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REVIEWS

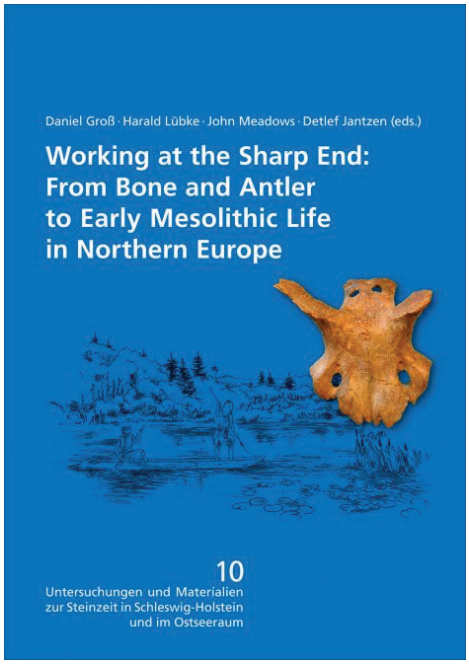

Figure 1. The front cover of *Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe* (source: https://www.wachholtz-verlag.de).

TOMAS RIMKUS

BOOK REVIEW:

*Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe***.** Daniel Groß, Harald Lübke, John Meadows, Detlef Jantzen (eds). Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum, Band 10. Kiel-Hamburg: Wachholtz, 2019. – 432 pp.

Organised conferences and workshops usually publish the proceedings of the papers read. These events provide a wealth of relevant research, and a new methodological assessment of archaeological material, making publications of this type particularly important. Most importantly, the material is concentrated in one publication, so that everything can be found in one place. On 14–16 March 2016, the workshop 'Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe', at the Centre for Baltic and Scandinavian Archaeology in Schleswig, presented a series of scientific papers based on bone and antler technology, and its development in the Mesolithic societies of northern Europe, and aspects of prehistoric art found on these implements, and elements of the subsistence economy. Based on this event in 2019, a 432-page collection of papers with the same title was published (Groß et al. 2019) (Fig. 1). Although the first part of the publication is devoted to the Early Holocene Hohen Viecheln site in northern Germany (Schuldt 1961), while contextualising the region in the technological context of the Mesolithic bone and antler industry, the second part consists of the much wider northern European region. In total, in addition to the Hohen Viecheln study at the beginning of the book, the proceedings contain 17 articles by 31

authors from nine different countries: Belgium, Denmark, France, Germany, Latvia, the Netherlands, Russia, Sweden and the United Kingdom. The papers are published in Volume 10 of the series 'Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum' by the Centre for Baltic and Scandinavian Archaeology.

The book starts with the 97-page study 'Re-Evaluation of the site Hohen Viecheln 1' by D. Groß, H. Lübke, J. Meadows, D. Jantzen and S. Dreibrodt. Hohen Viecheln is a wetland site situated on the north shore of Lake Schwerin. It contains excellent preservation conditions for organic material; therefore, an abundant osseous toolkit, bone points in particular, was first discovered during excavations between 1952 and 1955 (Schuldt 1961). As is noted by the authors, for these reasons, the site became a reference Mesolithic site in northern Europe. However, its complex stratigraphy and its chronological relation with the osseous inventory have been a matter of discussion over the decades. The study reevaluates the site stratigraphy by applying radiocarbon dating, and bone point typological features by distinguishing their individual groups with different morphological properties. The radiocarbon measurements indicate that chronologies could be distinguished for the use time of different types of bone point. In the later Preboreal, Duvensee-type points were predominant, and prevailed until the Early Boreal, whereas Pritzerbe-type points also first occurred at the beginning of the Boreal. The chronology of Dobbertin-type points is not entirely clear, as in the study dated one example was too short to draw conclusions. The reevaluation of the Hohen Viecheln 1 site stratigraphy and new radiocarbon data from the osseous inventory enable authors to conclude that the main occupation time at the site should be assigned to the Boreal, whereas some artefacts also date from within the Preboreal and the Neolithic.

The radiocarbon dating of the osseous artefacts from the Hohen Viecheln 1 site was obstructed by consolidants used to conserve the organic artefacts soon after excavation. This problem is highlighted in the next paper in the book, 'Radiocarbon dating bone and antler artefacts from Mesolithic Hohen Viecheln (Mecklenburg – western Pomerania, Germany)' by J. Meadows, M. Boudin, D. Groß, D. Jantzen, H. Lübke and M. Wild. In order to obtain as accurate as possible radiocarbon dating results, first the identification of an unknown consolidant type was necessary before the dating session. This was done by FTIR spectrum analysis, which identified two types of consolidant, Type A and Type B. After the removal of contamination, the osseous finds were dated by AMS ^{14}C, which placed most of the artefacts within the Boreal. EA-IRMS results show that all bone/antler samples dated belong to the herbivore species, and given AMS results are reliable. However, the previously dated pond turtle remains (Sommer et al. 2007) must be viewed with caution, as their age is most likely affected by the freshwater reservoir effect.

Due to the abundance of bone and antler artefacts and their production debris, it was possible to make an in-depth study of the manufacture technique of hunter-gatherers' osseous implements at Hohen Viecheln. This is presented in the next article, by E. David, 'The osseous technology of Hohen Viecheln: a Maglemosian idiosyncrasy?'. Previous studies by the author have determined two major osseous tool manufacturing technologies in northern Europe: the D method, characteristic of the Maglemosian tradition in northwest Europe, and the Z method, specific within Mesolithic assemblages of northeast Europe (David 2003; 2005). The manufacture of osseous tools, in particular bone points, at Hohen Viecheln relies heavily on the D method; however, inverse nicking for blank thinning indicates different elements in the *chaîne opératoire*; therefore, the author distinguishes the H method characteristic within the assemblages of osseous implements at Hohen Viecheln. The similarities and differences in bone point making techniques shed a light on important questions of transferring particular production techniques within the wider region, as Maglemose culture elements (the D method) were identified at the site. The H method, on the other hand, could be the result of local adoption, or as the outcome of cultural contacts.

The technology of red deer antler headdresses in hunter-gatherer communities is emphasised in the paper by M. Wild, 'An evaluation of the antler headdresses evidence from Hohen Viecheln'. The author reevaluates the technology of the eponymous antler headdresses, well known from the eponymous Star Carr Early Mesolithic site (Little et al. 2016), at the Hohen Viecheln site, which presumably contained five such types of artefacts. Most of the artefacts lack definitive modification traces, and only one artefact (HV1) shows secure traces that could be related to the antler headdress. However, artefact HV5 only partially shows traces related to the antler headdress, as its present preservation condition does not allow author to make a further assessment.

The elements of Maglemose culture at Hohen Viecheln are further exploited in the next article, by E. Brinch Petersen, 'Nordic visits to Hohen Viecheln, Mecklenburg'. The paper studies decorated bone mattock heads from Hohen Viecheln, and incorporates them in the wider area of Maglemose culture. The mattocks are made from ungulates radius, and have different decorative elements, characteristic of Maglemose culture finds. The front of the first object is decorated with seven barbed lines, and its back has four double lines of drilled holes. The second example has incisions of 14 horizontal bands made of vertical fringes, spaced evenly. The decoration technique and pattern are similar to Maglemose culture, as its elements are

found not only on osseous finds but also on amber ornaments. The author indicates similar decoration examples on bone mattocks from Denmark, northern Germany and Poland. They are all included in the transregional Maglemose culture context, and show that societies at Hohen Viecheln should be included in the regional group with its own social network.

Mesolithic bone tools found in northeast Germany are emphasised by B. Gramsch in the next chapter, 'The Mesolithic bone industries of Northeast Germany and their geo-archaeological background'. The author indicates that this area contains 71 find spots, with more than 600 bone tools. The region also includes well-known Mesolithic wetland sites, Friesack 4 and 27. The sites have been excavated by the author, and are well known for their remarkable preservation conditions for Early Mesolithic osseous implements (Gramsch 1992). Gramsch highlights the importance of bone as the raw material for producing tools in the Mesolithic, and also the special conditions for their preservation. Also, the author notes that the majority of bone implements in northeast Germany come as stray finds, mostly found while draining wetlands. As the author points out, studies of such finds are very important for understanding technological and chronological aspects of osseous implements.

Another article that emphasises the importance of Stone Age bone stray finds is 'Early Mesolithic bone points from Schleswig-Holstein', by S. Hartz, H. Lübke and D. Groß. The article analyses 49 bone points from 27 sites, including bone point morphology-based typology and direct radiocarbon dating. Northeast Schleswig-Holstein is characterised by a morainic landscape with loamy and sandy soils, and numerous lakes and streams. As the authors indicate, the waterways and water basins were straightened or dredged in the 20th century; therefore, numerous Stone Age organic finds were obtained by archaeologists or local collectors. Most of them have not yet been analysed in any way; therefore, in this paper, the authors gathered material from local museums and private collections, and mapped the sites with bone point find places. Based on their morphological features, the tools were classified into three groups: large-barbed points, notched bone points, and fine-barbed points. Based on their technology and morphology, most of them belong to Duvensee-type points, whereas some of them have features of Kunda-type bone points. This again marks the technological similarities of bone points between Maglemose and Kunda cultures that existed in the Early Mesolithic. However, more analysis must be made in the future, as Kunda-type bone points in the eastern Baltic still lack detailed technological and chronological studies. Twelve bone points from the Schleswig-Holstein area were dated in this paper which fall into the Early Mesolithic. Their calibrated age was compared with similar dated tools found in Early Mesolithic sites in Denmark and Sweden. Moreover, the paper gives insights into the function of bone points. Based on archaeological records and ethnoarchaeology, it is most likely that the bone tools were fishing and hunting implements; however, it is still unclear how their functions differ between different point types.

The next paper, by L. Larsson, A. Sjöström and B. Nilsson, 'Lost at the bottom of the lake. Early and Middle Mesolithic leister points found in the bog Rönneholms Mosse, southern Sweden', presents bone points found in the peat bogs that constituted the western part of the former Lake Ringsjön. The authors share their experience of their collaboration with peat cutting companies in the Rönneholm bog, where numerous Stone Age finds, including bone points, have been discovered during peat cutting since 1993. Since then, archaeologists have started to survey the bog annually, and have found hundreds of stray finds and small sites. Fifty-two stray bone leisters have been collected from Rönneholm bog, found during the last 15 years of surveys. The authors classified points into five groups, based on their morphological features, mainly on the size and position of the barbs. A few specimens from each group have been directly dated, and show that particular types of points in the vicinities of Rönneholm bog were used during the Early and Middle Mesolithic. This paper again shows the importance of stray finds studies, which could provide a considerable amount of information on prehistoric societies.

The Strandvägen settlement, close to the River Motala Ström, has recently been investigated, and the osseous material obtained is published in the next article, by S. Gummesson and F. Molin, 'Points of bone and antler from the Late Mesolithic settlement in Motala, eastern central Sweden'. During the settlement's investigation, numerous bone tools and manufacturing waste were obtained. The production technique of bone tools was published in a recent doctoral thesis (Gummesson 2018), whereas the present paper focuses on the types and chronology of osseous implements. The authors distinguish five groups of bone artefacts: leister points, harpoon heads, plain bone points, arrowheads and spearheads, and slotted bone points. Each group is described with its morphological features, whereas direct radiocarbon analysis shows that most of the osseous tools fall between 6000–5000 cal BC, i.e. the Late Mesolithic. With the help of radiocarbon analysis, the authors have also tried to distinguish the use of different bone point types in smaller chronological gaps. It is interesting to note that most osseous tools at the Strandvägen settlement were produced from red deer (*Cervus elaphus*), elk (*Alces alces*), and roe deer (*Capreolus capreolus*) bones and antlers.

The next two papers focus on the subsistence strategies of Mesolithic societies in northern Germany and southern

Scandinavia. The first is 'Early Mesolithic hunting strategies for red deer, roe deer and wild boar at Friesack 4, a three-stage Preboreal and Boreal site in northern Germany', by U. Schmölcke. The Friesack 4 Early Mesolithic site contained 826 mammal remains from the Mid-Preboreal, 1,200 from the Late Preboreal, and 3,082 from Early Boreal layers. An analysis of the animal remains from all layers indicates that roe deer were the main hunted animal, whereas red deer and wild boar were the next hunted species. The seasonal pattern indicates that these animals were hunted mainly between May and October. The animal remains demonstrate that the hunted prey was probably slaughtered somewhere else, as the Friesack 4 site was only the place of consumption.

The other paper, 'The Early Mesolithic fisheries of southern Scandinavia' by H. Robson and K. Ritchie, gives an overview of the fish species and fishing techniques used by Early Mesolithic communities in southern Scandinavia. The paper includes 29 Early to Middle Mesolithic sites in southern Scandinavia, northern Poland and Estonia, which include assemblages of fish remains. The main fish species caught by prehistoric people consisted mainly of pike (*Esox Lucius*), *Cyprinidae*, perch (*Perca fluviatilis*) and catfish (*Siluris glanis*), whereas remains of other species are less numerous. The authors also overview fishing techniques, according to the available archaeological data, which includes spearing, bows and arrows, floats, nets, and dugout canoes.

The Early Mesolithic osseous industry in the eastern Baltic is characterised by only a couple of excavated sites. The paper 'The Early Mesolithic bone and antler industry in Latvia, eastern Baltic' by I. Zagorska gives an overview of one such site, Zvejnieki II, situated close to the eponymous Stone Age Zvejnieki burial ground in northern Latvia (Zagorskis 1987). Its lower layer contained an abundant assemblage of bone and antler tools and manufacturing waste. According to the radiocarbon data, the lower layer belongs to the Preboreal, and osseous production techniques should be associated with the Z method, which characterises northeast osseous tool manufacturing methods. The author also notes that the osseous collection at the site gives a good insight into the Early Mesolithic hunter-gatherer subsistence economy, which mostly constituted of herbivores, carnivores, and freshwater fauna. Overall, the Zvejnieki II site is one of the best examples of Early Mesolithic occupation sites with excellent organic preservation conditions, which is ascribed to Pulli and Kunda culture technology.

The next set of papers comes from Russia. The first is 'Early Mesolithic barbed bone points in the Volga-Oka interfluve' by M.G. Zhilin. Mesolithic sites in the Volga-Oka interfluve are considered to be sites that contain remarkable conditions for organic preservation, especially the Ivanovskoye 7 and Stanovoye 4 sites, with abundant collections of osseous implements (Zhilin 2015). The paper studies seven sites: Ozerki 16 and 17, Nushpoli 11, Ivanovskoye 7, Stanovoye 4, and Sakhtysh 9 and 14. The author gives an analysis of the various types of bone points from these sites, including arrowheads, javelins and leister points, and thrusting spearheads. Their technological analysis and use are supplemented by microscopic analysis. Many of the osseous tools lack direct dating; however, the settlement layers date them to between the very beginning of the Preboreal and the beginning of the Boreal.

The next paper is 'Bone and antler projectile points from the Meso-Neolithic site Zamostje 2, Moscow region, Russia' by O. Lozovskaya and V. Lozovski. The Zamostje 2 site is close to the River Dubna. It is a wetland settlement with excellent organic preservation conditions. Over several years of excavations, 574 osseous projectile points were gathered. The author distinguishes different groups of points: spearheads/leister points, barbed points, harpoons, composite tools, and arrowheads. All the groups are reviewed according to their types and technological aspects. As the dating of the different layers of the sites indicates, different types of projectile points were used at different times. The settlement dating covers between the Late Mesolithic to the Middle Neolithic, i.e. the 7th to the 5th/4th millennium cal BC.

The third paper in this group is 'Early Mesolithic bone projectile points of the Urals' by S. Savchenko. As the author notes, the area in question lacks characteristic lithic projectile points; however, bone was used as one of the main materials for manufacturing hunting implements. The paper considers materials from the Syun II site, Shigir peat bog finds, the Beregovaya I and II sites, the Lobvinskaya cave, and the Shaitanskaya cave. Needle-shaped arrowheads with slots and harpoons were used as the main hunting weapons in the Early Mesolithic; however, their shapes also persisted during the later Mesolithic periods, and even the Early Neolithic. The author also gives a technological comparison between the materials from the Urals and the eastern Baltic, which are very similar in shape.

The last papers in the book focus on materials from northwest Europe. The paper 'Hunting beneath the waves. Bone and antler points from North Sea Doggerland off the Dutch coast', by L. Amkreutz and M. Spithoven, studies osseous material from the submerged sites of the former land known as Doggerland. Sediment extraction on the Dutch coast and its monitoring enabled researchers to collect almost 1,000 bone and antler points. A previous study by Verhart (1988) made the first analysis of such artefacts; however, since more and more tools were collected, the present study included much more material. The paper sorts projectile points into different groups, based on their

morphological attributes. Some of them still have the residue of hafting, i.e. tar or binding remains, which allows us to consider their hafting technique and use. Most of the finds still lack direct dating, and their chronology is based on analogies with other regions. However, some of the finds have radiocarbon dates, and they point to the Early and Late Mesolithic.

In the paper 'Excavations at Star Carr: past and present', by B. Taylor, N. Milner and C. Conneller, the authors present new excavations at the eponymous Early Mesolithic Star Carr site, which took place between 2004 and 2015. The site is situated on the shore of the former Lake Flixton in North Yorkshire. The first detailed excavations at the site were conducted between 1949 and 1951 by Clark (1954). The site contained Early Mesolithic material, and showed extremely good preservation conditions for organic material. Therefore, new excavations took place from 2004 to 2015, which had the goal of understanding Early Mesolithic societies and their interaction in the Early Holocene landscape. A considerable number of samples and archaeological material have been collected, which enabled the publication of a detailed two-volume study about Mesolithic societies and their life at Star Carr (Milner et al. 2018a; 2018b).

The Star Carr Early Mesolithic site is further examined in the next paper by B. Elliot, B. Taylor, B. Knight, N. Milner, H.K. Robson, D. Pomstra, A. Little and C. Conneller, 'Understanding the bone and antler assemblages from Star Carr'. During the new excavations from 2004 to 2015, more osseous implements and manufacturing debris were obtained in the dry and wet areas of the settlement. The preservation conditions for organic material are much better in the wet part of the site, where a stack of faunal assemblages was found. Over 2,400 fragments of animal bones and antlers were found, which included the first fish species. The terrestrial mammals were mostly red deer, followed by roe deer, elk, aurochs, beaver and wild boar. The bones of these animals were also used for producing various implements. A special emphasis is put on the antler frontlets that Clark first discovered during his excavations (Clark 1954). Modified red deer crania were discovered during the new excavations, which enabled the assumption that they could be fragments of antler frontlets. There are currently 24 possible antler frontlets at the site. Use-wear and experimental studies have helped to identify frontlet manufacturing traces, and provide some insights into their use that could be related to the rituals.

It should be noted that this publication analyses mainly Mesolithic bone and antler products from several aspects. In particular, their typology is presented, which is based on the morphological features of the artefacts. This approach is very suitable, because each type of bone product, such as barbed points, was formed by enhancing hafting parts and barbs. The length, direction and density of the barbs should be one of the main features in forming typological groups for such artefacts. Some papers also analyse the function of osseous finds. The archaeological data may so far reveal little about this aspect of the tools, but the microwear and experimental studies presented in some of the publications should be a further area for functional research on bone and antler implements. These studies could show that most finds could have been adapted to multiple functions. This is also evident by use-wear studies of bone harpoon fragments found at the Šventoji 3 site, which show that some of them were further processed into domestic tools (Osipowicz et al. 2019).

Some material has been published from excavated sites, and the general dating of layers has enabled the dating of osseous implements. However, some papers deal with the abundance of stray finds that have not been properly recognised by researchers. These papers confirm that studies of such finds can contribute greatly to the typo-chronological aspect of osseous implements. Therefore, their typology can be firmly put into exact chronological frames, and a comparison of their technology can be much more precise in a wider geographical context. This research should be continued, as many Mesolithic organic finds in northern Europe come from single contexts.

Overall, the book *Working at the Sharp End: From Bone and Antler to Early Mesolithic Life in Northern Europe* is an excellent contribution not only to the research of Mesolithic wetland sites, but also to the technology of osseous implements. All the papers are supplemented by a number of informative tables and high-quality illustrations. Also, the great advantage of this book is that all its contributions are available through open access on the Wachholtz publishers website.

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