

# Use-wear analysis of early Neolithic industry of Peiro Signado: a pioneer implantation in south France

Sylvie Philibert, François Briois, Claire Manen, Bernard Gassin, Juan Francisco Gibaja

### ► To cite this version:

Sylvie Philibert, François Briois, Claire Manen, Bernard Gassin, Juan Francisco Gibaja. Use-wear analysis of early Neolithic industry of Peiro Signado: a pioneer implantation in south France. Use-wear 2012. Proceedings of the International Conference on use-wear analysis, Oct 2012, Faro, Portugal. pp.642-651. hal-01976954

## HAL Id: hal-01976954 https://univ-tlse2.hal.science/hal-01976954

Submitted on 10 Jan2019

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers. L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# CHAPTER FIFTY SIX

# USE-WEAR ANALYSIS OF EARLY NEOLITHIC LITHIC INDUSTRY OF PEIRO SIGNADO: A PIONEER IMPLANTATION IN SOUTH OF FRANCE

# SYLVIE PHILIBERT,<sup>1</sup>FRANÇOIS BRIOIS<sup>2</sup> AND CLAIRE MANEN<sup>1</sup> WITH BERNARD GASSIN<sup>1</sup> AND JUAN FRANCISCO GIBAJA BAO<sup>3</sup>

<sup>1</sup> CNRS – UMR 5608 TRACES, Université de Toulouse II
<sup>2</sup>EHESS, UMR 5608 TRACES, Université de Toulouse II
<sup>3</sup> Institució Milà i Fontanals (IMF-CSIC)

### Abstract

Contemporary with the beginning of the western Mediterranean Neolithization, Peiro Signado is one of the oldest Neolithic settlements in the south of France. The site shows the installation, on the coast of Languedoc, of small pioneer groups with clearly Italian origins. The lithic industry is characterized by a bladelet production. Use-wear analysis brings to light the diversified forms of Neolithic economy corresponding to a technical system transported by the first settlers. This paper presents the first results of use-wear analysis that will be entirely published in the monograph of the site.

**Keywords:** Process of neolithization, Impressed ware, lithic industry, blades, sickles, trapezes.

Use-Wear Analysis of Early Neolithic Lithic Industry of Peiro Signado 651

## 1. Introduction

The Neolithization of the Mediterranean Basin involves complex processes and varied modalities in time and space (Guilaine 2001). In the western Mediterranean, Neolithization begins at 6000 cal BC in southern Italy and Sicily with the emergence of the Impressed Ware culture (Fig. 56-1). During the same chronological period along the coastlines of Liguria, Provence and Languedoc, appear small pioneer groups with a Neolithic economy and clear Italian origin (Manen 2000, 2002). This sporadic and very fast "colonization" preceded the development of the Cardial. Peiro Signado is an emblematic site of this early colonization phase.



Fig. 1. Peiro Signado and the neolitizathion of Western Mediterranen (from Marchand and Manen, 2010).

## 2. Peiro Signado (Portiragnes, Hérault)

This open-air site is one of the oldest Neolithic settlements in the south of France, at the beginning of 6th millennium Before Christ (5700-5600 cal BC) and delivered one of the rare dwelling structures (Briois and Manen 2009). The documentation is very rich and reveals a totally established agro-pastoral economy. The lithic industry is mainly produced

Chapter Fifty Six

at the expense of small pebbles of brown or blond flint, probably stemming from littoral deposits or fluvial formations derived from the Bas-Rhône. The obsidian, from the Tyrrhenian area, is also exploited on the site in small quantity (Briois and al. 2009). Knapping activities are oriented towards bladelet production (85%) produced by pressure technique. The retouched tools, which represent 22% of the lithic industry, are mainly made on bladelets (87%) (Briois 2000, 2005).

## 3. First functional data

The preliminary use-wear analysis concerns a sample of 73 tools stemming essentially from an archaeological deposit connected to the rest of the built in perishable materials (on a total of 191). The study focused on some emblematic tools:

# 3.1. Retouched or notched bladelets and scraping (planing) activities

The nine analyzed bladelets present partial, irregular or notched retouch, of more or less depth. These bending fracture removals are always on the dorsal face. Eight working edges were observed on four artefacts (one retouched bladelet and three notched bladelets among which one was recycled as a borer). The used zones are the concave part of the notches (5), the retouch zones with slightly concave delineation (2) and unretouched edge (1) (Fig. 56-2). The asymmetric polish is little developed on the dorsal face, with a low degree of linkage of polished surfaces. On the ventral face, it is a shining marginal polish, forming a convex fluted bevel and few striations. This pattern corresponds to a transversal motion, the retouched dorsal face being the rake face and the rake angle is rather high, for the light scraping of rigid plant or soft wood.

These results suggest a techno-functional convergence with Late Mesolithic notched blades (Gassin and al. this volume). If this is confirmed by the complementary analysis, this convergence would support the perceptible affinities in the lithic sub-system of Castelnovian and Impressed Ware (Martini 2002)



Use-Wear Analysis of Early Neolithic Lithic Industry of Peiro Signado 653

Fig. 2. Retouched or notched bladelets used to scrape vegetal materials. 1: Notched bladelet recycled in bored. 2: Notched bladelet. 3: Retouched bladelet. Asymmetric polish, tiny on the dorsal face (3a), shining fluted domed bevel on the ventral face, marginal to moderate invasiveness (end flank). All photographs taken at 200x.

# 3.2. The harvest implements: composite sickles with obliquely inserted elements

Peiro Signado delivered a total of 34 glossy blades, from the dwelling area, pit n°7 and out-off stratigraphy. These sickle elements are short, generally between 2.5 and 3.5 cm except in some ambiguous cases (too fragmentary blank), the traces develop in diagonal and result from an oblique insertion (Fig. 56-3). Blades are used on a single edge which is, most of the time, unretouched (12) but can be modified by regular semiabrupt (1) or microdenticulate (8) retouch. The chronology of traces seems to indicate that these edge modifications can correspond to sharpening in the course of work or blank rectification.



Fig. 3. Sickle blades with oblique gloss, working edges diversity (unretouched edges (a), regular semi-abrupt retouch (b), microdenticulate retouch (c)) and micropolish diversity (smooth coalescence (d), smooth to moderate striation (e, f), very strong striation (g)). All microscope photographs taken at 200x.

Polishes also offer a diversity inferred by the striation level. They raise a smooth coalescence in the majority of the cases (18), smooth to moderate striation (8) or very strong striation (4). These striation levels are not correlated with the edge modifications. The abrasion of some sickle blades could result from a low cutting of stem cereals allowing the recovery of thatches (for the cattle and/or for mud-box house); either of their uses to cut the stems on the ground (Clemente and Gibaja 1998), but we cannot exclude re-uses. The crossing of functional data and the results of archaeobotanical analysis (Marinval, work in progress) will allow the specifying of these hypotheses.

#### 3.3. The symmetrical trapezes: transverse arrowheads

The geometric microliths are represented by a rather important number of trapezes (n=39 found during excavations in 1996-1997). Obtained by bending the breakage of bladelets, microliths are exclusively symmetric bitruncations. The truncations are always direct and rectilinear or slightly concave. The morphometric homogeneity of the trapezes is also characterized by a standardization of the widths ( $10 \pm 2mm$ ), like all the bladelets of the assemblage.

Diagnostic impact traces are observed on 11 microliths out of a total of 30 analyzed. Macro-fractures, burin-spall and spin off, are located on the points formed by truncation and the long base, oriented perpendicularly to the long base (9 cases) (Fig. 56-4, 1). On the long base, damage impacts

#### Use-Wear Analysis of Early Neolithic Lithic Industry of Peiro Signado 655

are flake scars, often continuous, bifacial, with trapezoidal morphology and step termination (6 cases out of 11) (Fig. 56-4, 2). On the short base, we observe micro-scars or transversal bending fractures (5 cases) (Fig. 56-4, 3). Linear micro-traces are identified on two trapezes (Fig. 56-4, 4), combining linear plastic alterations of the flint surface, abrasion of the microtopography and striations. They arise from microfracturing and crushing. The orientation of linear traces is also largely perpendicular to the long base. The recurring orientation of impact traces, as well as their distribution and combination, confirm the use of the trapezes as projectile points, and more precisely as transverse arrowheads.



Fig. 4. Diagnostic impact traces on symmetrical trapezes used as transverse arrowheads.

Without underestimating their symbolic or social functions, these arrowheads and the arrows which they armed, probably served for hunting. To consider the part of hunting activities in the Peiro Signado economy is difficult from the only inserts and in the absence of the faunal remains which are very badly preserved on the site. However, the impact rate (37 %) and the important part of the trapezes in the industry spectrum (20% of the retouched tools) allow us to suppose that the hunting contribution was not insignificant, in particular in the raw material supply system (pelt, hide, bones, antler, tendons...).

### 4. Discussion

At this stage of the study, we have a very partial vision of the technical processes operated by these pioneer groups. The exhaustive analysis of the Peiro Signado industries will allow a more ample questioning of the colonization paradigm.

The strategies of tool kit management appear to contrast with the investment in raw material acquisition. Peiro Signado leptolithic flint tools, little transformed, seem moderately exploited (few recycled, few multiple use), carefree of blanks economy. This report may be connected with the very productive character of pressure knapping but also with the lightness of bladelets extracted on the consumption site. We shall underline however the absence of quite close raw materials sources. We can then suppose that the access to the relatively distant zones of supply of flint pebbles in Bas-Languedoc, would have been favoured by the traditions of maritime mobility. In this context, the contacts with the Mesolithic populations remain hypothetical. Through the technical processes, to perceive (or not) the possible techno-functional links, such as they could be envisaged for notched bladelets, could contribute to the debate on the Castelnovian heritage in Impressed Ware and on the interactions between both cultural complexes (Dini and al. 2008; Perrin 2009; Radi and Ronchitelli 2002).

As a supplement of the agro-pastoral economy, these first farmers maintained predation activities, in particular hunting, in open air sites such as Peiro Signado and Pont de Roque-Haute or more intensively in caves and rockshelters such as Pendimoun, Arene Candide, Latronico and l'Uzzo (Vigne, Carrère, in Guilaine et al. 2007). Adaptation to local resources or cultural traditions transposed from the origin area?

Peiro Signado is affiliated to Ligurian Impressed Ware. Indeed, it presents very strong ceramic affinities with the early Neolithic of Arene Candide (Manen 2002; Guilaine and al. 2007). The comparison of lithic

industries is supplied with less convincing elements, in particular for 3 sickle blades, which according to B. Voytek, were inserted in parallel (Starnini, Voytek 1997). In South Italy, a new analysis of Torre Sabea glossy blades allowed the characterization, as at Peiro Signado, of an oblique insertion (Gibaja, Mazzucco, personal communication) but in other sites, as Favella (Fuolega; Voytek, in Tiné, 2009) or Ripa Tetta (Petrinelli Pannocchia 2007, 142; 2008), the parallel inserts seem the majority. Although more recent, the Adriatic Impressed Ware sites could offer convergent data, in particular Maddalena di Muccia (Petrinelli Pannocchia 2007, 143) where is attested oblique gloss on short blades, the component of sickles with dented edges. Here still, other elements of the lithic industry, such as geometric microliths, diverge from the Peiro Signado model. The re-examination of tools, the current analysis will bring precision on the sickles morphology, as that of Santo Stefano revealing probably the coexistence of various insertion types unless it is a chronological evolution (Petrinelli Pannocchia, this volume). But sickles being only one of the components to be considered, convergent or clashing components (sickle/arrowhead-lithic/ceramic), in the search for the complex processes which led these sailors-farmers on languedocian shores.

### References

- Briois, F., 2000. Variabilité techno-culturelle des industries lithiques du Néolithique ancien en Languedoc, in : Leduc, M., Vaquer, J. (Eds), Sociétés et espaces. Archives d'Ecologie Préhistorique, Toulouse, pp. 43-50.
- —. 2005. Les industries de pierre taillée néolithiques en Languedoc occidental. Nature et évolution des outillages entre les 6<sup>ème</sup> et 3<sup>ème</sup> millénaires av. J.-C. Monographies d'Archéologie Méditerranéenne, 20, Lattes.
- Briois, F., Manen, C., 2009. L'habitat néolithique ancien de Peiro Signado à Portiragnes (Hérault). Mémoire de la Société Préhistorique française, vol. XLVIII, Paris, pp. 31-37.
- Briois, F., Manen, C., Gratuze B., 2009. Nouveaux résultats sur l'origine des obsidiennes de Peiro Signado à Portiragnes (Hérault). Bulletin de la Société Préhistorique Française, tome 106, n°4, Paris, pp. 805-816.
- Clemente, I., Gibaja, J.-F., 1998. Working processes on cereals: an approach through microwear analysis. Journal of Archaeological Science, 25, pp. 457-464.
- Dini, M., Grifoni Cremonesi, R., Kozlowski, S. K., Molara, G., Tozzi C.,

2008. L'industria castelnoviana della grotta di Latrinico 3 (Potenza, Italia). Preistoria Alpina, 43, Trento, pp. 49-74.

- Guilaine, J., 2001. La diffusion de l'agriculture en Europe : une hypothèse arythmique. Zephyrus, pp. 53-54.
- Guilaine, J., Manen, C., Vigne, J.-D. (Eds), 2007. Pont de Roque-Haute. Nouveaux regards sur la néolithisation de la France méditerranéenne. Archives d'Ecologie Préhistorique, Toulouse.
- Ibánez, J. J., Clemente Conte, I., Gassin, B., Gibaja Boa, J. F., Gonzalez Urquijo, J., Márquez, B., Philibert, S., Rodriguez Rodriguez, A., 2008. Harvesting technology during the Neolithic in South-West Europe, in : Longo, L., Skakun, N. (Eds), Prehistoric technology 40 years later : functional studies and the russian legacy. BAR International Series 1783, Oxford, pp. 183-195.
- Manen, C., 2000. Implantation de faciès d'origine italienne au Néolithique ancien : l'exemple des sites « liguriens » du Languedoc, in : Leduc, M., Vaquer, J. (Eds), Sociétés et espaces. Archives d'Ecologie Préhistorique, Toulouse, pp. 35-42.
- —. 2002. Structure et identité des styles céramiques du Néolithique ancien entre Rhône et Èbre. Gallia Préhistoire, 44, Paris, pp. 121-165.
- Marchand, G., Manen, C., 2010. Mésolithique final et Néolithique ancien autour du détroit : une perspective septentrionale (Atlantique/Méditerranée), in : Gibaja, J.-F., Carvalho, A.-F. (Eds), Os últimos caçadores-recolectores e as primeiras comunidades produtoras do sul da Peninsula Ibérica e do norte de Marrocos, Promontoria Monográfica, 15, pp. 173-179.
- Martini, F., 2002. L'Italia pre-neolitica, in : Fugazzola Delpino, M. A., Pessina, A., Tiné, V. (Eds), Le ceramiche impresse nel Neolitico antico. Italia e Mediterraneo. Intituto Poligrafico e zecca dello strato, Studi di Palethnologia I, Roma, pp. 73-89.
- Perrin, T., 2009. New perspectives on the Mesolithic/Neolithic transitions in northern Italy, in : McCartan, S., Schulting, R., Warren, G., Woodman, P. (Eds), Mesolithic Horizons. Volume II, Oxford Books, Oxford, pp. 514-520.
- Petrinelli Pannochia, C., 2007. Analisi funzionale di alcuni complessi neolitici dell'Italia centro-meridionale. Tesi di dottorato di ricerca, Università di Pisa, Pisa.
- —. 2008. Use wear analysis: application on the Ripatetta lithic industry. Preliminary results, in: Longo, L. and Skakun, N. (Eds), Prehistoric technology, 40 years later : functional studies and russian legacy. BAR international series 1783, Oxford, pp. 461-463.

Radi, G., Ronchitelli, A., 2002. Le industrie litiche, in : Fugazzola

Use-Wear Analysis of Early Neolithic Lithic Industry of Peiro Signado 659

Delpino, M. A., Pessina, A., Tiné, V. (Eds), Le ceramiche impresse nel Neolitico antico. Italia e Mediterraneo. Intituto Poligrafico e zecca dello strato, Studi di Palethnologia I, Roma, pp. 251-268.

- Starnini, E., Voytek, B., 1997. The Neolithic chipped stone artefacts from the Bernabò Brea-Cardini excavations, in : Maggi, R. (Ed), Arene Candide : A functional and environmental assessment of Holocene sequence (excavations Bernabò Brea-Cardini 1940-50). Memorie dell'instituto italiano di Paleontologia umana, 5, Roma, pp. 349-426.
- Voytek, B., 2009. Microwear analysis of tools and unretouched blades, in: Tiné, V. (Ed), Favella. Un villaggio neolitico nella Sibaritide. Instituto Poligrafico e Zecca dello Strato, Roma, pp. 381-385.