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Mesolithic dwelling structures: from methodological approaches to archaeological interpretation

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1. Introduction

The study of Mesolithic settlements is a key aspect to understanding the articulation of social and economic organizations of the last hunter-gatherers. Analyzing the spatial organization of settlements increases indeed our knowledge of activity areas, subsistence strategies, seasonality of occupations and social organization. At another “reading” level, spatial organization is a direct reflection of a “Weltanschauung”. It necessarily reproduces the links between humans and non-humans, both in the material world and elsewhere. Describing a Mesolithic habitat means gaining access to a form of world organization: obviously, the process is anything but simple!

If this structuralist perspective remains *in fine* in our mind, our intention in this volume is rather to return to the very constitution of our archaeological knowledge. The use of different dwelling structures (e.g., post holes, stakes, pits, walls, floors, and hearths) and the links that can be established between them give us the opportunity to understand moments of life, as well as economic or social choices. The interpretation of their functions often leads to important concepts (mobility system, storage, social hierarchy) and historical scenarios, whether or not they are integrated into evolutionary perspectives. The passage from these archaeological facts to their interpretation is obviously a crucial phase of archaeological work, and therefore closer monitoring of these questions is needed. Research on dwelling structures can be approached from a wide range of theoretical and methodological points of view, which in turn can provide heterogeneous perspectives of archaeological interpretation that lead to the enrichment of discussion and debates. Over the last ten years, the methods of analysis available to archaeologists have undergone major upheavals. It was thus important to draw up a balance sheet. In this sense this special issue aims not only to assemble contributions on dwelling structures from archaeological sites, but also to highlight multidisciplinary research on structures from various methodological perspectives.

Most of the papers published in this special issue were presented in the session TH1-23, *Mesolithic dwelling structures: from methodological approaches to archaeological interpretation* at the 22nd Annual Meeting of the European Association of Archaeologists that took place in Vilnius (Lithuania) in August/September 2016. The session brought together a wide variety of scholars to discuss the significance of dwelling structures during the Mesolithic in Europe. It provided a stimulating forum for discussion of new theoretical and methodological approaches to understanding human uses of space and their social

organization. In addition, some invited papers have been added, increasing the geographical and theoretical-methodological spectra of the special issue.

2. Mesolithic dwelling structures: the evidence

The paper by Osipowicz (2018) focuses on the functionality and internal organisation of the western habitation area at the Mesolithic site of Ludovice 6, located in Central Poland. During the excavation, three huts were identified, including several features and flint scattering zones. The author combined different kinds of analysis in order to determine the activities carried out at the site. The study presented here involved techno- typological, raw material and use-wear analyses of the lithic artefacts, an archaeozoological and taphonomic analysis of the bones, as well as spatial distribution analyses of specific artefacts and ecofacts. The results showed that the site was used as a seasonal camp, occupied in summer-autumn, mainly for plant processing, although other activities, such as woodworking, and hide- and meat-working have been also identified. The presence of projectiles suggests that hunting activities were also carried out at the site. Based on the traditional interpretation of division of labour in hunter-gatherer societies, the author proposes the hypothesis that the camp was mainly used by women for plant processing, while men would be dedicated to hunting.

The contribution of Molin et al. (2018) provide significant information on subsistence strategies and spatial distribution of indoor and outdoor activities of dwellings 4 and 6, at the Late Mesolithic site of Strandvägen, located in Motala, east- central Sweden. The study combines the analysis of features, such as post-holes, hearths, various pits and occasional floor-layers documented during the archaeological excavations, with the analysis of lithics, bone tools, charcoal, plant remains, terrestrial mammals, birds and fish. The results showed the existence of an internal organization of the dwellings, which were used as winter residences and probably utilized by multiple family units. Fish constituted the main basis of the diet, complemented by meat from mammals and birds, as well as hazelnuts, root tubers and rhizomes. Other evidence at the site suggests the existence of a well-developed strategy concerning preparation and storage of food at the site.

Gonçalves et al. (2018) present an example of detection of a single depositional event over a small area (c. 1 m²) of an archaeological site. During extensive excavation works at the Mesolithic shell midden of Cabeço da Amoreira (Muge, Portugal), the authors identified a concentration of faunal remains with a single taxon (red deer), lithics, charcoal and fire-cracked rocks in one of the shell-rich layers. The study involved the analysis of bone and lithic materials (including refitting data) from the feature, and GIS-based spatial analysis, using Kernel Density Estimation and Ripley's K function. The analysis of faunal and lithic remains showed a strong pattern of uniformity and aggregation, and the results are interpreted as evidence of a short occupation episode not affected by major post-depositional processes. Based on the results, two possible major interpretations for this feature are proposed by the authors: (1) economic, the concentration corresponds to a refuse disposal of a short episode of carcass processing and extraction of bone marrow; and (2) social, the accumulation corresponds to a purposeful burial of the red deer bone and lithic set.

The paper by Domingo et al. (2018) summarizes the current evidence on Mesolithic dwelling structures in the Middle Ebro River Basin (North Spain). In contrast to most of the papers

included in this special issue, which focus in one site, here the authors review the features documented from sixteen sites located in rockshelters, and one single open air site. They analyze the decision making process regarding the location and characteristics of the settlements, the documented features (mainly hearths, but also some postholes and one stone wall-like structure) and describe the archaeological context associated to that features. From these data, the authors discuss the significance of the features, the duration of the occupations, the management of the space, and the limitations of the archaeological record in the area (in terms of archaeological visibility and preservation of the sites).

The manuscript by García-Piquer et al. (2018) shows how the implementation of different conceptual and methodological tools, based on ethnoarchaeological experimentation, can be useful for the study of Mesolithic hunter-gatherer groups in Europe. Thus, from the data obtained in the excavation of the Yamana site of Tunel VII (Tierra del Fuego, Argentina), the authors used geostatistical techniques and performed intra-site spatial analysis on faunal remains in order to compare ethnographic information with archaeological data on the spatial organization and social relations of these Fuegian hunter-gatherer groups. This innovative manuscript provides discussion about the methodology of excavation and the archaeological analysis, as well as the levels of resolution regarding the social relations generated by the human groups in the archaeological contexts.

Marchand et al. (2018) present the results of the excavation carried out in recent years in the Mesolithic shell midden of Beg-er-Vil (Quiberon, Morbihan, France). This is an outstanding site for the study of Mesolithic dwellings, as there is evidence of a perfectly preserved walls of a hut, unique on the French Atlantic coast, and a great diversity of hearths. The different analyzes carried out on the site (e.g. micromorphology, chemical analysis, GIS, or SLIPs) have allowed the authors to reconstruct a large range of domestic activities carried out by the inhabitants of the site during the Mesolithic (ca. 8200 cal BP). The article highlights the serious marine and anthropic erosion to which the site has been exposed during the Holocene and the means that archaeologists can use to ensure better reconstruction thereof.

The contribution of Grøn (2018) analyzes the repetitive patterns of spatial organization of hunter-gatherer groups from the analysis of specific examples from the South Scandinavian Mesolithic. In this way, this manuscript proposes an interdisciplinary collaboration to involve different areas of knowledge, such as social anthropology, social psychology and statistics, in order to obtain a broad approach to behavioral patterns related to the spatial organization in a small scale. Finally, Grøn discusses about some of the structural problems generated during the development of interdisciplinary research in archaeology.

The paper by Catarina Sousa et al. (2018) discusses around the functionality of the Cova da Baleia site (Mafra, Portugal). This large archaeological site, with more than 500 m² and 128 structures, presents the best-preserved group of Mesolithic combustion clay structures of prehistoric Western Europe, structures whose functionality is still debated today. The archaeological evidence from Cova da Baleia is analyzed through an interdisciplinary approach based fundamentally on archaeobotanical analysis and use-wear analysis of lithic tools. This combination has demonstrated the importance of getting and processing wood for Mesolithic populations. Gibaja et al. (2018) discuss in their article the functionality of El Collado site

(Oliva, Valencia, Spain), an open air site initially interpreted in the decade of the 1980s as a Mesolithic cemetery. The new investigations, mainly focused in the technological and use-wear analysis of lithic tools and the construction of a Bayesian model using the available radiocarbon dates, show a greater complexity in terms of use of the space. The results show the existence of several phases of human occupation at the site, with a longer duration than initially thought, and with an alternated utilization of the space oriented to the funerary and the habitational use.

The contribution of Niekus et al. (2018) presents a reinterpretation of the very famous site of Bergumermeer S-64B (the Netherlands), initially excavated during the 1970s and considered a key site for understanding the late Mesolithic in the Netherlands. The analysis of the retouched-tool assemblage and the spatial distribution of the finds from some structures showed the serious problems generated by post-depositional alterations on this site. In addition, the authors propose a totally new reinterpretation of the site as a palimpsest occupied for several thousand years, in contrast to the traditional interpretation of the site.

The paper by Nærøy (2018) presents new data on the spatial analysis of the lithic debris of three Norwegian Early Mesolithic sites: 43 Hidlaren and Pauler 1 located on the coast, and the site 6B Fløyrlø located in the mountains. The results of the spatial analysis show very similar distribution patterns, based on the presence of similar areas of activity in the three cases. For Nærøy, the characteristics and location of these areas of activity suggest that each social unit included a single individual with responsibility for activities related to the production and maintenance of lithic tools. This implies, contrary to what is generally interpreted for these sites, that the spatial distribution is related to a social strategy to create order and security in a period marked by dramatic climatic changes, and by extension instability in the access to the resources for the survival of these Mesolithic hunter-gatherer's groups.

The contribution of Soares and Tavares da Silva (2018) is developed through the data obtained in the excavation and analysis of the Vale Marim I site, located on the seashore of Sines (Portugal). This archaeological site includes a large excavated area of 260 m² where several fireplaces have been documented. The spatial analysis carried out at the site shows how different economic activities have been developed around these fireplaces, especially manufacturing lithic artefacts, cooking and probably fish smoking. The evidence is interpreted as a polynucleated spatial organization, with an individual internal organization constituted from open air areas of activity around the fireplaces, and domestic structures with low density of artefacts. Finally, Soares and Tavares interpret the linkage and overlapping between huts, graves, and workshop areas as an evidence of the social evolution of these groups of hunter-gatherers to semi-sedentary settlement and a new social organization supported by storage.

Warren et al. (2018) present the research developed on a small oval Mesolithic structure located in Caochanan Ruadha, a site situated more than 500 m above the sea level in the Cairngorm Mountains (Scotland). Four radiocarbon dates set the occupation of the site around 8200 cal BP. The authors combine technological and use-wear analysis on the lithic assemblage with spatial analysis. The results show a very specialized use of lithic tools, related to the development of some specific activities (mainly processing of vegetables, and repair and maintenance of lithic elements) inside the structure. Although many questions remain

unanswered about the use of the space at the site, given the location and the reduced size of the site, the results of this research provide significant evidence regarding hunter-gatherer occupations in this area of Europe.

3. Concluding remarks

The contributions of this special issue provide significant information about the Mesolithic dwellings of hunter-gatherer groups, covering a wide geographical area of Europe, both on the Atlantic and Mediterranean coasts, from Norway to the south of Portugal. They provide new research on very different contexts in terms of their characteristics (open air, rock shelters, shell middens, caves), size, duration or functionality. In addition, many of these archaeological sites are crucial to understand the Mesolithic settlements in their respective geographic areas. These contributions are also made from different theoretical perspectives, and generally from interdisciplinary research, which promotes the connection between different methodologies (GIS, use-wear analysis, spatial analysis, archaeobotanical, micromorphology, systematic geochemical analyses of soils and sediments, radiocarbon dating and modelling) and even areas of knowledge (archaeology, anthropology, social psychology, statistics, ethnoarchaeology, etc). It can be noted that systematic lithic refitting does not appear in the practices presented here, which clearly distinguishes them from the “classical” spatial analyses carried out for the Upper Palaeolithic sites in Europe. The small dimensions of Mesolithic objects are obviously a problem, but this is not prohibitive to interpretation. It could be an effect of the school of thought or simply to time or money available to archaeologists. The latest methods would certainly deserve more attention, alongside the new technical toolkits now available to archaeologists. Future research agendas for the Mesolithic, and especially the study of Mesolithic dwellings, will be crucial to improve our interpretations on aspects such as the function of the archaeological sites, the intra-site spatial articulation, the cultural identities related to the dwellings, the social hierarchy or the mobility system of the Mesolithic hunter-gatherer groups. To achieve this, three factors will be key during the next decades: collaboration through interdisciplinary research, a constant and critical revision of the old paradigms, and the development of new methodological tools that help us to overcome the interpretative difficulties of the archaeological contexts.

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