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Obsidian economy on the Cauria Plateau (South Corsica, Middle Neolithic): New evidence from Renaghju and I Stantari

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ABSTRACT

This paper aims to study and compare the obsidian economies of Renaghju and I Stantari, two neighbouring Neolithic sites located on the Cauria plateau (south-western Corsica). The occupation phase 3 of Renaghju and phase 1 of I Stantari, both attributed to the Middle Neolithic (fifth millennium BC), have provided respectively 112 and 99 obsidian artefacts. With the aim of completing our rather lacunary knowledge of the obsidian consumption behaviours in place in Corsica during this period, the entire assemblages have been geochemically characterised virtually non-destructively using LA-ICP-MS at SOLARIS (Southern Cross University [SCU]). Our analyses revealed that, while the obsidian raw materials were exclusively sourced from the Monte Arci complex in Sardinia (SA, SB2, and SC sub-types only), rather different consumption patterns are observed for the two sites despite their comparable nature (megalithic sites) and geographical proximity (400 m apart). These differences in obsidian consumption on adjacent sites could be explained by their divergent functions (ceremonial site [Renaghju] *vs.* ceremonial locus and large settlement [I Stantari]), or eventually point towards the need for a readjustment of the chronological attribution of the I Stantari phase 1 occupation level.

1. Introduction

Obsidian sourcing has long been a successful tool for the study of past population movements, by retracing cultural contacts and revealing procurement, trade, and exchange patterns (e.g., Cann and Renfrew, 1964; Williams-Thorpe, 1995; Poupeau et al., 2010a). Often treated as an end itself instead of as a 'means to an end', the discipline has deeply evolved in the recent decades to embrace a more integrated and contextualised approach. Lately, the following trends can be observed:

- the development of analytical strategies (Carter et al., 2006; Le Bourdonnec, 2007; Orange et al., 2017), relying on the combination of different techniques (virtually or strictly non-destructive) to achieve the exhaustive characterisation of the assemblages. As already illustrated in various studies (e.g., Lugliè et al., 2009; Orange et al., 2013; Freund, 2014), such an approach allows the extraction of the maximum amount of

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information from the lithic assemblages and is crucial to better understand the economy of the obsidian material at site level and in a larger regional context;

- the integration of the sourcing results with the typo-technological information (e.g., Carter et al., 2006; Eerkens et al., 2008) in order to better apprehend the use of the raw material and discuss in detail the *chaîne opératoire*. This sometimes reveals complex consumption patterns - where 'diffusion' does not always equate to 'interaction' between two groups (Perlès, 2012). Among the areas where those research perspectives are being followed, the Western Mediterranean is undoubtedly one of the most prosperous. By the means of collaborative and multidisciplinary research projects, more than 11, 000 artefacts (all periods combined) have hitherto been sourced in this region (Poupeau et al., 2014). It is also where, through a close collaboration between archaeologists and archaeometrists, the typo-technological aspects have regularly been integrated to the chemical analyses in the study of complete collections (Lugliè et al., 2007, 2008, 2009; Bressy et al., 2010; Poupeau et al., 2010b; Le Bourdonnec et al., 2010, 2011, 2012, 2015; Freund and Tykot, 2011 *inter alia*).

Aiming to follow these trends, the present paper opens the discussion on the obsidian economy of the Middle Neolithic occupation levels of the Renaghju (phase 3) and I Stantari (phase 1) settlements. We focus here on achieving the sourcing of both assemblages, and on comparing the results obtained with the adjacent chronological periods and the surrounding area. In order to associate the typo-technological data with the sourcing information (which is, as mentioned above, a crucial aspect for the reconstruction of raw material economies), a synchronic and diachronic discussion on the sourcing and technological data incorporating the study of several lithic assemblages from the Cauria plateau is currently in preparation, and will complement this first paper.

The strength of the present study lies in the investigation of complete assemblages originating from thoroughly dated and/or contextualised stratigraphic levels, clearly connected to the general cultural evolution of the Neolithic in Corsica and attributed to well-defined cultural groups. It will thus significantly contribute to a better perception and definition of the Middle Neolithic in Corsica, and of the groups that are a part of it.

Situated on the Cauria plateau, one of the most informative areas for the study of the Neolithic period in Corsica (D'Anna et al., 2007a, 2007b; D'Anna, 2011), the Renaghju and I Stantari settlements are chiefly renowned for their stone alignments (Fig. 1), spotted by Prosper Mérimée as early as 1839 (Mérimée, 1840). Both sites present relatively long, substantial, and complex settlement sequences (D'Anna et al., 2001, 2007a, 2007b; D'Anna, 2014), and

Fig. 2. General map of the Mediterranean area displaying the main obsidian sources of the Western Mediterranean (Monte Arci [SA, SB1, SB2, SC], Lipari, Palmarola, Pantelleria) and the Aegean (Melos, Yali, Antiparos).

therefore are rich in information about the social, cultural, and economic patterns in place at the time. Yet only the Cardial Early Neolithic level of Renaghju (phase 1) has so far been thoroughly studied and published (Bressy et al., 2003, 2007; Le Bourdonnec et al., 2015).

The latest publication (Le Bourdonnec et al., 2015), involving a total of 622 obsidian artefacts sourced either by visual characterisation, Particle-induced X-ray emission spectroscopy [PIXE], or Scanning Electron Microscopy with Energy Dispersive Spectroscopy [SEM-EDS], has shown that the majority of the Renaghju (phase 1) assemblage was made using obsidian originating from the Monte Arci area in Sardinia (see Fig. 2), mainly from the SA sub-source (45.3%), followed by the SB2 (35.4%) and SC (19.1%) sub-sources. One artefact was found to match the distant source of Palmarola (eastern Tyrrhenian Sea; Fig. 2), thus indicating rather early (sixth millennium BC) direct or indirect contact(s) between the two islands. This illustrates the multiple links and groups displacements between the islands of the Western Mediterranean, through the complex Neolithisation processes and evolutions. In this paper, the obsidian consumption patterns in place during the Middle Neolithic levels at Renaghju and I Stantari are studied and compared to each other (synchronic perspective), and then put in contrast with the results previously obtained on the Early Neolithic occupation level (phase 1) of Renaghju (diachronic perspective; see Le Bourdonnec et al., 2015 for the complete study of the EN obsidian assemblage of Renaghju).

2. Archaeological background

An important amount of material originated from Renaghju and I Stantari (D'Anna et al., 2006, 2007a, 2007b; D'Anna, 2011, 2014),

Fig. 1. Stone alignments of the Renaghju (left) and I Stantari (right) sites.