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A palaeoeconomic perspective on the Early Neolithic lithic assemblages of the N–NE of the Iberian Peninsula

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ABSTRACT

The reconstruction of the economy of an archaeological site is a matter of major importance within prehistoric research. In this paper, this issue is tackled from the perspective of the Traceological, or Use-Wear, analysis, showing how the lithic record can be used to approach a palaeoeconomic approximation. The principles, perspectives and limits of such method are detailed discussed into the text. As a case-study, a sample of Early Neolithic sites of the N–NE of the Iberian Peninsula has been considered, all of them ranging between the mid-Sixth and mid-Fifth millennium cal BC. As result of the analysis, sites with different status have been identified; more stable and larger settlements have been differentiated from temporary and more specialized occupations on the basis of the economic process inferred through the microscopic observation. Several subsistence and craft processes, such as wood and plant crafting tasks or hide working activities, that otherwise would be difficult to detect in the archaeological record have been highlighted. Obtained results provide fresh data on the Neolithic economic organization, integrating zooarchaeological, archaeobotanical and palaeoenvironmental studies.

1. Introduction

Economic change is one of the crucial issues within the context of the Meso-Neolithic transition. It is undeniable that the transformation process between hunter-gatherers and farmers involved much more than a shift in the food-production system, including a remodelling of the landscape, of the social structures, of the settlement and mobility patterns, of the symbolic sphere, and of the overall cultural practices – all of these aspects being highly interrelated; nevertheless, the understanding of the subsistence basis remains a fundamental step for an archaeological reconstruction of past societies and for the identification of Neolithic phenomenon.

Economy refers to the way in which a population organizes, integrates and manages resources (both natural and human) for its reproduction; several and different definitions can be formulated according to the theoretical framework followed and to the pursued aims: i.e. human and cultural ecology, cultural anthropology and archaeology, evolutionary and behavioural archaeologies, historical materialism and structural-Marxism, etc (Bettinger, 1991; Higgs and Jarman, 1975; Whittle, 1996; Lull, 2005). However, from an archaeological and pragmatic viewpoint, this topic has been mainly tackled from the perspective of the exploited resources; especially for the Neolithic period, the reconstruction of the subsistence practices has largely coincided with two disciplines: zooarchaeology and archaeobotany (and related subfields). This because the reconstruction of economic sphere has been largely based on the analysis of the cultivated crops and of the domesticated animals, both considered – and not without reasons – the pillars of the Neolithic subsistence system, being the main sources of food. However, it is evident that the range of exploited resources was broader, including not only the 'mainstream' food-production activities, but a large number of other economic (and thus, social) practices, auxiliary, complementary or even alternative with respect to farming. During the last decades, a major interest toward such practices has been developed, going beyond a more general reconstruction of the types of domesticated species and of the places and time in which they were domesticated, in favour of a more detailed analysis of the different tasks involved in the agro-pastoral production; a variety models of farming and their geographical validity is currently discussed (e.g. Halstead, 1996,

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2006; Vigne and Helmer, 2007; Antolín and Jacomet, 2014; Fano et al., 2015). Carpological, anthracological, phytolith analysis, pollen and non-pollen palynomorphs analysis, isotopic analysis, biometric and genetic analysis were some of the fields of research, among many others, that were integrated in order to improve the scale and the quality of the information. In this sense, one of the main goal of recent researches has been to adopt a territorial perspective, with inter-site and extra-site analysis often including landscape as an active elements of the economic system (Helmer et al., 2005; Bréhard et al., 2010; Smits et al., 2010; Gassiot et al., 2012; López-Sáez et al., 2014; Walsh et al., 2014; Pérez-Díaz et al., 2015 just to cite a few examples); it is, indeed, not possible to generalize a subsistence system basing only on one site, independently from the quality of its record.

Within this setting of studies, which place for lithic studies? The contribution of lithic analysis to the economic reconstruction of Mediterranean Neolithic societies has been generally marginal; lithic technology has been broadly used to define cultural affinities, savoir-faire, technological changes and transfers and mobility patterns or exchange networks (Binder and Perlès, 1990; Marchand, 2005; Allard et al., 2006; Perrin, 2006; Perrin and Binder, 2014; Terradas et al., 2014; Santaniello et al., 2016); nevertheless, it has been less used as a proxy for exploring subsistence and craft organization. Despite that, lithic materials, and particularly flaked stone assemblages, present interesting properties that made them very attractive for palaeoeconomic research:

i. lithics represent one of the most common category of finds in prehistoric deposits;
ii. their ubiquity and averagely good preservation allow for the establishment of comparison between different assemblages and so between different sites;
iii. lithics are broadly used by prehistoric populations to produce 'work tools', thus, they are a strategic resource for subsistence activities organization, an essential part of the overall economy;
iv. since they are tools, they are employed in different production processes; therefore, lithic record provides a wide-ranging reconstruction of the economic organization, not focusing exclusively on one class of resources (e.g. wild/domesticated animals or wild/domesticated plants). Being 'work tools', lithics are integrated within a variety of food-production and craft processes which, in turn, include a wide range of materials, knowledge, technologies and techniques.
v. thanks to the traces of wear preserved their surfaces, it is possible to reconstruct ancient tasks that are often archaeologically invisible and that rarely figure in the reconstruction of the prehistoric way-of-life, from very specific domestic tasks, to basic subsistence activities. Among those, hide and leather working tasks, crop-harvesting and -threshing activities, pottery finishing and repairing, wood and plant crafting, etc.

The methodological and theoretical basis for achieving a palaeoeconomic analysis of lithic assemblages are provided by a discipline called 'Traceology' (Semenov, 1964). For an overview of the discipline and its historic development, one can refer to the recent work of Marreiros et al. (2015).

During the last decades, one of the trending topics of traceological analysis has certainly been « site function»; indeed, during the eighties and the nineties, many scholars employed Traceology to approximate the economic orientation of archaeological sites; however, if one looks for studies that extended their analysis from the function of one single site (or occupation) to a group of sites, thus exploring subsistence practices and economic organization over a certain territory, there are only few examples.

The main limitation to a more 'territorial' approach in Traceology is given by the time-constraints; analysing a lithic collection by means of microscopic observation is extremely time-consuming, especially if palaeoeconomic issues are addressed, being necessary to analyse the entire (or a large sample of the) collection. Some of the scholars that have been addressing similar questions are Odell (1987), Yerkes (1987) and Bamforth (1991) for Northern America hunter-gatherer. Otherwise, in Europe similar issues have been tackled by Ibáñez and González (1996) and by Philibert (1999) for the Paleo-Mesolithic of the Franco-Cantabrian area and, more recently, by Crombé and Beugnier (2013) for the Mesolithic of Belgium and the Netherlands. For Neolithic period, a territorial approach has been tackled by Gassin et al. (2006, 2011) and by Torchy and Gassin (2011) for the Chassey Culture in southern France. Some of these works have succeeded in approaching the 'functional status' of the analysed sites, highlighting the existence of 'complementarities' between settlements or group of settlements. However, most of the comparisons carried out were based on qualitative considerations about the technological and economic organization of the various sites or, at most, simply comparing percentages of the performed activities.

In this paper, we present the result of several years of traceological research in the N–NE of the Iberian Peninsula; all of these analyses have been carried out from a research group specialized in Traceology of the Department of Archaeology and Anthropology of the IMF-CSIC (Barcelona, Spain). Sites from diverse topographical and geographical settings have been included, all of them ranging between the mid of the Sixth and mid of Fifth millennium cal BC. During this period the Iberian Peninsula is characterized by a mayor change in the subsistence system, from hunter-gathering to farming economies. The aim of study is to integrate the available use-wear data into a broader debate about the Neolithization process, exploring how traceological analyses can contribute to the reconstruction of ancient economic system.

2. Materials and methods

2.1. Archaeological contexts

Eleven different archaeological contexts have been chosen for the analysis, all of them located in the N–NE of the Iberian Peninsula; sites are situated in a diverse array of topographical and environmental settings were selected, including both caves, rock-shelter and open-air contexts (Fig. 1). Their chronology ranges from ca. 5600/5500 to 4600/4500 cal BC, a period corresponding to the onset of Neolithic in the area. Sites have been chosen on the basis of the availability and representativeness of the traceological and data; a summary of their main features is resumed in Table 1.

2.2. Methods of the analysis

All the selected sites have been analysed following the standard use-wear protocol; macro-wears have been analysed through stereo microscope (5x–40x), while micro-wears through reflected light microscopy (50x–400x). In all cases, analysed samples were representative of the inter-assemblage variability, both from a geological (i.e. raw materials) and technological (i.e. blank types) point of view.

After the analysis, the tasks inferred through the microscopic observation (Fig. 2) have been transformed into variables of economic significance in order to carry out a multivariate analysis. In this sense, it is important to remark that functional inferences can be made at various scales: hardness of the worked substances (i.e. soft, medium

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