in shape and had a diameter of almost 1 metre (Fig. 10.6). At the depth of excavation Level 1, the fill (1) of the pit was dark grey and homogenous in colour. This colour was caused by the presence of small charcoal fragments. From Level 1 the pit extended another 40 centimetres. The burned and broken stones were positioned in an elongated shape (NW – SE) just underneath Level 1 (Figs. 10.8 and 10.9). The sides of the pit transitioned into the fairly flat base of the pit at a slight angle. Just above the bottom of the pit, a light grey third fill could be discerned in the southern half (Fig. 10.7). It is likely that this is the clean soil that fell back into the pit after it was dug. The light red-brown layer observable underneath the pit (see Fig. 10.7) reflects soil formation underneath the feature. The looser structure of the pit likely caused the minerals by the pit to penetrate deeper, causing the feature to ‘sink’ as well.

Even though the pit in Trench 24 was located far outside of Mound 1, and in terms of dimensions turned out to be twice as big as the pits underneath Mound 1, a connection with Mound 1’s pit row does seem likely. Firstly because the pit is comparable with the Mound 1 examples

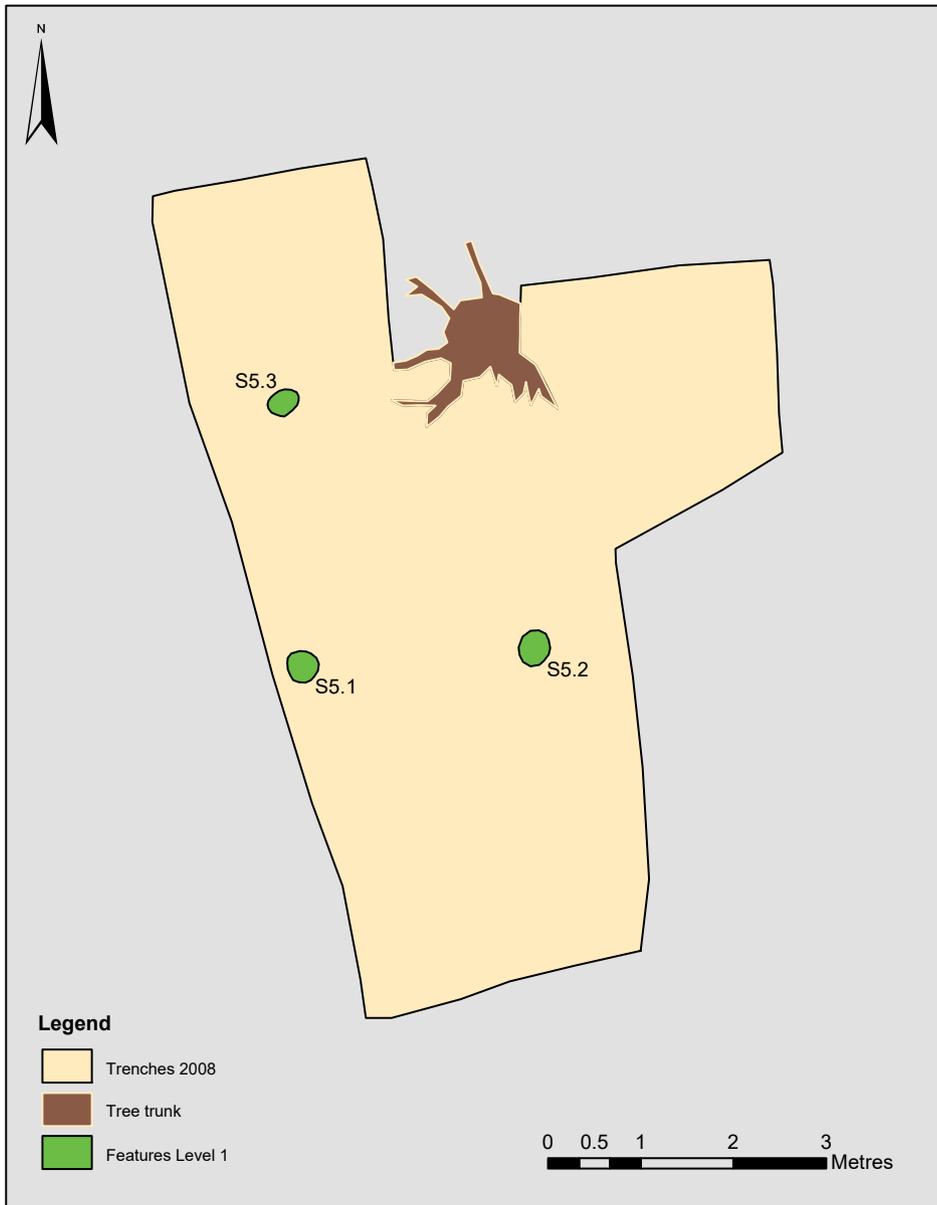


Fig. 10.2: Overview features in Trench 5.

in terms of content and appearance. Secondly, the pit more or less continues on the same 'line' as those of Mound 1 (see Fig. 10.5). It is therefore probable that the pit was part of the same row of pits and as such also dates to the Middle Bronze Age (see Section 7.3.3). The characteristics of the pottery from S24.1 also indicate a date in the Middle Bronze Age (Section 10.3.1).

Unfortunately the original function of this pit also remains unclear, though the form and content offer some hints towards the pit's use. Firstly, both the stones and the pottery were exposed to heat, as indicated by the characteristic splitting of the stones (Section 7.4.2) and the shrinkage cracks in the pottery (see Section 10.3.1). Even though charcoal particles were present in the pit, they are too sparse to be a hearth. It is therefore more

likely that the stones were heated elsewhere, and later (perhaps directly after) deposited in the pit. It is possible that the charcoal particles came with the stones. If the distribution of the stones in the pit is considered in more detail, an elongated concentration just northeast of the middle of the pit is visible. It is as though the stones were tipped into the pit in one go from a southwesterly direction. The alternative would be for the 297 stones to have been placed in this stretched out pattern individually, or at least only a few at a time.

Then there is also the fragment of an amber spacer-plate found among the concentration of broken and burnt stones (Fig. 10.10; see also App. 2). Considering the fact that the entire fill of the pit was sieved over a 2 millimetre mesh width sieve, it can be assumed that no second fragment of



Fig. 10.3: Plough marks Trench 4.



Fig. 10.4: Plough marks Trench 18.

an amber object was missed, at least not in the undisturbed part of the pit. It appears that only this spacer-plate fragment ended up in the pit. An important conclusion is that the spacer-plate was deposited in its fragmented state. Of course it could be assumed that this is consistent with the stones in the pit. An important difference, however, is the original function of the object. The spacer-plate appears to be the only object in the pit that was ever part of an ornament worn on the body (Section 10.3.4) and is therefore from an entirely different function category

than the other 297 stones. A pragmatic explanation for the presence of the ornament fragment in the pit is that this ended up here by accident while depositing the stones. Another option that should also be considered, however, is that it was an intentional deposition of a personal ornament. In the last few years, research into the Bronze Age of Northwest Europe has resulted in an ever-increasing awareness of the fragmentary nature in which objects, including jewellery, are recovered from various archaeological contexts. Interpretations, among others,

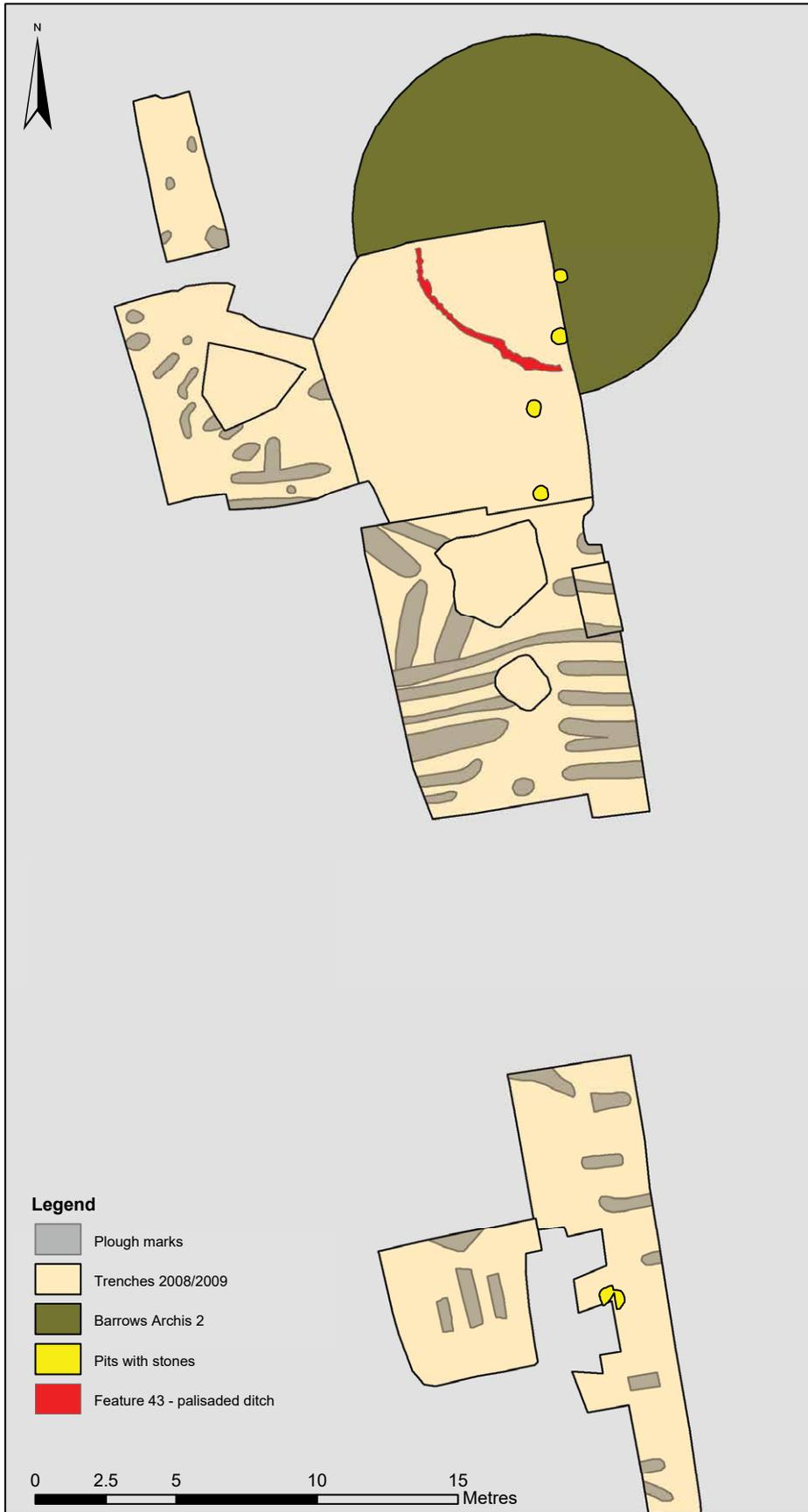


Fig. 10.5: Trenches and features in the surroundings of Mound 1.

are sought in the sphere of the existence of *relational identities* in Bronze Age societies in Northwest Europe, by which fragments of objects could reflect or even represent people (Brück 2004; 2006). The broken spacer-plate in S24.1 therefore just as well could have been part of a very deliberate and conscious deposition whereby a symbolic link was created between the deposition location and the to us unknown location(s) of the other components

of the pieces of jewellery. The fact that it is furthermore a fragment of a *spacer-plate*, an object whose intrinsic function is to link things, could be considered coincidental, but in light of a relational identity cannot remain unnoted. As it is hard to conceive that such a rare object would have been simply lost at precisely this location, the most plausible explanation is that it was deliberately added and deposited here.

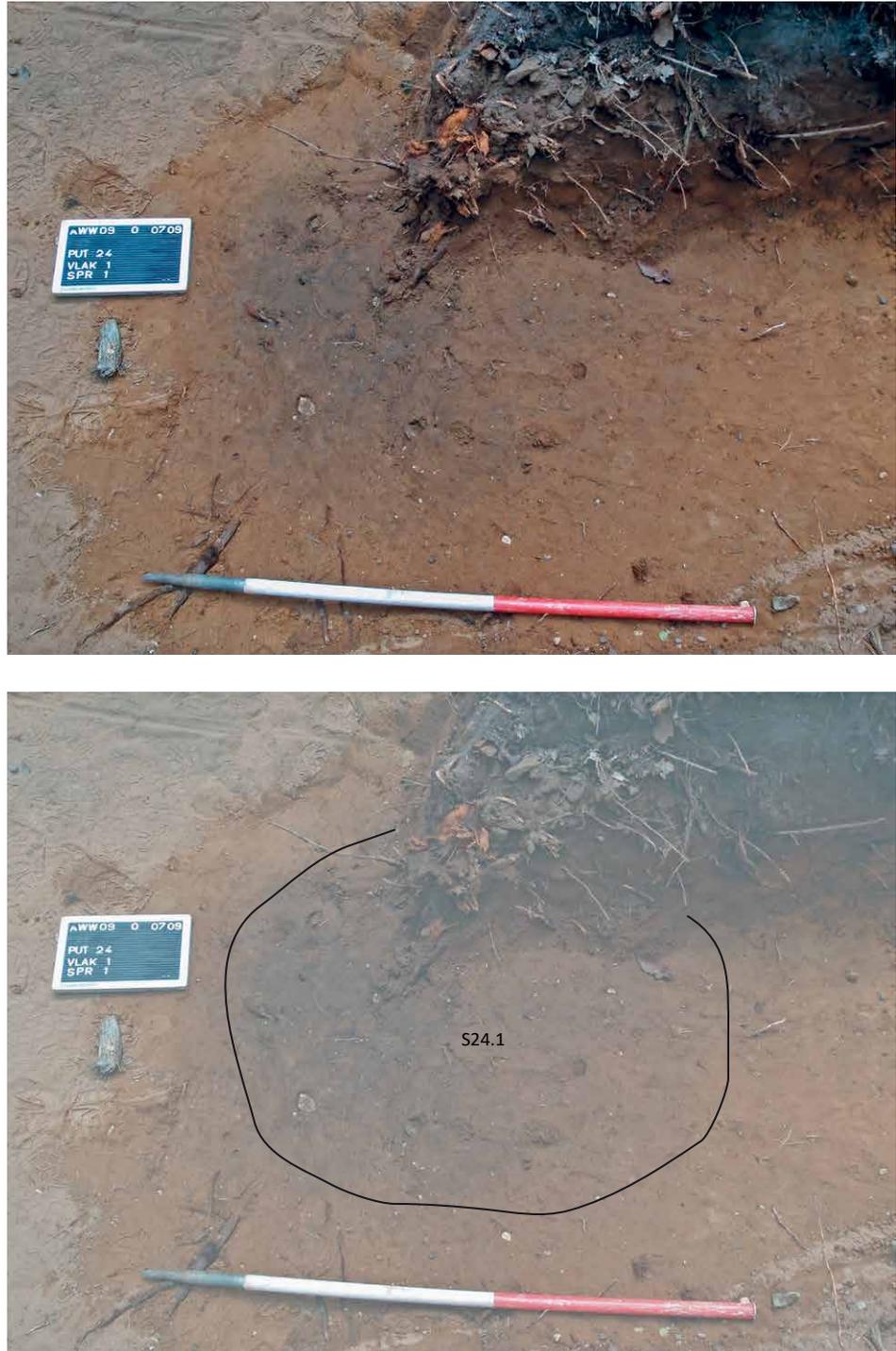


Fig. 10.6: S24.1 as encountered when digging Level 1.

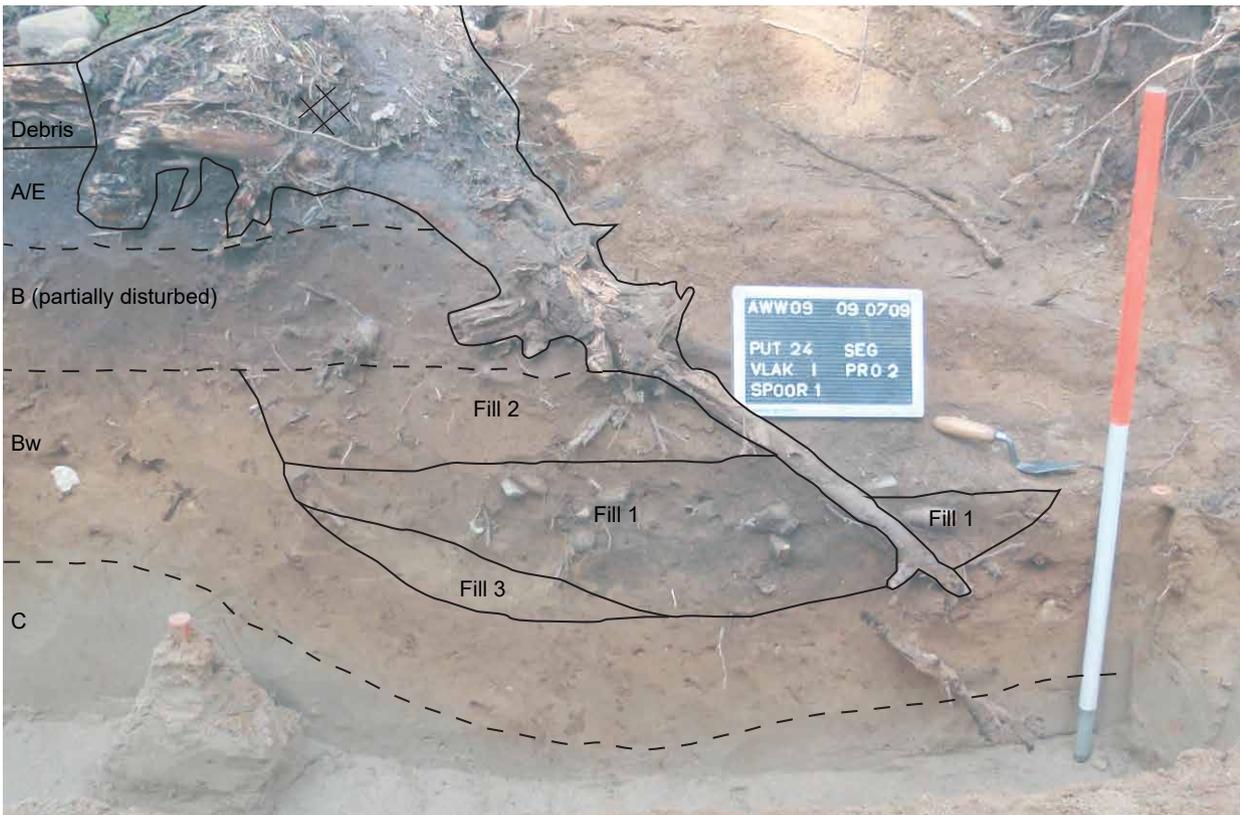


Fig. 10.7: Section S24.1.



Fig. 10.8: Impression stone concentration within S24.1.

Returning to the pit as a whole, its resemblance to the pits found underneath Mound 1 remains very striking. Apparently depositing heated and broken stones in pits did not only relate to the barrow location, but the surroundings of the barrow likewise were part of a stage upon which specific actions were performed. In other words, the row of pits with broken stones clearly forms a link between the location of the barrow and the surrounding terrain.

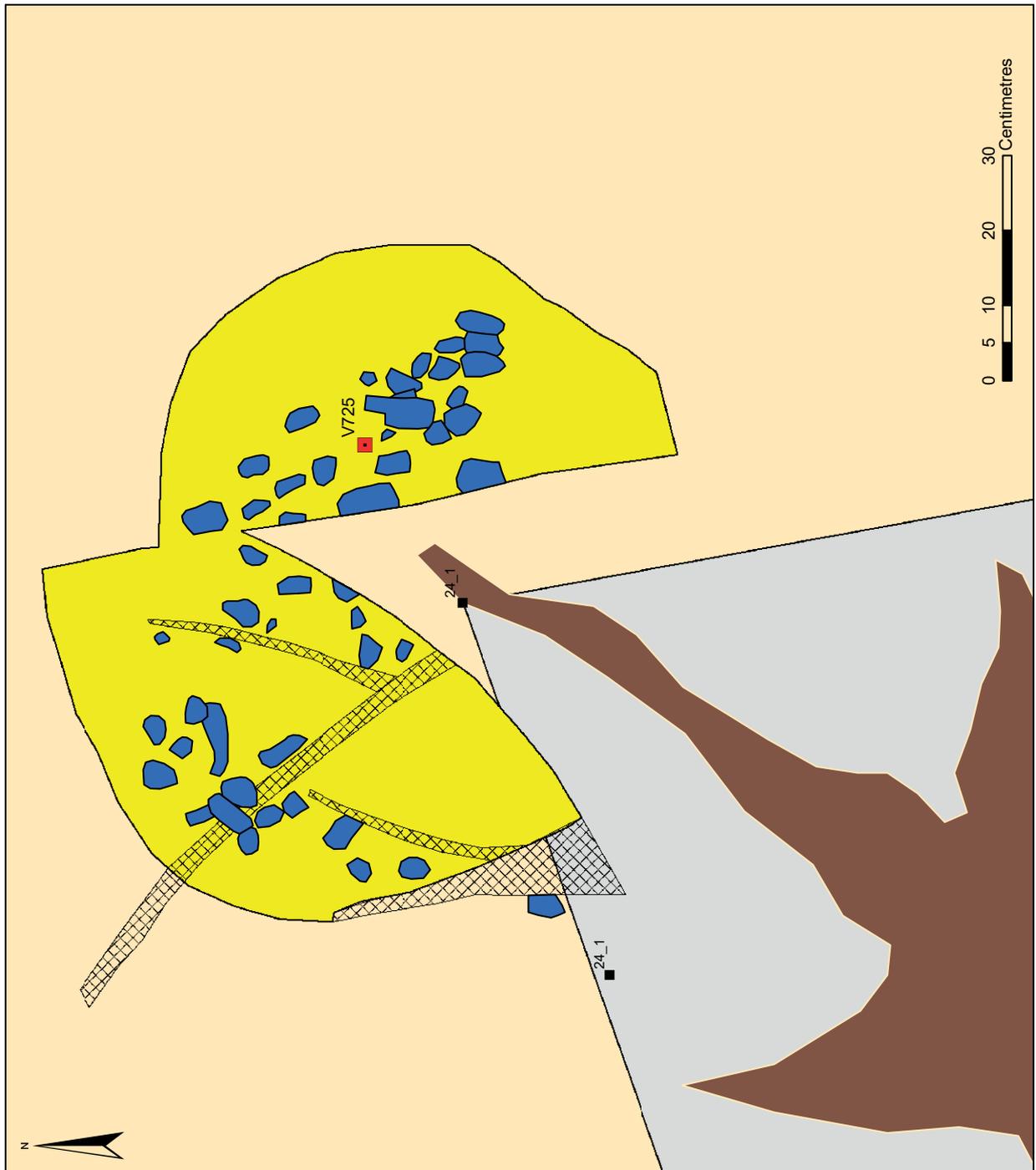
Pits with broken stones directly related to barrows are known from elsewhere as well. The clearest examples can be found in Germany. Near the small town of Hüsby (Schleswig-Holstein), a number of large pits with broken stones were discovered. These examples were located directly to the east of a Middle Bronze Age barrow which contained two stone burial chambers (Freudenberg 2012). Likewise to the east of the monument is an extraordinary allée consisting of 14 groups of each four posts in a square configuration. The various pits with heated stones were located at either side of the western end of this allée and even seem to form a small line across it.

A second German site also nicely matches the Wieselseweg situation. At Seddin (Brandenburg), almost 50 metres to the north of the Late Bronze Age 'Königsgrab', geomagnetic research discovered a 288 metres long, east – west oriented row of no less than 162 individual pits, each separated by 1.8 metres from the next (May/Hauptman 2012). A small sample (four examples) of these pits was excavated and these pits also contained a considerable amount of heated stones. ¹⁴C-analysis of charcoal from the four pits yielded

calibrated dates in the 10th century BC. Even though the Seddin pits date to the Late Bronze Age, and therefore are several centuries younger than the Wieselseweg examples, it does appear to be the same phenomenon. Not only the contents of the pits, but also the linear pattern and the location in the direct surroundings of a barrow are consistent with the Wieselseweg. Moreover, German scholars also consider a ritual function to the Seddin pits (May/Hauptman 2012, 87).

Another interesting parallel between the Wieselseweg and Seddin, which in this stage of the research cannot be definitively proven, is the relationship between the barrows and the pits with heated stones. Both for the pits of the Wieselseweg as for those of Seddin, it can be argued that the pits in question are older than the barrows. For the Wieselseweg there is the very real possibility that the pits are covered by the mound and a ¹⁴C-sample from the peripheral structure of the barrow at Seddin gave a date in the 9th century BC (May/Hauptman 2012, 85). Though we must still be cautious given that both barrows were only partially excavated. Should our understanding stay unchanged, then the possibility exists that for both barrows a location with an older ritual significance was sought out. This cannot be stated for the Hüsby pits.

In any case, the German examples illustrate that a relationship between barrows and pits with heated stones is a phenomenon with a wider distribution. Both Freudenberg (2012, 634) as well as May and Hauptman (2012, 87) furthermore remark that this phenomenon is more common in Germany and southern Scandinavia.



Legend

- Trees
- Roots
- Amber spacer-plate
- Stones
- Pits with stones
- Trenches 2008/2009

Fig. 10.9: Detail S24.1

10.2.4 Cart tracks

In the northern half of Trench 27, a wide swatch (S27.1) with slightly darker coloured edges (Fill 2) was uncovered while digging excavation Level 2. These darker edges form small strokes running in parallel with the wider swatch and were 25–35 centimetres wide. Between these swatches (Fill 1) the bottom of a post-medieval jug or amphora (V761) was found. In the field the swatches were interpreted as a recent ditch and were not sectioned. Some time after the fieldwork, however, a series of cart tracks were observed between Mounds 1 and 2 during examination of the AHN 2 (*Actueel Hoogte Bestand Nederland*, which translates to the Current Elevation Map of the Netherlands). These cart tracks run from a southeast direction (Apeldoorn/Wenum/Wiesel) between Mounds 1 and 2 through to the northwest (Uddel/Elspeet). Trench 27 turned out to have been dug directly over these cart tracks (see Fig. 10.1). The small

swatches in S27.1 (Fill 2) can in retrospect be interpreted as cart tracks. The base fragment of a jug gives a rough indication of the age of the cart tracks in the period from the 16th to the 19th century. Even though Mounds 1 and 2 were modest in size, we must consider the possibility that both were used as orientation points for the direction of the cart tracks. It is not uncommon that barrows were used in later periods as markers to orient oneself in the ‘empty’ landscapes between the old habitation centres (Jansen/Heibaut 2009, 66; Meurkens 2010, 14).

10.2.5 Other features

Spread out over the terrain a number of loose features were also found. The first example was located in Trench 1 and was a (post) pit 7 centimetres deep and 18 centimetres wide with a flat bottom. The dark, humus-rich fill indicates that the feature is recent in origin.



Fig. 10.10: Amber spacer-plate between the broken and burned stones in pit S24.1.



Fig. 10.11: Feature 18.3.

A second feature was encountered while digging a control level in Trench 18. This one (S18.3, Fig. 10.11) appears to be significantly older, based on the ruddy coloured fill which is comparable to the features in the intermediary palisaded ditch and postholes underneath Mound 1 (see Section 7.3.4). It is possible that it is a posthole of comparable age as the features underneath Mound 1. At the depth of Level 2 the feature was still some 20 centimetres in diameter, with a slightly pointed base, which extended 18 centimetres under the excavation level. No other postholes were found to suggest that this feature was part of a structure. A possible pit (S18.2) with the same ruddy colour was encountered in the profile section of Trench 18. The pit became visible 30 centimetres underneath the present-day topsoil, has a pointed shape and is more than 60 centimetres deep and 60 centimetres wide. Whether this indeed was an anthropogenic feature remains unclear: the feature was only partially uncovered in the profile and no finds were done in the feature's fill. Moreover, the features of the Wieselseweg can appear very similar due weathering.

Finally there is a possible pit in Trench 20, directly to the west of Mound 1. This feature (S20.1) had a cross-section of almost 70 centimetres and extended another 25 centimetres under the excavation level. Two fills could be discerned while sectioning the feature: an inner, homogenous, dark grey-brown fill (1) with chunks of charcoal, within a lighter and in terms of texture less well sorted fill (2) with less charcoal. No statements can be done regarding the age and function of the possible pit. Here a natural origin of the feature cannot be entirely excluded.

10.3 Find material

10.3.1 Prehistoric pottery

Prehistoric pottery was only found outside of the mounds in the pit filled with broken stones (S24.1), in this case two small and heavily weathered sherds. The first fragment (V697) has a coarse stone temper, was fired in reduction and has a wall thickness of at least 8 millimetres. The second fragment (V774) is entirely beige/light brown in colour, 6 millimetres thick and has a medium coarse quartzite temper. The exterior surface in particular is full of shrinkage cracks, which together with the fully oxidized and weathered fracture planes indicate the sherd was burned. The latter is consistent with the large amount of burnt stone, which was also present in the pit. Even though both sherds are unfortunately too weathered to make any definitive statements regarding a narrow date, the general impression of the paste does point towards the Middle Bronze Age. In addition to these two sherds, crumbs of pottery were also found in the sieve residues of the

various segments of the pit. These fragments, however, are too small to include a description.

10.3.2 Pottery and glass from the Modern era

Pottery from the Modern Era was found in Trenches 1, 24 and 27. Most of these sherds were collected from the topsoil (S5000) or plough marks. One fragment originates from the cart tracks in Trench 27 (S1). A clear, light green sherd of glass (V758) was also found close by the pottery of Trench 24. The glass is between 2 and 3 millimetres thick and contains a lot of tiny air bubbles. The pottery sherds from Trenches 1 (V4) and 24 (V758 and V762) are all redware pottery, and the example from Trench 27 (V761) is the base of a thrown jug or amphora.

10.3.3 Stone

Heated and broken stones from S24.1

Almost all stone finds from the research into the surroundings of the three barrows originate from the pit with broken stones described above. These stones show strong similarities to the stone pits underneath Mound 1. For a detailed description of the find material and the accompanying discussion regarding the function and use of the stones, the reader is referred to Sections 7.3.3 and 7.4.2. In the following only a summary description of the find material is presented.

In total 297 stones (7959 gr.) were collected from this pit (Fig. 10.12). A burned flint fragment was also recovered from the pit (V796). Once again various types of stone are represented, such as quartz, quartzite, quartzitic sandstone, basalt and tuff. It furthermore here also appears to be a random selection of stones from the direct surroundings and fragments of stone tools are absent. Furthermore it is also true for this find complex that the fragmentation of the stones is the result of heating to a high temperature followed by rapid cooling (probably with water), which accounts for the typical fracture pattern of the stones (see Section 7.4.2). Like for the stones under Mound 1, it is hypothesized they were used for the production of steam or cooking activities.

Heated and broken stones from Trench 18

While digging the heavily disturbed Trench 18, two stones (V597 and V598) were found which are strongly reminiscent of the stones found in the pits underneath Mound 1 and the pit in Trench 24. These examples also appear to have been exposed to heat as they show the same cracks and fractures as the stones from the pits underneath Mound 1 and in Trench 24. The fact that the heavily ploughed Trench 18 was located between Mound 1 and Trench 24 raises the suspicion that these two stones are from comparable pits. It is possible that the line of pits underneath Mound 1 once extended to at least the pit in



Fig. 10.12: All stones from S24.1.



Fig. 10.13: Detail amber spacer-plate (photograph: Joëlla van Donkersgoed).

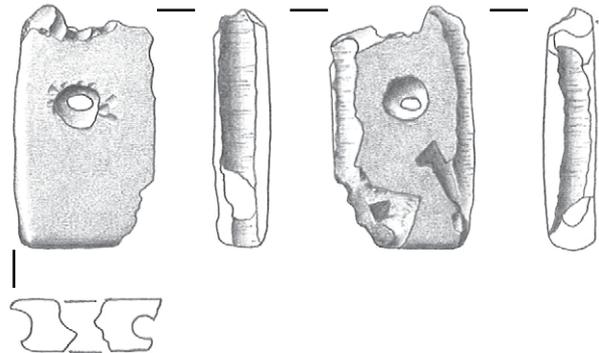


Fig. 10.14: Detail amber spacer-plate (scale 1.5:1; drawing: Raf Timmermans).

Trench 24, but that any pits located in-between did not survive the blades of the plough.

10.3.4 Amber spacer-plate

Among the 297 broken stones in S24.1 was a small amber plate with three drilled holes (V725, Figs. 10.13 and 10.14; see App. 2 by Van Gijn/Verbaas). The plate is rectangular in form (19 × 12 mm) and is only 4 millimetres thick. The object is clearly heavily damaged on all sides. Only one of the short sides is still partially intact. One drilled hole is located in the middle of the largest flat surface and has an irregular biconical shape (Fig. 10.14). The other two drilled holes run the entire length of the long sides. The breaks on both long sides occurred on these perforations. The edges of the biconical perforation are relatively sharp, indicating

little friction has taken place. The deep perforations on the long edges of the small plate, however, are rounded.

The amber plate is a so-called spacer-plate. Such spacer-plates were used to connect and keep apart the different strand of composite bracelets and necklaces (Harding 1993; Verkooijen 2013).

10.4 Phasing and dating

As was the case for the surroundings of AMK-monument 145, most features in the surroundings of the three mounds can be connected with the recent forest planting and maintenance activities. A number of finds, such as the

glazed pottery and glass described above can be dated to the period of the first Reclamation. The cart tracks found extending between Mounds 1 and 2 could be older than the first forestry activities.

There are also clues of human activities that predate the Modern Era. It is striking though that these were only observed in the surroundings of Mound 1. The high degree of disturbance on the terrain, however, precludes the drawing of any conclusions regarding this. In any case we can state, based on the pit in Trench 24, that during the Middle Bronze Age people were active in the surroundings of the barrow. The pit strongly resembles the pits in Mound 1, of which one example ¹⁴C-dates (GrA-48880) to 1681–1491 cal BC (2σ). The pottery from the pit of Trench 24 also points towards the Middle Bronze Age. Finally, the heated and broken stone from Trench 18 (V597 and V598) could likewise be from such pits.

10.5 Conclusion

The surroundings of Mounds 1, 2 and 3 also proved to have been more heavily disturbed by forestry planting and maintenance activities during the past centuries than expected. If more archaeological features were ever present, they were present in the upper regions of the subsoil and have been partially or completely destroyed.

The only prehistoric features in the surroundings of Mounds 1, 2 and 3 once again highlight the importance of the surroundings of barrows. The pit (S24.1) with broken and heated stones once again proves that activities related to the funerary landscape were not restricted

to the barrows themselves, but also took place up to 30 metres outside of the mounds. With the find of the pit in Trench 24, an important link between a barrow and its direct surroundings can also be confirmed for the Wieselseweg. It should be apparent that depositing heated and broken stones in a row of pits cannot be written off as a purely pragmatic act of which the function eludes us. The fact that similar pit rows also occur in barrow landscapes elsewhere in Northwest Europe demonstrates a link between depositing heated and broken stones in pits on the one hand and the practice of burying the dead in barrows on the other. A function linked to funerary ritual appears likely. The fragment of the amber spacer-plate, part of an ornament worn on the body, moreover could be linked with the practice of fragmenting objects in the sphere of a form of relational identity, which is so typical of the Bronze Age (Section 10.2.3).

The cart tracks observed in Trench 27 in turn show how barrows continued to play a role in the wider landscape during much later periods. In this case as orientation points for the routes that ran through the ‘empty’ areas between the habitation hubs.

In summary the research conducted into the surroundings of the Apeldoorn-Wieselseweg barrow group has established that even heavily disturbed contexts can still harbour important information regarding the wide cultural landscape context of barrows. In the case of the surroundings of Mounds 1, 2 and 3 it only took two clear features (S24.1 and S27.1) to place the surroundings of these barrows in entirely new light.

Chapter 11

Revisiting death

The funerary landscape of Apeldoorn-Wieselseweg

David Fontijn & Arjan Louwen

11.1 Introduction

This chapter brings together all results of the fieldwork as described in the previous chapters, in order to address the central question: what was the nature and significance of the three-mound-group discovered along the Wieselseweg, and how does this funerary landscape date?

11.2 Poorly preserved, inconspicuous, but highly significant

When the research started, hardly anything was known on the nature of the archaeology of the barrow landscape along the Wieselseweg. None of the barrows had seen professional excavation, there was no clue as to their dating and significance and nothing was known of the archaeological record outside the mounds. Moreover, the mounds in the recently discovered group of three were inconspicuous and modest in size. Prospections, especially of Mound 3, made us even doubt whether this moundlet was anthropogeneous at all.

11.2.1 *The mounds*

The excavation of parts of the three mounds showed that preservation was poor, but that all mounds indeed were prehistoric barrows which yielded important information on the deep past of the region.

The forest ploughing affected the tops of Mounds 2 and 3, and in particular large parts of the flanks and the top of Mound 3 have disappeared. Pedological processes have strongly homogenized features in all barrows, causing any cuts dug into some of the mounds (in particular Mound 3) to become almost invisible (see Section 5.4). These processes likely also contributed to the fact that pollen did not survive in any of the barrows. The reconstruction of the history of this barrow group presented below therefore lacks information regarding the prehistoric vegetation. With regards to the poor conservation, the degradation of features and the heavy disturbance of the archaeological record by forestry activities, make the Wieselseweg pale in comparison with the much better preserved features of the barrows located relatively close by at Echoput (Fontijn *et al.* 2011).

Nevertheless, even such inconspicuous and poorly preserved moundlets appeared to contain unexpected archaeological riches. The remains of no less than 19 individuals were found in three barrows. Considering that only a quarter of each mound was investigated, the total number of individuals buried here could after extrapolation be in

the order of 50 individuals. It is particularly noteworthy that the lowest and most inconspicuous mounds (no. 2 and especially no. 3) contained so many graves: no less than 18 individuals had been buried in the excavated parts of these mounds. If we had relied solely on the results of corings, Mound 3 probably would not even have been regarded as a burial mound at all. This gives food for thought for current prospection methods of barrows, and also warns us not to disregard inconspicuous elevations too quickly without proper archaeological research.

11.2.2 *The environment of the barrows*

The fieldwork demonstrated that the environment of the mounds was severely disturbed by forest ploughing and other recent processes like tree falls and wild boar digging activities, preventing us from obtaining any insights into what once happened outside the mounds. Stray finds of Late Bronze Age/ Iron Age pottery sherds in the trenches north of the mound row AMK-monument 145 hint at prehistoric activities, traces of which are now lost (Section 6.3.1). As a result of the forestry activities in the recent past, the potential of the archaeological record here is now low to non-existent.

However, the same does not hold true for the immediate environment of Mounds 1, 2 and 3 to the west (Chapter 10). Here, practical constraints (the fact that the barrows lie in a dense forest) meant that the surroundings could only be explored through a few trenches. The trenches dug, therefore, are not a representative sample of the entire area around the mounds in a radius of 50 metres. The area directly to the north and east of Mounds 2 and 3 and to the east of Mound 3 in particular could not be investigated. The reconstruction sketched below therefore only holds authority for the western part. Nevertheless, a significant prehistoric feature could be discovered here. In the investigated part of this area, comparable traces of recent forest-ploughing were found, with a similar damaging effect on the archaeological record, but there also is an indication that we should not write off such areas too quickly. In Trench 24 a remarkable Bronze Age pit was found, containing a rare find assemblage (see below). It probably was part of a remarkable row of similar pits underneath Mound 1, which is presently unique in the Netherlands, but known from other Northwest European countries. As argued in Sections 7.3.3 and 10.2.3, and summed up below, we appear to be dealing with an example of what is known as a ‘fire pit line’, evidencing special performances which took place in relation to Mound 1. A recent survey established that the Apeldoorn-Wieselseweg case may be the oldest specimen known on the continent (cf. Løvschal/Fontijn 2018). The discovery of this pit shows that it can be rewarding to excavate the surroundings of mounds, even when the archaeological record is distorted by later activities.

11.3 The deep history of the three-barrow group

In what follows, the different pieces of evidence gathered and discussed in the previous chapters are brought together to reconstruct the history of three barrows at the Wieselseweg.

11.3.1 *Late Neolithic beginnings?*

The history of the barrow group examined may have started during the Late Neolithic B (ca. 2500–2000 BC). The discovery of a barbed flint arrowhead (Fig. 7.24), and a palisaded ditch (Figs. 7.7 and 7.19), are all indications that a place of significance had been marked here *before* the Bronze Age. The data, however, fits multiple scenarios (cf. the extensive discussion in Section 7.5).

The most plausible scenario is that a monument was erected at the location of Mound 1 during the Late Neolithic, which included the palisaded ditch. Given the shape of the arrowhead found here (see Figs. 7.24 and 7.25), this was likely during the Late Neolithic Bell Beaker period (2500–2000 BC). Considering that such palisaded ditches are mainly known from around barrow burials, we suspect that there was a grave located in the centre of the area encircled by the ditch (which should be located in the unexcavated part of the mound). The whole complex would then have been covered with a, in this case very low (a few decimetres at most), barrow – the first anthropogenic raised element at this location. There are a lot of instances known from the Bell Beaker period of such palisaded ditches that were temporarily visible and eventually covered by a mound (Bourgeois 2013, 37; 120–3).

11.3.2 *Middle Bronze Age A – flat cemeteries that came to be covered with mounds*

It was during the Middle Bronze Age A that people returned to this location to bury their dead. Calibrated ¹⁴C-dates of Grave 1 in Mound 1 (Tab. 7.2), and the oldest graves in Mounds 2 (Tab. 8.3) and 3 (Tab. 9.3) show that this happened between the end of the 18th and the 16th centuries BC. In general, this is the period that saw a strong revival of barrow construction after the Late Neolithic in the Low Countries, in which barrows started to be built in most locations where people lived (cf. Bourgeois 2013; Lohof 1991; Theunissen 1999). New ¹⁴C-datings have shown that it was precisely during the first centuries of the Middle Bronze Age (ca. 18th–15th centuries cal BC) that this surge in barrow construction took place (cf. Bourgeois 2013). The graves with the oldest ¹⁴C-dates at the Wieselseweg site are those of Graves 11 and 12 in Mound 3.

Both for Mounds 2 and 3, it is clear that we are dealing with graves that were created here prior to the construction of the mound (see Tab. 8.4 and 9.4). At Mound 2 that is Grave 8; at Mound 3 it is Grave 12. At Mound 2 it is well possible that this is also the case with Graves 3, 5 and 6, as

these were all found relatively deep underneath the level of the mound and no cremation remains were found at higher levels at these locations. For Mound 2 it is likely that we are dealing with several graves that already existed before the mound was raised, and we therefore might be dealing with *a small cemetery that was monumentalized*.

Once a mound was constructed, people kept on burying their decedents in them. Graves post-dating the building of Mound 2 are Graves 2, 4 and 7. At Mound 3, Graves 9 and 10 are definitely secondary burials dug into the mound. For a number of graves in Mound 2 there remains some doubt as to their exact location within the mound (Graves 3, 5 and 6), although it appears most likely that these predate the construction of the barrow. For Mound 3, which was lower and more heavily disturbed, the situation is even more complicated. For Graves 11, 13, 14, 15, 16, 17 and 18 we cannot state whether they pre- or post-date the erection of the barrow. This is due to the strong homogenization of the mound body, which makes any pit cuts present impossible to see. Graves 11, 13 and 14, are located quite far from the centre of the barrow and as there is some doubt as to where the barrow precisely ended, it is even possible that these are actually flat graves created in the direct surroundings of the barrows.

The ¹⁴C-dates of the graves from Mounds 2 and 3 were modelled with Bayesian statistical techniques, which delivered a model in which most graves could be dated more narrowly and statements could be made regarding the chronological relationship between them. This model is based on a sample of both mounds and therefore a hypothesis in need of further testing (which will perhaps be possible in the (distant) future when the totality of graves in these mounds can be sampled and included). Yet, the model is reliable as the chronological trends for each of them are consistent and internally coherent for each individual mound. An extensive discussion of this model was published in *Radiocarbon* (Bourgeois/Fontijn 2015) and will not be repeated here in detail. On the basis of this model, the following sequence of events is argued for.

The first burial took place at the location of Mound 3 (Grave 12). It might be that Grave 11 was buried in that same phase, but a lack of a clear stratigraphy made it impossible to include it into the Bayesian model. Grave 12 (and perhaps others as well, like 11 and 13) were then covered with a low mound, into which people kept on burying their deceased (at least Graves 9 and 10). All of this must have taken place within the course of a few generations (peaking in the 18th–17th century cal BC). The Bayesian model suggests people started to bury their deceased at the location of Mound 2 at a later stage. It was in use as a burial ground roughly between 1625–1535 cal BC, and therefore clearly represents a younger burial history than Mound 3 (Bourgeois/Fontijn 2015, 57–8). *Mound 2, then, is likely to have been the successor of Mound 3* (Bourgeois/

Fontijn 2015, 58). In human terms, both mounds were used during several generations. Given the relative similarities and relatively brief time intervals in between burials in Mounds 3 and 2, we assume the mourners who prepared the graves here had an adequate knowledge as to who was buried here and what her or his genealogical and social relation to the other deceased was. This is something that has been generally supposed for Middle Bronze Age barrows, which are of old interpreted as ‘family barrows’ (cf. Lohof 1991; Theunissen 1999).

An intriguing detail is that Grave 6, under the flanks of Mound 2, has a rather early date and is positioned peripherally to the outline of the barrow (Fig. 8.29; Bourgeois/Fontijn 2015, 58). This indicates people may have already started burying their dead at what would later become the location of Mound 2 when Mound 3 was still in use (Bourgeois/Fontijn 2015, 58). We may be dealing with a new or different social group where it was considered appropriate to bury the deceased in a different location than Mound 3, even though the latter was still in active use. On the other hand, the fact that the new barrow was so close to Mound 3 and shows striking similarities in burial practices (see below), also suggests that this new social group was related to those buried in Mound 3. It is an intriguing, though unanswerable, question whether we may be dealing here with a split off from one genealogical lineage. The barrow as a whole seems to represent a meaningful social entity of ancestors (cf. Bourgeois 2013; Fokkens 1997; Fontijn 1996; Lohof 1991; Theunissen 1999). But in many Bronze Age barrow groups, burial mounds were also positioned in such a way as to suggest strong social interrelationships (like barrows placed in a short line, as happened nearby at AMK-monument 145; see also Bourgeois 2013, 205–6).

11.3.3 Mound 1 in the Middle Bronze Age: a deceased buried on the location of a mythical past?

It is more difficult to weave the Bronze Age use of Mound 1 into this history. The ¹⁴C-dating of Grave 1 at least demonstrates someone was buried in the centre of this mound during the 17th–15th centuries cal BC, so during a period in which at least Mound 2 was in use as a burial location as well. Why was this decedent not buried in Mound 2? Burying a deceased in Mound 3 or 2 would mean to add a recently passed-away loved one to a community of familiar ancestors (with whom there undoubtedly were close genealogical ties). As far as we now know (though it should be kept in mind that only a part of the mound was investigated), Mound 1 lacks anything similar. If there was an ancestor buried here, he or she must have died long before the Middle Bronze Age. As Lohof (1994, 102) defines it, this person was not a genealogical but a *mythical ancestor*.

So, for some reason, the deceased buried in Grave 1 might not have been linked to familiar ancestors, but to the grave of someone who was perhaps regarded as some remote (founding?) ancestor. Even though the history of Mound 1, and the question of its Late Neolithic origin, is still contentious and puzzling, what is clear is that this mound evidently played a special role in this three-barrow group.

11.3.4 Mound 1 – a barrow as a stage for a special funerary performance?

Comparing the evidence of all mounds, it immediately becomes apparent that there is a marked contrast between Mound 1 on the one hand, and Mounds 2 and 3 on the other. This is not just clear from their spatial positioning (Mounds 2 and 3 lie somewhat closer to each other). Mounds 2 and 3 also both contain large numbers of graves in a small area, the size and nature of the mounds is comparable and so are the burial rituals through which cremation remains were interred (see next section). Mound 1, on the other hand, is larger and higher, so far contains just one Middle Bronze Age grave in its centre (Grave 1), and the mound was built over a surface in which many pits had been dug which are of a special nature. Case in point is a large oval that must have been marked with some stakes (S15; see Section 7.3.2). It has a parallel with a pit found under another barrow in the Central Netherlands (Leusden-Den Treek; Modderman 1955, 59), but as to the function of the one under Mound 1 our data are inconclusive.

More can be said on the remarkable pits filled with stones (many of which are fire-cracked) and some charcoal, flanked by a few pits that contain pottery sherds – a line of pits that probably extended at least 30 metres beyond the mound. This is a phenomenon that was unknown in the Netherlands until now. Assuming that there was indeed a small Late Neolithic barrow at the location of Mound 1, the row of pits seems to have been created to lead up to or from this location, running in a line south-southwest towards the core of what would become Mound 1. Pits were dug, and in most cases, large numbers of stones were deposited into them. A large, stone-filled pit was found some 30 metres outside of the mound (in Trench 24), in line with the pit row underneath the mound. The area in between is heavily disturbed, but it is well possible that there originally were many more pits (Fig. 10.5). The line of pits therefore is likely to have extended far outside the mound and we may not even have found the end of it. Several pits were covered with the Bronze Age mound that was built over this location. Charcoal from one of the pits (S54) was ¹⁴C-dated to the 17th–15th century cal BC (Table 7.3). The cremated bone in Grave 1 yielded the same dating range (Table 7.2). Since Grave 1 is the only grave found so far in this mound and as it was deposited into the centre of this mound, we assume that the pit-digging

and stone deposition was connected with the funeral rites relating to the construction and burial of Grave 1.

Comparable lines of pits filled with fire-cracked stones and charcoal are known from other countries on the continent, mainly Denmark and Germany, where they date to the Late Bronze or Early Iron Age (Løvschal/Fontijn 2018). The Apeldoorn line is the first one identified in the Netherlands, with a dating in the 17th–15th centuries cal BC, it is also one of the oldest known so far on the Northwest European continent (Løvschal/Fontijn 2018). What were Bronze Age people doing here?

The most likely interpretation of the evidence seems to be as follows (see Sections 7.3.3; 7.4.2; 10.2.3). Stones were deliberately deposited in an alignment of pits. Several of these stones were probably heated in fires. They may have been used as cooking stones, or to produce steam (by bringing hot stones in contact with water). The remnants of these activities – mainly stones, not much charcoal – were neatly buried in pits which were positioned in a line. Fragmented sherds of vessels were also deposited in pits, but usually separately from the stones, flanking the stone pit line. Beyond the mound, there was a larger pit with stones, which also contained the fragment of an amber spacer-plate. As such necklaces are very rare on the continent, it is hard to conceive it was accidentally lost. It seems more likely that it was intentionally added to the content of the pit, together with the stones. We thus hypothesize that people either produced food, or created steam here and carefully deposited the remains of these activities in pits with some formality (separating on content and aligning the pits). The entire setting is highly unusual for what is found on a settlement and given the context, it is assumed these activities were related to funerals carried out here. They may be the remains of funerary feasts. The crucial question is why the pits are aligned towards, and buried under, Mound 1, while the other mounds clearly evidence many more funeral events? Either the burial of the only grave we know of in Mound 1 (Grave 1) represented a very special case, or it had to do with ancient history of this particular location (its Late Neolithic origin). Perhaps both aspects were even linked (see above regarding ‘mythical ancestors’). It is also unclear whether each pit represented a single event or ceremony, or whether all pits stem from one major feast. The fact that the pits are aligned suggests a sequence of actions mattered, and that a particular route towards or from the mound was emphasized by it. Unfortunately, the evidence cannot be pressed too hard here and we must leave it at that.

What is clear, however, is that what happened at Mound 1 is not unique in a European context. A recent survey found many more instances of pit lines containing stones (Løvschal/Fontijn 2018), though generally of later dating but in association with barrows, that are situated in landscapes that are otherwise lacking clear human-

made boundaries. Kristensen (2008) distinguished between pits in which fires were lit, and those where only the remnants of fires and the fire-cracked stones were placed. The Apeldoorn line clearly is an example of the latter, as are other Bronze Age pit rows in adjacent Germany (Freudenberg 2012; May/Hauptmann 2012). The one from Seddin, northeast Germany, even consists of no fewer than 162 pits, and it has been suggested here that fires might have been lit nearby, with the remains neatly deposited in aligned pits (May/Hauptmann 2012; pers. comm. J. May to first author 2018). Also at Seddin, there is a clear association between such a line and one particular barrow (in this case, the so-called Late Bronze Age *Königsgrab*; May/Hauptmann 2012).

In conclusion, Mound 1 seems to have been the stage of special ritual performances, perhaps funerary feasts, the remains of which were buried with some formality in aligned pits. It again indicates that Mound 1 held a significance in this barrow group that was different from Mounds 2 and 3.

Perhaps, the special role of Mound 1 also comes to the fore in its spatial positioning: Mound 1 seems aligned both with the barrow row to the east, and with one situated at Koningsseik to the west. Whether there was true inter-visibility is something that needs to be investigated with GIS viewshed analyses as the ones developed by Bourgeois (2013). It is also essential that more information becomes available on the vegetation at the time. The present research was unsuccessful in reconstructing it. However, if we would extrapolate Doorenbosch's (2013a) general conclusions regarding Bronze Age barrows in the central and southern Netherlands, an open landscape might be expected.

11.3.5 Burial practices: close links between Mounds 2 and 3

Different as Mound 1 may be, Mounds 3 and 2 probably not only succeed each other, they are also remarkably alike. They are similar in size and both lack a peripheral structure (such as a ring ditch or ring of posts as is often seen in contemporary barrows of this region, cf. Modderman 1954). They also lack any signs of other activities, like the many pit depositions underneath Mound 1, or additional constructions like a mortuary house (cf. the construction built in nearby Garderen-Bergsham Tumulus 3; Van Giffen 1937). Both Mounds 2 and 3 are clearly collective grave monuments containing large numbers of deceased. In both, only cremation graves were found – inhumation graves are lacking. Such graves are known to regularly occur together with cremation graves in nearby barrow groups like Ermelose Heide, Elspeet Speulde (Modderman 1954) or Garderen-Bergsham (Van Giffen 1937).

In both mounds, there is nothing which indicates mourners emphasized distinctions in death. Two graves in Mound 2 contain objects (a bone needle, worked animal

bone and pottery in Grave 4 and 6 (Figs. 8.22, 8.24-28). In Mound 3, some pot sherds in Grave 13 appear to be the only artefacts found in the graves. These three cases suggest objects were not vital in the creation of difference between burials. Graves in central positions (sometimes interpreted as 'heads of families') are not different from those in 'peripheral' positions in terms of burial ritual, apart from their spatial position in the barrow (cf. the discussion in Theunissen 1999 on central graves). There is also no distinction between graves interred before the construction of the mound, and those inserted into the mound body. In both barrows, all graves but one (Grave 6) are of single individuals

There are noteworthy similarities between burials. Graves 11, 12 and 13 in Mound 3 all contain charred wood, probably from the pyre. In all cases, it was deposited in the burial pit together with the cremated bone, but in an ordered way. The wood was either deposited separately in one part of the pit horizontally (Graves 11 and 12) or vertically (Grave 13: bone on top of charred wood). Apparently, the burnt wood was regarded as integral part of the burial itself. We see the same with the central Grave 8 in Mound 2, but here the wood was deposited neatly on top of a small burial pit containing the cremated bones.

Summing up, there are striking similarities between Mounds 3 and 2 and it might be ventured that we are dealing with idiosyncrasies of one local group (as the charred-wood-with bone orderings) that were maintained over generations.

11.3.6 Later histories of the mounds

Barely anything is known on the later history of these mounds. As only Middle Bronze Age A graves were found, it is clear for all barrows that their funerary history ceased at some point in time. Only at Mound 3 were a few stray Iron Age sherds found. Unfortunately, it can no longer be established what activities they were associated with.

Almost no archaeological features from the period following the Iron Age up to the last century were encountered during the excavation. The most important discovery done was an almost 2 metres wide collection of cart track which ran from the southeast between Mounds 1 and 2 to the northwest. These features must be the remnants of a route between Apeldoorn/Wenum/Wiesel and Uddel/Elspeet, which at the time ran over the heath. The features can be roughly dated between the 16th and 19th centuries AD based on the find of a sherd (see Section 10.2.4). Based on a version of the AHN which became available after the excavation (the AHN 2; *Actueel Hoogte Bestand Nederland*, which translates to the Current Elevation Map of the Netherlands), a collection of cart tracks could be recognized at this location. Mounds 1 and 2 appear to have been used as orientation markers. Other than a number of single, recent and hard



Fig. 11.1: Overview of the three barrow groups in the Wieselseweg barrow landscape. Figure by S. van der Vaart-Verschoof; background www.ahn.nl.

to identify features, the most important features are those from the forest ploughing. The surroundings have been heavily ploughed through and the excavation trenches showed multiple orientations. It concerns ploughing whereby the topsoil was entirely broken up and partially inverted. It seems likely that these can be connected with the large-scale reclamation works instigated by Prince Hendrik in the early 20th century following the purchase of the terrain by the Royal Domain. What at the time was mostly heath, was converted to forest, requiring the large-scale ploughing.

11.4 The barrow landscape: anchoring ancestral communities

The newly discovered three-barrow group is part of a large zone with mounds, situated in between the mounds at Koningseik in the west, and the barrow row in the east (AMK-monument 145). It is unknown whether the latter are older, contemporary or younger than the group that is central in this book. Although hardly anything is known on the other groups²⁰, it is clear that by its positioning,

the three-barrow group was clearly kept separate from both on the one hand, yet blended into the broader landscape at the same time (perhaps even by means of deliberate inter-visibility (see Section 11.3.3). It lacks the linear ordering of its eastern counterpart, but its role in the landscape also seems different from the mounds situated at Koningseik. The three-barrow group seems to have been a micro-scale funerary landscape inserted into a much broader one.

Within this ‘micro funerary landscape’, differences can be seen: there are clear links between Mounds 3 and 2, and it has been suggested that Mound 2 might have been the successor of Mound 3. It has also been suggested that both – or at least the location of Mound 2 – started their life as a small flat cemetery that only later was covered with a mound. Mound 1, on the other hand, is different in its funerary use, its history and the performances which took place there. It is this mound that might visibly have linked up to the adjacent barrow groups to the west and east.

Every mound can be seen as the place where a new ancestral community was created: deceased were transformed into ancestors by means of cremation and their remains were carefully buried in what was considered to be ‘the right place’; at one moment, it was apparently no longer considered appropriate to bury deceased in Mound 3, and Mound 2 became the new burial ground. It is also an intriguing, though difficult to answer,

20 It is not even certain whether these are barrows proper. Much more than the three-barrow group that is central in this book, their shape and organization matches well with what is known from other barrows in the Low Countries. We will therefore assume the interpretation as prehistoric barrows is correct.

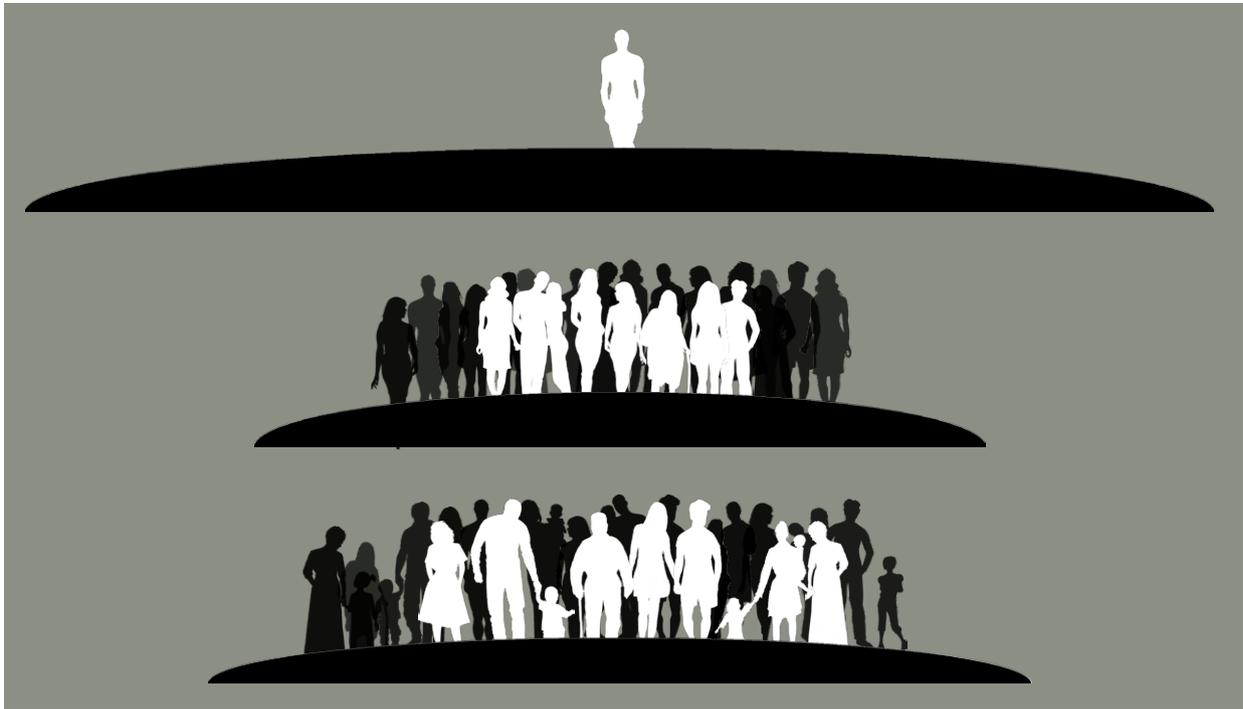


Fig. 11.2: Visualization of the Wieselseweg barrows on the same scale. The white figures represent the individuals identified through the excavation. As only a quarter of each mound was excavated, the black figures represent an extrapolated number of individuals that may still remain in the three unexcavated quarters. Figure by S. van der Vaart-Verschoof.

question what motivated people to bury one deceased in quite another barrow – Mound 1 – where graves of immediate forebears appear to be lacking.

At the three-barrow area, we are probably dealing with the activities of a small local group, perhaps one or two extended families, who by burying their deceased here created an ancestral community made materially and visually manifest by a barrow. Those buried are likely to have close affiliations. Bourgeois (2013, 199–205) speaks of a ‘barrow community’ to emphasize that we should see such a group of ancestors as a collective in its own right, not necessarily a direct reflection of a household or extended family. As an ancestral community, all ages and both sexes seem to have been included (although it strikes us that our sample in Mound 2 is heavily biased towards females and adults). At least, hierarchical differences barely seem to have mattered in death.

Distinctions were emphasized between ancestral communities or ‘barrow communities’, as mourners may have selected specific barrows for specific burials. At the same time, there are also close links between barrows (as with Mounds 2 and 3), and zooming out, the three-barrow group is just one group amidst a broader ‘community’ of (differently organized barrows), the row of mounds to its east, and the scattered mounds at Koningseik to the west. (Fig. 11.1).

The newly discovered barrows of Wieselseweg thus seem to represent how a small group of people defined their ancestors as a meaningful collective by anchoring them into the landscape as ‘barrow communities’ (sensu Bourgeois 2013). By doing so, they defined themselves as part of a larger whole (the entire barrow landscape along the Wieselseweg), but also subtly emphasized their proclaimed ancestors as a separate, distinct group within it. As such, the collective monuments of the Middle Bronze Age are a prelude to the even more extensive collective urnfields of the Late Bronze Age.

11.5 Revisiting death

In the Bronze Age, death must have been an important part of daily life. The children’s graves in Mound 3 speak of hardships of Bronze Age life, when child mortality must have been much more pronounced than it is now. They also show that these younger members of the community were treated similarly to adults – with no distinctions made in how they were buried. At death, the mounds re-united all, young and old, male and female. The mounds, modest and inconspicuous as they may appear to us, testify death was made manifest and ancestral monuments became a visible anchor in the landscape that mattered for generations to come. Having been in use for burials during several centuries and the stage for

special performances, the Wieselseweg mounds indicate that during the Middle Bronze Age, the dead needed to be kept in mind, celebrated and most important of all, be revisited.

More than 3500 years after they were built, the mounds were entirely forgotten and partly erased by later history. When Mound 1 was recognized on LIDAR images of the AHN, and when the fieldwork showed the inconspicuous

elevations were all indeed burial mounds from the Bronze Age, a new phase in their history started. It is our hope that in the future, the remaining parts of the mounds can be safeguarded from ploughing and damage by trees and wild boars and again made visible to the public, to again become what they once were: ancestral anchors revealing the deep past of the modern Apeldoorn landscape – where the dead can be revisited.

Bibliography

- Arnoldussen, S./E. Ball, 2007. Nederzettingen saardewerk uit de late bronstijd in Noord-Brabant en het rivierengebied. In: R. Jansen/L.P. Louwe Kooijmans (eds), *Van contract tot wetenschap. Tien jaar archeologisch onderzoek door Archol BV, 1997-2007*. Leiden: 181–203.
- Bakels, C.C./Y. Achterkamp, 2013. 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/R. Jansen (eds), *Transformation through Destruction. A monumental and extraordinary Early Iron Age Hallstatt C barrow from the ritual landscape of Oss-Zevenbergen*. Leiden: 239–248.
- Bakker, J.A., 1979. *The TRB West Group. Studies in Chronology and Geography of the Makers of Hunebeds and Tiefschich pottery*. Amsterdam.
- Berendsen, H.J.A., 2004. *De Vorming van het Land. Inleiding in de Geologie en Geomorfologie*. Assen.
- Berendsen, H.J.A., 2005a. *Landschap in Delen. Overzicht van de Geofactoren*. Assen.
- Berendsen, H.J.A., 2005b. *Landschappelijk Nederland. De Fysisch-geografische Regio's*. Assen.
- Bleumink, H./J. Neefjes, 2010. *Kroondomein Het Loo*. Utrecht.
- Bourgeois, Q., 2013. *Monuments on the Horizon. The formation of the barrow landscape throughout the 3rd and 2nd millennium BC*. Leiden.
- Bourgeois, Q./L. Amkreutz/R. Panhuysen, 2009. The Niersen Beaker burial: A renewed study of century old excavation. *Journal of Archaeology in the Low Countries* 1-2, 83–105.
- Bourgeois, Q./D.R. Fontijn, 2010. Burial mound “Unitas 1”: an Early Bronze Age barrow with traces of Iron Age activities. In: D.R. Fontijn (ed.), *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*. Leiden: 29–48.
- Bourgeois, Q./D.R. Fontijn/A.J. Louwen/P. Valentijn/K. Wentink, 2010a. Finds from the Unitas 1 mound and its surroundings. In: D.R. Fontijn (ed.), *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*. Leiden: 73–90.
- Bourgeois, Q./D.R. Fontijn/A.J. Louwen/P. Valentijn/K. Wentink, 2010b. Finds from the “Delfin 190”-mound and its surrounding. In: D.R. Fontijn (ed.), *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*. Leiden: 91–105.
- Bourgeois, Q./D.R. Fontijn, 2015. The tempo of Bronze Age barrow use. Modelling the ebb and flow in monumental funerary landscapes. *Radiocarbon* 57(1), 47–64.
- Brongers, J.A., 1976. *Air photography and Celtic Field research in the Netherlands (= Nederlandse Oudheden 6)*. Amersfoort.
- Brück, J., 2004. Material metaphors: The relational construction of identity in Early Bronze Age burials in Ireland and Britain. *Journal of Social Archaeology* 2004(4), 307–333.
- Brück, J., 2006. Fragmentation, Personhood and the Social Construction of Technology in Middle and Late Bronze Age Britain. *Cambridge Archaeological Journal* 16(03), 297–315.

- Butler, J./H. Fokkens, 2005. Van steen naar brons. Technologie en materiële cultuur (2900 – 1100 v.Chr.). In: L.P. Louwe Kooijmans/P.W. van den Broeke/H. Fokkens/A.L. van Gijn (eds), *Nederland in de prehistorie*. Amsterdam: 371–399.
- Casparie, W.A./W. Groenman-Van Waateringe, 1980. Palynological analysis of Dutch barrows. *Palaeohistoria* 22, 7–65.
- Crandell, O., 2007. 'Fire' cracked rocks. An archaeological experiment. *Corviniana* 01/2007(10), 1–10.
- Doorenbosch, M., 2011. An environmental history of the Echopot barrows. In: D.R. Fontijn/Q. Bourgeois/A.J. Louwen (eds), *Iron Age Echoes. Prehistoric land management and the creation of a funerary landscape - the "twin barrows" at the Echopot in Apeldoorn*. Leiden: 111–128.
- Doorenbosch, M., 2013a. *Ancestral Heaths. Reconstructing the barrow landscape in the central and southern Netherlands*. Leiden.
- Doorenbosch, M., 2013b. A history of open space. Barrow landscapes and the significance of heaths – the case of the Echopot barrows. In: D.R. Fontijn/A.J. Louwen/S.A. van der Vaart/K. Wentink (eds), *Beyond barrows. Current research on the structuration and perception of the prehistoric landscape through monuments*. Leiden: 197–224.
- Elzinga, G., 1957. Een onderzoek naar de vindplaats van het bronzen zwaard uit Putten. *Westerheem* 6, 77–80.
- Fokkens, H., 2005. Boeren met gemengd bedrijf: synthese. In: L.P. Louwe Kooijmans/P.W. van den Broeke/H. Fokkens /A.L. van Gijn (eds), *Nederland in de prehistorie*. Amsterdam: 463–476.
- Fokkens, H., 1997. The genesis of urnfields: economic crisis or ideological change? *Antiquity* 71, 360–373.
- Fokkens, H./R. Jansen/I. M. Van Wijk, 2009. *Het grafveld Oss-Zevenbergen. Een prehistorisch grafveld ontleed* (= Archol Rapport 50). 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. 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). Leiden: 1–392.
- Fontijn, D.R., (ed.), 2010. *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*. Leiden.
- Fontijn, D.R., 2011. Barrow excavations at the Echopot. Problem, research aims and methods of the 2007 fieldwork campaign. In: D.R. Fontijn/Q. Bourgeois/A.J. Louwen (eds), *Iron Age Echoes. Prehistoric land management and the creation of a funerary landscape - the "twin barrows" at the Echopot Apeldoorn*. Leiden: 13–32.
- Fontijn, D.R./Q. Bourgeois/C. van der Linde, 2010. Mound "Delfin 190": A Middle Bronze Age barrow built over the traces of a Middle Bronze Age A settlement site. In: D.R. Fontijn (ed.), *Living near the dead. The barrow excavations of Rhenen-Elst: two millennia of burial and habitation on the Utrechtse Heuvelrug*. Leiden: 49–71.
- Fontijn, D.R./Q. Bourgeois/A.J. Louwen, 2011. *Iron age echoes. Prehistoric land management and the creation of a funerary landscape – the "twin barrows" at the Echopot in Apeldoorn*. Leiden.
- Fontijn, D.R./A.J. Louwen/Q. Bourgeois/ L. Smits/C. van der Linde, 2018. Bronze Age Ancestral Communities. New research of Middle Bronze Age barrows in the barrow landscapes of Apeldoorn-Wieselseweg. In: C.C. Bakels/ Q.P.J. Bourgeois/D.R. Fontijn/R. Jansen (eds), *Local Communities in the Big World of Prehistoric Northwest Europe* (= *Analecta Praehistorica Leidensia* 49). Leiden: 77–103.
- Fontijn, D.R./A.J. Louwen/S.A. van der Vaart/K. Wentink, 2013a. *Beyond Barrows. Current research on the structuration and perception of the Prehistoric landscape through monuments*. Leiden.
- Fontijn, D.R./S.A. van der Vaart/R. Jansen, 2013b. *Transformation through destruction. A monumental and extraordinary Early Iron Age Hallstatt C barrow from the ritual landscape of Oss Zevenbergen*. 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/S. Wirth (eds), *Gräberlandschaften der Bronzezeit* (= *Bodenaltertümer Westfalens* 51). Darmstadt: 619–639.
- Gerritsen, F.A. 2003. *Local identities. Landscape and community in the late prehistoric Meuse-Demer-Scheldt region*. PhD-thesis Free University of Amsterdam.
- Gerritsen, F.A., 2007. Familiar landscapes with unfamiliar pasts? Bronze Age barrows and Iron Age communities. In: C. Haselgrove/R. Pope (eds), *The earlier Iron Age in Britain and the near Continent*. Oxford: 338–353.
- Gerritsen, F.A./P. Jongste/L. Theunissen, 2006. De late prehistorie in Noord-, Oost- en Zuid-Nederland en het rivierengebied, *NOaA hoofdstuk 17 (versie 1.0)*, (www.noaa.nl), 1–44.
- Glasbergen, W., 1954a. Barrow excavations in the Eight Beautitudes. The Bronze Age Cemetery between Toterfout and Halve Mijl, North Brabant I: the excavations. *Palaeohistoria* 2, 1–134.
- Glasbergen, W., 1954b. Barrow excavations in the Eight Beautitudes. The Bronze Age cemetery between Toterfout and Halve Mijl, North Brabant, ii: the implications. *Palaeohistoria* 3, 1–204.
- Groenewoudt, B.J./M. Krauwer, 1995. *Aanvullende Archeologische Inventarisatie (AAO) Apeldoorn-Kleine Fluiterweg* (= Interne rapporten Rijksdienst voor het Oudheidkundig Bodemonderzoek 24). Amersfoort.

- Harding, A.F., 1993. British Amber Spacer-Plate Necklaces and their Relatives in Gold and Stone. In: C. Beck/J. Boezek (eds), *Amber in Archaeology*. Prague: 53–58.
- Harsema, O.H., 1982. *Settlement site selection in Drenthe in later prehistoric times: criteria and considerations* (= *Analecta Prehistoria Leidensia* 15). Leiden: 145–159.
- Havinga, A.J., 1964. Investigation into the differential corrosion susceptibility of pollen and spores. *Pollen et Spores* 6(2), 621–635.
- Havinga, A.J., 1967. Palynology and pollen preservation. *Review of Palaeobotany and Palynology* 2, 81–98.
- Havinga, A.J., 1984. A 20-year experimental investigation into the differential corrosion susceptibility of pollen and spores in various soil types. *Pollen et Spores* 26(3-4), 541-558.
- Hermesen, I., 2007. *Een afdaling in het verleden. Archeologisch onderzoek van bewoningsresten uit de prehistorie en de Romeinse tijd op het terrain Colmschate (gemeente Deventer)* (= Rapportages Archeologie Deventer 19). Deventer.
- Hermesen, I./A.J. Louwen, 2007. Colmschater spekuasbrokken. Een specialiteit uit de Midden Bronstijd. In: H. Clevis/S. Wentink (eds), *Overijssels Erfgoed. Archeologische en Bouwhistorische Kroniek 2006*. Zwolle: 131–137.
- Holloway, R.G., 1989. Experimental mechanical pollen degradation and its application to quaternary age deposits. *The Texas journal of science* 41, 131–145.
- Holwerda, J.H., 1906. Inleiding tot een archeologie van Nederland. *Onze Eeuw* 6(2), 234–274.
- Holwerda, J.H., 1907. Grafheuvels bij Hoog-Soeren. *Oudheidkundige Mededeelingen Leiden* 1, 7–10.
- Holwerda, J.H., 1908. Tumuli bij Nierssen. *Oudheidkundige Mededeelingen Leiden* 2, 1–17.
- Holwerda, J.H., 1909. De praehistorische bevolking aan het Uddelermeer. *Oudheidkundige Mededeelingen Leiden* 3, 39–52.
- Holwerda, J.H., 1911. Praehistorische nederzettingen aan het Uddelermeer. *Oudheidkundige Mededeelingen Leiden* 5, 5–17.
- Holwerda, J.H., 1912. Opgravingen aan het Uddelermeer. *Oudheidkundige Mededeelingen Leiden* 6, 1–16.
- Hoof, Van, L.G.L./L. Meurkens, 2005. *Vluchtige huisplattegronden. Erven uit de midden-bronstijd B en nederzettingssporen uit de vroege bronstijd en midden-bronstijd A (verslag van een tweede opgravingscampagne te Rhenen-Remmerden)* (= *Archol-rapport* 51). Leiden.
- Jansen, R./E.N.A. Heibaut, 2009. Resultaten van het proefsleuven onderzoek. In: H. Fokkens/R. Jansen/I.M. van Wijk (eds), *Het grafveld Oss-Zevenbergen. Een prehistorisch grafveld ontleed*. (= *Archol-rapport* 50). Leiden: 53–68.
- Janssen, C.R., 1974. *Verkenningen in de palynologie*. Utrecht.
- Klok, R.H.J., 1988. Prehistoric Barrows on the Veluwe. *Berichten van de Rijksdienst voor Oudheidkundig Bodemonderzoek* 38, 9–61.
- Knippenberg, S., 2008. The Bronze Age cultural landscape at Zijderveld. In: S. Arnoldussen/H. Fokkens (eds), *Bronze Age Settlements in the Low Countries*. Oxford: 111–126.
- Knippenberg, S./T. Hamburg, 2011. Sporen en structuren. In: E. Lohof/T. Hamburg/J. Flamman (eds), *Steentijd opgespoord. Archeologisch onderzoek in het tracé van de Hanzelijn-Oude Land* (= *Archolrapport* 138/ADC rapport 2576). Leiden/Amersfoort: 115–208.
- Kristensen, I.K., 2008. Kogegruber – i klynger eller på rad og Række. *Kuml* 2008, 9–57.
- Lanting, J.N., 2007/2008. *De NO-Nederlandse/NW-Duitse klokbekeergroep: Culturele achtergrond, typologie van het aardewerk, datering, verspreiding en grafritueel* (= *Palaeohistoria* 49/50). Groningen: 11–326.
- Lanting, J.N./J.D. van der Waals, 1976. Beaker cultures in the Lower Rhine Basin. In: J.N. Lanting/J.D. van der Waals (eds), *Glockenbecher Symposium Oberried 1974*. Haarlem: 1–80.
- Lohof E., 1991. *Grafritueel en sociale verandering in de bronstijd van Noordoost-Nederland*. Amsterdam.
- Lohof, E.H., 1994. Tradition and Change. Burial practices in the Late Neolithic and Bronze Age en the North-Eastern Netherlands. *Archeaeological Dialogues* 1, 98–118.
- Lohof, E.H./T. Hamburg/J. Flamman, 2011. *Steentijd opgespoord. Archeologisch onderzoek in het tracé van de Hanzelijn-Oude Land* (= *Archolrapport* 138/ADC rapport 2576). Leiden/Amersfoort.
- Louwen, A.J./D.R. Fontijn/Q. Bourgeois, 2014. *Stratigraphy of the graves in burial mound 2 and 3 of Apeldoorn-Wieselseweg (Municipality of Apeldoorn, the Netherlands) – preliminary data report*.
- Løvschal, M./D. Fontijn, 2018. Directionality and axiality in the Bronze Age: cross-regional landscape perspectives on ‘fire pit lines’ and other pitted connections. *WorldArchaeology*, DOI: 10.1080/00438243.2018.1488609.
- May, J./T. Hauptmann, 2012. Das “Königsgrab” von Seddin und sein engeres Umfeld im Spiegel neuer Feldforschungen. In: D. Bérenger/J. Bourgeois/M. Talon/S. Wirth (eds), *Gräberlandschaften der Bronzezeit (= Bodenaltertümer Westfalens* 51). Darmstadt: 77–104.
- Meurkens, L., 2009. Laat-prehistorische nederzettingssporen en raven op de sandr-vlakte bij Elst. Resultaten van een opgraving in het plangebied Elst-Het Bosje (gemeente Rhenen)(= *Archol-rapport* 128). Leiden.
- 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(2), 5–29.
- Meurkens, L., 2014. *Graven en bewoningssporen van het laat-neolithicum tot en met de Romeinse tijd. Opgravingen*

- gen in het plangebied De Schaker in Twello (gemeente Voorst) (= Archol Rapport 260). Leiden.
- Modderman, P.J.R., 1954. Grafheuvel onderzoek in Midden – Nederland. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* V. Amersfoort: 7–44.
- Modderman, P.J.R., 1955. Het onderzoek van enkele Brabantse en Utrechtse grafheuvels. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* VI, 44–65.
- Roymans, N./F. Kortlang, 1999. Urnfield symbolism, ancestors and the land in the Lower Rhine Region. In: F. Theuvs/N. Roymans (eds), *Land and Ancestors. Cultural dynamics in the Urnfield period and the Middle Ages in the Southern Netherlands*. Amsterdam, 33–62.
- Theunissen, E.M. 1999. *Midden-bronstijdsamenlevingen in het zuiden van de Lage Landen. Een evaluatie van het begrip ‘Hilversum-cultuur’*. PhD-thesis Leiden University, Leiden.
- Valentijn, P./D.R. Fontijn 2011. Excavating the surroundings of the barrows. In: D.R. Fontijn/Q. Bourgeois/A.J. Louwen (eds), *Iron age echoes. Prehistoric land management and the creation of a funerary landscape – the “twin barrows” at the Echoput in Apeldoorn*. Leiden: 91–110.
- Van Beek, R., 2005. Aardewerk. In: S. Knippenberg/P.F.B. Jongste (eds), *Terug naar Zijdeveld. Archeologische opgraving van een bronstijd-nederzetting langs de A2* (= Archol-rapport 36). Leiden, 75–81.
- Van Beek, R./A.J. Louwen, 2012. Urnfields on the move: testing burial site-settlement relations in the eastern Netherlands (c. 1100 – 500 BC). *Archäologisches Korrespondenzblatt* 42, 1/2012, 41–60.
- Van Beek, R./A.J. Louwen, 2013. The centrality of urnfields. Second thoughts on structure and stability of Late Bronze Age and Early Iron Age cultural landscapes in the Low Countries. In: D.R. Fontijn/A.J. Louwen/S.A. van der Vaart/K. Wentink (eds), *Beyond Barrows. Current research on the structuration and perception of the prehistoric landscape through monuments*. Leiden: 81–112.
- Van den Broeke, P., 2005. IJzersmeden en pottenbakkers. Materiële cultuur en technologie. In: L.P. Louwe Kooijmans/P.W. van den Broeke/H. Fokkens /A.L. van Gijn (eds), *Nederland in de prehistorie*. Amsterdam: 603–627.
- Van der Linde, C./D.R. Fontijn, 2011. Mound 1 – A monumental Iron Age barrow. In: D.R. Fontijn/Q. Bourgeois/A.J. Louwen (eds), *Iron age echoes. Prehistoric land management and the creation of a funerary landscape – the “twin barrows” at the Echoput in Apeldoorn*. Leiden: 33–64.
- Van Giffen, A.E., 1937. Tumuli-opgravingen in Gelderland 1935/36. *Gelre* 40, 3–18.
- Van Giffen, A.E., 1945. Het kringgropurnelveld en de grafheuvels O.Z.O van Gasteren, gem. Anloo. *Nieuwe Drentse Volksalmanak* 63, 69–121.
- Van Gijn, A., 2010. *Flint in focus. Lithic biographies in the Neolithic and Bronze Age*. Leiden.
- Van Gijn, A.L./M.J.L.Th. Niekus, 2001. Bronze Age settlement flint from the Netherlands: the Cinderella of Lithic Research. In: W.H. Metz/B.L. van Beek/H. Steegstra (eds), *Patina. Essays presented to Jay Jordan Butler on the occasion of his 80th birthday*. Groningen/Amsterdam: 305–320.
- Van Heeringen, R.M./M.M. Janssens/B.A. Brugman/R. Schrijvers, 2012. Actualisering archeologische waardenkaart Gemeente Apeldoorn (= *Vestigia rapport V911(1)*). Amersfoort.
- Van Mourik, J., 2010. Resultaten van het dateringsonderzoek van grafheuvel 39 op de Slabroekse Heide. In: I.M. van Wijk/R. Jansen (eds), *Het urnenveld Slabroekse Heide op de Maashorst. Een verkennend en waarderend archeologisch proefsleuvenonderzoek* (= Archol Rapport 72). Leiden: 67–74.
- Verkooijen, K.M., 2013. *Tears of the Sun: Bronze Age Amber Spacers from Britain and Europe*. PhD-thesis University of Exeter.
- Verlinde, A.D., 1987. *Die Gräber und Grabfunde der späten Bronzezeit und frühen Eisenzeit in Overijssel*. PhD-thesis Leiden University.
- Verlinde, A.D./R.S. Hulst, 2010. *De grafvelden en grafvondsten op en rond de Veluwe van de Late Bronstijd tot in de Midden-IJzertijd* (= Nederlandse Archeologische Rapporten 39). Amersfoort.
- Waterbolk, H.T., 1954. *De praehistorische mens en zijn milieu. Een palynologisch onderzoek naar de menselijke invloed op de plantengroei van de diluviale gronden in Nederland*. PhD-thesis Groningen University.
- Waterbolk, H.T., 1960. Preliminary report on the excavations at Anloo in 1957 and 1958. *Palaeohistoria* 8, 59–90.
- Wentink, K./A.L. van Gijn/D.R. Fontijn 2011. Changing contexts, changing meanings: Flint axes in Middle and Late Neolithic communities in the Northern Netherlands. In: V. Davis/M. Edmonds (eds), *Stone Axe Studies III*. Oxford: 399–408.
- Wentink, K. *in prep. Keeping up Appearances (preliminary title)*. PhD-thesis Leiden University.
- Zeist, Van, W., 1967. Archaeology and palynology in the Netherlands. *Review of Palaeobotany and Palynology* 4, 45–65.

Appendix 1

Summary physical anthropological analysis of cremated remains

Liesbeth Smits

Mound 1

Grave 1 (S101.14/68/72)

The small amount of cremation remains is insufficient to determine the sex of the deceased. With regards to established the age of the deceased, only a rough estimate is possible, and in this case it likely concerns an adult individual.

Weight cremation remains: 69.5 grams (not completely excavated)

Conclusion: Probably adult individual

Mound 2

Grave 2 (S201.2)

This burial contained only very few remains, ca. 20 grams, primarily the diaphyses of the limbs. The research options are therefore limited. The robustness of the bones of these cremation remains points towards an adult individual.

Weight cremation remains: 20 grams (heavily disturbed)

Conclusion: Probably adult individual

Grave 3 (S201.3)

The grave was excavated in segments. Most of the cremation remains were located in segments 3 and 4. Most of skull elements were found in segments 3 and 4. The cremation remains may be those of a female, ca. 20-30 years old at the time of death.

Weight cremation remains: 763.4 grams (completely excavated, undisturbed)

Sex characteristics: Zygomatic process = -1
The post-cranial skeleton is more gracile

Age characteristics: The auricular surface indicates an age ca. 20-30 years old at the time of death.

Conclusion: Female?? of ca. 20-30 years old at the time of death.

Grave 4 (S201.4)

This grave yielded a considerable amount cremation remains. All skeletal elements are represented. The analysis points towards a female of ca. 20–30 years old at the time of death. A bone tool (awl) was among the cremation remains.

Weight cremation remains:	1047.1 grams (completely excavated, lay under a tree trunk)
Sex characteristics:	Margo forma orbita = -2 Greater sciatic notch = -1
Age characteristics:	The epiphyses are closed and the sutures present are open (Coronalis and Sagittalis).
Height:	The proximal epiphysis of the radius has a cross-section of 18 mm. This dimension indicates a height of ca. 161.5 cm.
Animal bone:	Awl(?) made of animal bone (INDET.)
Conclusion:	Female of ca. 20–30 years old at the time of death with a height of ca. 161.5 cm.

Grave 5 (S201.8)

This grave concerns a scatter of cremation remains which were excavated in segments. The distribution shows that most of the fragments were located in segments 2 and 4. Within these segments no specific position of the skeletal elements could be ascertained. In segments 2 and 4, for example fragments, of the skull lay distributed. The cremation remains are those of adult individual who was ca. 20–40 years old at the time of death. Sex characteristics cannot be evaluated as the skeletal elements in question are not present.

Weight cremation remains:	977.9 grams (completely excavated, undisturbed)
Age characteristics:	The epiphyses are closed and a suture (Lambda) is completely open on the in- and outside. This points towards a person who was ca. 20–40 years old at the time of death.
Pathology:	A fragment of a vertebra shows some slight marginal osteophytosis (randvorming), which indicates degeneration of the intervertebral disc.
Conclusion:	Adult individual who was ca. 20–40 years old at the time of death with indications of degeneration of the vertebral column.

Grave 6 (S201.13)

In this pit the cremation remains of at least two individuals were encountered, in this case two females. Parts of the skull of two individuals are present (2x right pars petrosa, 2x left pars petrosa, 2x os occipitale). All skeletal elements are present in the cremation remains.

Weight cremation remains:	1582.1 grams (completely excavated, undisturbed)
Sex characteristics:	Margo forma orbita = -2 Superciliary arch = -2 Mentum mandibula = -2 External occipital protuberance (2x) = -2 Zygomatic process = -2
Age characteristics:	The epiphysis of the iliac crest is open and that of a metatarsal and the ischial tuberosity are closed. This indicates an age of ca. 17–14 years old at the time of death. All sutures (Coronalis, Sagittalis and Lambda) are internally and externally open.
Animal bone:	Needle (with eye) made of animal bone (INDET.)
Conclusion:	Two females, a female of ca. 17–24 years and a female younger than 40 years old at the time of death. A minimum age for the second individual is difficult to estimate. The robusticity indicates an adult individual, but this is not certain. Ind. 1 – female 17–24 years Ind. 2 – female < 40 years

Grave 7 (S201.15)

Grave 7 yielded the cremation remains of a female who was ca. 20–30/40 years old at the time of death. All skeletal elements are represented. Find number 373 yielded the most skull fragments and find number 472 the most limb fragments (diaphyses).

Weight cremation remains:	568.3 grams (not completely excavated, located under tree trunk)
Sex characteristics:	Zygomatic process = -2 The post-cranial skeleton is gracile
Age characteristics:	The epiphyses present are closed and all sutures (Coronalis, Sagittalis and Lambda) are internally and externally open.
Conclusion:	Female who was ca. 20–40 years old at the time of death (more likely 20–30 years due to all the open sutures).

Grave 8 (S201.21-26)

Grave 8 is probably the central grave in this mound and yielded the cremation remains of a possibly adult male.

Weight cremation remains:	374.4 grams (not completely excavated, undisturbed)
Sex characteristics:	Margo forma orbita = +2
Age characteristics:	Only the robusticity indicates an adult individual.
Conclusion:	There are few indications for the age and sex of the deceased, meaning that the statement of a male (??) older than 20 years at the time of death should not be taken as definitive.

Mound 3

Grave 9 (S301.2)

Grave 9 yielded a small amount of cremation remains, which makes it difficult to analyze. The amount of cremation remains is less than indicated, as the cremation remains are mixed/contaminated with soil material. The cremation remains are well burnt and consist of parts of the skull and parts of the long bones of the legs. The skull suture present (Coronalis) is internally and externally open. This gives a rough age estimate of ca. 20–40 years old at the time of death. The minimum age is not possible to determine, though the robusticity of the bone fragments indicates a probably adult individual. No data is at hand to make a sex determination.

Weight cremation remains: <59.7 grams (disturbed)

Conclusion: Probably adult individual who was 20–40 years old at the time of death.

Grave 10 (S301.3)

Find number 722 contained in total 120 grams of cremation remains. The amount of cremation remains is less than indicated as the cremation remains are mixed/contaminated with soil material. Skeletal elements of the skull and the limbs are present. The other find numbers contained only few remains.

Weight cremation remains: <234.4 grams (disturbed, located under tree trunk)

Sex characteristics: Superciliary arch= +1
Zygomatic process= -1
Zygomatic bone= -1
Margo forma orbita = -2
The post-cranial skeleton is rather gracile.

Age characteristics: There are few characteristics that can be used to determine age. The robusticity of the skeletal elements indicates a probably adult individual.

Conclusion: Probably adult female individual.

Grave 11 (S301.6)

Grave 11 consists of a find scatter and was excavated in segments. Per find number small amounts of bone material was collected. They are primarily small fragments (residu) and parts of the limbs (diaphysis) and skull fragment (neurocranium). The scatter does not show a specific pattern.

Weight cremation remains: 715.3 grams (completely excavated, disturbed)

Sex characteristics: Zygomatic process= +2
Mastoid part of the temporal bone = 0
Margo forma orbita = -2 (this could perhaps belong to Grave 17)
The post cranial skeleton is rather robust

Age characteristics: An open suture (Lambda) indicates the deceased was ca. 20–40 years old at the time of death.

Conclusion: Male? of ca. 20–40 years.

Grave 12 (S301.7)

Grave 12 yielded a considerable amount of cremation remains, but these lay dispersed. The different skeletal elements of o.a. the skull lay distributed through the entire feature, and were not in anatomically correct position.

Weight cremation remains: 1236.8 grams (practically completely excavated, undisturbed)

Sex characteristics: Superciliary arch= +1
Zygomatic process= -1
Margo forma orbita = +1
Greater sciatic notch = +2

Age characteristics: The robusticity indicates an adult individual. The open sutures (Coronalis, Sagittalis, Lambda) give an estimate of ca. 20–40 years old at the time of death.

Pathology: The maxilla shows a closed tooth socket at the location of the first molar (no. 13), which indicates this tooth was lost during life.

Conclusion: Probably male of ca. 20–40 years old at time of death with ante-mortem tooth loss.

Grave 13 (S301.12)

Grave 13 yielded very small small bone fragments of a young child. These remains primarily consist of parts of the skull and the long bone fragments of the limbs. Only the robusticity gives indication of the age at time of death, which is ca. 1 to 4 years. Most parts of the skull were located in segment 2. One find number yielded the most fragments - find number 419.

Weight cremation remains 104.8 grams (completely excavated, disturbed)

Conclusion: Young child of ca. 1 to 4 years old at the time of death.

Grave 14 (S301.18)

Few cremation remains are known from this grave. Most of the remains are located in the part with find number 322. The other find numbers only yielded residue. The cremation remains are those of a young child who was ca. 18 months \pm 6 months old at the time of death. This estimate is based on dental development.

Weight cremation remains: 36.8 grams (completely excavated, disturbed)

Conclusion: Young child of ca. 1 to 2 years old at the time of death.

Grave 15 (301.22)

Grave 15 is small pit with a bone concentration (cremation remains deposit). The remains were collected from different levels and fills. In total 784 grams of bone (29 find numbers) were recovered. The cremation remains may have belonged to a female who was ca. 20–40 years old at the time of death.

Weight cremation remains: <783.5 grams (completely excavated, undisturbed)

Sex characteristics: Glabella = 0 to -1
Arcus superciliaris = +1
Margo forma orbita = -1

Age characteristics: The robusticity points towards adult individual, but the sutures are open which indicates the deceased was ca. 20–40 years old at the time of death.

Green discolouration: Secondary green discolourations on a diaphysis fragment, possibly of the arm, and on a fragment of the skull by the eye socket.

Conclusion: Cremation remains of a female who was ca. 20–40 years old at the time of death. Secondary green discolourations indicate the presence of metal objects during cremation.

Grave 16 (S301.23)

Grave 16 yielded few cremation remains, the most in find number 378. The cremation remains are those of a child who was ca. 2–6 years old at the time of death. The criteria for the age assessment are the development of the skeletal elements (skull, vertebrae etc.). Furthermore, the sutures are formed which gives a minimum age of 2 years.

Weight cremation remains: 81.6 grams (completely excavated, undisturbed)

Conclusion: Child who was ca. 2–6 years old at the time of death.

Grave 17 (S301.24)

This grave yielded a considerable amount of cremation remains. They are those of a female who was ca. 20–40 years old at the time of death. All skeletal regions are represented.

Weight cremation remains: 804.4 grams (completely excavated, located under tree trunk)

Sex characteristics: Glabella = +1
Relief nuchal plane = -2
Zygomatic bone = -2
Margo forma orbita = -2

Age characteristics: The sutures (Coronalis and Lambda) are internally and externally open.

Relationship with Grave 10? These cremation remains cannot be associated with Grave 10. There is overlap of a bone element, namely the right zygomatic bone (cheekbone).

Conclusion: Female who was ca. 20–40 years old at the time of death.

Grave 18 (S301.26)

This grave was excavated in four segments. The parts of the skull were primarily located in segments 3 and 4. Segments 1 and 2 primarily yielded diaphyses (limbs). The cremation remains represent various diverse skeletal elements. The sex and age determination point towards a female who was ca. 20–40 years old at the time of death.

Weight cremation remains: <997.2 grams (completely excavated, undisturbed)

Sex characteristics: Relief nuchal plane = 0
Zygomatic bone = -1
Mastoid part of the temporal bone = -1
The post-cranial skeleton is rather gracile.

Age characteristics: The sutures (Coronalis and Lambda) are internally and externally open.

Conclusion: Female(?) who was ca. 20–40 years old at the time of death.

Grave	Weight CR	Type of grave	MNI	Sex	Age at time of death	Notes
1	69.5 gr.	INDET.	1	INDET.	Prob. adult	Not completely excavated, undisturbed
2	20 gr.	INDET.	1	INDET.	Prob. adult	Heavily disturbed
3	763.4 gr.	Bone scatter in pit(?)	1	Female?	20-30 years	Completely excavated, undisturbed
4	1047.1 gr.	Cremation remains- deposit	1	Female	20-30 years	Completely excavated, located under tree trunk
5	977.9 gr.	Bone scatter in pit(?)	1	INDET.	20-40 years	Completely excavated, undisturbed
6	1582.1 gr.	Bone scatter in pit(?)	2	1. female 2. female	1. 17-24 years 2. <40 years	Completely excavated, undisturbed
7	568.3 gr.	Cremation remains deposit	1	Female	20-(30)/ 40 years	Not completely excavated, located under tree trunk
8	374.4 gr.	Cremation remains deposit covered with pyre remains	1	Man	Adult	Not completely excavated, undisturbed
9	<59.7 gr.	INDET.	1	INDET.	20-40 years	Heavily disturbed
10	<234.4 gr.	INDET.	1	Female?	Prob. adult	Completely excavated, located under tree trunk
11	715.3 gr.	Bone scatter in pit flanked with pyre remnants	1	Man?	20-40 years	Completely excavated, disturbed
12	1236.8 gr.	Bone scatter in pit flanked with pyre remnants	1	Man	20-40 years	Almost completely excavated, undisturbed
13	104.8 gr.	Bone scatter in pit flanked with pyre remnants	1	INDET.	1-4 years	Completely excavated, disturbed
14	36.8 gr.	Cremation remains deposit	1	INDET.	1-2 years	Completely excavated, disturbed
15	<783.5 gr.	Cremation remains deposit	1	Female	20-40 years	Completely excavated, undisturbed
16	81.6 gr.	Cremation remains deposit	1	INDET.	2-6 years	Completely excavated, undisturbed
17	804.4 gr.	Cremation remains deposit	1	Female	20-40 years	Completely excavated, located under tree trunk
18	<997.2 gr.	Cremation remains deposit	1	Female	20-40 years	Completely excavated, undisturbed

Tab. Appendix 1: Overview cremation graves Apeldoorn–Wieselseweg.

Appendix 2

Microwear analysis of flint, amber, stone and bone artefacts

Annelou van Gijn & Annemieke Verbaas

Method of analysis

All artefacts were studied by stereomicroscope to detect possible residue and to obtain an overview of traces of manufacture and use. Use was made of a Nikon SMZ800 stereomicroscope with 64x maximum magnification. All pieces were subsequently examined using a Nikon Optiphot incident light (metallographic) microscope with magnifications between 100-500x. Only the flint implements were washed with water and detergent, after making certain that no residue was present. The artefacts were not chemically cleaned.

Bone tools

V163: a bone awl. Not interpretable.

V501: two bone fragments. Not interpretable.

V515: perforated fragment of a needle and a second piece that was initially considered to be part of the same implement. The perforated fragment is not interpretable, but on one aspect the surface is still intact, and it could be seen that the perforation had been smoothed over and that something had been 'rubbing over the edge', suggesting use as needle. The perforation is biconical. The wear is very light. This is in contradiction with the wear developed on the second fragment which is heavily developed, causing a very smooth surface. Although not very clear, the polish seems to be highly linked. The polish observed does not resemble the polish that develops from contact with plant or hide working. It may possibly be the result of contact with wool but due to the relatively poor preservation it is impossible to substantiate this inference with pictures. The fragments could not be refitted and display very different surface modifications suggesting that they do not belong to the same object.

Amber

V725: possible spacer plate. Unfortunately the find is badly oxidized which makes it difficult to assess the traces of manufacture and wear. The perforation is biconical, displaying a sharp rim between perforation and surface, with very little wear. The grooves on the side of the object, however, are rounded. This suggests that the spacer

plate may have been rejuvenated or re-modelled, resulting on the one hand in a relatively fresh perforation and at the same time in a heavily rounded ridge on another part of the amber plate.

Flint artefacts

V46: flint flake which shows considerable post-depositional surface modifications. However, the distal end displays edge removals and some slight edge rounding. There is also a band of polish of a somewhat bright variety that suggests contact with a mineral material. The tool was used in a slightly oblique, scraping motion. It is not heavily used, probably only for a brief instance.

V190: barbed point. Like with other identical points from contemporary sites, the barbs show signs of abrasion (see Van Gijn 2010, fig. 8.4). Why the barbs were abraded is not entirely clear; it could be to strengthen the barbs to avoid fracturing during penetration, but it can also be part of the hafting arrangement. There are some spots of black residue located on the surface of the distal end of the point which may be remnants of an adhesive, possibly tar. This suggests that the point was hafted. No impact scar was seen, nor are there any linear traces which are commonly associated with a use as arrowhead. It should be stressed, however, that the absence of such traces of use does not

imply that the point was never used. Experiments have shown that such traces do not always develop.

Stone artefacts

V69: fragment of a grinding or polishing stone. One aspect is extremely smooth and shows a reflective, domed polish that indicates contact with wood or bone. It was possibly used to sharpen the bone needle. The motion is longitudinal. The main contact surface is the flat surface, but there are some traces on the other sides which could not be further interpreted.

V344: ventifact. Some possible traces from a use as pounder. The smooth surface that could be seen on some spots indicates that it was not a hammerstone but rather a pounding-cum-grinding tool like a pestle. The contact material could not be inferred.

V609: grinding stone. The surface is not in very good condition, one side is not interpretable due to severe weathering. On one side the stone showed traces from grinding a medium-hard material, most likely plant. The greasy texture of the polish suggests it may concern an oil-rich plant. There are also traces from stone-on-stone contact due to the abrasion between the upper and the lower stone.

DEATH REVISITED

This book presents a group of small and inconspicuous barrows that were recently discovered in the forest of Apeldoorn, the Netherlands. They are part of an extensive barrow landscape of which little was yet known. Fieldwork carried out in and around them yielded a wealth of new data. It was discovered that even the most inconspicuous and heavily damaged mound of this group still contained many special features.

This special place was anchored around a site that probably had a particular significance in the Late Neolithic, and where special rituals were carried out during the Bronze Age, resulting in the construction of an enigmatic row of pits – rituals the likes of which have not previously been attested around barrows in the Netherlands, but which are known elsewhere in Europe. The dead were buried at locations that were probably only later covered by monuments. During the Bronze Age (between the 18th and 15th centuries BC) the mounds of this small barrow group were used as collective graves for what was probably perceived as one specific ‘community of ancestors’.

The burial practices in the mounds show strong similarities and it is argued that these barrows were each other’s successors, representing the funeral history of people who wished to unite their forebears in death as one unproblematic whole without distinctions. The fieldwork showed that even small-scale, partial excavations of a seemingly minor barrow group can inform us on the significance of the extensive barrow landscapes they are part of – a knowledge that can help us to understand the prehistoric legacy of the Netherlands and to protect it for the future as heritage.

Sidestone Press

ISBN: 978-90-8890-580-3



9 789088 905803 >