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## Beyond the archaeological contexts: The debate on the records of the Mesolithic and early Neolithic in the upper Ebro Basin

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### ABSTRACT

Discussing the transition from Mesolithic to Neolithic requires a definition for the archaeological record. In the Ebro Basin the typical archaeological sites, rock shelters, have been considered in a simplified way as hunting grounds, but advances in research indicate that they were in fact multi-purpose habitats with varied activities, tight control of resources and a comprehensive exploitation of the area. Our hypothesis is that Mesolithic societies were sedentary with a complex social organisation. For this reasons, we reject the concept of *Mesolithic peoples with pottery* which is applied to records which do not contain the whole Neolithic package. We know that versatility is one of the characteristics that defines these settlements which a) all the steps in the lithic *chaîne opératoire*, b) a wide variety of objects, c) the use for hunting, butchery, fur making, woodworking, bone, plants and so on. In terms of wildlife, the description of an individual animal as domestic is not always easy to extrapolate from anatomical criteria, but an in-depth analysis does not discard this possibility either in the rockshelters. The prehistory of the Ebro Basin seems to indicate that their historical narrative began in the transition towards a production economy: in the balance between the archaeological record and historical logic it makes sense to assess ground-breaking processes of Neolithisation in comparison with participatory models of local communities.

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### 1. Introduction and approach to the problem

The growing body of research on the Prehistory of the Ebro Basin has produced a large archaeological record available to us with which to define the regional Mesolithic and Neolithic. As a result, various researchers have put forward ideas on the process of Neolithisation: its mechanisms, timescales and protagonists. In this context, a debate is brewing about the role that we should give to the actors (a resident population vs. an incoming population) and different types of archaeological sites (rock shelters with Mesolithic pasts occupied in the early Neolithic period vs. outdoor settlements and cave shelters built from scratch). Irrespective of pioneering events, while the first manifestations of the Neolithic can be traced back to c. 5700 cal BC, the change in the population (the end of the rock shelter cycle) happened in c. 5300 when the Neolithic was consolidated. From this perspective, these 400 years of transformation can be considered as the process of Neolithisation. This idea should be extended beyond the regional ambit considered

here, since the dynamic is common to the Iberian areas we have good information about, which invites a number of questions: what is the nature of the rock shelters? Are they Mesolithic contexts with Neolithic elements or are they true expressions of the Neolithic?

The reflection has much to do with understanding the historical process of Neolithisation: in particular, what the balance was between indigenous peoples, the last hunter-gatherers, and the ideas and people who joined them.

#### 1.1. The Ebro Basin and its research

The Ebro Basin is the largest river basin in the Iberian Peninsula, with 86,000 km<sup>2</sup> and an axis of more than 900 km, where its many rivers allow movement in all directions. It is bounded by clearly defined mountain ranges: the Pyrenees to the north and Iberian System to the south. In the former, several passes allow access to the Cantabrian coast and southwest France, while the Cinca/Segre rivers lead up to southeast France and the innermost peninsular territories are either accessed through the Maestrazgo, or upstream by the tributaries of the Ebro, or through the pass at Pancorbo.

Regional prehistorical research has put all its efforts in recent decades into the societies of the end of the Palaeolithic, Mesolithic

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and Neolithic, noting that their archaeological records, with interesting nuances, share qualities, and as a result the area is seen as a cultural entity of great interest. It usually, but not always, follows the cultural guidelines of the European regions. In short, it is a culturally and geographically consistent region, which provides valuable specific information for studies on European prehistory.

The register of the Mesolithic and early Neolithic consists mainly of rock shelters: surveys have helped locate them, with preference over other types of settlements. The shelters are a model of occupation in vogue from the end of the Late Glacial to the early Neolithic: not very large shelters, located near water and at strategic points for exploiting the environments of valley, mountain, meadow, forest and crags around them. They form a network for the comprehensive use of the area. Regarding the problem of the Mesolithic-Neolithic transition, it is common for a rock shelter to contain levels of both periods, although some deposits peter out in the Later Mesolithic just as other settlements start up in the Neolithic. In this dynamic it is logical, and certainly an opportunity, to analyse one period along with the other [Fig. 1](#).

A first look at the records of the rock shelters has led to the suggestion that they were logistical settlements related to hunting activities. Their location, the presence of abundant wildlife and high percentages of projectiles among the retouched flint tools justified this hypothesis. It is understood that in the Neolithic these sites would not have changed their function, whereas there are insufficient remains of pottery and/or agriculture and/or livestock to represent Neolithised societies ([Arias, 1991](#); [Bernabeu, 1996](#); [Fernández Eraso et al., 2015](#); [García Martínez de Lagrán, 2012](#); [Schumacher and Weniger, 1995](#)): underlying this is the idea of a Mesolithic people in decline, marginal ([Alday, 1999](#)), and the idea has not disappeared despite abundant recent findings.

## 1.2. Our proposal

We propose an alternative reading for these places, from the consideration that their nature goes beyond the concept of logistical camps and taking their records as manifestations of Neolithic groups. We argue this based on:

- a) a theoretical approach of the process of Neolithisation
- b) the data provided by the sites at Atxoste and Mendandia.

Regarding the first question, we should clarify the concepts of the Mesolithic and Neolithic ([Amkreutz, 2013](#)). If we understand Neolithisation exclusively in terms of food production, the relationship between wild and domestic animals is the measure of the rate of the process, leaving in the background the material and social matters involved: the development of social norms that regulate the possession, control and use of the animals, as well as the distribution mechanisms and accumulation through the control of reproduction ([Saña, 2005](#)). *Domestication* encompasses a variety of issues, historical and archaeological ([Saña, 2005](#)) among others, and from a biological point of view, the falsity of the wild/domestic dichotomy ([Evin et al., 2014](#)). In the latter we cannot forget the shadows cast by the determination of the wild or domestic status of an individual through biometrics (e.g. for the aurochs [Bartosiewicz et al., 2006](#); [Saña, 2013](#); [Wright and Viner-Daniels, 2015](#); for the caprinae [Zeder and Lapham, 2010](#); for swine [Evin et al., 2014](#)), among other reasons because of the continuous flow between wild and domestic populations, alternative procedures apart from genetics having been tested ([Martins et al., 2015](#)). We must not forget either that an economic system of production is defined at regional level or as a cultural unit, compensating for taphonomic deficiencies and the functional variability of the sites ([Raemaekers, 1999](#)). Moreover, in the same vein, according to which there is a

fine line between the Mesolithic-Neolithic and wild-domestic concepts, let us remember how complex the Neolithising process is, where population replacement, colonisation and adoption are mechanisms that may have acted in unison ([Carvalho, 2010](#); [Diamond and Bellwood, 2003](#); [Gronenborn, 2003](#); [Jeunesse, 2002](#); [Pinhasi et al., 2005](#); [Price et al., 2001a,b](#); [Price, 2000](#); [Zilhao, 2001, 2003](#)). It is not easy to recognise each case, nor assess the intricate relationships established between Mesolithic and Neolithic societies. This is where the archaeological record can be interpreted in different ways.

## 2. Presentation of new data

The sites that will exemplify the problem, Mendandia and Atxoste, fit the model of rock shelters. Both are recent excavations, with refined techniques, the former with a report on the results of the excavations, and the latter in the process of being studied, with partial publications and new data presented here.

Mendandia began its occupation with a slight presence of Earlier Mesolithic (level V), which is followed by a dense Mesolithic settlement with notches and denticulations (IV), another of the Later Mesolithic (lower-III) and three of late Neolithic (upper-III, II and I) ([Alday, 2006](#)). Meanwhile, the first evidence of Atxoste can be traced back to the Magdalenian (level VII), followed by Earlier Mesolithic finds, with notching, denticulated and geometric flints (VIb2 to IIIb2), Neolithic finds (IIIb1, III and II) and recent prehistorical burials.

To assess the significance of their Neolithic registers, we have structured the information into various basic elements that show continuities and changes with respect to their Mesolithic past.

### 2.1. Lithic industry

#### 2.1.1. Supply strategies for raw materials

Flint is the raw material par excellence, being abundant in the region ([Tarrío, 2006](#)), and the same varieties were used in the Neolithic, in a sign of continuity, as in the Mesolithic. In Atxoste the main local varieties are from Urbasa and Treviño (both worked at the site), coastal flint from the Flysch is also found and, occasionally, flint from Loza. In the Neolithic, compared with the Mesolithic, the proportion of each variety of flint changed significantly ( $X^2 = 74.3668$ ,  $df = 3$ ,  $p = 4.952e-16$ ) ([Fig. 2](#)), and the variety from Urbasa dominated over that of Treviño (reversing the previous situation) and the contribution from the Flysch significantly increased (mostly as configured blades).

In Mendandia, the local raw materials are considered to be the flint from Loza and Treviño (less than 15 km away): in the Neolithic, Loza disappears, with a qualitatively significant presence of the 'evaporite' variant (9 retouched elements and a microburin) not used during the Mesolithic ( $X^2 = 14.1319$ ,  $df = 2$ ,  $p = 0.0008537$ ) ([Fig. 2](#)). In the same vein, it is representative that Urbasa flint doubles its presence while flint from the Flysch is merely symbolic.

#### 2.1.2. Production systems

The available information on the production systems is limited. We only have the results from the technological study of the mesolithic level from Atxoste. Consequently, they are not yet evaluable relevant issues such as the use of indirect percussion in the Neolithic - identified in the IIIb2 of Atxoste-, or the change in knapping system as has been observed in other regions ([García-Pucol and Juan Cabanilles, 2012](#)). However, in both rock settlers blade production shows very regular and standardized productions, carried out on prismatic unipolar cores, recognizing also bipolar and multipolar dynamic, probably associated with recycling processes.

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