

Daniel Groß · Harald Lübke · John Meadows · Detlef Jantzen (eds.)

Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe



10

Untersuchungen und Materialien
zur Steinzeit in Schleswig-Holstein
und im Ostseeraum

**UNTERSUCHUNGEN UND MATERIALIEN ZUR STEINZEIT
IN SCHLESWIG-HOLSTEIN UND IM OSTSEERAUM**

BAND 10

Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum
aus dem Museum für Archäologie Schloss Gottorf und dem Zentrum für Baltische und Skandinavische
Archäologie
in der Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf
Band 10

Begründet von
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Herausgegeben von
Sönke Hartz und Harald Lübke

Working at the Sharp End:
From Bone and Antler to Early Mesolithic
Life in Northern Europe

Daniel Groß, Harald Lübke, John Meadows and Detlef Jantzen (eds.)

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Laserscan of the wooden sign that was attached to the excavation hut during the Hohen Viecheln excavations ('To the sharp harpoon'; Laserscan: J. Nowotny, ZBSA).

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VORWORT DER HERAUSGEBER

Die Schriftenreihe „Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein“ wurde von dem ursprünglichen Herausgeber Jürgen Hoika vor mittlerweile 25 Jahren im Jahre 1994 begründet, um am damaligen Archäologischen Landesmuseum Schleswig (ALM) und heutigem Museum für Archäologie Schloss Gottorf (MfA) ein Publikationsorgan für die Veröffentlichung von Forschungsergebnissen zur Steinzeit Schleswig-Holsteins zu schaffen. Dabei sollte es sich zum einen um Sammelwerke mit Beiträgen von vorzugsweise auf Schloss Gottorf veranstalteten Symposien, Workshops und Tagungen mit steinzeitlicher Thematik und zum anderen um zumeist in Dissertationen zusammengestellte ausführliche Materialvorlagen handeln. Entsprechend enthielt der 1994 vorgelegte erste Band der Reihe die Beiträge zum 1. Internationalen Trichterbechersymposium, welches, von Jürgen Hoika gemeinsam mit Jutta Meurers-Balke initiiert, 1984 am Archäologischen Landesmuseum in Schleswig stattgefunden hatte. In der Folge wurden dann aber beginnend mit den Arbeiten der beiden heutigen Herausgeber nunmehr acht überwiegend am Institut für Ur- und Frühgeschichte der Christian-Albrechts-Universität zu Kiel fertiggestellte Dissertationen veröffentlicht, die ganz wesentlich mit der wissenschaftlichen Vorlage und Auswertung von Forschungsgrabungen in Schleswig-Holstein und – seit der Beteiligung des Zentrums für Baltische und Skandinavische Archäologie an der Herausgeberschaft – aus dem gesamten Ostseeraum befasst sind.

Deshalb ist es eine besondere Freude für die Herausgeber, mit dem vorliegenden Band 10 „Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe“ der Schriftenreihe „Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum“ wiederum einen Sammelband mit den Beiträgen eines Workshops vorlegen zu können, der vom 14. bis 16. März 2016 auf Schloss Gottorf stattgefunden hat. Dabei handelt es sich um den Abschlussworkshop des von der Deutschen Forschungsgemeinschaft geförderten Projektes „Neubewertung von Chronologie und Stratigraphie des frühholozänen Fundplatzes Hohen Viecheln (Mecklenburg-Vorpommern) unter besonderer Berücksichtigung der diagnostischen Knochenartefakte“ (DFG-Projektnummer 271652103) unter Leitung von Daniel Groß, Harald Lübke, John Meadows (alle ZBSA) und Detlef Jantzen (Landesamt für Kultur und Denkmalpflege Mecklenburg-Vorpommern; Landesarchäologie). Entsprechend enthält dieser Band neben dem Abschlussbericht des Forschungsprojektes insgesamt 17 Beiträge der eingeladenen Workshop-Teilnehmer, die entweder ergänzende Studien zum Fundplatz Hohen Viecheln enthalten oder sich grundsätzlich mit verwandten Themen zur Erforschung des frühholozänen Mesolithikums im nördlichen Europa befassen.

Alle Beiträge wurden nach internationalem Standard von jeweils zwei anonymen Gutachtern in einem Peer-review-Verfahren bewertet und danach den Autoren zur erneuten Überarbeitung übergeben, bevor die abschließende redaktionelle Bearbeitung der Manuskripte erfolgte. Die Textredaktion für alle Beiträge wurde von Gundula Lidke durchgeführt, Jana Elisa Freigang und Jorna Titel leisteten dabei unterstützende Arbeiten. Das Layout übernahm Daniel Groß, Titelbild und Umschlag entwarf Jürgen Schüller. Die meisten Karten und Zeichnungen wurden von den Autoren selbst bereitgestellt. In einzelnen Fällen erfolgte eine Überarbeitung durch Daniel Groß. Allen sei dafür an dieser Stelle herzlich gedankt.

Neu im Rahmen der Schriftenreihe ist, dass die Beiträge unmittelbar nach Fertigstellung und Freigabe der Autoren in einem „online-first“-Verfahren auf der Homepage des Verlages im Open Access zum freien Download bereitgestellt wurden. Für die Umsetzung dieser Forderung der Herausgeber danken wir dem Wachholtz Verlag, insbesondere Herrn Henner Wachholtz, sehr.

Besonderer Dank gilt dem Vorstand des Zentrums für Baltische und Skandinavische Archäologie Schleswig, besonders dem Direktor, Claus von Carnap-Bornheim, und der Forschungsleiterin, Berit Valentin Eriksen, die die Veröffentlichung dieses Bandes durch die Bereitstellung der erforderlichen Mittel für den Druck der Arbeit maßgeblich unterstützten.

Sönke Hartz und Harald Lübke
Schleswig, im Oktober 2019

EDITORS' PREFACE

The series 'Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein' was founded by its first editor, Jürgen Hoika, in 1994, 25 years ago, in order to establish a possibility to publish Stone Age research results from Schleswig-Holstein at the then Archaeological State Museum (Archäologisches Landesmuseum [ALM]), today's Museum for Archaeology (Museum für Archäologie, Schloss Gottorf [Mfa]). Publications should, on the one hand, reflect proceedings of symposia, conferences and workshops with Stone Age topics primarily held at Gottorf Castle, on the other hand, dissertations presenting comprehensive material. According to that, the first volume, published in 1994, contained the contributions to the 1st International Funnelbeaker Symposium, which, initiated by Jürgen Hoika and Jutta Meurers-Balke, had taken place at the Archaeological State Museum in 1984. Following that, eight dissertations, mainly accomplished at the Institute for Pre- and early History at the Christian-Abrechts-University Kiel, were published, starting with those by today's editors. All these volumes contributed substantially to the scientific presentation and analysis of excavation materials from Schleswig-Holstein and – since 2012, when the Centre for Baltic and Scandinavian Archaeology (ZBSA) also became involved in editing the series – the whole of the Baltic Sea area.

Therefore the editors are especially happy to once more present conference proceedings with volume 10 of the series 'Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum': 'Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe' collects contributions to a workshop held at Gottorf Castle on 14th–16th March, 2016. This represented the closing workshop of the DFG-funded project 'Neubewertung von Chronologie und Stratigraphie des frühholozänen Fundplatzes Hohen Viecheln (Mecklenburg-Vorpommern) unter besonderer Berücksichtigung der diagnostischen Knochenartefakte' (DFG project no. 271652103), directed by Daniel Groß, Harald Lübke, John Meadows (all ZBSA) und Detlef Jantzen (Landesamt für Kultur und Denkmalpflege Mecklenburg-Vorpommern; Landesarchäologie). In addition to the project's final report the volume contains 17 papers by researchers invited to participate in the workshop, representing either additional studies on material from the site Hohen Viecheln or related topics in research of the early Holocene Mesolithic in northern Europe.

Each paper was, according to international standards, peer-reviewed by two anonymous reviewers and then returned to the author for reworking before final editorial work. Copy-editing was performed by Gundula Lide, supported by Jana Elisa Freigang and Jorna Titel. Daniel Groß realised the layout; cover and cover illustration were designed by Jürgen Schüller. Most maps and figures were provided by the authors themselves, some were reworked by Daniel Groß. We express our sincere thanks to all involved!

It is a novelty for the series to have papers published online first immediately after completion and authors' approval in open access for free download on the website of Wachholtz Publishers. We would like to thank Henner Wachholtz, Wachholtz Publishers, very much for making this possible!

Special thanks are due to the board of the Centre for Baltic and Scandinavian Archaeology (ZBSA) Schleswig, particularly to the director, Claus von Carnap-Bornheim, and the head-of-research, Berit Valentin Eriksen, who substantially supported this publication by providing financial means for its printing.

Sönke Hartz and Harald Lübke
Schleswig, October 2019

GRUSSWORT DES LANDESARCHÄOLOGEN VON MECKLENBURG-VORPOMMERN

Mit seinen großflächigen, oft noch weitgehend unberührten Niederungen und Binnengewässern bietet Mecklenburg-Vorpommern beste Voraussetzungen, um die gewässeraffinen Kulturen des Mesolithikums zu erforschen. Die Überreste ihrer Wohn- und Jagdstationen sind im feuchten Milieu hervorragend erhalten geblieben. Störungen durch Torfabbau, Begradiung von Gewässern oder Meliorationsmaßnahmen blieben im Wesentlichen auf das 19. und 20. Jahrhundert beschränkt. Sie haben zwar einen gewissen Schaden angerichtet, aber, weil sie zumindest im 20. Jahrhundert oft von aufmerksamen ehrenamtlichen Bodendenkmalpflegern beobachtet wurden, überhaupt erst zur Entdeckung vieler Fundstellen geführt.

Welche Fundstellen eingehender erforscht werden und damit das Bild einer Epoche besonders prägen, unterliegt oft dem Zufall. Hohen Viecheln rückte in den Fokus der Forschung, weil die Entdeckung mehrerer Knochenharpunen zu Beginn der 1950er Jahre auf eine günstige Konstellation traf: 1953 war aus der Vorgeschichtlichen Abteilung des Staatlichen Museums das Museum für Ur- und Frühgeschichte Schwerin entstanden, das auch für die Bodendenkmalpflege in den drei Nordbezirken der DDR zuständig war. Der ehrgeizige Direktor des Museums, Ewald Schuldt, hatte sich durch Ausgrabungen auf der Burgwallinsel Teterow einen Namen gemacht und war nun auf der Suche nach einem geeigneten Fundplatz für ein eigenes Forschungsprojekt.

Wegen der sehr guten Erhaltungsbedingungen versprach Hohen Viecheln, zusätzlich zu dem bekannten Spektrum an Steinartefakten auch ein umfangreiches Geräteinventar aus organischen Materialien bergen zu können. Die ebenfalls ausgezeichnet erhaltenen Tierknochen sollten Aufschluss über das Jagdwild geben. Hinzu kam die Aussicht, aus der Stratigraphie neue Erkenntnisse zur Chronologie und zu den Veränderungen der naturräumlichen Verhältnisse zu gewinnen. Diese Erwartungen wurden nicht enttäuscht: Hohen Viecheln entwickelte sich zu einem der bedeutendsten Plätze mesolithischer Forschung, gleichrangig mit Duvensee, und inspirierte weitere Forschungen, u. a. in Friesack und Rothenklempenow.

Hohen Viecheln gehört nach wie vor zu den legendären archäologischen Fundstellen in Mecklenburg-Vorpommern, auch wenn es aus heutiger Sicht nicht mehr so einzigartig dasteht. Dank einer intensiv betriebenen ehrenamtlichen Bodendenkmalpflege ist die Zahl der bekannten mesolithischen Fundplätze im Land deutlich gestiegen, von denen vermutlich mehrere ein ähnliches Potenzial wie Hohen Viecheln aufweisen. Verändert haben sich aber nicht nur die Verbreitungskarten, sondern auch die Möglichkeiten archäologischer Forschung. Es drängte sich deshalb geradezu auf, Hohen Viecheln noch einmal unter die Lupe zu nehmen, bisherige Erkenntnisse kritisch zu prüfen und neue hinzuzufügen. Der DFG und allen Projektpartnern gebührt herzlicher Dank dafür, dass sie das ermöglicht haben.

So wird Hohen Viecheln auch weiterhin als exemplarischer Fundplatz für das Mesolithikum in der norddeutschen Tiefebene stehen – eine hochinteressante Umbruchszeit, in der Klimawandel, Anstieg des Meeresspiegels und andere Veränderungen eine ständige Anpassung der Menschen an ihre Umwelt erzwangen.

Detlef Jantzen
Schwerin, im September 2019

WELCOME ADDRESS BY THE STATE ARCHAEOLOGIST OF MECKLENBURG-WESTERN POMERANIA

Mecklenburg-Western Pomerania with its large, often unspoiled lowlands and inland waters offers outstanding possibilities for research into the water-oriented cultural groups of the Mesolithic. Remains of their settlement and hunting sites are often well preserved in wet conditions. Disturbances by peat extraction, straightening of watercourses or melioration measures mainly took place during the 19th and 20th centuries. They did some damage, but – as at least during the 20th century they were often supervised by vigilant amateur archaeologists – many sites were discovered this way in the first place.

But often it is left to chance which sites can be thoroughly investigated to largely characterise the picture of a whole timespan. Hohen Viecheln became the focal point of research interest under favourable circumstances: the discovery of several bone points there at the beginning of the 1950s fell together with the establishment of the Museum of Pre- and Early History in Schwerin (out of the former Department of Prehistory at the State Museum) which was also responsible for the preservation and care of field monuments in the three northern districts of the GDR.

The ambitious museum director, Ewald Schuldt, had already gained reputation through his excavations of the Slavic ring wall island near Teterow, and he was looking for a suitable site for another research project. Due to the very good preservation conditions at the site, Hohen Viecheln promised, in addition to the spectrum of artefacts known from other places, a substantial organic inventory. The well-preserved animal bones were expected to shed light on game species and hunting strategies. Furthermore, important results were expected concerning chronology and environmental changes. These hopes were not disappointed: Hohen Viecheln has become, alongside Duvensee, one of the most important sites for Mesolithic research, and research there has inspired further excavations, e.g. at Friesack or Rothenklempenow.

Hohen Viecheln is still one of the legendary archaeological sites in Mecklenburg-Western Pomerania, even if it no longer stands alone. Thanks to intensive voluntary archaeological surveys the number of Mesolithic sites has increased significantly; and several of these may have a potential similar to that of Hohen Viecheln. But not only distribution maps have changed during the last years, but also the possibilities of archaeological research. Therefore, the idea to have another look at Hohen Viecheln, to challenge old results and add new ones, suggested itself. I want to thank the German Research Foundation (DFG) and all project contributors for having made this possible. In this way, Hohen Viecheln will continue to be an exemplary North German Lowland site of the Mesolithic – a highly interesting time when climate change, sea-level rise and other changes enforced constant human adaptions to the environment.

Detlef Jantzen
Schwerin, September 2019

ACKNOWLEDGEMENTS

This volume of the series ‘Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum’ represents the proceedings of a workshop held at the Centre for Baltic and Scandinavian Archaeology (ZBSA) in Schleswig in March 2016. It is a part of the editors’ project ‘Neubewertung von Chronologie und Stratigraphie des frühholozänen Fundplatzes Hohen Viecheln (Mecklenburg-Vorpommern) unter besonderer Berücksichtigung der diagnostischen Knochenartefakte’, funded by the German Research Foundation (DFG) under the project number 271652103.

While the project was dealing with the re-evaluation of the site Hohen Viecheln 1 for chronological and stratigraphical aspects, this volume does not only cover its final publication but comprises additional modern studies about the site by different scholars. These are furthermore embedded into the international research landscape by adjacent studies covering an area from modern day Britain in the west to the Urals in the east.

All contributions are representing the authors’ point of view and respective terminologies. Therefore differences in the vocabulary may appear to the careful reader. While a homogenisation of terms and data recording is relevant for comparative studies, it was beyond the scope and means of this project. As a consequence, terminologies may differ between the contributions, as exemplified by the terms ‘uni-serial’ and ‘uni-lateral’ bone points: both are characterised by barbs or notches on one lateral side. At the British site Star Carr those have ever since been named uni-serial, whereas uni-lateral is a more common term in other parts of Europe.

We, as editors, would like to thank all contributors for being part of this volume and their interesting and high-quality articles; also we are grateful for the voluntary support of all anonymous peer-reviewers and their help in improving the articles. Furthermore, we thank the German Research Foundation (DFG) for funding our research and the workshop as well as the Centre for Baltic and Scandinavian Archaeology represented by its director, Claus von Carnap-Bornheim, and the head-of-research, Berit Valentin Eriksen, for support of the project and its presentation in the current form. A tremendous help in the course of making this book was Gundula Lidke who was responsible for text editing, proofreading, and correspondence with the authors and publishers. Thank you very much! Further editorial support was provided by Jana Elisa Freigang, Jorna Titel, Matthias Bolte, Isabel Sonnenschein and Jürgen Schüller. The latter is also responsible for the cover drawing. Much help and support was provided by Peter Teichert-Köster with respect to handling the finds and accessing them in the depot of the Landesamt für Kultur und Denkmalpflege Mecklenburg-Vorpommern; Landesarchäologie in Schwerin. Close collaboration with Mathieu Boudin of the Royal Institute for Cultural Heritage, Brussels, improved our radiocarbon measurements and the analysis of the consolidant.

We thank all people, mentioned and unmentioned here, who were involved in this book and the different research projects, who helped by further pushing the boundaries of our understanding of the cultural remains and chronologies of the past.

Daniel Groß, Harald Lübke, John Meadows, Detlef Jantzen
Schleswig, October 2019

LOST AT THE BOTTOM OF THE LAKE. EARLY AND MIDDLE MESOLITHIC LEISTER POINTS FOUND IN THE BOG RÖNNEHOLMS MOSSE, SOUTHERN SWEDEN

Lars Larsson, Arne Sjöström and Björn Nilsson

Abstract

During the Early and Middle Mesolithic the bog Rönneholms Mosse, situated in central Scania, southernmost Sweden, was part of a large and shallow lake. It filled up with organic material over a long time, lasting until the middle part of the Atlantic period. Due to large-scale peat extraction in the bog, surveys and excavations have been conducted for a number of years. Besides a large number of small campsites, numerous slotted points, harpoon and leister points made of bone have been found in the gyttja layers. During leister fishing the points fell out of the shafts or handles, or their tips simply broke off. The points show a considerable variation in shape and raw material. Through radiocarbon dating it has been possible to establish a chronologically based typology. This sequence, partly different to other find situations in southern Scandinavia, is of major importance for dating sites as well as stray finds.

1 Introduction

During the early Early and Middle Mesolithic the area that today forms the bogs Ageröds Mosse and Rönneholms Mosse constituted the northwestern arm of the basin of Lake Ringsjön in central Scania, southernmost Sweden (Fig. 1). The whole bog complex, with its total area of 12 km², actually constitutes a single bog divided by the river Rönne Å, the present outflow of Lake Ringsjön, into a smaller northern part, Ageröds Mosse, and a larger southern part, Rönneholms Mosse (Fig. 1). It indicates the extent of the ancient lake, within the region of Ringsjön, that later was ultimately becoming transformed into a raised bog.

The former lake was shallow, which resulted in a successive silting up with organic material; a process that started during the Preboreal chronozone and was finished during the Subboreal chronozone (NILSSON 1967). However, due to climatic changes and water level fluctuations, there was considerable variation in the rate and extent of filling. The filling was not restricted to the shallow waters just beyond the former shores. Organic material also accumulated in certain parts of the lake, creating islands of varying sizes, which could be used by the inhabitants of the region. Until the middle of the Atlantic chronozone the lake was very attractive for hunting, fishing, and gathering. Later a raised bog formed, with layers several metres thick. Due to peat cutting and intensive drainage the area has lost its former raised bog character by now.

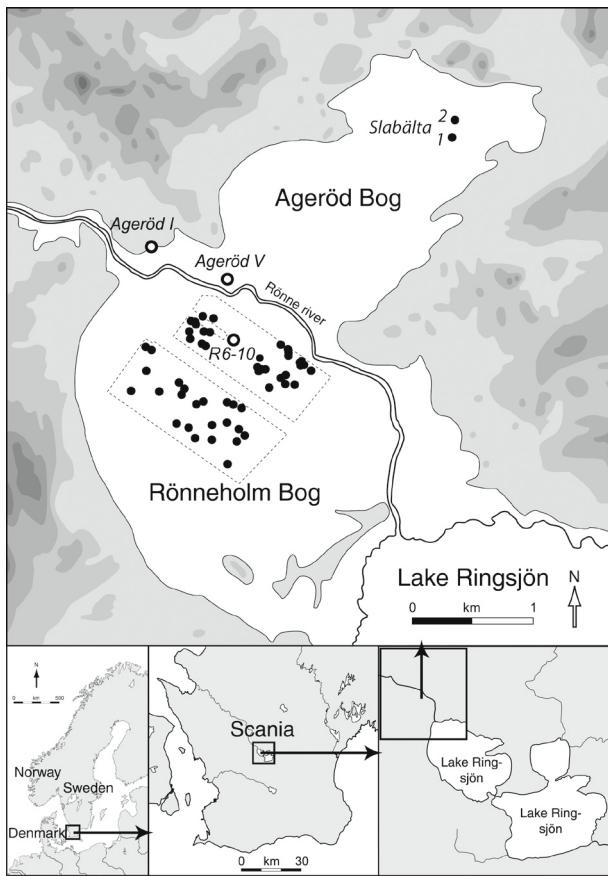


Fig. 1. Map of the bogs Ageröds Mosse and Rönneholms Mosse, with finds of leister points (dots) and selected bog sites (circles). The dashed lines mark the modern peat extraction area in Rönneholms Mosse.

2 Previous research

Since the 1930s prehistoric settlements have been discovered on the northwestern periphery of the bog Ageröds Mosse and on a moraine ridge near the former outlet of the river Rönne Å. In the late 1940s and early 1970s, fieldwork was primarily concentrated on a settlement area with several settlements, named Ageröd I, dated to the late Maglemose Culture (ALTHIN 1954a; b; LARSSON 1978). Sites were also located in the northwest part of Ageröds Mosse (Ageröd III–VII), and in the western part of Rönneholms Mosse (Rönneholm I–III). These sites date from the Maglemose Culture to the early Ertebølle Culture (ALTHIN 1954a; DENDARSKY 2002; LARSSON 1978; 1979/1980). The refuse from a site in the central part of the bog, Ageröd V, was in an excellent state of preservation, and not only bone and antler, but also wooden artefacts were preserved there (LARSSON 1983). Ageröd V is dated to the transition phase from the Kongemose Culture to the Ertebølle Culture.

3 Peat cutting in the bog Rönneholms Mosse

Peat cutting in Ageröds Mosse stopped in the early 1960s. In Rönneholms Mosse, peat cutting has continued since the late 1800s, originally by cutting pieces of peat by spade or machine. However, in the 1990s, a new type of peat extraction, the ‘Peco’ method (see below) was introduced. In 1993 the first finds were discovered in the peat production field in Rönneholms Mosse. Today the peat extraction has more or less reached the bottom layers in all parts of the bog. The exploited area of the bog is today about 1.4 km². It is divided into sections about 20 m wide and several hundred metres long.

The method generally used for cutting peat in the bog now is the so-called ‘Peco’ method, where a thin layer of 10–15 mm of bog surface is milled each time, about ten times every season depending on the weather. In some areas all the peat and most of the gyttja have been removed, while in other areas some layers still remain, which means that while surveying the bog by walking in straight lines with a distance of about five metres one moves across different time horizons.

Since 1993 the bog has been surveyed annually, and hundreds of stray finds and small sites have been found and excavated. The small sites cover just a few square metres and seem to be the remains of very short stays. Somewhat larger sites, similar to the well-known bog sites, have also been found along old shorelines on former peat islands in the central part of the bog (LARSSON/SJÖSTRÖM 2011; 2013; see Fig. 1). The sites are dated by typochronology, combined with radiometric analysis, to the period from the late Maglemose Culture to the late Kongemose Culture.

4 Leister points in Rönneholms Mosse

A total of 52 single finds of bone leister points stem from Rönneholms Mosse, consisting of 7 more or less intact examples, 35 tip fragments and 10 base fragments. They have all been found during the last 15 years in the central part of the bog, where commercial peat extraction is still ongoing (Fig. 1). In the northeastern part of Ageröds Mosse, called Slabälta meadows, one leister point has been found at a small bog site dated to the late Maglemose Culture (Slabälta 1; SJÖSTRÖM 2013); there is also a single find of a leister point (Slabälta 2).

The fragmentary and complete leister points, with preserved barbs, show diversity in shapes, and some appear only as single specimens. The variation could be interpreted as typochronological, functional, or as a matter of preferences or craftsmanship. When leister points were broken off, the base fragments could have been recycled and reshaped for re-use with a smaller number of new barbs. All leister points have been found as single finds without any hafting. There are no indications of whether they were used as single fish spears or multiple leisters.

Of the 39 leister points that show similar formal attributes, a rough division into five different main types has been made. Based on radiocarbon dates from 19 selected leisters, an attempt has been made to place them in a chronological order regarding the main types (Figs. 2–4). One of the leister points (Fig. 3,2) has been radiometrically measured twice, and the results indicate that the radiometric age measurements of one object can vary by several hundred years, an important aspect when regarding the chronology of a special type. The short time range, and the standard deviation of the radiometric measurements (Fig. 4), make it difficult to construct a more detailed typological chronology, or discuss the contemporaneity further. However, it is possible to outline a typo-chronological development valid for central Scania.

4.1 Type 1

Type 1 consists of relatively long and finely barbed leister points (Fig. 3,1–3). They are made of long bones, with shallow notches distally sawn on the edges. The notches are placed at varying distances from each other, and the three specimens observed have long and rounded tips. The cross-section is triangular and quadratic. They are among the oldest finds from the bog and date to the Preboreal (Fig. 4). Just one settlement on dry land from the shore area, Henninge Boställe, might belong to that period (ALTHIN 1954b).

Between types 1 and 2 there is a chronological hiatus, which might indicate a lesser degree of leister fishing in the central part of the ancient lake during the period 8000–7500 cal. BC due to changes of the environment.

4.2 Type 2

Type 2 includes nine wide leister points made of long bones. In contrast to those of type 1 these leisters are well worked, and the pointy and denticulated parts have smooth and even surfaces. The barbs are widely spaced and shaped through deep cuts, and hence some have a characteristic ‘shark-fin’ shape



Fig. 2. A find of a leister point, type 1, in the bog Rönneholms Mosse (photo A. Sjöström).

(Fig. 3,5), or even straight edges between the cuts (Fig. 3,6). The wide distal barb is placed at the tip of the point. Four of the five type 2 leister points are radiometrically dated to c. 7200 cal. BC (Fig. 3,4–7). During this time there are neither smaller campsites nor any larger settlements documented in the bog. A similar leister point, although somewhat more narrow, is dated to c. 6800 cal. BC (Fig. 3,12).

4.3 Type 3

Type 3 consists of five leister points; three of these have been dated. They are finely manufactured, thin and distinctly denticulated. The barbs' ends are pointed, and their angles are inclined towards the base. The distal barb is placed at the tip of the point, and some items even show a hint of a protruding tip close to the actual tip of the leister point (Fig. 3,9). The oldest type 3 leister point is dated to 7200 cal. BC, it has type 2-like widely spaced barbs (Fig. 3,8). A slightly younger type 3 leister point – dated to 7150 cal. BC – has somewhat more densely spaced barbs (Fig. 3,9). Leister point no. 18, a very late type 3-point, dates to 6575 cal. BC (Fig. 3,18). It differs from the others in its closely spaced teeth, the interior angles of which are almost longitudinally perpendicular.

4.4 Type 4

Type 4 is represented by seven long bone leister points; three of which have been dated. They have relatively closely spaced barbs. Differently from type 3, the barbs' ends are not pointed; instead each barb has retained a small part of the sharp lateral edge of the blank. Most type 4 leister points are thicker and wider than type 3 items, and not all are that well-articulated or crafted. Some are partly spongy and show concave grooves from the inner part of the long bone, often stretching far out towards the tip of the point. Significant for this type is a long and sharp tip. The interior angles are slightly blunter than those of types 2 and 3. The oldest type 4 leister point is dated to c. 7000 cal. BC (Fig. 3,10). Another type 4 leister point is distally incomplete and dated to c. 6850 cal. BC (Fig. 3,11). At about the same time, increased activity around the ancient lake is recorded through a large number of small scattered campsites and single finds. The youngest type 4 leister point dates to about 6650 cal. BC (Fig. 3,15).

4.5 Type 5

Type 5 is represented by 15 leister points made of thin ribs; five of these items are dated. They are all well-crafted, and their thickness varies between 2.7 and 3.9 mm (average 3.3 mm). Two of the retrieved type 5 leister points are almost intact and as long as 23 cm (SJÖSTRÖM 2011, fig 9:9; 2014, fig 6:1). The two earliest dated type 5 leisters have a special shape. Their tips are sharp, and they have several small and closely spaced barbs. They have been dated to c. 6800 cal. BC and c. 6700 cal. BC, respectively (Fig. 3,13–14). The close spacing of the barbs and the sharp points may be a type 4 continuation, but with a difference in the design of the barbs and a change of bone material. The other eleven leister points made of ribs have widely spaced small barbs, in contrast to the older two. Six of these are narrow, and five wider. The narrow ones have slightly smaller and sharper barbs than the wide ones. One narrow point has been dated to c. 6650 cal. BC (Fig. 3,16), and two of the wider ones to c. 6550 cal. BC (Fig. 3,17,19). These are the latest dated leister points from the area. Most likely this is not a matter of find circumstances, but rather a matter of a change to wood as raw material for leister points, a change also indicated by finds from Ageröd V (LARSSON 1983). Concerning the manufacture of the documented leister points, both the 'F' method, i.e. the splitting of metopodials of big ungulates as well as the 'D' method, i.e. the splitting of ribs from the same kind of animals (type 5; for methods see DAVID 2003), were used.

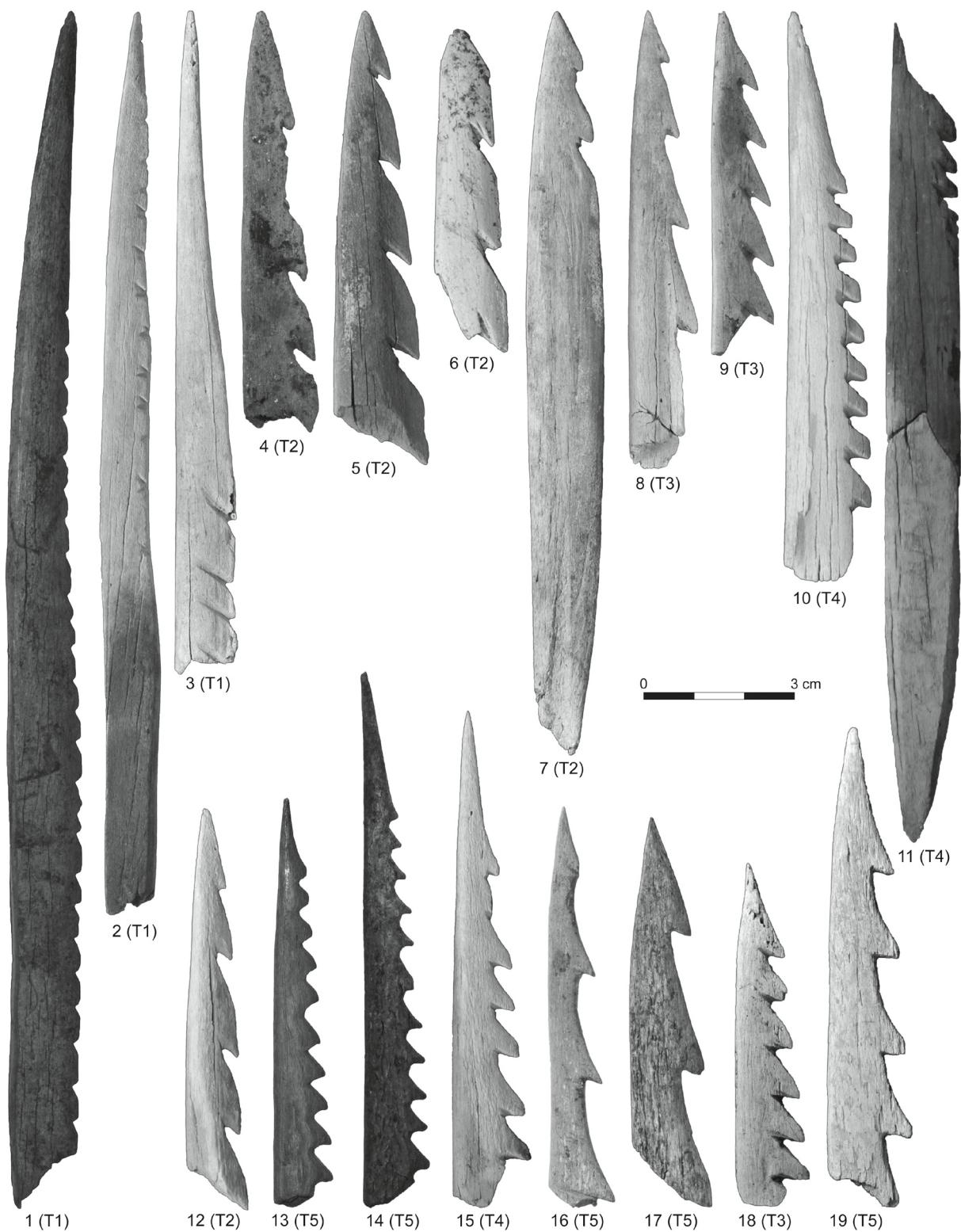


Fig. 3. Leister points from the bogs Ageröds Mosse and Rönneholms Mosse. They are placed according to their radiocarbon age. Numbers 6 and 11 have broken tips. Numbers 2, 7, and 11 have intact bases. Numbers 13, 14, 16, 17, and 19 are made of thin ribs. T = type. Scale: 90 % of natural size (photos A. Sjöström).

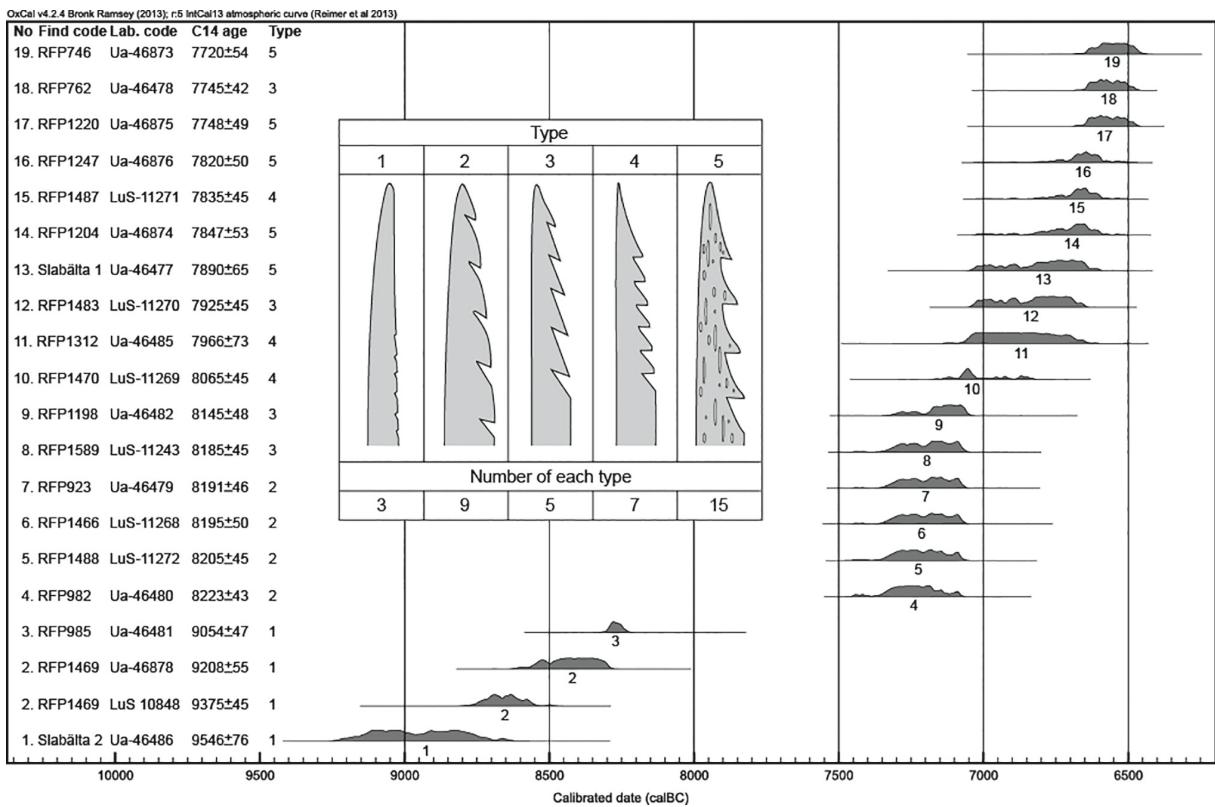


Fig. 4. Schematic types of leister points from the bogs Ageröds Mosse and Rönneholms Mosse, and radiocarbon dates of selected points. ID numbers are the same as in Fig. 3.

4.6 Distribution of leister points

The leisters in the bog Rönneholms Mosse were found evenly distributed over the peat extraction area, and no clear concentrations indicating certain areas in the ancient lake favoured for leister fishing can be recognised (Fig. 1), nor can any differences be seen concerning the spatial distribution of the different types of leisters. Most of them were found in a relatively thin layer of algae gyttja. There are no stratigraphical differences in terms of different leister types, except that one of type 1 (Fig. 3,2) was found deep down in a layer of chalk gyttja, and one of type 5 high up in a layer of detritus gyttja.

5 Regional finds of leister points

An important aspect to take into account is how this typology and its chronological setting can be compared to finds from settlements in the smaller or wider region. Concerning leister points in the neighbourhood of the Rönneholm-Ageröd bog system, there are a few finds. In Ageröd I:HC two examples of the finely-toothed type have been found. One was discovered during trench stripping (ALTHIN 1954b, pl. 50:6) and one in the lower peat layer (LP; LARSSON 1977/1978, fig. 15). The latter object has a length of 21 cm, which indicates that it was made of an elk metatarsal. The three dates from this layer span an interval between 7515–7048 cal. BC. These are much later dates than those for the stray finds in the bog complex.

Two other leister points are so heavily weathered (ALTHIN 1954b, pl. 49:2; 50:7) that they cannot be arranged in the present typology. A find from an upper peat cultural layer (ALTHIN 1954b, pl. 52:3)

as well as a stray find (LARSSON 1977/1978, fig. 16) can be classified as type 3 points, while another example belongs to type 4 (ALTHIN 1954b, pl. 52:2). The layer is dated between 7024–6470 cal. BP and 6471–6207 cal. BC. These dates can be well related to the dates of leister points of the same types in Rönneholms Mosse.

The youngest settlement site with leister points is Ageröd I:D. A find of a leister point with heavily marked barbs belongs to type 3 (LARSSON 1978, fig 82:7). This site is dated to the latest phase of the Maglemose Culture, c. 7055–6401 cal. BC, in accordance with dates of finds from Rönneholm.

Yet another site with tools made of bone and antler is Sjöholmen at the easternmost border of the bogs. This site was settled during the Mesolithic and the Neolithic; finds stem from layers with mixed material. However, three fragments of finely-barbed leister points might indicate an early use of the settlement area (LARSSON 1977/1978, fig. 33b–c).

Of the leister points found in Rönneholms Mosse 28 % are made of ribs (type 5). However, just a single example – from the site Slabälta 1 in the bog Ageröds Mosse – of this dominant type comes from a settlement of about the same age. This might appear somewhat strange, but we have to be aware that a number of sites related to the former lake belonging to the Maglemose Culture and early Kongemose Culture have not yielded finds of organic material.

At the Ageröd V site, which dates to the transition from the Kongemose Culture to the Ertebølle Culture, there are wooden leister points representing a type best known at a number of sites from the Ertebølle Culture (KLOOSS 2015; LARSSON 1983).

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