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Edited by

João Marreiros, Nuno Bicho  
and Juan F. Gibaja

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Use-Wear 2012

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## CHAPTER FORTY NINE

# INVESTIGATING NEOLITHIC ACTIVITIES: THE CONTRIBUTION OF FUNCTIONAL ANALYSIS TO THE RECONSTRUCTION OF SETTLEMENTS' ECONOMY IN CENTRAL-SOUTHERN ITALY

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### **Abstract**

Between the late 7th and early 6th millennium BC, the Neolithic era arrives in Southern Italy by sea with Eastern Mediterranean people. The external origin of the Neolithic seems to be supported by the presence of well-organized villages with an already fully productive economy and ceramic production since their first occupation.

Being part of a wider project on the Neolithization of Italy, this work presents the results obtained from the study of lithic assemblages from a selected number of Neolithic sites: Ripa Tetta (Puglia), Maddalena di Muccia (Marche), S. Stefano (Abruzzo).

Our analyses show how the techno-functional approach to lithic tools can play a significant role in the understanding of the economic and/or cultural choices made by Neolithic groups.

**Keywords:** Neolithic, Italy, use wear analysis, lithic tools

## 1. Introduction

This work is part of a larger project that includes the study of materials found at several Neolithic sites of Central-Southern Italy. The purpose of this on-going project is to integrate the traditional studies of lithic tools with use-wear analysis, in order to obtain an exhaustive picture of the first Neolithic communities.

Between the late 7th and early 6th millennium BC, the Neolithic starts in Southern Italy when Eastern Mediterranean people arrive by sea and initially settle down along the coasts of Apulia. The external origin of the Neolithic is attested by the presence of well-organized villages with an already fully productive economy and ceramic production (impressed pottery of archaic type) starting from the oldest occupation levels (Torre Sabea, Trasano ecc...). As demonstrated by several studies, later on the Neolithic spreads inland and up to central Italy along two different paths separated by the Apennines.

The available data concerning the stone industries of those first phases enabled the scholars (Radi and Ronchitelli 2002) to outline a quite detailed picture of their characteristics. Some technological differences have been highlighted, such as the use of special production techniques and the resulting diffusion of different supports inside the complexes. Furthermore there are typological differences due to the quantitative variation of some groups of retouched manufactures.

A functional analysis of the materials has been undertaken in order to outline a general sketch of the activities carried out on the site and their impact on its economy. It was interesting to verify whether there was a change in use of the different typologies of instruments over time.

The analysis was carried out on samples of artefacts from a few sites, analyzed with both low- and high- approaches (Tringham et al. 1974, Keely 1980). This methodology permitted us to identify different use-wear patterns related to the various activities conducted on the sites.

Now we will deal with some of the most interesting results as yet obtained with the help of some relevant case studies (Fig. 1).

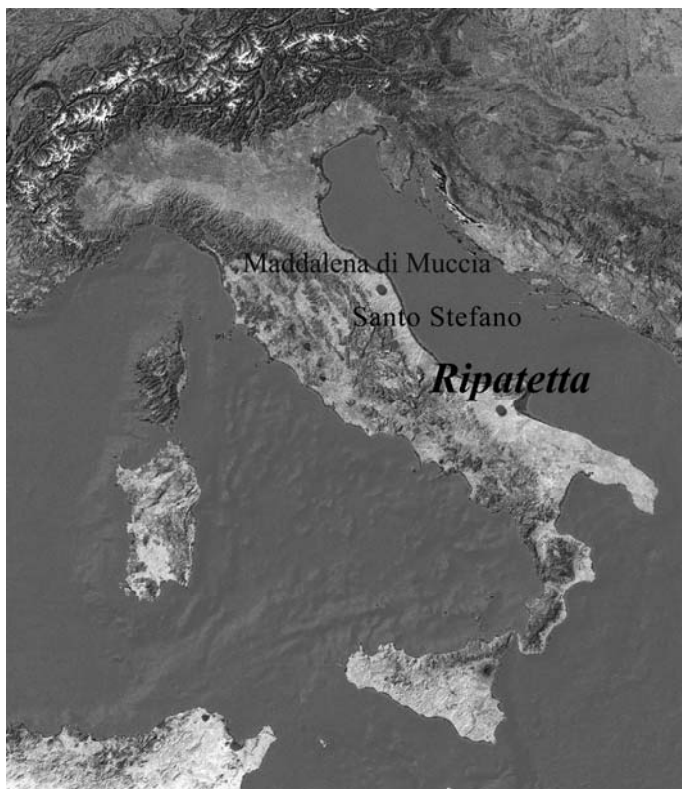


Fig. 1. Site distribution map.

## 2. Case 1. Ripatetta (FG, Puglia)

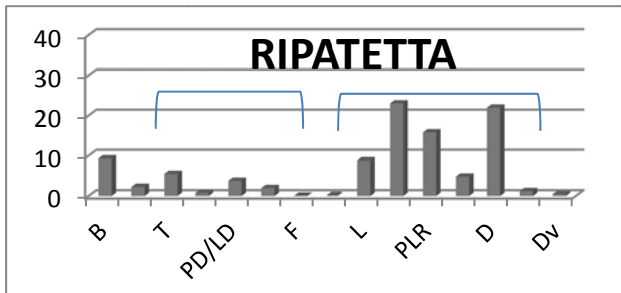
Ripatetta is among the oldest (6890±60 BP, Beta-47808) and most important settlements in southern Italy (Tozzi and Tasca 1989). This site was investigated from 1982 up to 1992 by the University of Pisa in collaboration with the Ithaca College of New York. A sequence of surveys has shed light on entrenched settlements almost 90 mt in diameter.

On the lowest level, the archeological remnants can be assigned to the type Guadone of the impressed wear. From this to the upper level we can observe the gradual stylistic evolution into the Lagnano da Piede type.

The most used raw material is flint, both local and coming from surrounding areas, such as Gargano, while the diffusion of obsidian is really scanty (0.2%).

Technologically the management of raw materials should have been very complex (Collina 2009). As a matter of fact the local flint appears to be used in order to obtain both flakes and blades through the direct-percussion technique, with both soft and hard hammer.

Flint coming from external sources, on the contrary, is almost exclusively treated for preparing blades and bladelets by a number of different techniques: direct percussion, indirect percussion and pressure (Graph 50-1).



Graph 1. "Struttura elementare" (Laplace 1968) of lithic assemblages.

A functional analysis carried out on two samples of materials coming from two different areas A and B (100 elements from each area), identifies some interesting aspects of the economy of the site and provides relevant information on the spatial organization of the settlement.

The analysis highlighted some internal peculiarities of every area (Table 1):

Inside A, beyond structures with various morphologies, the remnants of a hut have been found, consisting of a plaster floor surrounded by a series of holes. In this area there must have been major activity differentiation, as indicated by the diffusion of semi-soft materials, such as sickles for vegetable stuffs, whose presence is probably due to the nearness of this area to the cultivated fields.

Inside B, a cobbled pavement of around 70-80 sq.m in size was found, unfortunately partly damaged by modern ploughing activities.

	Ripatetta A	Ripatetta B
Total artefacts	2792	768
Artefacts analysed	100	100
Artefacts with traces	67	66
Meat	3,1 %	4,5 %
Hide	9,5 %	16,6 %
Butchering	0 %	4,5 %
Cereals	7,9 %	1,5 %
Plant/ Wood	12,7 %	12,1 %
Bone	3,1 %	3 %
Antler	0 %	0 %
Mat. Soft.	3,1 %	1,5 %
Mat. Semi-hard	23,8 %	24,1 %
Mat. Hard	1,5 %	10,6 %
Unknown	34,8%	21,2%

Maddalena di Muccia	
Total artefacts (sect. XII-XIII)	1218
Artefacts analysed	100
Artefacts with traces	71
Meat	2,8 %
Hide	13,8 %
Butchering	2,7 %
Cereal	4,2 %
Plant/ Wood	7,04 %
Bone	5,6 %
Antler	5,6 %
Mat. Soft.	4,2 %
Mat. Semi-hard	32,3 %
Mat. Hard	7,4 %
Unknown	18,3 %

**Tab. 1. Ripatetta. Use wear by classes.**



Data show the prominent presence of edges with traces due to hide/meat-processing, or processes related to butchering activity. Furthermore some elements, in a greater amount here than in A, show very damaged edges, hence they could be associated with hard material processing. For the latter it is often impossible to distinguish the polish and the damage of active edges depending on contact with bone or antler.

Thus we may hypothesize that area B could have been used for treating animal substances in every phase of their processing (Fig. 2).

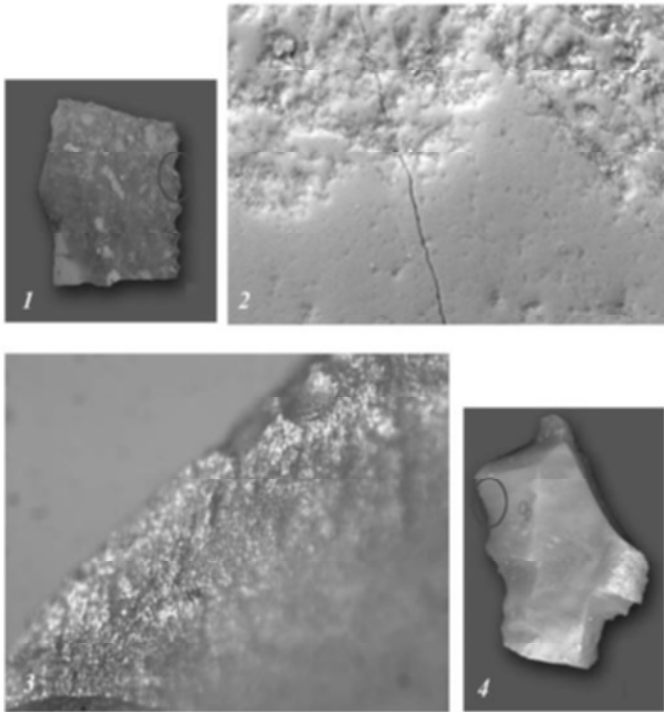


Fig. 2. Ripatetta. 2.1 and 2.2 fragment of sickle blade used to cereal harvesting (1200x With SEM); 2.3 and 2.4 Burin utilised for butchering activity (100x).

### 3. Case 2. Santo Stefano (AQ, Abruzzo)

Towards the North lies the site of S. Stefano. The excavations were carried out by the University of Pisa between 1988 and 2002 on a surface

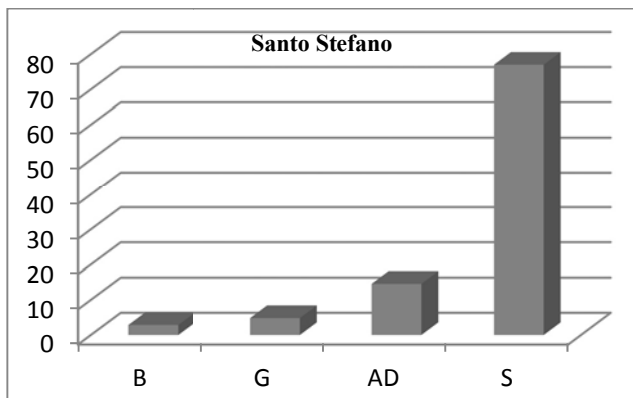
of about 230 sq.m. On the basis of the archaeological deposit is revealed a cobbled paving discovered to be over 85 sq. m, cut in a later phase by a duct.

The pottery found inside the deposit belongs to the facies of Middle-Adriatic Impressed Pottery with some southern influences, mostly referable to Guadone's facies (Fabbri 2006).

The lower strata of the excavation could be dated between 6843±40 BP (LTL60A) and 6823±55 BP (LTL526A), while the most recent term is provided by the dating of section 3 to 6579±60 BP (LTL57A).

The mostly used raw material in the stone industry is the flint coming from the neighbouring area, whose suspected origin has been identified by macro and microscopic analysis in the Genzana Mount (Radi and Danese 2003). With respect to other contemporary sites, S. Stefano shows a high diffusion of obsidian, gradually increasing from lower to upper levels, up to 10% of the total.

As has been highlighted in other sites, the direct percussion technique has been used to obtain flakes, while several techniques have been used, since the oldest phases, to produce blades. The tendency to use a pressure technique increases over time (Fabbri et al. 2009) (Graph 2).



Graph. 2. S. Stefano. Main tool type classes (Laplace, 1968) of lithic assemblage.

A still ongoing functional analysis of the materials has been undertaken. Only a very limited sample of manufacturers, such as End Scrapers, Geometrics, Becks, Becked Point and Sickles, has been analyzed until now (60 elements).

Borers and Becked Points are mostly used for piercing. Only in one case did a point reveal itself to being possibly used as a projectile. The use

of End Scrapers is heterogeneous. In most cases they show undifferentiated polishing and scarce damage of the active edges that do not correspond exclusively to the retouched edge.

On the other hand, analysis of the class of Geometric objects has been difficult. No element has remnants of polish. Some objects show half-moon microscars along the margin of the main basis, often broken at one or both ends. Their scanty traces and the bibliographic information suggest, in some cases, their use as barbs on projectile weapons.

A careful analysis is also currently taking place on the elements bearing gloss traces.

The most frequent type of trace seems to be a smooth polish due to cereal harvesting. In these cases, the gloss could show oblique or, more rarely, parallel dispersion, revealing probably different hafting typologies or use. Furthermore, a set of elements with denticulate lateral edges shows the dispersion of the polish along a narrow strip parallel to the margin above which there are deep striations. Such artefacts could have been used for cutting hard siliceous plants as reeds.

The vertical distribution of the sickles inside the deposit reveals variations in their presence and morphology. An increase of these elements could be observed over time. The same progression could also be seen in the usage of modified artefacts with abrupt-retouch, lateral or just on one of the edges. The elements with parallel distribution of the gloss show an opposite tendency, tending to decrease in time (Fig. 3).

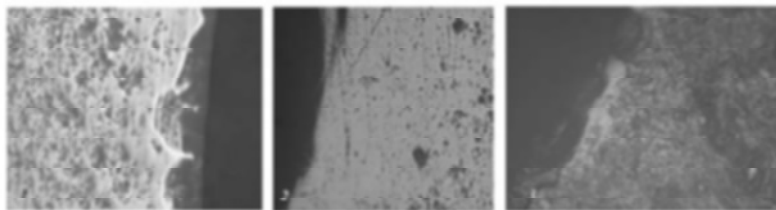


Fig 3. Santo Stefano. 6.1 trace possibly originated by reed cutting (100x); 6.2 polish related to cereals harvesting (100x); 6.3 polish due to contact with bone.

#### **4. Case 3. Maddalena di Muccia (MC, Marche)**

Going northward, following the Adriatic coast lies the site of Maddalena di Muccia.

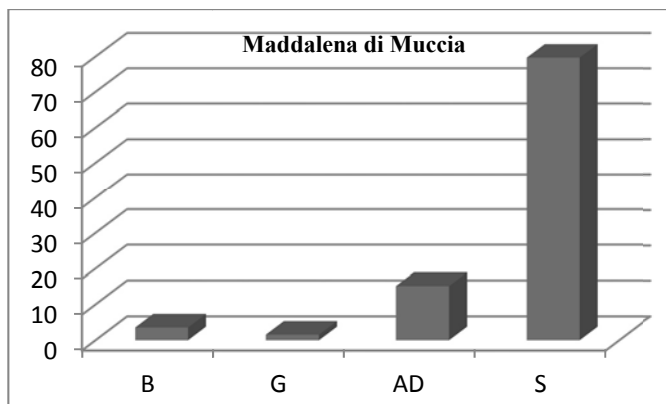
The investigation of the site was divided into two phases. In 1962 Lollini (Lollini 1965) started the excavations, investigating a c. 60 sq.m

extended area, where several embedded structures were discovered. After about 40 years, the Universities of Pisa and Rome with the collaboration of the Soprintendenza delle Marche, restarted the exploration of the site over a 450 sq.m extended area, bringing to the surface a new part of the settlement.

The analysis of the materials puts the site inside the impressed pottery culture of Abruzzo and Marche. The dating traces the duration of the site between 6638±59 BP and 5375±60 BP.

On this site a complete techno-typological analysis of lithic assemblage was conducted on two (XII and XIII) of the sectors in which the site was divided during the excavation.

The raw material mostly used is flint; often the “scaglia rossa” type, probably coming from the neighbouring areas. From a technological point of view, this site uses two different operational chains. The production of blades and bladelets was made by pressure-flaking on carefully prepared cores. Instead direct percussion was used in order to obtain flakes and laminar flakes (Radi et al. 2003) (Graph 50-3).



Graph 3. Maddalena di Muccia. Main tool type classes (Laplace, 1968) of lithic assemblage.

Functional analysis (Table 1) evidenced a general sketch of the activities carried out on the site and their impact on its economy.

In the sample from Muccia, those artefacts having had contact with hard animal substances such as bone and antler happen to be in the majority. The edges used for hide treatment appear in a lesser quantity, mostly for the treatment of fresh hide. In fact there is no trace of edges with strong rounding and a developed polish. Even though in a lesser

quantity, there are instruments related to butchering activities (2.8%) or used as projectile points (1.4%).

In Muccia it was possible to identify a typological group which specialized in a particular type of processing: burins, showing a transversal detachment (burin spall) on the distal edge. The manufactures present a strong damage on the ventral portion of the margin close to the biseau, which in most cases has been detached. The presence of deep scars and the lack of polish suggest their use in processing hard substances. In particular, the irregular course of the macro-flake scars could have been caused by the pressure of the object against the roughness, characterizing the antler of the cervid. The form of the supports suggests a manual prehension of the object, with the burin facet exploited as grasp help (Fig. 4).

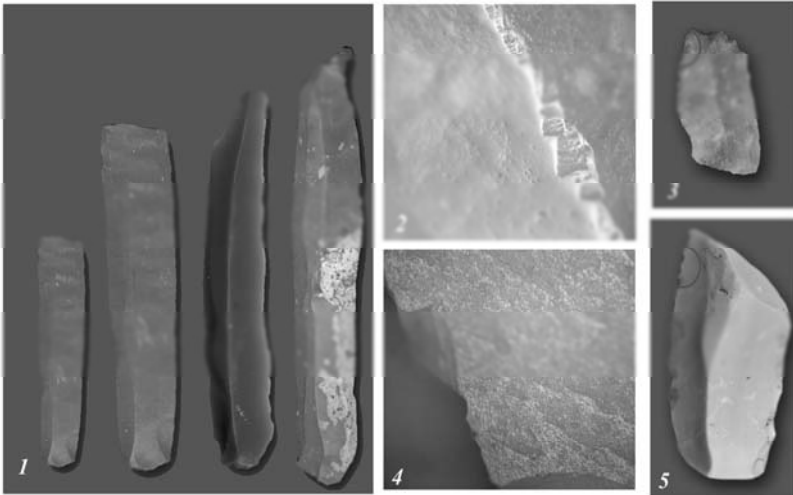


Fig. 4. Maddalena di Muccia. 7.1 pressure production in “Scaglia Rossa”; 7.2 and 7.3 Sickle and polish related to cereals harvesting (100x); 7.4 and 7.5 Burin and trace originated by working hard substances.

## 5. Conclusions

In conclusion, the data available enabled us to make some considerations. In general data show a tendency to scarce exploitation of manufacturers, highlighted by the frequent presence of undifferentiated polishing, suggesting the use of the active margins for quite short periods. This

aspect could be due to the abundance of raw material all over the area. Traces of hafting are rare. Few elements preserve residues of mastic used for pasting a piece into the haft. There is a higher concurrence between typology and function among some groups of material like Burins, Borers and End Scrapers, due to clear morphologic motivations. On every site we can observe the tendency to create standardized groups under the aspect of form and dimension specialized in some activities. Transversal Burins from Maddalena di Muccia and microlithic trapezes from S. Stefano seem to belong to this typology of standardized productions. Between the later a set of larger and flat backed knives morphologically inscribed in the “half-moon” type, whose active margin is the unretouched side, was found in Ripatetta.

Results from the functional analysis on the described stone complex enabled us to integrate our notions on the Italian Neolithic sites and highlighted their economic strategies.

The Neolithic sites have appeared as complex entities since the older phases. Inside many activities were carried out, with a precise internal distribution, as is evident in Ripatetta. Some of these activities have been revealed exclusively by traces of use, as in the case of the burins from Maddalena di Muccia that reveal the presence of antler processing.

Inside the stone complex, one can observe the production of groups of instruments that are morphologically standardized and specialized to some specific activities. The meaning to be attributed to these productions in the old Neolithic as well as in later periods is still to be clarified. In some cases, these instruments seem to suggest the presence inside the villages of people qualified to carry out particular activities while continuing to use the same instruments. It is not yet possible to exclude that in some cases the presence of those instruments is simply related to a form of cultural tradition or a “habit” of every site for using a given morphology for specific kinds of work.

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