



Procurement strategies of Neolithic colouring materials: Territoriality and networks from 6th to 5th millennia BCE in North-Western Mediterranean



Jean-Victor Pradeau^{a,*}, Didier Binder^a, Chrystèle Vérati^b, Jean-Marc Lardeaux^b,
Stéphan Dubernet^c, Yannick Lefrais^c, Martine Regert^a

^a University of Nice Sophia Antipolis, CNRS, UMR CEPAM, Pôle Universitaire Saint Jean d'Angély 3, 24 avenue des Diables Bleus, 06357 Nice Cedex 4, France

^b University of Nice Sophia Antipolis, CNRS, IRD, OCA, UMR GEOAZUR, 250 rue Albert Einstein Sophia Antipolis, 06560 Valbonne, France

^c University of Bordeaux-Montaigne, CNRS, UMR IRAMAT-CRP2A, Maison de l'Archéologie, 33607 Pessac, France

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ABSTRACT

In the N.-W. Mediterranean area, the development of the Neolithic way of life during the 6th millennium cal. BCE is related to the spread of sailing pioneer groups. In the course of the 5th millennium cal. BCE, more stable agro-pastoral settlements expand their hold on the hinterland and exchange networks increase in complexity (obsidian, flints, clastic rocks). Although previous research showed high variability in the N.W. Mediterranean Neolithic diffusion modalities, the place of colouring materials, naturally abundant in this area, has received scant attention despite their technical and symbolic value. With the aim of assessing the place of these materials in the initial Neolithic package and within the development of the neolithisation process, we investigated series of more than 2000 blocks of colouring materials from two key-sites (Pendimoun and Giribaldi) recently excavated by one of us (DB), with dates ranging from 5750 to 3650 cal. BCE. This study was implemented by geological surveys that allowed the establishment of cartography of putative sources of raw colouring materials and the determination of their nature and composition. Combining petrographic examination and physico-chemical characterisation (SEM-EDS, XRD), we determined a wide range of raw materials: psammitic sandstone, allochthonous and parallochthonous bauxite, oolitic ironstone, oxidised marcasite and ferruginous rocks derived from weathered glauconitic limestones. Comparing archaeological series to this frame of reference highlights two contrasting economic systems: one based on exploitation of local sources from the Early to the Middle Neolithic, the other one founded on a dual use of both close geomaterials and exogenous rocks during Middle Neolithic.

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1. Introduction

In North-Western Mediterranean, the emergence and the development of the Neolithic way of life are related to seafaring pioneer groups originating from Near East (Zilhão, 2001; Guilaine and Manen, 2007; Binder, 2013, p. 343; Manen et al., 2014). After successive stages of cultural remodelling during the 6th millennium BCE, the agro-pastoral groups are well-implanted and reach the hinterland; at the end of the 5th millennium BCE, settlement and exchange networks gain increasing complexity, occurring

diversified habitat status and relationships between them. During these two millennia, Neolithic groups had to deal with new environment, new resources and, sometimes, other people.

In this framework, ecofacts, lithic (mainly flint and obsidian) and ceramic assemblages were the remains commonly investigated to gain insight into the dynamics of evolution, the durability or the variability of social and technical practices. Since thirty years, sourcing and procurement studies have been applied to a wide range of archaeological materials in Mediterranean Franco-Italian area: Oligocene and Bedoulian flint (Binder, 1998; Léa, 2004; Vaquer, 2012), obsidian (Binder and Courtin, 1994; Briois, 2000; De Francesco and Crisci, 2007; Vaquer, 2007; Lugliè, 2009; Binder et al., 2012; Léa, 2012), clastic rocks (Ricq-De Bouard, 1996; Servelle and Vaquer, 2000; Ricq-De Bouard, 2008) and ceramic

* Corresponding author.

E-mail address: jvpradeau@gmail.com (J.-V. Pradeau).

materials (Echallier, 1991; Echallier and Courtin, 1994; Basso et al., 2006).

Surprisingly, colouring materials (“ochre”, bauxite, cinnabar, etc.), have received scant attention despite their technical and symbolic value. Very few is thus known on the ways of their procurement, on their geographic and geological origin. Yet North-Western Mediterranean is naturally abundant in landscapes associated to colour: Esterel Ledge, Var bauxite, Vaucluse ochre, Tuscan cinnabar, Sienna earth pigment.

On a broader level, Palaeolithic context concentrates most of the colouring materials studies and methodological advances. Research was previously focused on parietal paintings (Cabrera-Garrido, 1978; Ballet et al., 1979; Menu and Walter, 1992; Pomiès et al., 1999; Chalmin et al., 2004; Vignaud et al., 2006; Beck et al., 2011) and symbolism of colour (D’errico et al., 2003; Henshilwood et al., 2009; Henshilwood and Dubreuil, 2011). Since one decade, technological studies are applied to exhaustive series (Soressi and D’errico, 2007; Salomon, 2009; Henshilwood et al., 2009; Dayet et al., 2013, 2015, 2014; Pradeau et al., 2014; Salomon et al., 2015). This approach has been scarcely applied to Neolithic context, where colouring materials are still mainly considered for their role in paintings on rocks (Hameau et al., 1995, 2001; Walter et al., 1997; Hernanz et al., 2006, 2008; Roldán et al., 2010; Nuevo et al., 2011; Mas et al., 2013) and on pottery (Mioč et al., 2004; Bugoi et al., 2008; Colombo and Boschian, 2009; Sargiano et al., 2010; Gajić-Kvašček et al., 2012; Buzgar et al., 2013; Giustetto et al., 2013) or through the specific question of cinnabar (García-Borja et al., 2004; Hunt-Ortiz et al., 2011; Gajić-Kvašček et al., 2012; Domingo et al., 2012). The unique systemic study that we referenced focused on processing and utilization modalities through colouring powders and residues on a wide range of supports: lithic handstone, bone awl, ceramic shards (Domingo et al., 2012); yet the description of raw material assemblage seems restrained to one piece.

The main approach used for archaeological colouring materials sourcing is trace elemental analysis, on colouring pieces or residues (Erlanson et al., 1999; Green et al., 2007; Popelka-Filcoff et al., 2007, 2008; Bernatchez, 2008; Iriarte et al., 2009; D’errico et al., 2010; Beck et al., 2011; Eiselt et al., 2011; Macdonald et al., 2011, 2012), with great results on wide homogenous contexts (Creagh et al., 2007; Popelka-Filcoff et al., 2008; Nel et al., 2010; Eiselt et al., 2011). Nevertheless, this methodology necessarily relies on a small number of pieces due to the cost and the time required for the analyses. It is furthermore difficult to carry out on natural heterogeneous rocks. This explains that trace elements determination is generally not applied on significant archaeological series which prevents the systematic study of large series of materials. Despite their various nature, colouring materials are rarely considered and named as rocks, yet petrography combined to chemical analysis were successful in several works (Weinstein-Evron and Ilani, 1994; Hovers et al., 2003; Salomon, 2009; Attard Montalto et al., 2012; Beck et al., 2012; Dayet, 2012; Dayet et al., 2013; Mathis et al., 2014; Salomon et al., 2014; Dayet et al., 2015).

Following these introductory comments, the aim of this work is, considering geographic, geological and cultural characteristics of North-Western Mediterranean Neolithic context, (i) to determine the regional background of colouring geomaterial sources and (ii) to understand the exploitation of raw materials and the evolution of procurement strategies of colouring materials assemblages.

2. Presentation of archaeological context

In Italy and Provence (South-Eastern France), the Neolithic pioneer groups belong to Impressed Ware culture. They settle in Adriatic area around 6000 cal. BCE and along the Tyrrhenian and

French coasts between 5800 and 5600 cal. BCE (Binder, 2013). During the second half of the 6th millennium cal. BCE, the Neolithisation of Western Mediterranean is completed under the spread of the Western Cardial complex (Binder et al., 2008, 2014). Cardial traditions stay strong in Western Provence until 4700 cal. BCE (Epicardial and Post-Cardial), whereas after 5200 cal. BCE they evolve towards Square Mouthed Pottery (SMP) culture in Northern Italy and in Eastern Provence (Binder and Lepère, 2014). In Central and Eastern Provence, the Prechassey horizon, defined thanks to Salernes – Fontbrégoua site (Binder, 1991; Luzi and Courtin, 2001), occurs between 4700 and 4350 cal. BCE and coexists with SMP influences in a few sites (Binder and Lepère, 2014, pp. 23–24). According to Nice – Giribaldi documentation (see below title 2.2), the southern Chassey rises in the second half of 5th millennium upon both Prechassey and SMP influences; Chassey culture (4300–3400 cal. BCE) is characterised by the variability of settlement status and functions and an increasing of the trade networks complexity (Binder et al., 2008; Binder and Lepère, 2014).

These cultural dynamics in North-Western Mediterranean Early and Middle Neolithic have been highlighted thanks to the recent excavation or reviewing of a set of reference sites like Finale – Arene Candide, Salernes – Fontbrégoua, Castellar – Pendimoun and Nice Giribaldi (Figs. 1 and 2). The two latter were chosen in our study for they provide a significant assemblage of colouring materials and permit to cover a wide period (two millennia) and multiple functional contexts.

2.1. Castellar – Pendimoun

Pendimoun is a rock-shelter located in Orméa massif (Menton, France) near Italian border. It is 4 km from sea shore and 690 m above sea level. Rather recent excavations (1985’s to 2006’s; Binder et al., 1993; Binder et al., 2008; Binder and Sénépart, 2010) provide a well-preserved stratigraphy of the sixth millennium occupations and several *in-situ* structures (shallow pits, earths, burials). Impressed groups connected to central and southern Italy occupy Pendimoun around 5750–5500 cal. BCE; they practice cereal, ox and sheep farming, shellfish harvesting and pottery production. The subsequent occupation (Early Cardial: 5500–5350 cal. BCE) shows funerary activities through four burials (Binder et al., 1993; Zémour, 2013). The Late Cardial deposits (5350–5200 cal. BCE) consist of short occupations for pastoral (sheep, goat) and hunting activities as well as pottery production (Binder and Lepère, 2014, p.

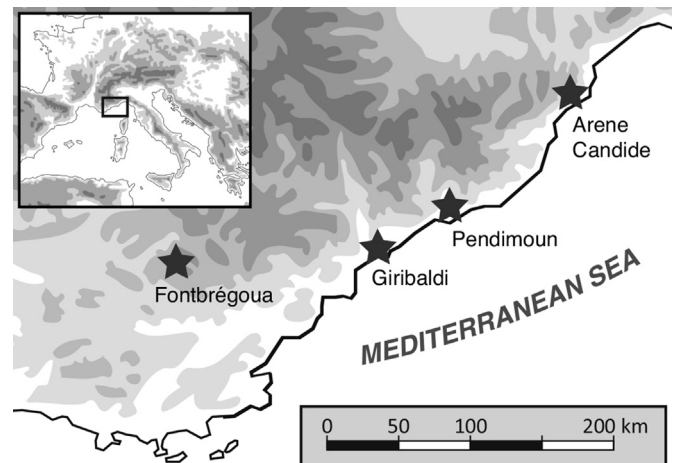


Fig. 1. Geographic context and key Neolithic sites referred in the text (background map: Geoatlas).

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