



Could occupation duration be related to the diversity of faunal remains in Mesolithic shell middens along the European Atlantic seaboard?



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ABSTRACT

In order to define the Mesolithic populations that came to settle on the European Atlantic seaboard, it is essential to assess the duration and continuity of human occupation. Although our knowledge of the geographical distribution of these populations is largely truncated by archaeological bias, the presence of more than 240 Mesolithic shell middens along the European Atlantic coast enables us to establish an overview of the published data on the dwelling patterns (seasonal, permanent, recurrent or limited in time) of these groups of maritime hunter-gatherers. A review of the literature shows that information on human occupations is lacking for many known Mesolithic shell middens. Moreover, the data leading to the identification of settlement patterns prove to be very heterogeneous from one site to another. Marine molluscs play a special role among the artefacts used to define the attraction of human populations for the coast, and help us to understand settlement. Although molluscs represent a major component of Mesolithic shell middens, it has taken several decades for the analysis of these faunal remains to be considered from the outset in excavations. One of the questions addressed here is whether the diversity of faunal remains in these shell middens can be related to the duration of human occupations on the coast. This question is based on the idea that people staying in the same settlement for several seasons can explore the surrounding area in greater detail. In this paper we observe that the diversity of faunal remains, including seashells, is not only dependent on the way of life of coastal people and settlement duration. It also affects other factors, such as the accessibility of more or less diversified environments and their resources in the vicinity of settlements and the degree of adaptability of humans exploiting similar resources.

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1. Introduction

One of most fundamental criteria defining Mesolithic populations is the way of life of hunter-gatherers. In archaeology, this has classically given rise to a rather negative image of Mesolithic populations, as well as the hypothesis of seasonal (nomadic) settlement. This hypothesis was challenged from the outset by the notion that early farmers stabilized their settlement mode (sedentary versus permanent dwellings) in order to cultivate part of their food (Zvelebil, 1996). However, a review of the archaeological literature shows little evidence of this stabilization for Mesolithic people for more than one season. Indeed, while there

are some “snapshot” indications of the presence of Mesolithic groups on the coastal belt, such evidence remains almost non-existent for Neolithic populations. However, we could infer that the presence of certain Neolithic populations close to the coast was justified by the presence of certain marine resources that were easier to exploit on a seasonal basis. Such is the case for salt, algae in island environments or certain migratory food resources in estuaries (Barber, 1982). Moreover, ethnographic examples have profoundly modified the image of an egalitarian nomadic community of hunter-gatherers (Testart, 1982). But where is the archaeological evidence for the presumed presence of populations for more than one season?

We wish to address this question by focussing on Mesolithic marine shellfish-consuming populations on the European Atlantic coast.

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First of all, we present a review of the literature, in the aim of summarizing the published data on issues relating to occupation for the whole set of listed Mesolithic coastal sites. The data used are extracted from an unpublished database which lists all the published archaeological components of Mesolithic shell middens. Based on these data, we address several questions. Do the published studies of Mesolithic shell middens take settlement modes into consideration? If so, what criteria are these based on? When (in which season) were sites occupied? Does the diversity of animal taxa reflect the duration of occupation (more than one season, more than one year ...) at a given site? In the same way, could the number of consumed mollusc species be related to a certain degree of stabilization of these coastal populations?

We use the database presented here to address these questions in general terms, and then consider the data from recently excavated archaeological sites. The current trend in archaeology aims at intensively excavating or even re-excavating sites in marine environments, namely Mesolithic shell middens, thus leading to new interpretations of these deposits. The diversity of the exploited resources can also be discussed in greater depth here since the detailed nature of the excavations and the specialization of archaeological disciplines allow us to “detect” archaeological remains that were not brought to light by previous excavations.

2. Materials and methods

We make use of two sources to discuss the settlement mode of Mesolithic populations. The first source is the bibliography listed in the database succinctly presented below. Based on this first approach, we draw up an assessment of our knowledge of the settlement modes of Mesolithic populations along the European Atlantic coast. The second source of information is based on two archaeological sites: Beg-er-Vil (France) and Cabeço da Amoreira (Portugal). These two recently excavated Mesolithic sites enable us to take stock of the archaeological data currently used to discuss the settlement modes of these hunter-gatherer populations.

2.1. Database

In 2004, a database was created in order to summarize information on Neolithization. This database was intended to be expandable and is amended regularly in the light of new publications. More than 400 bibliographic references responded positively, which allowed us to add data to the existing information. Unfortunately, it is impossible to mention all the references used in this paper. Here we will describe in detail the contents of the database. It lists the archaeological components of all the Mesolithic and Neolithic sites along the European Atlantic arc where molluscs were consumed (extending from Norway to the south of Portugal). This database is composed of several elements. The period (Mesolithic or Neolithic) attributed to a given site is that mentioned in the most recent publication concerning the site. The evidence supporting these attributions proves to be very varied: absence of domestic animals or cereals, lithic industry, malacofaunal composition and radiocarbon dating. We deliberately used the latest published data for the attribution of the period as criteria change regularly and vary from country to country. The raw dates (shell, wood, animal or human bone ... with detailed species when they are specified) used for radiocarbon dates are also mentioned along with references to facilitate recalibration if necessary. The dimensions of shell middens are also listed, along with the proportion excavated, as well as the excavation techniques (with or without sieving), specifying the mesh-size used for sieving when published information is available. The published data relating to the mode of occupation or residence (seasonal, permanent,

recurrent or limited in time; based on the size of the site, on its stratigraphy, on the quantity of food waste, on the diversity of lithic tools, on the presence of cemeteries, on sclerochronological analyses on shells or otoliths ...), subsistence modes (hunting, fishing, gathering, breeding, farming) and specific characteristics of the site are also reported, while taking care to note the archaeological data on which researchers' interpretations are based. In addition, all the artefacts making up these accumulations are listed: plants (seeds, charcoal, phytoliths, etc.), animals (terrestrial and marine mammals, avifauna, amphibians, reptiles, fish, marine and terrestrial molluscs, crustaceans, sea urchins), as well as lithic and ceramic materials. For the fauna and flora, the species present as well as their relative abundance are noted when this information is available. As regards the lithic industry, the types of tools and their relative abundance are recorded. For ceramics, the types of decoration and quantities of items are also noted. In this way, 400 shell deposits are described including 248 attributed to the Mesolithic (Fig. 1), 75 to the Mesolithic and Neolithic combined and 77 to the Neolithic. When several phases of occupation can be identified with some being assigned to the Mesolithic and others to the Neolithic, each chronological entity is noted as a distinct site. The sites listed as belonging to both the Mesolithic and the Neolithic correspond to sites where the archaeological composition of the various phases of occupation are not differentiated. The database is cross-examined as part of this study to determine the proportion of Mesolithic shelly deposits where published information on residence is available, and, if so, on what criteria. Many of these shell middens were excavated in the past, others are only known from prospecting. Through the example of two recently excavated sites, we aim to reconsider the criteria used to determine whether it is possible to assess occupation continuity at certain sites.

2.2. Shell middens of Beg-er-Vil and Cabeço da Amoreira

Two shell middens were selected in a second approach to address the occupation mode of maritime populations of hunter-gatherers during the Mesolithic. This choice is based on several common denominators: both sites are currently being re-excavated using similar techniques. Both are dated to the late Mesolithic where the question of a possible continuity of occupation has become even more crucial.

Beg-er-Vil was discovered in the 1970s by G. Bernier (Bernier, 1970; cited in Kayser, 1987). This discovery is related to the erosion of the rocky coast on which the site is located (Marchand et al., *in press*). The site was then excavated between 1985 and 1988 by O. Kayser over an area of about 20 m² (Kayser and Bernier, 1988; Kayser, 1992). Following a rapid resumption of erosion, new excavations have been in progress since 2012 under the scientific supervision of G. Marchand and C. Dupont (Marchand and Dupont, 2014). It would appear that 100 m² of this shell accumulation have now been observed (Kayser, 1990). However, it remains very difficult to evaluate the original area covered by the deposit due to the intense erosion of the coastline in this region, as well as the dissolution of part of the initial shell material and the presence of the dune masking the site, which ranges in thickness from 0.30 to 1.60 m (Marchand and Dupont, 2014). The chronological attribution of the site is corroborated by radiocarbon dating results. “Eight new dates have been obtained from short-lived samples (burnt fruit, roe deer bone and twigs or brushwood) which have enabled us to place the formation of this archaeological layer of human origin at the beginning of the 7th millennium” (Marchand and Dupont, 2014). This site is associated with the Mesolithic on account of several factors: the absence of domesticated mammals, the absence of cereals, the dating results and the presence of a lithic industry compatible with the Mesolithic of the Brittany region.

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