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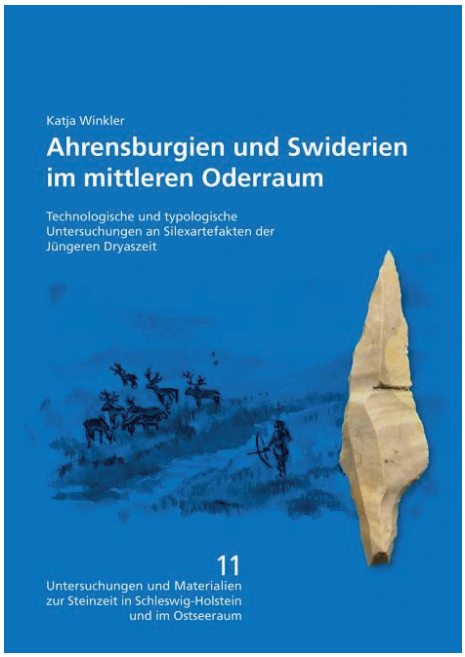

Figure 1. The cover of *Ahrensburgien und Swiderien im mittleren Oderraum. Technologische und typologische Untersuchungen an Silexartefakten der Jüngeren Dryaszeit* by Katja Winkler (source: https://www.wachholtz-verlag.de).

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MONOGRAPH REVIEW:

KATJA WINKLER, *Ahrensburgien und Swiderien im mittleren Oderraum. Technologische und typologische Untersuchungen an Silexartefakten der Jüngeren Dryaszeit***.** Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum, Band 11. Kiel-Hamburg: Wachholtz, 2019. – 496 pp.

The Late Palaeolithic in northern Europe is identified only in its last stage, when the last Scandinavian glacier freed the region. This event enabled the first people in northwest Europe associated with the technology of late Magdalenian culture groups (Weber 2012) to settle here. The gradual warming of the climate made it possible for prehistoric societies to rapidly explore and inhabit areas liberated from the glacier, with a result in the technological changes of hunting inventories, through which prehistoric researchers are best acquainted with cultural units. The mobility and cultural interactions of communities are also best known from the technological aspects of hunting and work tools. The combination of absolute dating and technological complex frequently allows us to talk about relationships in societies that manifest themselves precisely through technological changes, and similarities in lithic, bone and antler products. Unfortunately, however, the technological connections between the Late Palaeolithic communities of northern Europe are sometimes difficult to examine, due to the scarcity of data, especially the lack of homogenous complexes and radiocarbon data. Therefore, at present, only data systematisation and technological studies of siliceous and osseous artefacts would enable us to make an in-depth study of Late Glacial societies and

their interaction. This goal and systematic research on Late Glacial tanged point complexes were explored in the recent monograph by Katja Winkler *Ahrensburgien und Swiderien im mittleren Oderraum. Technologische und typologische Untersuchungen an Silexartefakten der Jüngeren Dryaszeit* (Winkler 2019), which is published in volume 11 of the series 'Untersuchungen und Materialien zur Steinzeit in Schleswig-Holstein und im Ostseeraum' from the Centre for Baltic and Scandinavian Archaeology.

The book comprises seven main research and summary chapters, whereas chapter 8 is devoted to abbreviations and a list of references. The end of the book contains separately a catalogue of the main types of lithic and osseous finds from Ahrensburgian and Swiderian sites, and maps with key sites.

The first chapters of the book give an overview of the history of the research into Late Glacial Ahrensburgian and Swiderian sites, known as tanged point technocomplexes, in the middle reaches of the River Oder. This includes the eastern part of Germany and the western part of Poland. The vast amount of material gathered from sites has enabled the author to note that the majority of Ahrensburgian sites are concentrated in eastern and northeast parts of Germany; however, typical Ahrensburgian tanged points can also be found further to the east, i.e. the region of the Vistula and Nemunas river basins. The question of the further spread of Ahrensburgian tanged point technology in an easterly direction was also considered in previous works (Zaliznyak 1999; Šatavičius 2016); however, more systematic studies on lithic materials and its complexes are needed in order to make appropriate comparisons. On the other hand, typical Swiderian tanged point finds are more common in the Vistula and Nemunas basins, whereas their occurrence in the Oder basin is less common. Katja Winkler also includes sites that contain both types of tanged points, specific to Ahrensburgian and Swiderian techno-complexes. This initially points to a possible technological relation between the two cultures, which is further exploited in the following chapters of the book. As the author notes, similarities in the material culture between Ahrensburgian and Swiderian have been observed much earlier, at the beginning of the 20th century, as some Swiderian sites were known in northern Germany as well. However, an in-depth technological comparison of the two taxonomic units has not been made. As more materials emerge, it is now possible to make an in-depth technological comparison of Ahrensburgian and Swiderian cultures.

The first part of the book is also devoted to an overview of environmental conditions, including the flora and fauna, and also to the subsistence strategies of the Ahrensburgian and Swiderian techno-complexes. The dating shows that the two tanged point complexes belong mainly to the Younger Dryas and the Early Preboreal oscillations. This is evident from the Late Glacial sites in Germany and Poland that contain datable materials from find layers. It has enabled the author to examine the environmental conditions that two tanged point techno-complexes experienced. Younger Dryas marks the period of a colder environment, whereas in the Early Preboreal, the conditions became much more favourable, and most likely this had an impact on the hunter-gatherer's technological shifts in the hunting kit. The Late Glacial period is often considered as the time when societies relied entirely on the hunting and migration of reindeer (*Rangifer tarandus*) (e.g. Price et al. 2008); however, as Katja Winkler indicates in the materials gathered, in German sites, bones of other ungulates, such as elk (*Alces alces*), roe deer (*Capreolus capreolus*) and red deer (*Cervus elaphus*) also occur. Also, species of fish and fowl are evident from bone assemblages. This supports the assumption that Younger Dryas societies in northwest Europe relied not only on reindeer but also on other, even much smaller, animal species. But this still has to be proven considering the Late Glacial sites in northeast Europe where only reindeer and several elk remains are known from the Late Palaeolithic.

The methods Katja Winkler used in her monograph deal mostly with the research of lithic artefacts. This firstly includes *chaîne opératoire* that studies lithic artefacts in different production sequences, including the selection of the raw materials. This method is further supported by lithic refitting, allowing the reconstruction of the knapping sequences. The lithic material is further studied by describing its technological and typological features. Statistical methods are used to characterise the sizes of Ahrensburgian and Swiderian tanged points and blades. This gave an opportunity to separate the technologies between the two different tanged point complexes, and see the similarities between them. The methods used in the monograph especially require homogenous lithic materials that could show the technological differences and similarities. Katja Winkler selected material from sites that also contain homogenous lithic *kshemenitsas*; therefore, the research gives good results on lithic studies.

The results of the research are given in chapters 4 to 7, where, according to the methods used, the author gives the results of a technological comparison between the two tanged point technocomplexes. The results indicate that the formation of cores and knapping techniques were very similar between Ahrensburgian and Swiderian cultures. Swiderian cores are very well known for prismatic opposite platform shapes, which have one flaking surface exploited from two opposed platforms. However, as the author notes, one-platform cores also occur in Swiderian

inventories. The author also indicates that opposite platform cores are also common in Ahrensburgian inventories, which is evident at some sites in Brandenburg. However, the Ahrensburgian core reduction method used one-platform cores more frequently than Swiderian technology. Both taxonomic units used direct soft hammer percussion techniques as well as the direct hard percussion technique to remove the cortex from the flint nodule and prepare the knapping surfaces. The blades produced were long and regular, and so tanged points were made from them. Differences between Ahrensburgian and Swiderian hunting gear technology can be observed on the tanged points. Ahrensburgian are made with a clearly marked tang, and also in a willow leaf shape, but always without a ventral retouch. On the contrary, Swiderian contain mainly two types of points. The first type has a clearly marked tang with a flat ventral retouch, and the second type has willow leaf-shaped points, also with a flat ventral retouch. The clear differences in arrowhead-making techniques enable us to distinguish two different taxons; however, some sites also contain Hintersee-type points, where the projectiles have both technological features characteristic of Ahrensburgian and Swiderian. This could indicate technological contacts between the two technocomplexes, and a new type of projectile tool was produced as a result.

The author also gives insights into the similarities between other lithic tools, like scrapers and burins. However, it is interesting to note that Katja Winkler makes a comparison of the microburin and microlithic techniques between the two cultures. Zonhoven points and microburin techniques are well known in Ahrensburgian inventories; however, according to the author, some of the finds from Swiderian sites also indicate the production of such tools. This is very interesting, as most Swiderian sites in northeast Europe, with a few exceptions (e.g. Berg-Hansen et al. 2019), contain no microlithic points or microburin technique. However, almost all the sites here are mixed, and a clear distinction in the material culture cannot be made. Therefore, this could mean that we still lack data on Swiderian lithic inventories and the hunting techniques they used.

The author also considers the osseous tools industry, which, according to the dating of them, could be assigned to Ahrensburgian and Swiderian technocomplexes. Late Palaeolithic osseous finds are extremely rare in the excavated sites, and most of them are found as stray finds. One of the most common bone and antler tool types in the Younger Dryas was the uniserial harpoons and reindeer antler axes. Their direct and contextual dating suggests that some of them could be ascribed to Ahrensburgian and Swiderian cultures, as their dating falls between the Younger Dryas and the Early Preboreal. For example, such harpoons and antler axes are very common in eastern and northeastern parts of Germany (Cziesla 2018), whereas in the Vistula, Nemunas and Daugava basins, most of the same tool types fall in the period of Swiderian culture (Meadows et al. 2014; Zagorska et al. 2019). The harpoons and antler axes are technologically very similar between the two regions, and, as the lithic finds show, the Ahrensburgian and Swiderian osseous industry could also reflect technological relations. However, a more direct comparison is needed before firm conclusions can be made.

This short review focuses on lithic and osseous industry aspects of the research that Katja Winkler covered in her monograph. Her research, firstly by the vast amount of material gathered, has made it possible to conclude that around the middle of the River Oder, both taxonomic units, Ahrensburgian and Swiderian, existed, and no clear technological differences in the preparation and exploitation of cores can be observed. However, the only marker that might show differences is the tanged points that were made using different tang preparation techniques. The high-quality research carried out by Katja Winkler should inspire similar studies on tanged point cultures in northeast Europe, which are still poorly studied from the point of view of the wider technological context.

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