

calibrations differs from 1σ to 2σ depending on the context without explaining why a specific range was used. Regrettably, several spelling mistakes have been overseen during the proofreading process which become recognizable at a certain point and leave the impression that there was less than adequate attention paid to publish a proper version of the book. This is particularly sad because the material and overall format of the volume follow a stringent and generally good idea.

From my point of view it would have been nice if the editor did give palaeo-environmental investigations more space. Bog-sites like Całowanie usually have great potential for extensive analyses of this kind which are underrepresented in this book. The presentation of the lithic assemblage is thorough and completely satisfactory. All in all the volume presents the multi-level site Całowanie (especially in terms of the lithic inventories) in an adequate way. Nevertheless, a great deal of potential was squandered regarding modern palaeo-environmental studies for this location and including it into a holistic presentation of the prehistory of Pękatka Hill. This might be because the excavation was some decades ago and the chosen approach was more artefact-related, but it nevertheless leaves a rather antiquated impression. Apart from that, it has to be stressed that the book is and will be of high relevance to any chrono-typological study in the Late Palaeolithic and early Mesolithic of the Northern European Lowlands and adjacent areas.

Literature cited

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Mit Einbaum und Paddel zum Fischfang. Holzartefakte von endmesolithischen und frühneolithischen Küstensiedlungen an der südwestlichen Ostseeküste.

Stefanie Klooß, *Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum, Band 6*. Wachholtz Verlag – Murmann Publishers, Kiel/Hamburg, 2015, ISBN 978 3 529 01858 9

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Going fishing with a dugout boat (canoe?) and paddle in the late Mesolithic and Early Neolithic – such is the

author's concept for this book on the use of wooden objects at coastal settlements along the south-western Baltic coastline. The research area is the German Baltic coastline, with a concentration of sites along Wismar Bay and the island of Rügen. Due to tectonic movement, the coastal area has been subject to sinking, by as much as 4 m. The time-span covers a number of excavated sites, both above and below the present waterline, dated to the interval 6'000 - 4'000 calBC, which corresponds to the Ertebølle Culture. As the sites are located at or near the former seashore, fish was of major importance in the diet. Since a number of the finds dating from the transition to the Neolithic or from the Early Neolithic are included in the research, it would have been useful for the reader to obtain some knowledge of these periods as well.

In the second part of the publication, thirteen sites altogether are presented, with finds of various categories of wooden objects. Klooß provides basic information about the position of the finds within the trenches and stratigraphy, the number of finds, measurements etc., and this information is supported by high-quality illustrations, mainly in the form of drawings. Leister prongs constitute one of the most numerous forms of tool remains. The state of preservation, wood species, presence or absence of a notch as well as use wear are documented. Fragments of spears also form a sizeable group. However, the total number is difficult to estimate due to their fragmentary condition. Paddles have also been found but in a small number, as have fragments of bows and arrows. The points of arrowheads are rarely preserved. However, the type with a club-shaped tip used for hunting fur animals is rather common. As on almost all Mesolithic sites of Northern Europe, the number of bow finds generally exceeds that of arrows.

Various types of shafts for inserting flint as well as stone axes are present, and fragments of shafts have been found in antler axes. Due to the location of the trenches and the position of the sites at the shoreline, some sites also produced parts of wicker fish traps. Worked and unworked pieces of wood are documented. However, there may be differences in the numbers of the former that were recovered due to the number of finds and the excavation conditions. The species, thickness and number of tree rings are given for pointed sticks. The documentation also includes the number of cut marks. Less numerous are fragments of dugout boats, but even the tiniest parts are of interest, as they may show traces of how the boat was hollowed. There are a number of rarer finds, such as a spoon.

The information from the different sites is of interest. However, it is the third part of the publication, with an evaluation of the find material from all sites, that is of special importance. Starting with dugout boats, a basic issue that is dealt with concerns the problem of identifying boat fragments. Here one might interject that no other large wooden objects

that could be made by hollowing, such as containers or drums, have so far been identified. An experiment with a small dugout boat by the reviewer demonstrated that it could serve rather well as a large drum.

Within the research area a total of 44 finds have been identified as dugout boats. Two of these finds are intact; they measure from 8 to 9 metres and date from the early Ertebølle Culture (4800/4700 BC). They show traces of hearths within the vessel. The third, with a length of 12 m, dates from the Early Neolithic (about 3850 BC), and in contrast to the other finds, made of lime, this one has been shaped from the trunk of a maple. Finds with traces of fire that have partly destroyed the boat as well as parts with more or less regular perforations are evident. The latter might be traces of repairs.

The earliest dugout boats, made of pine, date from about 7000 BC, represented by finds from France as well as northern Germany. However, the major finds date from the middle and late Ertebølle Culture, and the Early Neolithic. The longest might have been 12 - 14 m in length and with a hull 1 - 4 cm in thickness. The boats have a truncated end, where a separate plank has been fixed in place in a groove and with binding.

All dugout boats dating from the Mesolithic have been found on coastal sites, while the Neolithic finds originate from bogs in inland Denmark. The shape is the same, but the board is of double thickness and generally made of alder. The manufacture as well as use and repair of dugout boats are discussed.

Paddles are easier to recognize, even in a fragmentary state. Altogether, 31 finds from five sites have been identified, all in fragmentary state. All are made of ash. Despite the low thickness of 0.6 - 2.1 cm, one side is slightly curved and the other straight. The classification includes fifteen types, but these can be reduced to two groups – paddles in the form of a long leaf and paddles with a broad spade-shaped end having a marked shoulder at the transition to the shaft. The long leaf-shaped group is known from the Early Mesolithic, while both are used in the late Mesolithic. The fracture patterns indicate that a number of paddles broke from heavy use. Simple engravings, only, are visible on one of the finds, not complex ornaments, as on some of the Danish finds. There is also a short discussion on the use of different paddle types in the open sea and coastal waters.

The number of finds, 369 from eight sites, proves the frequent use of leister prongs for fishing. As the leisters have a rather uniform shape, even small fragments can be identified. The marked difference in the number of finds per site leads to the question of whether the number of leisters reflects the quality of excavation or the importance of eel fishing. The latter explanation seems to be the most plausible. The sites with the largest numbers of eel bones also have the highest percentage of leisters. The variation in the

matrix of the find-bearing layers, namely peat or sand, might also improve or reduce the possibility of finding intact leister prongs.

There is marked variation in the pointed parts of the leisters, with clustering of short (5 - 9.5 cm) and long (25 - 30 cm) examples. Two different types are identified – one with a straight shaft and the other with a slightly curved shaft. The former is the most common in the research area. Altogether, 40 finds have been identified as semi-manufactured pieces. The majority of finds are made from hazel, just like the finds of the finished products.

A previous statement that leister prongs with a short tip were used in waters with a hard bottom and the long ones in water with a softer bottom is tested and supported by the documentation regarding the character of the bottom in the waters close to the sites. In addition, traces of use are much more obvious on the short-tipped leister prongs, which might hit a hard bottom more often than those with a long tip. Unfortunately, finds of the binding are rare on these sites. However, Danish and Lithuanian finds show that a pair of prongs, in some cases with a bone point in between, were fastened to the end of a long shaft.

Finds of permanent fish traps are encountered on a number of Mesolithic coastal sites. Most common are pieces of wicker traps made from stems of common dogwood or guelder-rose, bound together with roots of alder, or less commonly with roots of pine. The wood used for the wicker is in the form of split stems.

Finds of pointed stems of hazel with an average diameter of 3 cm have been interpreted as parts of fish weirs. Most have been washed onto the shoreline. However, on two sites, stepping-stones and more regularly placed stems indicate parts of standing fish weirs stretching outwards from the beach. Depending on the thickness, the points were shaped by using a flint blade or an axe. Either the stem was broken and then partly pointed, or the stem was cut right the way across. The fish weir finds from northern Germany are all small fragments. Larger parts have been found in Denmark, but these have been dated to the Neolithic. Major constructions of up to 40 m in length are made of thicker stems and also of a wider variety of tree species.

Organic material for binding is preserved. The best-known example is a flint blade fastened to a short transverse handle, covered by a complicated binding consisting of a thread made of bast, forming a tool in the shape of an inverted "T". Another find consists of two stems tightly bound together, forming parts of an unknown object that might have been a bag net. Several fragments of nets from one of the sites have not yet been analysed. That nets were used on other sites is proved by finds of net floats.

On the various sites, 117 fragments of spears have been recognized altogether. They have an oval cross-section with a width of about 2 cm and, with a few exceptions, are made of ash. They have been shaped

from much thicker trunks. The function is not understood. Their use as shafts for leisters is rejected, as no remains of binding have been found. But where, then, are the large number of shafts, almost two hundred, that were needed for all the leister prongs?

A couple of finds have been interpreted as possible boomerangs. This tool has been identified at a small number of Danish sites. Compared to the Mesolithic finds from south Scandinavia, the number of bow fragments is small: just four pieces of bows have been recovered, all of the Holmegaard type, which means a long bow with a D-shaped cross-section and a marked handle in the middle, a type used throughout the Stone Age. With a few exceptions, stems of elm have been used for manufacturing them. Arrow fragments have been found on just one site: this is accounted for by the difficulty of identifying fragments. One of these is a point with fragments of a flint arrowhead preserved.

Concerning what has been left in the refuse and what is missing, perhaps we should give more attention to the application of the items than has been done hitherto. Of course, there are taphonomical processes that can explain the presence/absence of certain groups of objects. But is this the whole story? On most sites the number of bow finds is larger than that of arrows, although the number of arrows should have been much larger than that of bows. Might the representativity be distorted by special rules on how different objects were handled after they went out of use? Some may have been thrown away while others were burned or treated otherwise.

There are a number of finds indicating different modes of shafting axes. Sleeves with a socket for the axe combined with a perforation for a shaft are present as well as short, almost L-shaped shafts. Of the unworked wood from all the sites, hazel is the dominant species, with oak as the second, along with a number of species present in smaller, almost equal percentages. It is remarkable that oak, widely utilised in the Neolithic, is seldom used for making tools, despite its high representation among unworked wood. Among this kind of wood, 39 % shows traces of fire, but variation between sites is apparent. Some analysis of the charcoal would have been of interest, in order to compare this with the unworked finds and to obtain a wider knowledge about the environment than is presented by the unworked wood. Another type of analysis that might have provided valuable information is determination of when during the growing season stems and branches were cut. This could have given an insight into the use of the sites, hopefully providing a basis for discussion of seasonal or permanent settlement.

The publication also includes a chapter about the choice of wood for the different objects, already indicated earlier, and a chapter about the distinguishing characteristics, growing conditions, use and qualities when worked for all the wood species found in the research area.

The detailed presentation of the finds and find circumstances make the publication most useful for those who seek to obtain a deep insight into Mesolithic woodworking.