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The social use of space in a shell midden: Testing ethnoarchaeological data from Tierra del Fuego (Argentina) with intra-site spatial analyses

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ABSTRACT

This paper presents a part of an ethnoarchaeological research whose main objective is the development of methodological and conceptual instruments to advance the study of prehistoric hunter-gatherer societies. We have proposed ethnoarchaeological experimentation in order to contrast the relationship between spatial organization and social relationships for evaluate the resolution level of intra-site analysis combining the use of social categories (deriving from the socioeconomic analysis of an ethnographic documented Hunter-Gatherer society) with the systematic record recovered in a site of the same society, both from a quantitative and qualitative approach.

The processes of formation of the Túnel VII site have been differentiated from the interpretation of refitting analysis and spatial distribution maps and the detailed analysis of zooarchaeological data. However, the results presented in this paper have to be contrasted with an integrated analysis of lithic and bone technology remains in order to analyse the overall distribution of by-products from production and consumption activities. Moreover, results concerning the structure of spatial data point to the need to test spatial interpolation methods designed to overcome the geostatistical restriction on the homogeneity of the surface.

1. Introduction

The archaeological visibility of shell middens and favourable conditions for preservation of bioarchaeological remains have led to a long and rich history of research reaching back to the 19th century (see Andersen, 2000; Dupont et al., 2007; Pickard and Bonsall, 2014).

However, the stratigraphic analysis could be difficult by the heterogeneous nature and the successive depositional and postdepositional processes of these deposits, mainly made of shells and other remains of human activity. The traditional methods and techniques of excavation, as well as the character of undifferentiated coarse-grained palimpsest commonly attributed to shell mounds, have prevented a good comprehension of the real extent and complexity of the midden, reduced the advantages of their potentially high-resolution record.

Great advances have been made through shell midden research in recent decades. The development of a range of new recovering methods and analytic techniques has been accompanied by a growing work on comparing shell midden sites over large geographical areas (from arctic regions to the tropics: Álvarez et al., 2011; Balbo et al., 2011; Milner et al., 2007; Roksandic et al., 2014) and among different chronologies and coastal communities worldwide (Bailey et al., 2013; Rick and Erlandson, 2008). All of this has resulted in a richer understanding of the large variability of this particular type of archaeological site both from the taphonomic and typological/functional perspectives.

Indeed, shell middens do not have a single function. Though generally interpreted as deposits of food remains and garbage, sometimes in association with activity/habitation areas, they have been also interpreted as burial monuments or as referential places for ritual and ceremonial activities (e.g. the huge Brazilian *Sambaquis*: Andrade Lima and López Mazz, 1999; Fish et al., 2000; Gaspar et al., 2007; Gaspar and De Blasis, 1992; Klokler, 2008; Villagran, 2012). In fact, both functions are not exclusive. According to ethnographic literature, “domestic” and “ritual” activities could be alternately performed at a same site (Salius-Gumà, 2013). Actually, separation between “ritual” and “domestic” life is in other societies not as separated as in our modern society (Mansur et al., 2007). Ideology and social norms are completely embedded in social and economic every day practices (Vila et al., 2004).

Variability also concerns the size and shape of the shell deposits, and the duration of the site's occupation. Large shell middens are characteristic of Hunter-Gatherer societies with a low mobility frequency: the NW coast of North America (Ames, 1991, 2005; Arnold, 1992; Lightfood, 1993) or the aforementioned Brazilian *Sambaquis*. However, a series of short successive occupations over a long span of time can also produce this type of archaeological site, as seems to be the

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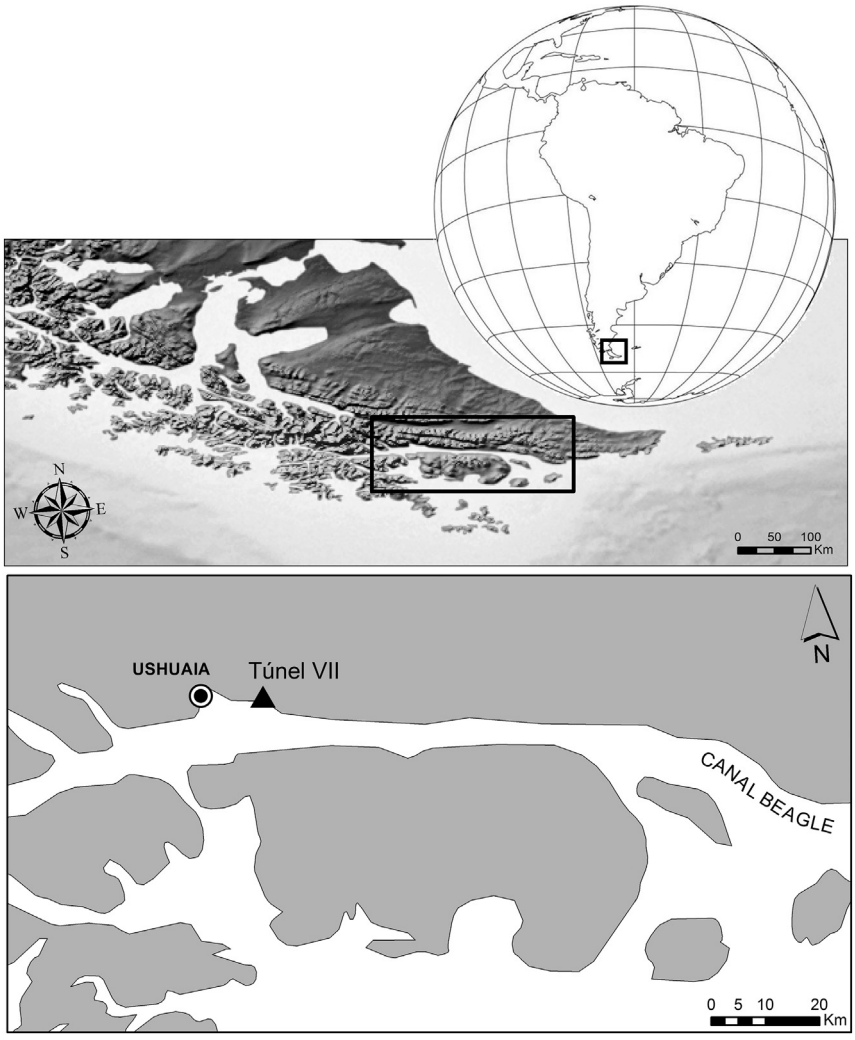

Fig. 1. Map with the location of the site of Túnel VII on the Beagle Channel, 10 km from Ushuaia (Tierra del Fuego, Argentina).

case with Australia (Catterall and Poiner, 1987; Faulkner, 2014; McNiven, 1992) or Tierra del Fuego shell middens (Orquera et al., 2011). Shell middens may be the result of different social and economic strategies. Therefore, the scale and resolution of each particular type of shell midden have to be taken into consideration in order to achieve a comprehensive understanding of the aforementioned complex site-formation process (e.g. Cascalheira and Gonçalves, 2012; Colonese et al., 2011a; Duarte et al., 2017; Estévez et al., 2013; Gassiot and Clemente, 2015; Marchand et al., 2017; Villagran, 2014).

This issue is relevant to the European Mesolithic period and the Mesolithic-Neolithic transition research. Unlike Mediterranean shell middens (Colonese et al., 2011b), the appearance of large accumulations of molluscs across Atlantic Europe during the Mesolithic seems to support a great reliance on littoral resources and the existence of economic intensification (see for a detailed synthesis Gutiérrez-Zugasti et al., 2011). In the case of the Ertebølle culture of Denmark, the availability of coastal resources has been used to propose high population densities, a reduction in mobility and the development of complex hunter-gatherer societies (Rowley-Conwy, 1983; Rowley-Conwy, 1998). A considerable number of Mesolithic Atlantic European shell middens have been described as long-term, or even annually, large residential sites based on the size and thickness of their record, on average samples, or on the seasonality of faunal remains (Milner et al., 2007; Orquera and Piana, 1992). Portugal's Muge shell middens were illustrative examples in this regard (Roche, 1989) though this perspective has been revisited (Bicho et al., 2010).

Previous studies have shown the potential of intra-site analysis of preserved spatial features, the distribution of lithic debitage and the refitting of lithics, bones or burnt stones for making proposals about the Mesolithic social organization, especially in northern Europe (Blankholm, 1987, 2008; Casati and Sørensen, 2011; Cascalheira and Gonçalves, 2012; Grøn, 1989, 2003, 2011; Loeffler, 2003; Martinez-Moreno and Mora Torcal, 2011; Price and Brinch Petersen, 1987). Other studies have presented the importance of ethnoarchaeological and ethnographic data as a mechanism to generate hypothesis and methodological instruments (Grøn, 2017; Grøn and Kuznetsov, 2003; Vila, 2011; Vila and Estévez, 2000). Despite this progressive quantitative and qualitative increase of spatial analysis in Mesolithic sites, there is still much to explore on the ability of intra-site analysis to archaeological reconstruct social relationships in a site.

This study presents a part of an ethnoarchaeological research whose main objective is the development of methodological and conceptual instruments to advance in the study of prehistoric hunter-gatherer societies. Our approach to Ethnoarchaeology (Estévez and Vila, 1995; Piana et al., 1992; Vila, 2011) differs from other ethnoarchaeological research (such as proposed originally by Kramer, Binford or Gould: cf. Whitelaw, 1983). Considering the assumptions that: 1) archaeological remains are mainly – structured – remains of social activity; 2) human activity is organized following patterns and social norms; and 3) the internal organization of a social unit translates into the management of the inhabited space (Dragicevic et al., 2012; Estévez et al., 1984), therefore archaeological investigation should intend to extract data regarding social relationships (Wünsch, 1992). This correlation of logic postulates has been contrasted in several ethnoarchaeological examples