



LUND UNIVERSITY

Stensborg

Mass destruction of axes and cereals reflecting southern contacts of the Funnel Beaker societies in southern Sweden

Larsson, Lars; Broström, Sven-Gunnar

Published in:

Landscapes, Histories and Societies in the Northern European Neolithic

2014

[Link to publication](#)

Citation for published version (APA):

Larsson, L., & Broström, S.-G. (2014). Stensborg: Mass destruction of axes and cereals reflecting southern contacts of the Funnel Beaker societies in southern Sweden. In M. Furholt, D. Mischka, G. Noble, D. Olausson, & M. Hinz (Eds.), *Landscapes, Histories and Societies in the Northern European Neolithic* (Vol. 4, pp. 303). (Frühe Monumentalität und soziale Differenzierung; No. 4). Wachholtz Verlag.

Total number of authors:

2

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00



**LANDSCAPES,
HISTORIES AND SOCIETIES
IN THE NORTHERN EUROPEAN NEOLITHIC**



DFG Schwerpunktprogramm 1400

Frühe Monumentalität und soziale Differenzierung 4

Edited by

**Martin Furholt
Martin Hinz
Doris Mischka
Gordon Noble
Deborah Olausson**

Landscapes, Histories and Societies in the Northern European Neolithic

Schwerpunktprogramm 1400

**Frühe Monumentalität
und soziale Differenzierung**
Band 4

Herausgegeben von Johannes Müller

In Kommission bei Dr. Rudolf Habelt GmbH, Bonn
2014

Institut für Ur- und Frühgeschichte der CAU Kiel

**Landscapes, Histories and Societies
in the Northern European Neolithic**

Herausgegeben von Martin Furholt
Martin Hinz
Doris Mischka
Gordon Noble
Deborah Olausson



in Kommission bei Dr. Rudolf Habelt GmbH, Bonn
2014

Gedruckt mit Unterstützung der Deutschen Forschungsgemeinschaft

Verlag Dr. Rudolf Habelt GmbH, Bonn
Redaktion Doris Mischka, Erlangen, D
Martin Furholt, Kiel, D
Martin Hinz, Kiel, D
Gordon Noble, Aberdeen, UK
Deborah Olausson, Lund, SE
Proofreading Eileen Küçükcaraca, Kiel, D
Marianne Noble, Aberdeen, UK
Layout, Grafik und technische Redaktion Ines Reese und Karin Winter, Kiel, D
Kapitelvorsatzblätter Karin Winter, Kiel, D
Umschlagentwurf Ines Reese, Kiel, D
Umschlagfoto Putlos IV Sprockhoff Nr. 260, Schleswig-Holstein;
Doris Mischka
ISBN 978-3-7749-3882-3
Druck druckhaus köthen GmbH & Co. KG, Köthen

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie.
Detailliertere bibliografische Daten sind im Internet über <<http://dnb.d-nb.de>> abrufbar.

© 2014 by UFG CAU Kiel and authors

Contents

Preface	7
----------------	---

Introduction

Foreword: Landscapes, histories and societies in the northern European Neolithic	11
-----------------------------------------------------------------------------------------	----

Martin Furholt

What is the Funnel Beaker complex? Persistent troubles with an inconsistent concept	17
-------------------------------------------------------------------------------------	----

The Significance of Enclosure

Håkon Glørstad and Lars Sundström

Hamremoén — an enclosure for the hunter-gatherers?	29
----------------------------------------------------	----

Jari Okkonen

The expression of monumentality among the Neolithic hunter-gatherers in Finland — Remarks on archaeology of giant's churches	49
---------------------------------------------------------------------------------------------------------------------------------	----

Kristian Brink

Palisaded enclosures as arenas of social and political transformation in the Late Middle Neolithic of southernmost Scandinavia	57
-----------------------------------------------------------------------------------------------------------------------------------	----

Gordon Noble and Kenneth Brophy

Construction, process, environment: altering the landscape in Neolithic lowland Scotland	65
------------------------------------------------------------------------------------------	----

Commemorating the dead

Anja Behrens

The complexity of megalithic graves on the island of Rügen	81
------------------------------------------------------------	----

Georg Schafferer

Megaliths and landscapes — Grave architecture as spatial manifestations of tradition and social identities in northern Germany	91
-----------------------------------------------------------------------------------------------------------------------------------	----

Anne Brigitte Gebauer

Meanings of monumentalism at Lønt, Denmark	101
--------------------------------------------	-----

Almut Schülke

Three concepts of burying the dead — different types of megalithic monuments and their ritual and social significance	113
--------------------------------------------------------------------------------------------------------------------------	-----

Doris Mischka

Flintbek and the absolute chronology of megalithic graves in the Funnel Beaker North Group	125
--------------------------------------------------------------------------------------------	-----

Kerstin Schierhold

Landscape between cultures. Westphalia between 4100 and 2700 BC	145
-----------------------------------------------------------------	-----

<i>Andrzej Pelisiak</i> The Funnel Beaker culture: Long barrows as the landscape of the dead within the landscapes of the living	155
----------------------------------------------------------------------------------------------------------------------------------------	-----

<i>Johannes Müller, Hauke Dibbern, Franziska Hage</i> Non-megalithic mounds beneath megaliths: A new perspective on monumentality in North Central Europe	171
-----------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

Other kinds of places

<i>Marek Nowak</i> Identity of FBC societies in the Upper Vistula River basin	185
----------------------------------------------------------------------------------	-----

<i>Lars Larsson</i> Neolithic transformations: relationships between society and landscape	197
-----------------------------------------------------------------------------------------------	-----

<i>Martin Hinz</i> Same but different? Neolithic economic and cultural change in northern Germany	207
------------------------------------------------------------------------------------------------------	-----

<i>Jan Turek</i> New evidence of the FBC longhouses in Central Bohemia	219
---------------------------------------------------------------------------	-----

<i>Åsa Berggren</i> A sense of place at a fen	227
--------------------------------------------------	-----

<i>Kristina Jennbert</i> The seashore — beyond monumentality. The case of Pitted Ware coastal sites in southern Sweden	235
------------------------------------------------------------------------------------------------------------------------------	-----

Objects and their meanings

<i>Susan Hydén</i> Fragments of life and death — the biography of grinding and polishing stones found in long barrows at the Almhov burial site	247
-------------------------------------------------------------------------------------------------------------------------------------------------------	-----

<i>Deborah Olausson</i> The “mental” in monumental — Battle Axe culture in megalithic tombs in southern Sweden	261
-------------------------------------------------------------------------------------------------------------------	-----

<i>Tine Schenck</i> Hunter-gatherers with funnel beakers. Experimental implications for the adoption of pottery in Early Neolithic southern Norway	275
----------------------------------------------------------------------------------------------------------------------------------------------------------	-----

<i>Agnieszka Przybył</i> The final stages of the Eastern Group of the Funnel Beaker complex in light of the ceramic data	289
--------------------------------------------------------------------------------------------------------------------------------	-----

<i>Lars Larsson and Sven-Gunnar Broström</i> Stensborg — Mass destruction of axes and cereals reflecting southern contacts of the Funnel Beaker societies in southern Sweden	303
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

Preface

Within the scope of meetings of archaeologists interested in megaliths and societies at the Oslo European Conference of 2011, a joint publication of contributions was planned as a sign of cooperative work on monuments and societies in northern and Central Europe. Consequently, the papers of three different sections of the Oslo Conference are published here through the collaboration efforts of the editors.

While providing a first impression by offering a mosaic of very valid contents, this book might also be handled as a kind of small handbook on the state of research concerning new questions on material culture, megaliths and societies within the indicated spatial frame. The contributions deal with topics which extend from Mesolithic developments and adaptations of innovations associated with social and ritual behavior that transpired in the realm of the 4th millennium BCE to changes observable dur-

ing the Younger Neolithic, when the main ideological transformations of material culture, monuments and environments – as media of communication in non-literate societies – had shifted once again to a different mode of reception.

As the editor of this series, it is my pleasure to thank all the editors of this book in succeeding to unite the contributions to such an admirable volume. It also demonstrates the strength of networks, which, triggered by ritual activities, did not only exist about 5000 years ago but also those that are currently triggered by research activities. Both, the editors and the further Kiel team, including Eileen Küçükkaraca, Ines Reese and Karin Winter, are to be thanked for scientific and technical editing.

Kiel, July, 4th, 2014

Johannes Müller

Foreword:

Landscapes, Histories and Societies in the northern European Neolithic

Doris Mischka, Martin Furholt, Martin Hinz, Gordon Noble and Deborah Olausson

During the Neolithic period of northern Europe, monuments and artefacts of many new forms signalize a range of innovative practices, forms of social organisation, and perceptions of place and landscape. Although not regionally and temporally uniform or coherently distributed, many of the phenomena under study can be found in the British Isles, in Scandinavia, northern Germany or Poland, thus in regions today showing very different traditions of research. The histories told by archaeologists in these regions are diverse, and the interpretations of these modelled societies can appear incompatible at times, yet in the framework of a European research community, the dialogue between regionally different schools has intensified during the last few years.

This publication presents papers from two sessions of the conference of the European Association of Archaeologists (EAA) held in Oslo in September 2011. Gordon Noble, University of Aberdeen, United Kingdom and Deborah Olausson, Department of Archaeology and Ancient History, Lund University, Sweden coordinated a session called “A new sense of place: Landscape and monuments in the northern European Neolithic” on September 15th. Martin Furholt, Martin Hinz and Doris Mischka, all Institute of Pre- and Protohistory Kiel University, Germany and members of the Priority Program of the German Research Foundation “SPP 1400 Early monumentality and social differentiation” together with Marzena Szmyt, Instytut Wschodni of the University Adama Mickiewicza in Poznań, Poland, organised the session “The Funnel Beaker complex: Multiple landscapes, histories and societies” two days later.

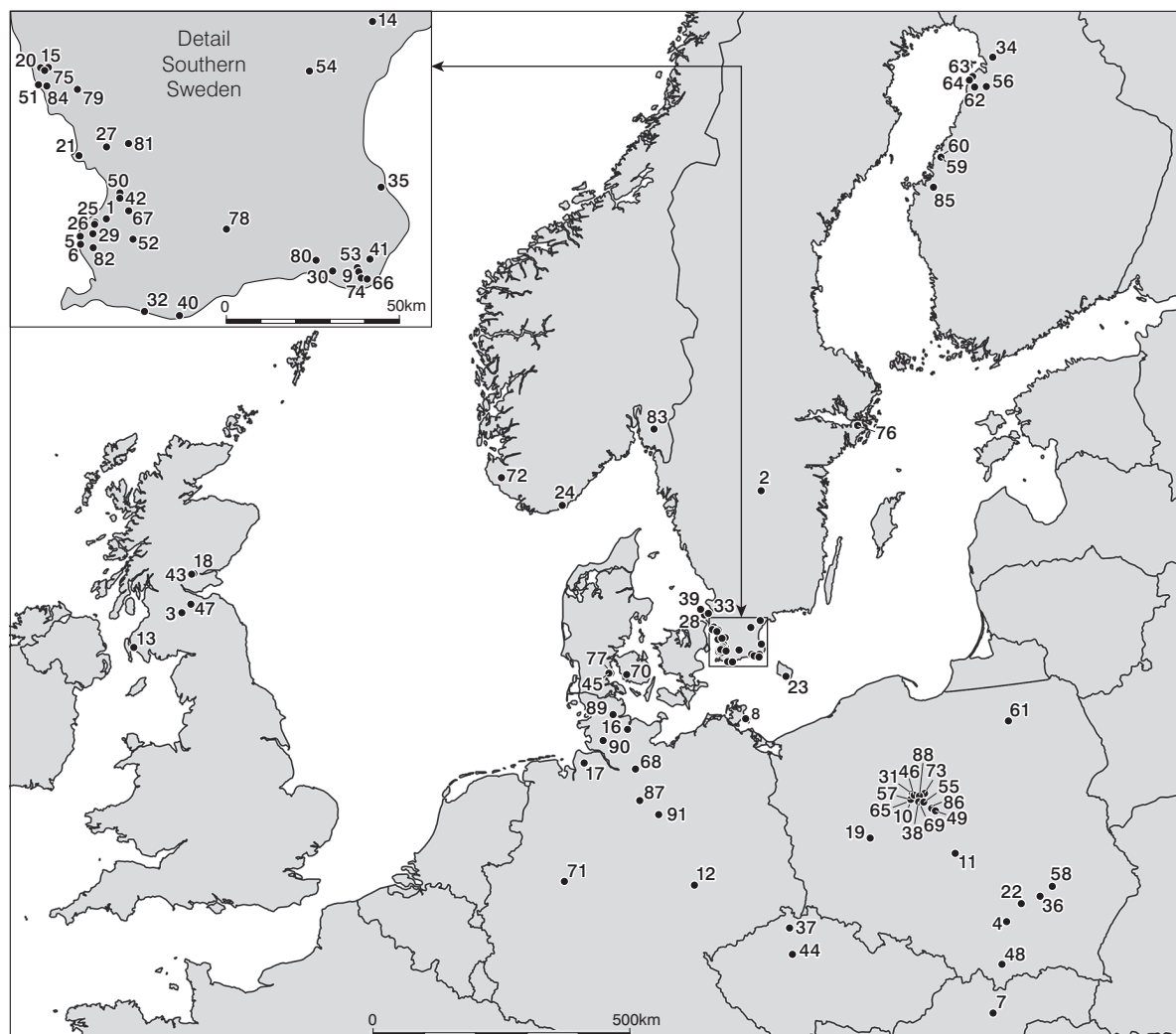
During the conference we noted that participants in the two sessions were nearly identical and the aims of the sessions closely related. Clearly the talks addressed the same audience and the sessions addressed similar research topics. Thus, during the conference, the session organizers decided to join the contributions into a single publication.

Johannes Müller from Kiel University kindly supported the present volume by accepting it for the new monograph series of the Priority Program of the German Research Foundation „SPP 1400 Early monumentality and social differentiation“. The editing work was coordinated in Kiel and carried out in two groups according to the sessions. Doris Mischka contributed significantly to the editing and realization of the project.

The volume contains contributions from eight countries: Czech Republic, Denmark, Finland, Germany, Norway, Poland, Scotland and Sweden. Ninety-one single sites, located in an area extending from Finland to Poland and across the continent to Scotland (Fig. 1) are discussed.

The volume begins with an introduction followed by four sections organised according to the nature of the source material. In the introduction, Martin Furholt provides a broad discussion presenting one of the focuses of the volume — the “Funnel Beaker complex” — as a supra-regional term referring to specific Neolithic societies, thus separating them from other northern European societies. Furholt explores and at times questions the validity of this term in Neolithic studies.

In the first section of the volume the focus is centered on “The Significance of Enclosure”, in which monumental enclosures of the Neolithic period are discussed along with the interpretive challenges that the phenomenon of enclosure presents. These enclosures date from the earliest to the final stages of the Neolithic period. In the first chapter, Håkon Glørstad and Lars Sundström present an Early Neolithic enclosure site from Hamremoien in southern Norway. The monument represents some of the earliest traces of the Neolithic in this region, dated to the time span from 3900–3600 calBC, and the authors interpret the enclosures as an indication of the influence of the Funnel Beaker complex on late hunter gatherers in southern Norway. The focus then shifts to the coastal area of



- | | | |
|--------------------------------------------|----------------------------------------------|--------------------------------------------------------|
| 1 Almhov, Sweden (Hydén) | 32 Jättegården, Sweden (Larsson) | 63 Raahe Kastelli, Finland (Okkonen) |
| 2 Alvastra, Sweden (Larsson) | 33 Jonstorp, Sweden (Jennbert) | 64 Raahe Kettukangas, Finland (Okkonen) |
| 3 Blackhouse Burn, Scotland (Noble/Brophy) | 34 Kiiminki Linnasaari, Finland (Okkonen) | 65 Radziejów Kujawski 4, Poland (Przybył) |
| 4 Bronocice, Poland (Nowak) | 35 Knäbäcksdösen, Sweden (Olausson) | 66 Ramshög, Sweden (Olausson) |
| 5 Bunkeflo, Sweden (Brink) | 36 Konary 6B, Poland (Przybył) | 67 Särslöf, Sweden (Olausson) |
| 6 Bunkeflostrand, Sweden (Brink) | 37 Kozly, Czech Republic (Turek) | 68 Sachsenwald, Germany (Hinz) |
| 7 Březno, Czech Republic (Turek) | 38 Kuczkowo 1 and 5, Poland (Przybył) | 69 Sarnowo, Poland (Pelisiak) |
| 8 Burtevit, Germany (Behrens) | 39 Kullaberg, Sweden (Jennbert) | 70 Sarup, Denmark (Larsson) |
| 9 Carlshögen, Sweden (Olausson) | 40 Kungsdösen, Sweden (Olausson) | 71 Schmerlecke, Germany (Schierhold) |
| 10 Chelmiczki 10, Poland (Przybył) | 41 Kverrestad, Sweden (Larsson) | 72 Slettabø, Norway (Schenck) |
| 11 Dobroń, Poland (Pelisiak) | 42 Laxmans-Åkarp, Sweden (Olausson) | 73 Smarglin 22, Poland (Przybył) |
| 12 Dölauer Heide, Halle, Germany (Turek) | 43 Leadketty, Scotland (Noble/Brophy) | 74 Stendösa, Sweden (Olausson) |
| 13 Dunragit, Scotland (Noble/Brophy) | 44 Libeznice, Czech Republic (Turek) | 75 Stenhög, Sweden (Olausson) |
| 14 Fjälkinge 9, Sweden (Olausson) | 45 Lønt, Denmark (Gebauer) | 76 Stensborg, Sweden (Larsson and
Larsson/Broström) |
| 15 Fjärestad 1, Sweden (Olausson) | 46 Łojewo 4, Poland (Przybył) | 77 Strandby, Denmark (Larsson) |
| 16 Flintbek, Germany (Mischka) | 47 Meldon Bridge, Scotland (Noble/Brophy) | 78 Svartsykke, Sweden (Larsson) |
| 17 Flögeln, Germany (Turek) | 48 Niedzwiedz, Poland (Turek) | 79 Tågarp, Sweden (Olausson) |
| 18 Forteviot, Scotland (Noble/Brophy) | 49 Obalki, Poland (Pelisiak) | 80 Trollasten, Sweden (Olausson) |
| 19 Gaj, Poland (Pelisiak) | 50 Öllsjö, Sweden (Olausson) | 81 Västra Hobby, Sweden (Olausson) |
| 20 Gantofta boställe, Sweden (Olausson) | 51 Örenäs, Sweden (Olausson) | 82 Västra Klagstorp, Sweden (Brink) |
| 21 Gillhög, Sweden (Olausson) | 52 Örnakulla, Sweden (Larsson) | 83 Vestgård 3 and 6, Norway (Schenck) |
| 22 Gnojno, Poland (Nowak) | 53 Örum 5, Sweden (Olausson) | 84 Viktorshög söder, Sweden (Olausson) |
| 23 Grødbygård, Bornholm, Denmark, (Turek) | 54 Östra Vram, Sweden (Olausson) | 85 Vörå Höjsalträsk, Finland (Okkonen) |
| 24 Hamremoen, Norway (Glørstad/Sundström) | 55 Opatowice 1, 3 and 42, Poland (Przybył) | 86 Wietrzychowice, Poland (Pelisiak) |
| 25 Hindbygården, Sweden (Berggren) | 56 Paavola Pesuankangas, Finland (Okkonen) | 87 Wittenwater, Germany (Turek) |
| 26 Hindby mosse, Sweden (Berggren) | 57 Papros 6A and 6B, Poland (Przybył) | 88 Zegotki 2, Poland (Przybył) |
| 27 Hög, Sweden (Olausson) | 58 Pawłow, Poland (Nowak) | 89 Borgstedt, Germany (Müller/Dibbern/Hage) |
| 28 Höganäs, Sweden (Jennbert) | 59 Pedersöre Svedjebacken, Finland (Okkonen) | 90 Albersdorf, Germany (Müller/Dibbern/Hage) |
| 29 Hylle, Sweden (Brink and Larsson) | 60 Pedersöre Jänkäbacken, Finland (Okkonen) | 91 Lüdelsen, Germany (Müller/Dibbern/Hage) |
| 30 Ingelstorp 25, Sweden (Olausson) | 61 Piecki 1, Poland (Przybył) | |
| 31 Inowrocław-Mątwy 1, Poland (Przybył) | 62 Pikku Liekokangas, Finland (Okkonen) | |

Fig. 1. Sites focused on in more detail within the different articles. In brackets author's names.

Ostrobothnia in Finland, to the so-called 'giant's churches' in this region. The research history and the current results of surveys and excavations of these monuments, which are dated to the Middle and Late Neolithic (3600–2000 calBC), are described by Jari Okkonen. Among the so-called giant's church sites, stone enclosures and cairns as well as house pits and dwelling sites can be found. These sites are interpreted as playing an important role in the rise of more complex societies in the Middle and Late Neolithic. Turning to southern Scandinavia, more precisely southern Sweden, Kristian Brink reflects on the function of palisaded enclosures dated to the first half of the third millennium BC, social change, and the nature of the activities taking place within these monuments. Among the activities he mentions are fish drying, the use of new types of pottery and increased flint axe production. The fourth article in this section turns the focus more to the west, to the large palisade enclosures of Forteviot, Leadketty and others in lowland Scotland that share many similarities to the enclosures described by Brink. The authors, Gordon Noble and Kenneth Brophy, present the sites, dating to the early part of the third millennium BC, their regional context and discuss the incredible expenditure of labour that went into the creation, maintenance and destruction of these sites, the ritual activities conducted there and the possible significance of the activities for the societies once living there.

The second section of the volume relates to traditions of monumental burial sites constructed in the Neolithic of northern Europe. In the first chapter in this section, the evidence for distinctive traditions of megalithic burial on the island of Rügen are outlined. In the study, Anja Behrens presents the archaeological and archaeobotanical results from two sites labelled Burtevitiz 1 and Burtevitiz 2. Behrens demonstrates that the monument biographies are very complex with many additions and that changes have been made to the monuments in the Neolithic and the Early Bronze Age. She proposes that the monuments were utilized by small local communities cultivating local traditions visible in a special entrance construction technique but also influenced by distant communities, reflected in changes in the architectural details. On a broader scale, Georg Schafferer analyses the architecture of about 200 megalithic graves in Schleswig-Holstein and Mecklenburg-Vorpommern, northern Germany. He focuses on particular styles of architecture and their spatial distribution, with the aim of distinguishing local and regional building traditions. In a similar vein, Anne Brigitte Gebauer analyses a group of megalithic graves situated next to two Neolithic enclosures at Lønt in Denmark. In her article, Gebauer identifies differences in the building materials, architectural

details and the spatial connections between the monuments as expressions of social identity. The next article deals with the architectural expressions of megalithic tombs. Here, Almut Schülke uses northwestern Zealand in Denmark as a key area when she compares the traditions of dolmen and passage graves with traditions of single interment. The primary aim in her study is to ascertain if there is a chronological sequence within the different traditions of interment.

The aim of Doris Mischka's investigation in the following contribution is to identify the chronological relationship between dolmens and passage graves in northern Germany, using a series of AMS-dates related to the building and use of megalithic burials in Flintbek. Comparing with published dates from Scandinavian sites, she concludes that the primary building phase for dolmens falls between 3650/3600 calBC and 3350 calBC, with polygonal chambered types perhaps amongst the oldest monuments, while passage graves date mainly between 3300 and 3100/3000 calBC. The region of Soester Börde in the Westphalian Basin in Germany forms the study region in the next article, by Kerstin Schierhold, who interprets the significance of gallery graves in the rise of early monumentality. Schierhold examines her region in relation to Funnel Beaker Culture sites to the north and west, along with late Michelsberg sites with huge enclosures, during the period between 4100 and 2700 BC. Andrzej Pelisiak connects the architectural form of long barrows in Poland to the traditions of domestic architecture. He seeks characteristic features within settlements in the form of long barrows, investigating relations with landscape and interpreting the construction and positioning of the long barrows within the landscape as a ritual reflection of the domestic sphere. Finally, Johannes Müller, Hauke Dibbern, and Franziska Hage explore long-barrows in northern Central Europe and South Scandinavia. The architectural biography of such sites reveals the phenotypical expression of ritual and ideological changes. The authors outline two types of monuments: Type 1 shows the construction of a long mound as one architecture and a possible alteration from non-megalithic to megalithic grave architecture, whereas type 2 is described as several segmented mounds finally combined in one long mound.

In the third section – "Other kinds of places" – such as consumption locations, settlements, fens and the seashore, are examined. In the first chapter of this section, Marek Nowak provides an outline of the Funnel Beaker culture settlement history in the Upper Vistula River in southeast Poland. He interprets the Funnel Beaker complex as developing from the Lengyel-Polgár culture, which changed to a more hierarchical society during the beginning of the first half of the fourth millennium

BC. In his article, Lars Larsson also points out the importance of transformations, particularly in the environment, during the transition from hunting and gathering to farming. He posits that certain places were seen as links between this world and a metaphysical world. At such places, objects were transformed by fragmentation or burning, as occurred during the early, middle and late Middle Neolithic at causewayed enclosures and palisaded enclosure sites. Depositions in wetland sites are also interpreted as important transformative places. Martin Hinz presents a regional study of settlement and landscape use in the northern German Lauenburg area from the Late Mesolithic to Late Neolithic periods. He demonstrates the local nature of socio-environmental interaction, whose main transformations cut across supposedly established archaeological periods. Jan Turek focuses on Early Funnel Beaker longhouses. He compares the new discovery of more than ten longhouses from the excavation at Libeznice in Central Bohemia to other longhouse plans in Poland and Germany. In the following chapter, Åsa Berggren suggests that we pay greater attention to the special sensory experiences afforded by places like the Hindbygården fen and the Hindby mosse in the area of Malmö in Sweden, where depositions took place during the Neolithic. Marginal locations in the landscape are also the focus for Kristina Jennbert, who reflects on sites located at the seashore in Pitted Ware culture contexts. Her point of departure is Jonstorp in northwest Scania, where the people living on the coast were skilled in seafaring and using the coastal environment for subsistence. The development of these coastal sites took on different trajectories to those located inland.

The final section is comprised of articles on varied types of finds, their meanings in context and their special treatments or biographies. Susan Hydén opens this section with a study of an often disregarded find category: grinding and polishing stones. Her focus is on the finds from two Early Neolithic long barrows at Almhov in southern Sweden, where fragments of grinding and polishing stones were found at the facades of these monuments and along with burials. These stones were used, she suggests, both for polishing axes and were fragmented in order to fix social relations in time and place. Deborah Olausson then examines finds attributed to the Battle Axe culture (2800–

2350 calBC) at one dolmen and 20 passage graves from the Funnel Beaker period in Scania, southern Sweden. She concludes that the artefacts are not a result of burial practices at the megaliths, but rather represent ritual activities during which objects were deliberately broken or damaged at the tombs. Two articles then deal with pottery. First, Tine Schenck investigates the reasons for the introduction of pottery around 4000 BC in hunter-gatherer groups in Norway. The sites Slettabø, Vestgård 3 and Vestgård 6 are presented in detail. Using experiments, Schenck tests some possible functions of pots — storage, cooking and beer brewing. Her conclusions emphasise symbolic aspects within social networks, rather than simply practical functions. Agnieszka Przybył then focuses on the final stage of the Eastern Group of the Funnel Beaker complex on the Polish Lowlands and in Central Poland. In her study, she employs typological classifications using formalized descriptions and chronological ordering of the pottery finds. Przybył distinguishes the “Konary-Papros subgroup” as a direct successor of the tradition of the Eastern Group. Finally, Lars Larsson and Sven-Gunnar Broström examine a site called Stensborg, located on a former island south of Stockholm in Sweden. The site is notable for its surface finds of intentionally fragmented stone axes from the Early Neolithic Funnel Beaker period. During excavations at the site, a large amount of carbonized cereal was found. This was interpreted together with the other finds as remains of ritual activities similar to those seen in enclosures.

Most of the articles in the volume deal with the early or later phases of the North, East or Southeast Group of the Funnel Beaker complex (Brink, Behrens, Berggren, Furholt, Gebauer, Hinz, Hydén, Glørstad/Sundström, Larsson, Larsson/Broström, Mischka, Nowak, Pelisiak, Przybył, Schafferer, Schenck, Schülke, Turek). Two deal with later phenomena such as the Battle Axe culture (Olausson) or the Pitted Ware culture (Jennbert). Others focus on regions south of the Funnel Beaker North Group (Schierhold) or on the Neolithic communities of the west (Noble/Brophy) or on monumentality of hunter-gatherers in Finland (Okkonen). Overall, we hope the volume provides both a broad perspective on the landscapes, histories and societies of northern Europe as well as illuminating points of connection between the regionally diverse research traditions.

Note

The terminology regarding chronology and cultural groups differs widely, depending on the regional research history. Therefore, we decided to unify the terminology and to use the follow-

ing names or abbreviations at least for the phases of the Funnel Beaker complex (FBC) in the north (Fig. 2):

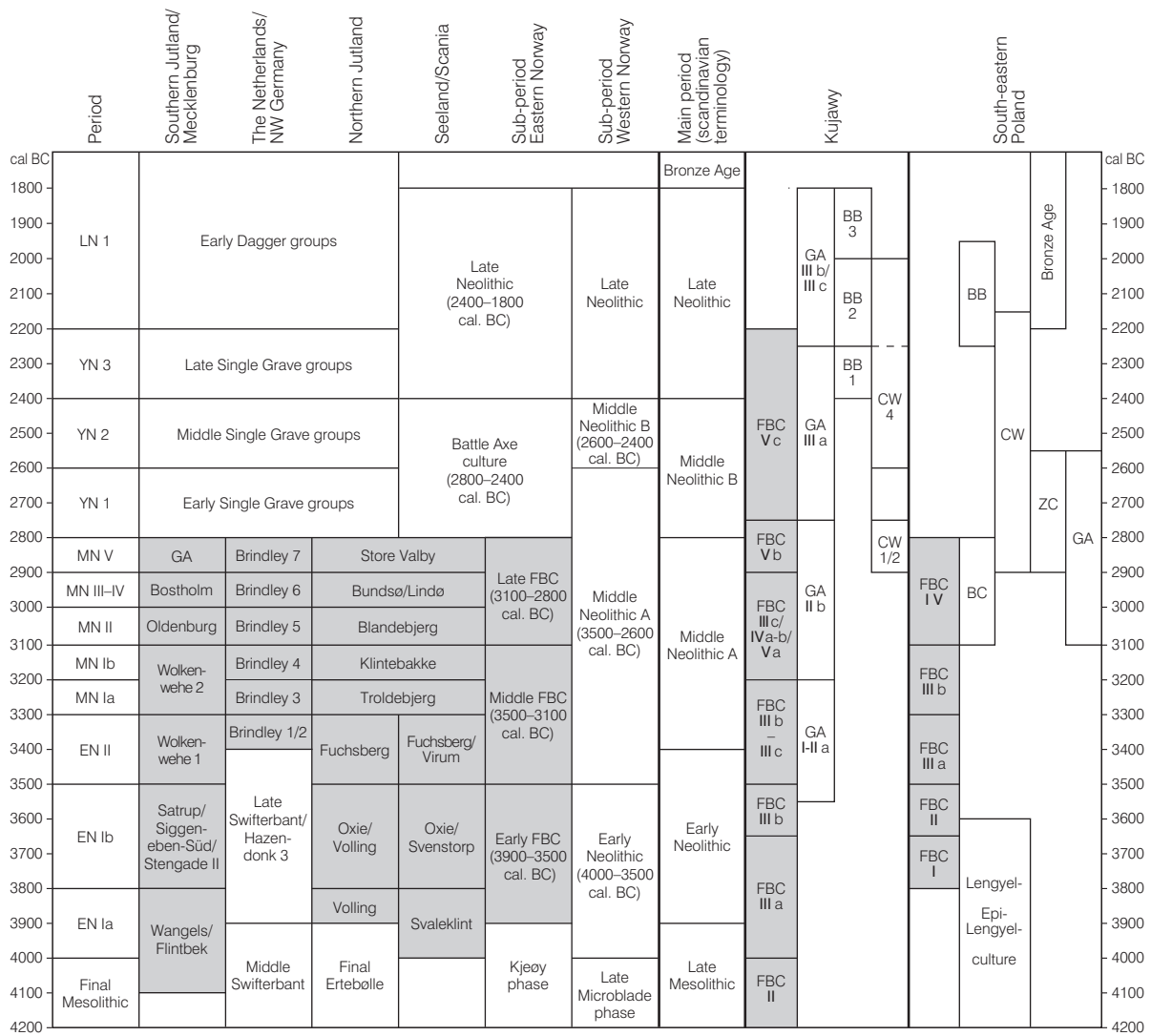


Fig. 2. Chronology of the Neolithic in northern Europe. Abbreviations: LN = Late Neolithic; YN = Younger Neolithic; MN = Middle Neolithic; EN = Early Neolithic; BB = Bell Beakers; BC = Baden Culture; CW = Corded Ware; GA = Globular Amphorae; FBC = Funnel Beaker; ZC = Złota culture; grey shaded cell areas: Central Funnel Beaker groups.

Younger Neolithic	– YN
Middle Neolithic V	– MN V
Middle Neolithic IV	– MN IV
Middle Neolithic III	– MN III
Middle Neolithic II	– MN II
Middle Neolithic I	– MN I
Early Neolithic II	– EN II
Early Neolithic I	– EN I

In Schierhold's paper, the Younger Neolithic is used according to the Neolithic Phases outlined by LÜNING 1996. It is partly contemporaneous to the northern Early Neolithic of the Funnel Beaker complex.

The terminology used for megalithic burial architecture is also very heterogenous. Here, we

have retained the local terminologies, but we caution the reader to look carefully at the figures and ground plans when making comparisons of the grave types between regions. In Scandinavia, for example, it is often the form of the barrow — round or rectangular — which is used for the classification into round dolmen and long dolmen. In Germany the architecture of the chamber is used to differentiate between closed dolmen (Urdolmen), open dolmen (or extended or enlarged dolmen), grand dolmen (or big dolmen or large dolmen) and polygonal dolmen. The youngest grave type in all areas under discussion is the passage grave. These monuments are characterised by a passage entering the chamber, usually from the southeast, into one of the long sides instead of the narrow sides, as can be the case with dolmens.

Acknowledgements

We would like to thank Johannes Müller for accepting the articles within the SPP series and for his technical support. We express our gratitude in particular to Karin Winter and Ines Reese for their layout work. We also wish to thank Eileen Kückkaraca and Marianne Noble for English language editing. Ebbe Kocks Stiftelse contributed funding for some of the English revisions. Last, but not least, we would also like to thank all the

contributors for their articles and their patience with us during the editing process. The conference in Oslo presented a rich stream of ideas and approaches regarding the relationships between the landscape, histories and societies of the northern European Neolithic. We hope that the readers of this book will also find the ideas stimulating and enjoyable.

References:

Lüning 1996: J. Lüning, Erneute Gedanken zur Benennung der neolithischen Perioden. *Germania* 74, 1996, 233–237.

Stensborg – Mass destruction of axes and cereals reflecting southern contacts of the Funnel Beaker societies in southern Sweden

Lars Larsson and Sven-Gunnar Broström

Abstract

For more than twenty years a field at Stensborg, Grödinge parish, at Södertörn, a former island just south of present Stockholm, was surveyed for surface finds. Most numerous among the various artefact categories were axes, with stone axes of different types showing that they had been intentionally fragmented. Fragments of pointed-butted and thin-butted flint axes were also found, all of them changed by intensive heat. Just as the flint axes indicate contact with southern Scandinavia at a distance of more than 600 km, slate objects demonstrate the existence of networks extending to northern Sweden.

During the Early Neolithic the site was a slope situated in the innermost part of a bay, delimited

by the shoreline on one side and a ridge on the opposite side. Two small but pronounced ravines of streams also form part of the natural boundary of the site.

During excavation of the field several small pits were found that were filled with fragments of axes, pottery and other objects, along with a considerable amount of carbonized seed. Most of the finds have indications of destruction, either directly or by the use of fire. The field seems to have been used as a place for assemblies, where rituals were an important part of the activities. The Stensborg site seems to represent yet another kind of natural enclosure involving ritual activities during the Early Neolithic.

Introduction

Most Neolithic societies formed or identified certain spaces, delimited from the physical as well as the social environment, in order to perform activities of special character. The best-known examples in southern Scandinavia dating to the time of the Funnel Beaker culture are the causewayed enclosures and the areas outside megalithic tombs. Such spaces, located at a physical and mental distance from everyday activities, have been regarded as forming links between this world and a metaphysical one, where transformations are achieved by depositing objects directly or in a manner that involves transformation through fragmentation and burning.

A small number of sites not correlated to enclosures or megalithic tombs, but including a considerable number of axes and other flint artefacts, have been identified in southern Scandinavia (LARSSON 1989, 2000; ANDERSEN 2000) date from the latest part of the Early Neolithic and/or

the earliest part of the Middle Neolithic. Stensborg, is a site of the same date but located in eastern central Sweden.

Due to marked land uplift during the later part of the Atlantic and the Sub-Boreal, the central part of Sweden was composed of a large bay, partly corresponding to the present extent of Lake Mälaren. An extensive archipelago was situated in the outer part and in the southern extension of this bay. Especially due to intensive development activities, several sites of the Funnel Beaker culture have been identified and excavated during recent years (HALLGREN 2008). During the Early Neolithic Period, the shoreline was located at about 35 m above the present level. Some sites are found more or less in contact with the bay, but several others are situated in the southern archipelago, corresponding to the large island of Södertörn, situated just south of Stockholm.



Fig. 1. Stensborg. Plan of the site (dark grey) with two metre contours. The sea level at the time of the late Early Neolithic was about 35 m above the present sea level. To the left and right are the outlets of two small brooks forming deep ravines. Small map: southern Scandinavia with sites mentioned in the text.

The numbers of sites dating to the Funnel Beaker culture, and likewise the number of Late Mesolithic sites, has increased as a result of investigations. The latter are different from the southern Scandinavian sites dated to the Ertebølle culture, since they produced a rather small set of formal tools. The most frequent tool is the stone axe (LINDGREN 2004). There are different opin-

ions as to whether or not a change occurred during the Late Mesolithic and how this might be related to the importance of the intensification of flint imports from the southernmost part of Sweden (GILL 2003; HALLGREN 2008).

The neolithisation of central Sweden seems to have been a fast process. According to some radiocarbon dates and comparative studies of pottery

types, the introduction occurred during the EN I (HALLGREN 2008). Just a few generations after its introduction in southern Scandinavia, the Funnel Beaker culture was well-established in central Sweden. This version of the Funnel Beaker culture used to be known as the Vrå culture after a well-known site (FLORIN 1958). Several similarities are observed between pottery traditions in southern Scandinavia and central Sweden. However, when changes in shape and ornaments are given and interpreted within the chronological framework the changes within one and the same site can be understood as representing a tradition within the same society (HALLGREN 2008). This might, in the first place, depend on how the radiocarbon dates should be interpreted. However, also if changes in shape and ornaments usually are interpreted as chronological difference the changes within one and the same site can be understood as representing different tradition within the same society (HALLGREN 2008). Our knowledge about mortuary practices has increased considerably during recent years. The practice of cremation seems to have dominated, and burnt human bones

Fragmented tools

For almost twenty years, one of the authors walked the fields on the northeastern slope of a pronounced valley at Stensborg, Grödinge parish, located about 30 km south of Stockholm (BROSTRÖM 1996) (Fig. 1). Tools were found within an area measuring 300 x 200 m, sloping from about 50 m down to 37 m above sea level. The area is divided by a moraine ridge. Most of the artefacts were found within a field to the south of the ridge

Excavations

A test survey was initiated in 1985 due to the construction of a golf course (OLSSON 1996). The excavation did not reveal any visible structures, although fragments of tools and flakes of burnt flint, pottery, burnt clay and burnt bones were discovered (OLSSON 1996, 18).

The slope closest to the former sea shore was the area with the densest number of finds (Fig. 2). It was also the area most accessible for excavation. Before the excavation started, a geophysical survey measuring the magnetic susceptibility was carried out. However, no obvious anomalies were registered. A survey based on phosphate testing of the area yielded rather low values (VIBERG 2008). In 2008, 2009 and 2011 fieldwork was carried out at the site.

Most features were found within an area of clay surrounded by sand. Small pits below the top-

are found in stone-built grave structures as well as in small pits. There are indications that earthen long barrows and the tradition of megalithic grave building might have been incorporated into the society (HALLGREN 2008) although this is by no means certain as the remains are few and might be interpreted in another way.

A number of flint axe depositions in wetlands and on dry land show that the same practice of ritual deposition that was well-established in southern Scandinavia also formed part of the Funnel Beaker culture in central Sweden. This also included the deposition of pottery vessels in wetlands (HALLGREN *et al.* 1997). As in southern Scandinavia (KARSTEN 1994), rituals were conducted at or close to the settlement sites.

In southern Scandinavia the practice of mass destruction or — more plausibly — mass transformation of flint artefacts, in particular by fire, has been identified at a small number of sites dated to the Early Neolithic (LARSSON 1989; ANDERSEN 2000). A site with similar finds has also been observed in central Sweden.

measuring 75 x 50 m, sloping from about 47 m down to about 37 m above sea level (Fig. 2).

The field was delimited by the pronounced edge of a much steeper slope extending down to the valley bottom at about 27 m above sea level. Artefacts were also found in fields to the east of the ridge. Despite the density of finds, unusual for central Sweden, the positions of all objects were recorded (Fig. 2).

soil, generally less than 0.5 m in size and less than 0.10 m in depth had been cut into the clay (Fig. 3). Most of the pits had been filled with broken and burnt artefacts. In a few cases, a cover of clay still existed. However, in most areas ploughing had subsequently removed the clay cover. Another and less frequent form of deposition was to dig a shallow pit in the sand and fill it with clay in which objects were included. These features were of a somewhat larger size, measuring as much as 3 m in diameter. Only a small number of postholes was found. It was not possible to identify any pattern in the distribution of posts.

The find composition was the same as in the surface collection, including fragmentary stone axes, fragments of flint axes affected by heat, shards of pottery and lumps of burnt clay. The same features contained broken as well as burnt objects.

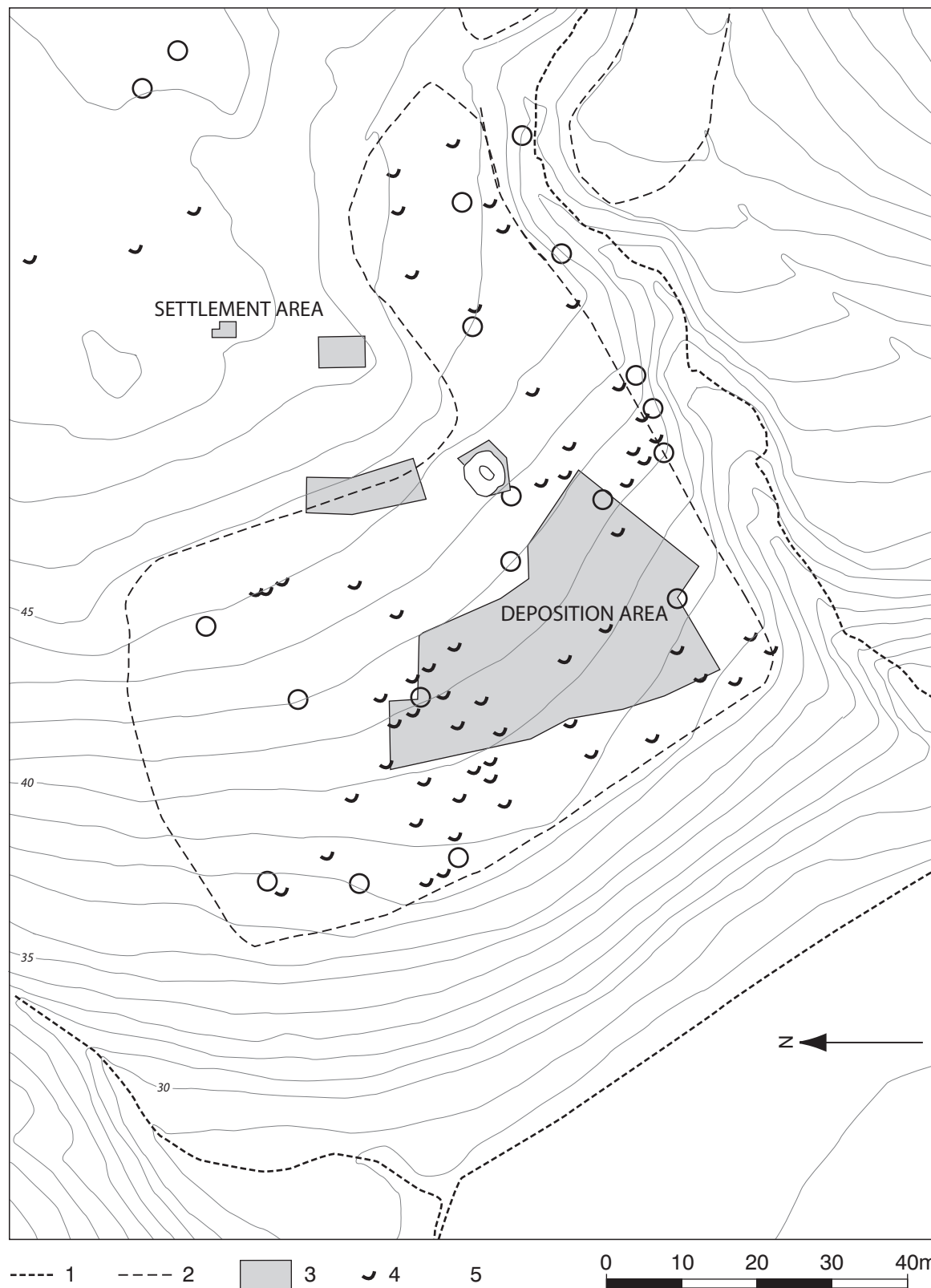


Fig. 2. Stensborg. Plan of the site with one metre contours above the present sea level. At the centre is the field with the large number of surface finds. Legend: 1 brook; 2 field enclosure; 3 area where the topsoil has been removed; 4 distribution of surface finds of stone axes with hollowed cutting edges; 5 distribution of surface finds of querns of the saddle type.



Fig. 3. Stensborg. Small pits for depositions in the clay found below the topsoil.

No pottery shards showed any traces of heating. A small number of burnt bone fragments was also present.

Remains of a settlement were found on the ridge above the slope. On the ridge to the east of the slope, stones and boulders were frequent. But an area in the southernmost part turned out to be almost free of stones visible at the surface. Within this part, a trench with an area of thirty square metres was excavated. A large number of stone flakes together with pottery and quartz waste

showed that this part of the ridge had functioned as a settlement. With the exception of a couple of post-holes, no identifiable structures could be discerned. Some test pits further to the east and to the north indicated that the settlement had covered an area of several thousand square metres. However, ploughing has destroyed most of the occupation layer. This was just visible as a layer of artefacts at a depth of about 0.2 m in areas where stones had prevented tillage.

The find material

A special trend in the find material — both the previous finds from surveys and the excavated material — is its fragmentary condition. The majority of finds are large pieces of polished stone axes. The thin-butted axe type makes up a considerable proportion (Fig. 4.2). Even more common is the type of axe with an oval or pointed-oval cross-section. The stone axes exhibit marked size variation.

The thin-butted examples correspond in shape and polishing to the most common types made in flint in southern Scandinavia. The type with a pointed-oval cross section has a strong resem-

blance to the different types of more or less point-butted flint axes from the same area (NIELSEN 1977, 65–67). Most of the stone axes are made of basalt, but a number of the thin-butted examples are made of harder material. Stone axes with a hollowed cutting edge and with an almost rectangular neck cross-section are fewer in number (see Fig. 2; Fig. 4.5). The majority of these are made of a much harder mineral than most of the other axes, mainly porphyrite. This type has no similarities to contemporaneous axes found in southern Scandinavia.

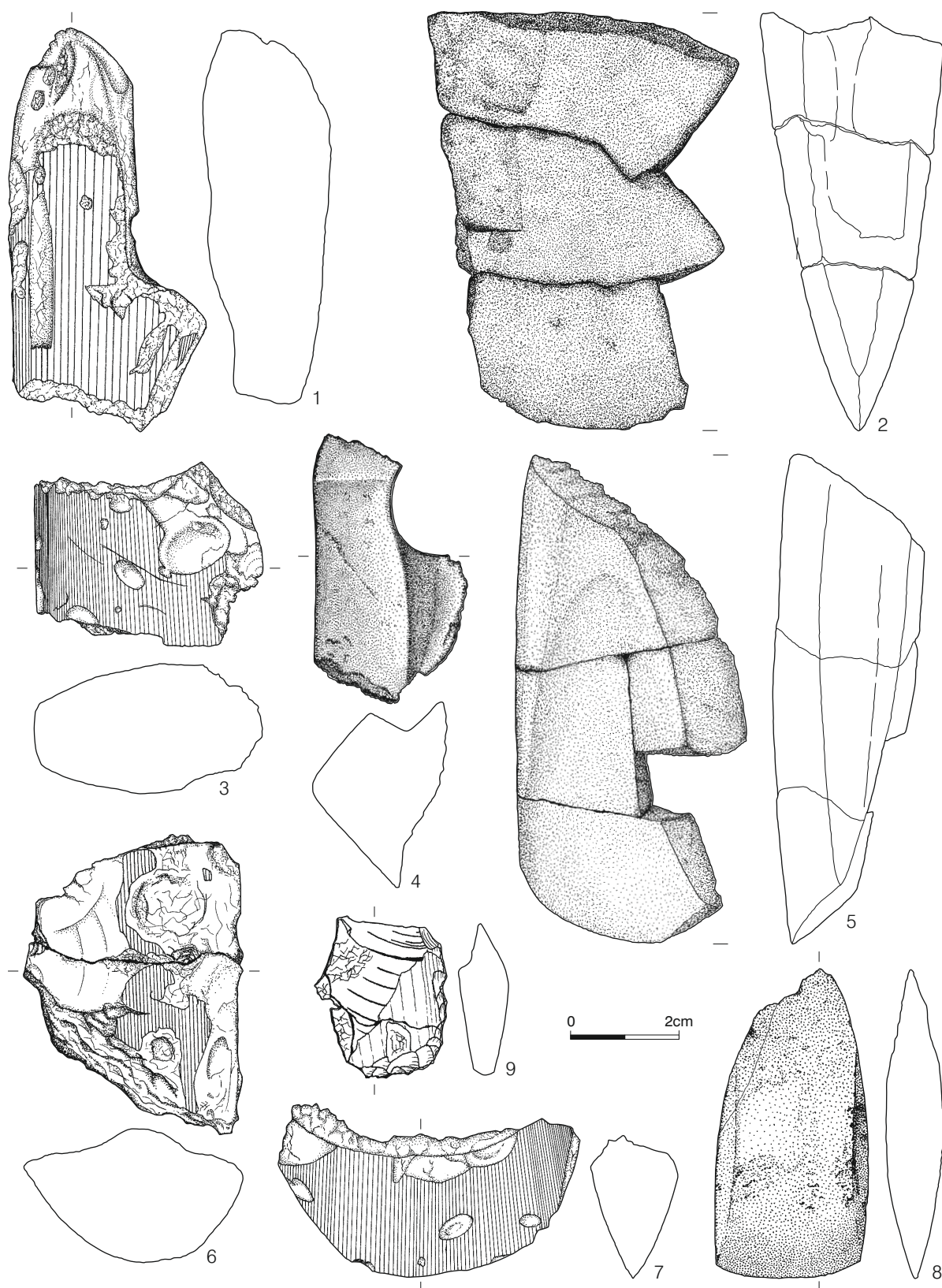


Fig. 4. Stensborg. Lithic finds. 1, 3, 7 fragments of thin-butted flint axes; 2 edge fragment of a thin-butted stone axe; 4 fragment of a stone battle axe; 5 fragments of a stone axe with hollowed edge; 6 fragment of a point-butted flint axe; 8 stone chisel; 9 flake scraper of flint. All stone axes are intentionally damaged and the flint axes damaged by fire (drawings by K. K. Tayanin).

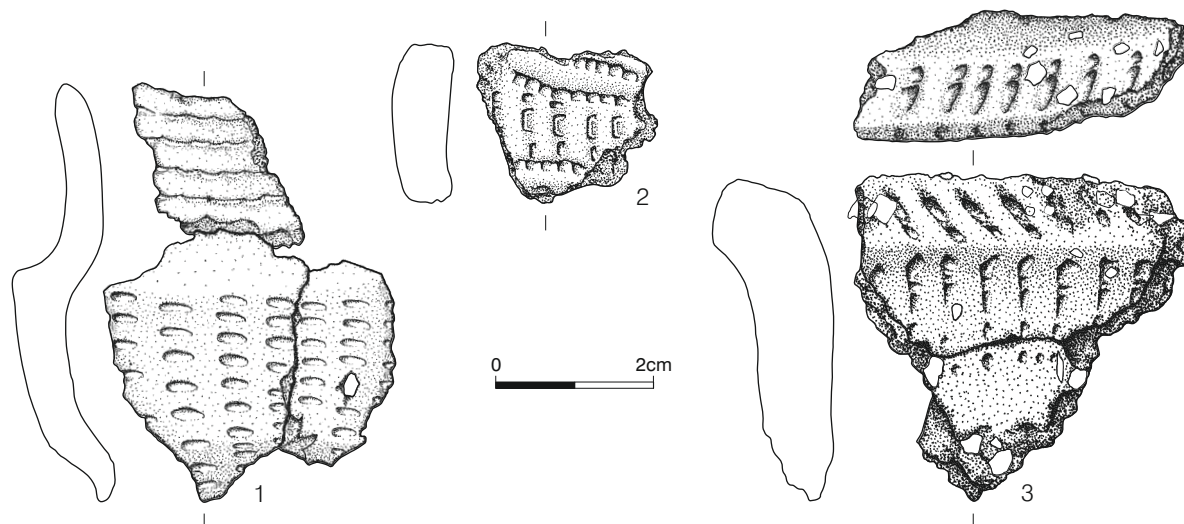


Fig. 5a. Stensborg. Finds. 1–3 fragments of funnel beakers (drawings by K. K. Tayanin).

In most cases, the axe body was divided into two or more parts, most commonly with a breakage transverse to the long axis. A number of edges show minor evidence of use or no use at all, indicating that they were still serviceable before being damaged. In contrast, a number of edges have deliberately been destroyed by hitting them against a hard material. A small number of fragments show traces of intense heat. The collection also includes fragmented stone axe preforms.

Among the finds there are a small number of fragments of battle-axes that had a markedly curved shape with ridges, imitating copper axes from continental Europe (HALLGREN 2008, 215–218) (Fig. 4.4). The finds of preform fragments show that battle-axes of this type were made in eastern central Sweden.

Small stone chisels, mostly made from flakes with just the edge polished (Fig. 4.8), constitute a numerous type. Just a few of the porphyrite chisels have a worked shape with a rectangular cross-section, all sides being polished. None of the chisels were fragmented.

Several hundred pieces of flint show obvious traces of contact with fire, indicated by their white colour and by a fragmentation pattern typical of a special kind of contact with heat. Had the axes been placed directly into a fire, they would have cracked into tiny pieces. From heating experiments with flint axes, it is clear that the Stensborg axes had initially been heat-treated and later placed on a bed of charcoal in a fire (LARSSON 2004). By this procedure the axes changed colour, but if handled well they continued to keep their form. However, the multiple cracks that appeared made them fragile and easy to break into pieces. Among the fragments, both thin-butted (Fig. 4.1, 2, 7) and point-butted

axes (Fig. 4.6) can be identified, with the former in greater number. A precise number of axes is difficult to estimate because of their fragmentary state. Considering the size of some fragments, a number of them must have originated from very large axes with a length of 30 cm or more. Some well-preserved edge fragments without visible use-wear indicate that the axes might have been unused at the time they were fragmented. A small number of fragments of thin-butted axes show an unpolished surface, indicating that the axes had been transported to the area in an unpolished state. Some large blades and flake scrapers (Fig. 4.9) of flint have been treated the same way as the axes. The artefacts made of Senonian flint had been transported at least 600 km from southern Scandinavia. The find material also includes a small number of flakes made of Kristianstad flint (HÖGBERG/OLAUSSEN 2007) from north-eastern Scania, with a somewhat shorter distribution distance. This latter flint type had not been exposed to heat.

Among the finds, a small number of small elongated stones with abrasion on one end have been identified. On one, the end was covered with red ochre (Fig. 5b.5). The collection also includes a number of knapping stones and several hundred fragments of polishing stones as well as grinding querns of the saddle type (see Fig. 2).

A couple of pieces of volcanic tuff, of a kind found at least some 300 km to the north, were also recovered (LANNERBRO 1976, 21–22). Like the objects in slate, these pieces include a fragmented single-edged, curved knife (Fig. 5b.4), a spear-head and a couple of arrowheads from northern Sweden that are an indication of a wide network to the north (TAFFINDER 1998, 99–102).

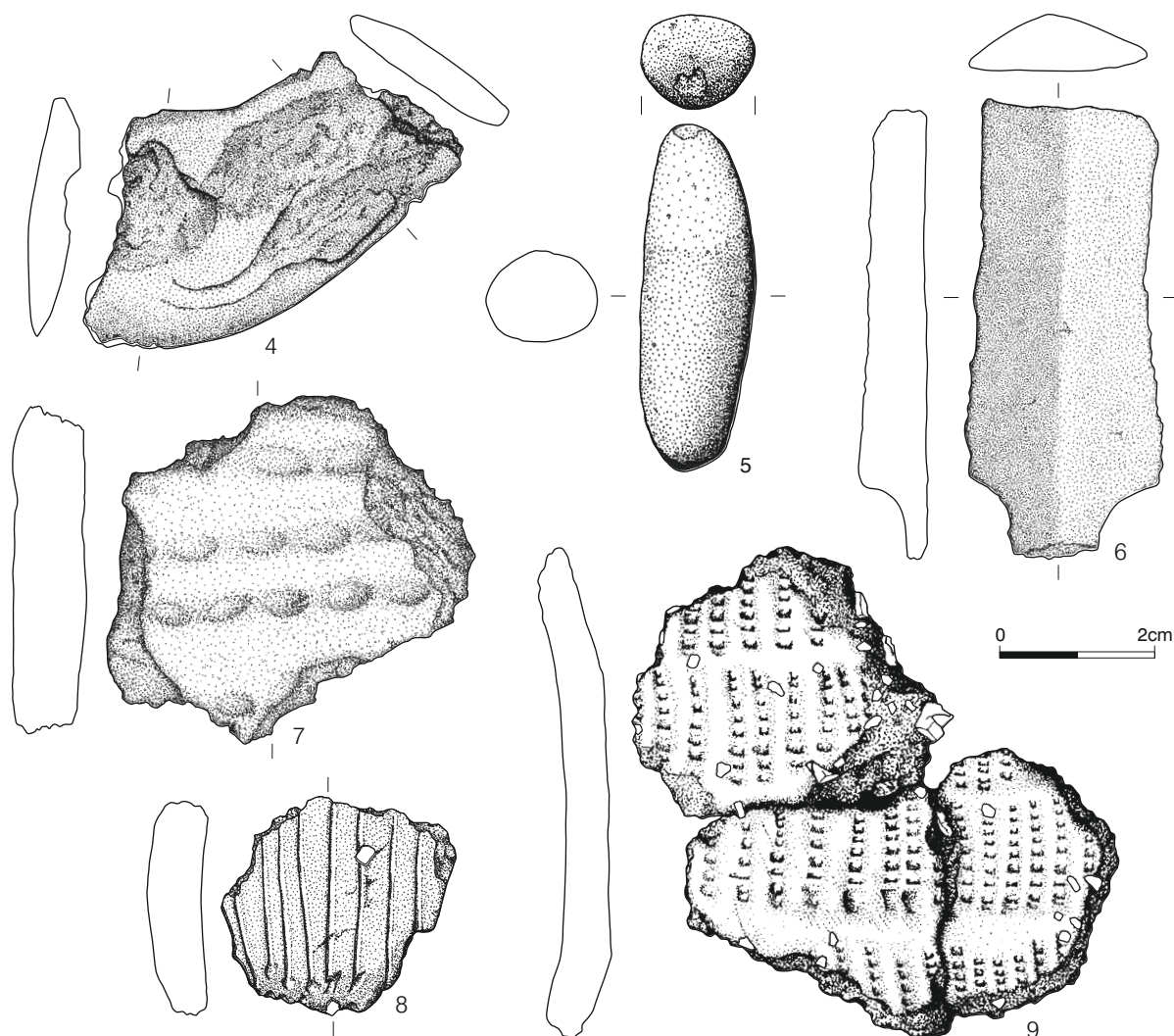


Fig. 5b. Stensborg. Finds. 4 fragment of a slate knife; 5 small elongated stone; 6 fragment of a spear-head made of slate; 7–9 fragments of funnel beakers (drawings by K. K. Tayanin).

Lumps of burnt clay were found in some pits. Unfortunately, most lumps are lightly burnt and therefore weathered. Just a few with twig impressions show that they belonged to a structure, maybe a kind of oven.

Among the pottery, vessels with a high, slightly funnel-shaped neck are the most common. A number of shards from small vessels have been identified. Some might have originated from collared flasks. A considerable proportion of the shards is richly decorated with stamps, cords, lines and whipped cord impressions (Fig. 5a. 1–3; 5b 7–9). According to the type of decoration, the intensity of decoration and the profiles of the vessels, the pottery belongs to the Vrå IV type, considered to be a late local stage of the Early Funnel Beaker culture of central Sweden (HALLGREN 2008, 135–138).

As most of the shards were found during field walking, it is not possible to estimate the number of vessels deposited on the slope. Like the stone artefacts, they most probably originate from pits destroyed by ploughing. It turns out that there is no major difference in terms of shape and decoration between the shards found in the pits on the slope and those found in the settlement.

Within the majority of pits, carbonised seeds were identified, some of them containing large quantities (Fig. 6). In view of the connection to southern Scandinavia that is obvious from the finds of flint tools, it is reasonable to ask if the cereals were locally grown or transported the same way as the flint. Two measurements of strontium in seeds of wheat both gave values of 0.733. This differs from the values for southern Sweden,

Cultivated plants	Pit 1		Pit 2		Pit 3	
	Number	%	Number	%	Number	%
Emmer (<i>Triticum dicocum</i>)	699	32.3	1305	33.6	426	31.5
Emmer glume base	16	0.7	80	2	37	2.7
Emmer spiklet forks	33	1.5	90	2.3	30	2.2
Emmer rachis internodes	1	<0.1				
Emmer/ Spelt wheat (<i>Triticum dicocum/spelta</i>)	109	5	124	3.2	58	4.3
cf. Spelt wheat (<i>Triticum cf. spelta</i>)	17	0.8	35	0.9	54	4
Bread wheat (<i>Triticum aestivum</i>)	100	4.6	105	2.7	50	3.7
Naked barley (<i>Hordeum vulgare var. nudum</i>)	66	3.1	61	1.6	13	1
cf. Naked barley	36	1.7	21	0.5	2	0.1
indefinite cerealia	1077	49.9	2053	53	683	50.4
indefinite cerealia straw fragment	4	0.1	3	0.1	1	0.1
Total cerealia	2158	99.7	3877	99.9	1354	100
Other plants						
Hazel (<i>Corylus avellana</i>) [shellfragment]	7	0.3	3	<0.1		
Total	7	0.3	3	<0.1		

Fig. 6. The identification of microfossils in three small pits at Stensborg.

which range from 0.711 to 0.716. This shows clearly that the wheat was grown locally (information from Professor Douglas Price). Apart from seeds, the only other food remains were small pieces of

hazelnut shells. Just as is known from the Mesolithic, large quantities of nuts might have been collected as an important staple food for the winter (LARSSON 1983).

Contemporaneity of settlement and depositions

Even though no structures could be identified within the excavated area of the settlement, a division of labour was most pronounced. The waste material from stone axe manufacturing within the trench indicated intensive production. The raw material, found as large pieces on the site — shows that it has been broken off a vein and only some hundred metres to the north, a vein is located showing traces of having been worked. Just a small number of polished flakes indicate that axes were reshaped within the area of production. However, no flakes from flint axe production or resharpening were found. In the settlement, just one larger part of a finished stone axe was found, compared to hundreds of finds on the slope. In the test pits to the east of the ridge, no refuse of stone axe production was detected.

In order to establish the relationship between the different features on the slope and the occupa-

tion above it, carbonized seeds and hazelnut shells have been used. Seven radiocarbon dates were obtained for seeds of hazelnut shells and emmer found in small pits. These provided the values 4800±50 BP (LUS 9184), 4800±50 BP (LUS 9860), 4765±50 (LUS 9861), 4760±50 (LUS 9570), 4710±75 (LUS 9571), 4630±50 (LUS 8636) and 4610±50 (LUS 8637). These values show two different intervals during a late part of the Early Neolithic (Fig. 7). This is somewhat puzzling, as seeds from the same pits yielded dates within both of the intervals. The composition of all three samples is so similar that they might have belonged to the same collection that was deposited in different pits. This may indicate that tool deposition occurred more than once, with a mixing of the deposited material. The sample of hazelnut shells from the occupation, OMIT 4800±50 (LUS 9860), coincides well with the dates from the pits on the slope.

The socioeconomic perspective

During the late early Neolithic, the Stensborg site was located on a large island in the inner part of a small bay with an archipelago around it. Part of the site, the slope with the pits, was situated immediately at the shoreline, while the settlement lay some fifty metres further inland. The area behind the

settlement would have been suitable both for stock breeding and for agriculture, while the bay and the sea provided fishing and seal hunting opportunities.

Only bones in burnt form have been preserved, and these are few in number. Pig or wild boar is the only identified species.

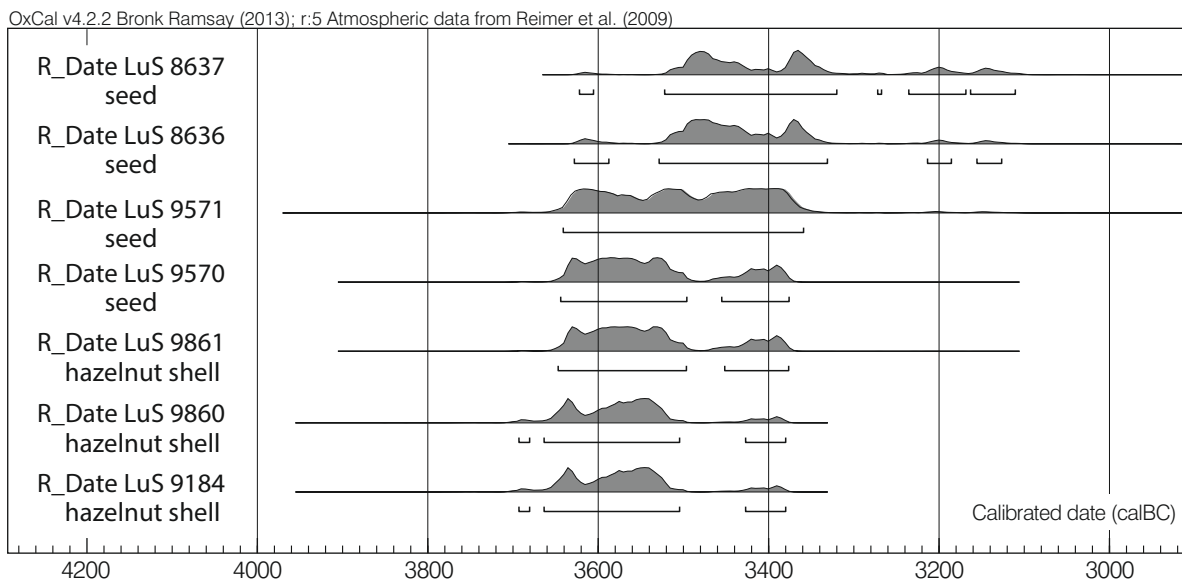


Fig. 7. Stensborg. Presentation of calibrated radiocarbon values based on samples from seeds of emmer and of hazelnut shells.

Because of the high number of preserved charred seeds found in some small pits, important information is available concerning agriculture. Small samples from three pits provided as many as about 7000 microfossils (LARSSON/BROSTRÖM 2011). This is the largest sample in central Sweden and probably one of the largest ever found in Scandinavia from the Early Neolithic. In all three pits emmer predominates, but bread wheat, naked barley and perhaps spelt are also present. During the analysis some special observations were made (LARSSON 2009). The low percentage of harvesting remains and an absence of weeds indicate that the material had been cleaned very carefully before it was burnt. The seeds are particularly strongly carbonized, which indicates that they were intentionally burnt, rather than unintentionally brought in contact with fire. Another observation was the low amount of charcoal, even of small particles. The seeds cannot have been taken directly out of an ordinary fire. The large number of seeds in each small analysed sample indicates that the original amount of seed must have been several litres.

That burnt seeds occurred in the same pits as the objects of rock and clay already presented is good evidence that grain was also included in the intentional burning and subsequent deposition. The inclusion of saddle querns among the deposited objects indicates the importance of agricultural products and the objects used in processing them as part of ritual deposition.

Another kind of analysis provides further information about the diet. Samples of the pottery were taken within the settlement site in order to identify lipids in food residues within the shards

(DIMC 2011). The analysed shards — eight in number — indicated vessel use dominated by contents of terrestrial animal/vegetable mixtures with the presence of aquatic animal lipids. The results from this study indicate the kind of vessel use that could be expected of an early farming community. There is a terrestrial focus, but also evidence of aquatic animal products in the vessels. A mixture of different types of foods was prepared, cooked or stored in the vessels (DIMC 2011, 40). The results are well in line with earlier investigations concerning vessel use from other sites of the Funnel Beaker culture (PALOMÄKI 2006), where mixtures containing terrestrial animal and vegetable lipids were prepared in the vessels.

Samples were also analysed from Korsnäs, a site from the somewhat later Pitted Ware culture, less than a couple of kilometres to the southeast. 45% of the vessels — nineteen in total — contained aquatic animal products (DIMC 2011).

Stensborg as well as Korsnäs were situated in an inner archipelagic environment with the possibility to use an array of different resources. In contrast to Stensborg, preservation at Korsnäs has been favourable for osteological material. The osteological analyses of the bone assemblages from Korsnäs show a preponderance of seal and fish followed by pig (OLSSON et al. 1994; OLANDER 2010). Furthermore, the inhumed individuals at Korsnäs have undergone stable isotope analysis, indicating a primarily marine food intake dominated by seal (FORNANDER et al. 2008; FORNANDER 2011). The combined results of these investigations and the results from the food lipid residue analyses give a nuanced and dynamic view of the food culture at Korsnäs, dominated by marine products.

Mass destruction of tools

The intentional transformation of flint objects by fire is a pattern of behaviour common within the Scandinavian Neolithic. The transformation of flint objects by fire involved prior heat treatment. The subsequent result when axes were placed in fire, namely a slow colour change without intense cracking, may thus have been all the more remarkable for those attending the more open and public moments of particular ceremonies. Axes deliberately altered by fire have been predominantly found outside megalithic tombs and in causewayed enclosures (LARSSON 2004).

A small number of sites, including a considerable number of fire-damaged axes and other flint artefacts without any connection to either megalithic tombs or causewayed enclosures, have been identified in southern Scandinavia. Two such sites, Svartskylle in the southeastern part of Scania, southernmost Sweden (LARSSON 1989; 2000), and Strandby on the Island of Funen in the south (ANDERSEN 2000, 34; 2009, 29), date from the latest part of the Early Neolithic and/or the earliest part of the Middle Neolithic. Svartskylle is located within a hilly landscape about 10 km from the Baltic Sea, but in an environment with sparse contemporaneous settlement (LARSSON 1989). Fragmented flint tools were found on the highest part of one of the highest hills in this area, surrounded by wetlands. The site of Strandby is a fairly level area close to the sea-shore and within a former wetland. This means that the natural setting encloses both sites.

At Stensborg, the slope with the pits constituted the shore-line to the west. To the north and south the slope was delimited by deep ravines formed by two small brooks. The ridge to the east constituted a kind of boundary (see Fig. 2). Thereby, the entire slope was delimited by natural features, just as at Svartskylle and Strandby.

Sites with ritual depositions combined with fire and enclosed by natural features seem to be rare, but are documented in the later part of the Neolithic. These include the timber platform of the Alvastra peat dwelling in the central part of southern Sweden (BROWALL 1986; 2011; MALMER 2002). A platform of 450 square metres, delimited by a palisade, was erected at about 3100 BC and used in various sequences during a period of 42 years. The platform, which was divided into small cells with a centrally placed fireplace, produced a large number of finds that had been destroyed, most of them by fire. There were also bones from more than 45 humans. At Kverrestad in southeastern Scania, large as well as small pits were found on a hillock partly surrounded by a wetland. This is the only site except for Stensborg where the ploughing zone within an area of some size has been removed. The pits were mainly filled with flint axes damaged by

fire as well as with cremated bones from humans. These depositions are dated to a late part of the Battle Axe culture — several centuries later than Svartskylle and Stensborg (LARSSON 2000; 2004). A number of fire-damaged flint artefacts found in a field at Prinshaga in western Sweden might indicate a similar kind of site dated to the Battle Axe culture (personal information of Leif Arvidsson). Sites of this kind with a natural delimitation enclosing an area and the deposition of fire-damaged artefacts are seldom. The reason for their exceptionality might be that they are hard to identify and even then they rarely become the subject of excavation, as most of the artefacts are found in ploughing zones.

In southern Scandinavia, two different kinds of artificial enclosures are represented, the causewayed enclosures in Denmark, also named enclosures of the Sarup type, dated to the late Early Neolithic or early Middle Neolithic, and palisade enclosures dated to the late, early Middle Neolithic (MN I-V) or the early late Middle Neolithic (YN) (ANDERSEN 1997; SVENSSON 2002; NIELSEN 2004; BRINK 2009). With a few exceptions, activities involving ritual depositions took place in ditch systems or in connection to the palisade postholes, whereas the areas inside the enclosures are almost empty. On the sites enclosed by natural obstacles, depositions that could have had a ritual character are found within the demarcations.

The slope close to the shoreline at Stensborg might have functioned as an assembly area where certain rituals were performed. A number of exotic objects were brought to the site, such as flint axes from the south and slate objects from the north. Areas chosen for depositions in close contact to settlements are also found at other Funnel Beaker culture sites in central Sweden. At Skogsmossen, a fen was used for the deposition of axes and vessels (HALLGREN et al. 1997, 63–67). Thirty-four stone axes and three preforms were found. The find material includes a small number of fragments from flint axes, all showing contact with fire. The number of vessels was calculated to about 75.

The deposited finds might be regarded as more than just a local investment. For example, the finds from Stensborg indicate a higher investment in terms of the quantity of axes, especially those made of flint, with a labour investment in making and transporting them from southern Scandinavia. The activities at Stensborg seem to have involved not only the residents of the site, but a considerable part of the population of the large island. Although a site of considerable size is situated close to the area with ritual depositions, the destruction of the material culture partly by using fire most probably occurred during gatherings of people from farms across the

island of Södertörn. These gatherings may have been held for various reasons, e.g. mortuary rituals involving the cremation of humans — this being the common practice across central Sweden at the time. In certain instances, the process of transformation also involved key items of material culture transformed by fire.

According to the interpretation of the excavated features, the objects at Stensborg were intentionally destroyed in rituals and then deposited in shallow pits, some mixed with clay. Most of the shallow pits were destroyed or partly damaged when the slope was used as an arable field. This might be the reason why the ploughing zone contained so many finds detected during field surveys. The area has been ploughed at least since the seventeenth century. Judging from the shallow pits, the intention was not to deeply bury the remains in the soil, but only to cover them with a thin layer below the surface. The introduction of flint axes was not restricted to the knowledge of how to use them for wood working, but also involved information about their significance in a wider context, relating material culture to activities of importance within the world-view of early farmers in southern Scandinavia. This is knowledge that must have been transmitted orally, in combination with the distribution of the objects.

The manufacture and handling of stone axes was well-known within the hunter-gatherer societies of central Sweden (LINDGREN 2004). Manufacturing the point-butted and thin-butted stone axes resembling the southern Scandinavian types

would as such not have been any major obstacle. However, activities including the intentional destruction of tools appear to be a new element in ritual practice and thinking, just as many other activities related to farming were combined to a new world-view. This transformation might have been as revolutionary as handling domesticated animals and planting.

The introduction of this information must have involved a diffusion of people. We do not need to talk about a migration of large groups, as such. Just a small group of people with new behaviour patterns and ideas could have had a great impact not only in terms of a new way of living and thinking but also in the gene pool. The new arrivals with a new economy that seems to have had a major influence on the existing societies had an advantage in choosing partners and in bringing forth fertile descendants to change the genetic situation within a few generations. The change would have been obvious without involving the kind of major migration or replacement of people that has been suggested on the basis of very limited results (SKOGLUND *et al.* 2012).

According to presented radiocarbon dates (HALLGREN 2008), the introduction seems to have been as rapid in central Sweden as in southern Scandinavia. Our knowledge of the routes of transport of goods as well as people is limited, but the most plausible link would have been routes along the Baltic coast, where most of the journeys by vessel would have been travelled in archipelagic environments.

Stensborg in its cultural setting

At the time when the Stensborg site was in use, several centuries had passed since the introduction of agriculture. It spread some 100 km further to the north (HALLGREN 2008). The influence from the south was well-established, but one can also see that differences within the material culture seem to have emerged already soon after the introduction of agriculture in central Sweden. The shapes of the vessels were inspired by shapes from the south, just like the different kinds of decorations. However, the mode of decoration differs partly from that of southern Scandinavia (HALLGREN 2008). This might be due to influences from the Comb Pottery culture in Finland and the Baltic. The use of hollow-edged axe heads might have been an invention from the same area (EDGREN 1992). One has to keep in mind that the distance from Stensborg to the closest area of the Comb Pottery culture is not more than 160 km, which could be crossed partially through an outer archipelago.

At the transition from the early to the middle Neolithic, the material culture in central Sweden changed in a way not in accordance with what happened in southern Scandinavia. The traditional contacts to the south markedly decrease, resulting in the Pitted Ware culture. This change is a phenomenon that has been much discussed. Natural causes have been suggested, namely climatic change that resulted in serious problems for farming, and/or factors relating to changes in social norms and attitudes, probably established in contacts with hunter-gatherer societies from the Comb Ware culture of the Baltic region (GRÄSLUND 1982; EDENMO *et al.* 1997; CARLSSON 1998; STENBÄCK 2003; ERIKSSON 2004; GILL 2003; LARSSON 2006). The intensive destruction and deposition at Stensborg might be connected with such troubling events. Valuable items were transformed into goods for divine entities in order to appease the forces that were rocking a lifestyle that had been conducted for several centuries.

Conclusion

At the Stensborg site, situated in the inner part of a bay in central Sweden, the slope down to the beach was used for special activities with ritual purposes, including destruction of tools, the remains of which were deposited in shallow pits. By contrast, the low ridge above the slope included an area with a high quantity of refuse from stone axe production and refuse similar to that of an 'ordinary' settlement. The finds are of the same age as the evidence of activities on the slope. Stone axes that were cracked into pieces on the slope might have been manufactured in the settlement. However, a number of axes and some other tools made of flint have been transported from southern Scandinavia over a distance of at least 600 km.

The slope might have functioned as an assembly area where certain rituals were performed. In part, they can be compared to the activities con-

ducted in connection with a small number of sites in southern Scandinavia that have remains of mass destruction of flint tools using fire. A number of exotic objects were brought to the site, such as flint axes from the south and slate objects from the north. Together with local products, like stone axes and seeds, they were deliberately destroyed — or rather, the term 'transformed' might be more appropriate. The fragmentation of objects might have had a special meaning. The word 'transformation' is relevant in this instance, with regard to the mass burning of objects. Here the main act was to fragment the objects. By this action the objects were transformed to another state, in which they could be accepted by the receivers. Still, the remains of these acts had to be sealed below the surface in order to keep them pure.

Acknowledgements

Andreas Viberg of the Archaeological Research Laboratory, Department of Archaeology and Classical Studies, Stockholm University carried out the phosphate analyses and the geophysical prospection. Mikael Larsson at the Institute of Archaeology and Ancient History, Lund University, conducted the analysis of the microfossil material. The excavation and research has been financed by the

Berit Wallenberg Foundation, the Elisabeth Rausing Foundation, the Magnus Bergvall Foundation, the Åke Wiberg Foundation and the Birgit and Gad Rausing Foundation for research in the humanities. The leaders of Botkyrkas Golfklubb (Botkyrka Golf Club), which owns the land, have been most supportive and helpful.

References

- Andersen 1997: N. H. Andersen, Sarup 1. The Sarup Enclosures. The Funnel Beaker Culture of the Sarup site including two causewayed camps compared to the contemporary settlements in the area and other European enclosures. *Jysk Arkæologisk Selskab Skrifter* 33/1 (Århus 1997).
- Andersen 2000: N. H. Andersen, Kult og ritual i den ældre bondestenalder [Cult and Rituals in the TRB-Culture] (Kuml 2000) 13–57.
- Andersen 2009: N. H. Andersen, Sarupområdet på Sydvestfyn i slutningen af 4. Årtusinde f. Kr. In: A. Schülke (ed.), Plads og rum i tragtbægerkulturen. Nordiske Fortidsminder, Serie C, Bind 6. Det Kongelige Nordiske Oldskriftselskab (København 2009) 25–44.
- Brink 2009: K. Brink, I palissadernas tid. Om stolphål och skärvor och sociala relationer under yngre mellanneolitikum. *Malmöfynd* 21 (Malmö 2009).
- Broström 1996: S.-G. Broström, Inventering av stenåldersboplatser på västra Södertörn. In: P. Bratt (ed.), *Stenålder i Stockholms län. Två Seminarier vid Stockholms läns museum* (Stockholm 1996) 66–71.
- Browall 1986: H. Browall, Alvastra påbyggnad: Social och ekonomisk bas. Theses and Papers in North-European Archaeology 8 (Stockholm 1986).
- Browall 2011: H. Browall, Alvastra påbyggnad. 1909–1930 års utgrävningar. *Antikvariska serien* 48 (Stockholm 2011).
- Carlsson 1998: A. Carlsson, Tolkande arkeologi och svensk forntidshistoria. *Stenåldern*. Stockholm Studies in Archaeology 17 (Stockholm 1998).
- Dimc 2011: N. Dimc, Pits, Pots and Prehistoric Fats. A Lipid Food Residue Analysis of Pottery from the Funnel Beaker Culture at Stensborg, and the Pitted Ware Culture from Korsnäs. Unpublished Master Thesis. The Archaeological Research Laboratory, Stockholm University (Stockholm 2011).
- Edenmo et al. 1997: R. Edenmo/ M. Larsson/ B. Nordquist/ E. Olsson, Gropkeramikerna — fanns de? Materiell kultur och ideologisk förändring. In: M. Larsson/ E. Olsson, (eds.), *Regionalt och interregionalt. Stenåldersundersökningar I Syd- och Mellansverige*. Riksantikvarieämbetet. *Arkeologiska undersökningar. Skrifter* 23 (Stockholm 1997) 135–213.

- Edgren 1992: T. Edgren, Den förhistoriska tiden. Finlands förhistoria 1 (Helsinki 1992).
- Eriksson 2004: G. Eriksson, Part time farmers or hard-core sealers? Västerbjers studies by means of stable isotope analysis. *Journal of Anthropological Archeology* 23, 2004, 135–162.
- Florin 1958: S. Florin, Vråkulturen. Stenåldersboplatserna vid Mogetorp, Östra Vrå och Brokvarn (Stockholm 1958).
- Fornander 2011: E. Fornander, Consuming and communicating identities. Dietary diversity and interaction in Middle Neolithic Sweden. *Theses and Papers in Scientific Archaeology* 12. Stockholm, Department of Archaeology and Classics Studies (Stockholm 2011).
- Fornander et al. 2008: E. Fornander/ G. Eriksson/ K. Lidén, Wild at Heart: Approaching Pitted Ware identity, economy, and cosmology through stable isotopes in skeletal material from the Neolithic site Korsnäs in Eastern Central Sweden. *Journal of Anthropological Archeology* 27, 2008, 281–297.
- Gill 2003: A. Gill, Stenålder i Mälardalen. *Stockholm Studies in Archaeology* 26 (Stockholm 2003).
- Gräslund 1982: B. Gräslund, Climatic Fluctuations in the Early Subboreal Period. A Preliminary Discussion. In: L.-K. Königsson/ K. Paabo (eds.), *Florilegium Florinis Dedicatum, Striae* 14 (Uppsala 1982) 13–22.
- Hallgren 2008: F. Hallgren, Identitet i praktiken. Lokala, regionala och överregionala sociala sammanhang inom nordisk trättbäckarkultur. *Coast to Coast-book* 17. Department of Archaeology and Ancient History (Uppsala 2008).
- Hallgren et al. 1997: F. Hallgren/ U. Djerw/ M. af Geijerstam/ M. Steineke: Skogsmossen, an Early Neolithic settlement site and sacrificial fen in the northern border and of the Funnel-Beaker Culture. *Tor* 29 (Uppsala 1997) 49–111.
- Högberg/Olausson 2007: A. Högberg/ D. Olausson, Scandinavian Flint — an Archaeological Perspective (Aarhus 2007).
- Karsten 1994: P. Karsten, Att kasta ytan i sjön. En studie över rituellt tradition och förändring utifrån skånska neolitiska offerfynd. *Acta Archaeologica Lundensia, Series in 8^o, No. 23* (Stockholm 1994).
- Lannerbro 1976: R. Lannerbro, Implements and rock material in the Prehistory of Upper Dalarna. *Early Norrland* 4 (Stockholm 1976).
- Larsson 1983: L. Larsson, Ageröd V. An Atlantic Bog Site in Central Scania. *Acta Archaeologica Lundensia* 8:12 (Lund 1983).
- Larsson 1989: L. Larsson, Brandopfer. Der frühneolithische Fundplatz Svartskyll im südlichen Schonen, Schweden. *Acta Archaeologica* 59, 1989, 143–153.
- Larsson 2000: L. Larsson, The passage of axes: fire transformation of flint objects in the Neolithic of southern Sweden. *Antiquity*, Vol. 74, No. 285, 2000, 602–610.
- Larsson 2004: L. Larsson, Axeheads and fire — the transformation of wealth. In: E. A. Walker/ F. Wenban-Smith/ F. Healy (eds.), *Lithics in Action. Papers from the Conference Lithic Studies in the Year 2000*. *Lithic Studies Society Occasional Paper* 8, 2004, 197–205.
- Larsson 2006: M. Larsson, A Tale of a Strange People. The Pitted Ware Culture in Southern Sweden, *Kalmar Studies in Archaeology* 2. Report Series 96, University of Lund, Department of Archaeology and Ancient History (Kalmar/ Lund 2006).
- Larsson 2009: M. Larsson, Report about the identification of micro-fossils from Stensborg. (Unpublished report) (Lund 2009).
- Larsson/Broström 2011: L. Larsson/ S.-G. Broström, Meeting for transformation. A Locality for Ritual Activities during the Early Neolithic Funnel Beaker Culture in Central Sweden. *Current Swedish Archaeology* 19, 2011, 183–201.
- Lindgren 2004: C. Lindgren, Människor och kvarts. Sociala och teknologiska strategier under mesolitikum i östra Mellansverige. *Stockholm Studies in Archaeology* 29 (Stockholm 2004).
- Malmer 2002: M. P. Malmer, The Neolithic of South Sweden. TRB, GRK, and STR (Stockholm 2002).
- Nielsen 1977: P. O. Nielsen, Die Flintbeile der frühen Trichterbecherkultur in Dänemark. *Acta Archaeologica* 48, 1977, 61–138.
- Nielsen 2004: P. O. Nielsen, Causewayed camps, palisade enclosures and central settlements of the Middle Neolithic in Denmark. *Journal of Nordic Archaeological Science* 14, 2004, 19–33.
- Olander 2010: M. Olander, Korsnäs Raä 447, Grödinge socken, Osteologisk analys 2010. Osteologiska forskningslaboratoriet, Institutionen för arkeologi och antikens kultur. Stockholms universitet. Osteologisk rapport 2010, 1. Stockholm University (Stockholm 2010).
- Olsson 1996: E. Olsson, Botkyrka golfbana: Södermanland, Grödinge socken, Malmbro 1:1, Nölinge 3:3 m fl, Raä 477, 524, 527: arkeologisk provundersökning. Stockholm: Riksantikvarieämbetet. Rapport 1996: 48 (Stockholm 1996).
- Olsson et al. 1994: E. Olsson/ G. Granath Zillén/ A. Mohr, Korsnäs — en gropkeramisk grav och boplatz på Södertörn: Södermanland, Grödinge socken, RAÄ 447: arkeologisk undersökning. Stockholm: Riksantikvarieämbetet. Rapport 1994, 63 (Stockholm 1994).
- Palomäki 2006: E. Palomäki, Albys skärvor — Lipid och morfologisk analys av tidigneolitisk keramik från Öland. Seminar Paper. Stockholm University. The Archeological Research Laboratory (Stockholm 2006).
- Skoglund et al. 2012: P. Skoglund/ H. Malmström/ M. Raghavan/ J. Storå / P. Hall/ E. T. P. Willerslev/ A. Götherström/ M. Jakobsson, Origins and Genetic Legacy of Neolithic Farmers and Hunter-Gatherers in Europe. *Science* 27, 336, 6080, 2012, 466–469.
- Stenbäck 2003: N. Stenbäck, Människorna vid havet. Platser och keramik på ålandsöarna perioden 3500–2000 f. Kr. *Stockholm Studies in Archaeology* 28 (Stockholm 2003).
- Svensson 2002: M. Svensson, Palisade enclosures — The Second Generation of Enclosed Sites in The Neolithic of Northern Europe. In: A. Gibson (ed.), *Behind Wooden Walls: Neolithic Palisaded Enclosures in Europe*. *BAR International Series* 1013 (Oxford 2002) 28–58.
- Taffinder 1998: J. Taffinder, The allure of the Exotic. The social use of non-local raw materials during the Stone Age in Sweden. *Aun* 5 (Uppsala 1998).
- Viberg 2008: A. Viberg, Stensborg — Geofysisk och geokemisk prospektering av RAÄ 527, Grödinge socken, Södermanland. Uppdragsrapport nr 94. Arkeologiska forskningslaboratoriet. Stockholms Universitet (Stockholm 2008).

Lars Larsson
 Institute of Archaeology and Ancient History
 Lund University
 Box 117
 SE-221 00 Lund, Sweden
 Lars.Larsson@ark.lu.se

Sven-Gunnar Broström
 Fältvägen 11
 SE-147 85 Tumba, Sweden
 botark@swipnet.se