

THE EARLIEST POTTERY IN ITALY: A TECHNOLOGICAL APPROACH TO IMPRESSED DECORATION DURING THE ARCHAIC PHASE

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Introduction

Since the 1980s, the study of Neolithic pottery in Italy has developed an increasing interest in the technological aspects applying archaeometric analysis, derived from the experimental sciences (Muntoni 2002a). Archaeometric studies are necessarily combined with traditional techniques of ceramic analysis (description of surfaces, mixtures, shapes and decorations). Archaeometric analyses have contributed to a better definition of the different phases of the *chaîne opératoire* in pottery production. In particular, better knowledge and insights have shed new light on aspects related to clay extraction and the firing process. As part of this new approach, a specific technological approach to the analysis of impressed decorations of the earliest pottery in southern Italy was developed. This phase is the archaic *facies* of the Impressed Ware culture (Early Neolithic I or Initial Neolithic) (Figure 1).

The archaic horizon of the Impressed Ware culture in the Neolithic of southern Italy

The impressed pottery is the oldest earthenware production in southern Italy and represents one of the features of the so-called "Neolithic package", together with the emergence of a new economy based on agriculture and herding, the development of new technologies (polished stone, housing construction in clay, etc.), social structures (establishment of large village communities) and forms of worship (domestic cults of female pottery figurines, cults of water, etc.) (Pessina and Tiné 2008). The set of ¹⁴C dates currently available indicates a time span between 6000 and 5700 cal BC (7100-6800 BP) for the archaic horizon of the Impressed Ware in southern Italy (Figure 2). This pottery has been documented in the south-eastern regions of Italy – Apulia, Basilicata and northern Calabria (Figure 1; Tiné 2002) – and is also known as "Prato Don Michele-Pulo Molfetta style" from the

Apulian sites where this pottery was recognised for the first time in the 1980s (Tiné 1983).

These containers were made of coarse clay, with abundant medium to large inclusions, rough or smoothed surfaces, and decorated with impressions made before firing, when the surface of the vessel was still moist and soft enough to allow it to be imprinted by punches (Natali 2009). These tools left their negative imprints and, after the ceramic firing, the impressions would have been permanent. There is a wide variety of imprinted decorative motifs (e.g. by nails, fingers, pinched marks, lines, wavy patterns, etc.), which cover the whole outer surface of the vessel, mostly without any attention to the shape of the container. These individual motifs are arranged in a disorderly manner, with impressions that intersect and overlap confusingly, or following vertical, horizontal and oblique alignments (Figures 3 and 4). The typical shapes of this ceramic class are ovoid containers, flasks, bowls and bowls with medium to thick walls. A second type of pottery is made with a finer fabric, whose surface is always well-polished. This class appears very rarely decorated with impressed patterns but even more carefully executed and distributed on the vessel surface (Figure 5). Typical shapes of this class are medium to small bowls and cups, but there are also some globular vessels and flasks.

Technological aspects of the ceramics

The extraction, processing and firing of clay

The application of archaeometric techniques (chemical, physical, petrographic) to the ceramic record enabled us to investigate firstly the aspects related to the raw material extraction and firing processes (Muntoni 2002b)¹.

The data available from different contexts of the same archaic horizon emphasise that the clay extraction occurred in the immediate vicinity of the settlement. At all the studied sites it has been observed, in fact, that the variability of the raw materials used depended only on local availability. Alluvial clays from the basin of the nearby Candelaro river were employed at the sites of Coppa Navigata and Masseria Candelaro, in the Tavoliere plain of

¹ Archaeometric studies are currently available for the following sites: Defensola mine, Masseria Candelaro, Coppa Navigata, Pulo di Molfetta, Ciccotto, Scamuso, Guardian Cave and Favella (Muntoni 2002b).



Figure 1. Distribution map of the main sites of the Archaic Impressed Ware horizon (south-eastern Italy) (E. Natali).

- | | |
|-------------------------|-------------------------------|
| 1- Prato Don Michele | 9- Fontanelle |
| 2- Defensola | 10- Torre Sabea |
| 3- Coppa Navigata | 11- Trasano |
| 4- Masseria Candelaro | 12- Ciccotto |
| 5- Pulo di Molfetta | 13- Rendina |
| 6- Scamuso | 14- Lago del Rendina - site 3 |
| 7- Grotta del Guardiano | 15- Favella |
| 8- Torre Canne | |

Site	Laboratory Code	Age BP±	Calibrated BC 1s	Calibrated BC 2s	Material	Context	Bibliography
Trasano I	Lyon-5297	7030±160	6031 (68.2%) 5741	6221 (95.4%) 5640	charcoal	Zone B, 2.4	Guilaine <i>et al.</i> 1990
Favella	LTL-778A	7003±55	5982 (20.4%) 5942 5928 (47.8%) 5838	5991 (95.4%) 5756	bone	Peet G, 3IV	Tiné 2009
Defensola	UTC-1342	6990±80	5980 (14.3%) 5944 5926 (53.9%) 5788	6011 (95.4%) 5726	charcoal	Corridor C	Galiberti 2005
Trasano I	Gif-TAN-88248	6980±130	5983 (12.9%) 5938 5932 (55.3%) 5744	6080 (95.4%) 5630	charcoal	Zone A, 3	Guilaine <i>et al.</i> 1990
Torre Sabea	Gif-TAN-88066	6960±130	5981 (10.3%) 5943 5926 (57.9%) 5732	6066 (95.4%) 5628	seed	Peet T-U/11-12	Guilaine, Cremonesi 2003
Favella	LTL-202A	6956±75	5964 (2.2%) 5958 5901 (66.0%) 5746	5991 (95.4%) 5715	seed	Peet E20, 3I	Tiné 2009
Trasano I	Lyon-5296	6950±150	5984 (68.2%) 5720	6202 (0.2%) 6194 6154 (0.2%) 6148 6100 (93.8%) 5608 5593 (1.2%) 5562	seed	Zone B, 2. 4	Guilaine <i>et al.</i> 1990
Trasano I	Gif-TAN-88056	6950±140	5982 (10.4%) 5940 5930 (57.8%) 5723	6082 (94.9%) 5615 5585 (0.5%) 5570	charcoal	Zone A, 3	Guilaine <i>et al.</i> 1990
Trasano I	Gif-TAN-88067	6950±130	5980 (9.6%) 5944 5925 (58.6%) 5726	6062 (95.4%) 5626	charcoal	Zone A, 2 inf.	Guilaine <i>et al.</i> 1990
Favella	Beta-165482	6940±40	5874 (6.7%) 5862 5846 (61.5%) 5755	5966 (1.5%) 5956 5904 (93.9%) 5730	seed	Peet D	Tiné V. 2004
Favella	Beta-71633	6910±60	5871 (2.4%) 5864 5846 (65.8%) 5727	5973 (2.6%) 5952 5914 (92.8%) 5673	charcoal	Peet Z, 4	Tiné V. 1996
Torre Canne	Gif-TAN-6725	6900±80	5880 (68.2%) 5718	5979 (4.9%) 5946 5923 (90.5%) 5644	daub	Trench A	Grifoni, Tozzi 1996
Favella	LTL-203A	6890±50	5836 (6.4%) 5824 5812 (61.8%) 5725	5886 (95.4%) 5673	seed	Peet E30, 4II	Tiné 2009
Torre Sabea	Gif-TAN-88247	6890±130	5899 (68.2%) 5662	6020 (93.4%) 5608 5594 (2.0%) 5562	seed	Peet T-U/11-12	Guilaine, Cremonesi 2003
Coppa Navigata	OxA-1475	6880±90	5871 (1.8%) 5864 5846 (66.4%) 5672	5978 (4.2%) 5946 5922 (91.2%) 5630	seed	Peet, II-III	Skeates, Whitehouse 1994
Coppa Navigata	OxA-1474	6850±80	5835 (2.9%) 5826 5811 (65.3%) 5662	5968 (0.9%) 5956 5904 (94.5%) 5622	seed	Pet, II-III	Skeates, Whitehouse 1994
Trasano I	Lyon-4410	6830±190	5970 (2.4%) 5954 5910 (61.7%) 5611 5590 (4.1%) 5564	6080 (94.0%) 5464 5446 (0.6%) 5420 5410 (0.8%) 5380	charcoal	Zone A, 2 inf.	Guilaine <i>et al.</i> 1990
Favella	LTL-204A	6793±40	5720 (68.2%) 5658	5736 (95.4%) 5630	bone	Peet Dy, 4II	Tiné 2009
Trasano I	Gif-TAN-88313	6790±120	5808 (63.5%) 5613 5588 (4.7%) 5566	5971 (1.2%) 5954 5911 (94.2%) 5490	charcoal	Zone A, 2 inf.	Guilaine <i>et al.</i> 1990

Figure 2. ¹⁴C dates from the sites of the Archaic Impressed Wares horizon (E. Natali).



Figure 3. Coarse class pottery from the site of Favella in northern Calabria, Italy (Tinè 2009).

Apulia. At the sites of Scamusso, Guardiano Cave and Ciccotto, in the Murgia region near Bari, potters exploited Rutigliano clays and the local red earth. At Favella in the Plain of Sibari, the clay of the vessels has an alluvial origin from the nearby Crati river and comes from the terrace on which the site is located (Muntoni 2002b).

The clay may have been easily quarried using wooden sticks and hoes. Then, once recovered, it was cleaned in order to make it more suitable for modelling and firing. These processes are evident in the Favella pottery, where the raw material was treated to reduce the sandy component, whose content was rather high in the local soil, in order to increase the clay plasticity (Muntoni *et al.* 2009).

The smaller size of the inclusions in the finer ceramics, detected in the majority of the sites, suggests a more specific intention in selecting and/or treating the raw material. However, at Masseria Candelaro and Coppa Nevigata, the fine ware differs

from the coarse ware solely in having had a different and more polished surface treatment (Muntoni 2003). There is sporadic evidence of the deliberate addition of unusual types of temper such as *chamotte* (grog), attested by a single case at Favella, although it could be an unintentional addition to the ceramic fabric.

The modelling techniques of the pots were studied by macroscopic observation. The coiling technique is evident on the fractures, as signs of the leads joining, and in the irregular, wavy profile of the vessels. However, ethnographic examples (e.g. as the author observed in Tanzania) show that commonly the vessel is modelled using different techniques, e.g. the bottom part with pressure and mould technique, but the rest of the vessel by coiling.

Once dried, the containers were fired at temperatures varying between 600 and 850 °C. These temperatures could easily be obtained with bonfires, where control of the thermal gradient was really poor, as attested by the recurrent presence of the sandwich-core and by various surface stains.

The decoration

Decorative pattern has a fundamental importance in the study of Italian Neolithic pottery because of its typo-chronological implications. It is therefore essential to systematically develop this aspect as a targeted technological approach.



Figure 4. Coarse class bowl from Favella (Tin  2009).



Figure 5. Fine class pottery from Favella (E. Natali).

The Favella case-study

The opportunity to develop such an approach was offered to us by the large amount of clay material recovered in the Neolithic village of Favella (Tin  and Natali 1996; Natali 2009). This site is currently the westernmost context in the interaction area of the archaic Impressed Ware horizon. A large group of ceramics analysed (8431 fragments) comes from a set of pits dug in the silty sand ground soil of the site (Figures 6 and 7). These pits were dug in order to extract the clay used for the ceramic production and

for the plaster of the huts; they were also reused as refuse pits for various anthropogenic items from the cultural layers during the life-cycle of the settlement (Tin  2009).



Figure 6. Favella: a typical cave/refuse pit (pit G) (Tin  2009).

The pottery is in good condition and the surfaces and decorations are generally well-preserved. The technological approach to these decorative patterns started by trying to define the exact tool used to obtain each individual motif and the specific dynamics of the use of this tool on the vessel surface. This method allowed us to develop a strictly taxonomic classification of the individual impressed patterns, basing it on the original technology used to produce them and not on their mere graphic description as before.

Starting with the observation of the final imprinted pattern, a number of tools supposedly used to obtain it was suggested and then experimentally verified. Several decorative motifs were largely documented at Favella revealing the use of seven types of instruments that we can define as "instrument categories" (Figure 8). They were obtained with the use of the following tools:

1. *fingernail*;
2. *fingertip*;
3. *nail/finger opposing* (or pinching);
4. *shell with notched edge* (like the species belonging to the Cardidae and Pectinidae families)²;
5. *instrument with thin curvilinear end* (like every plant or bone element with a circular hollow section or shell

² These are widely spread shells on the Mediterranean shores and easily obtainable by the villagers of Favella, since the ancient coastline was only 6 km from the site. The high acidity of the soils at Favella has allowed the preservation of a single *Acanthocardia* tuberculate valve (cockle family).

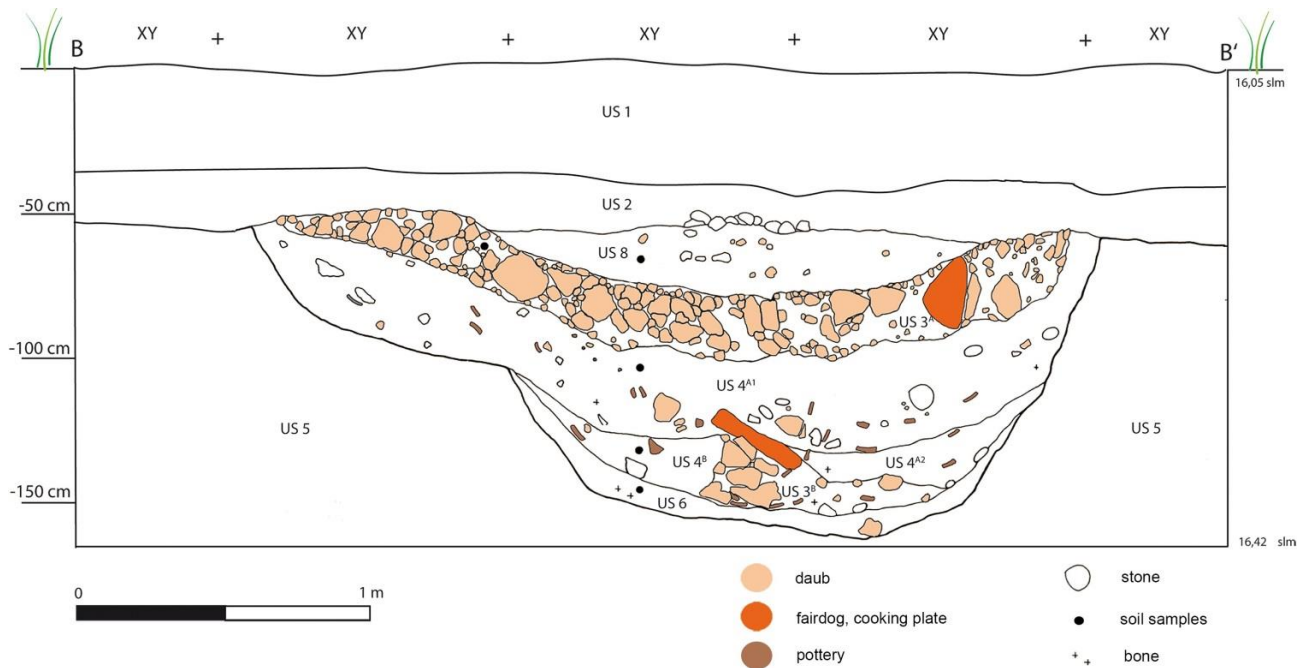


Figure 7. Favella: section of structure G (Tinè 2009).

belonging to the Veneridae, Mytilidae and Donacidae families);

- 6. *tip* (triangular, circular, single or double);
- 7. *tool with thin rectilinear end* (like a flint shard or a wooden/bone spatula).

The different possible actions performed by the potter using the same tool produced a wide variety of decorative patterns, very different from each other. At Favella 36 "decorative types" were identified, and these reflect the multiple possibilities of using the same basic instrument (Figures 9 and 10)³.



Figure 8. Experimental tools used in the reproduction of the imprinted motifs of Favella (E. Natali).

³ For a precise description of each decorative type please see Natali 2009.

The comparisons with contemporary contexts

The same technological analysis of decorative patterns developed at Favella could be extended to other contemporary contexts, possibly with direct observation (as we did at the sites of Masseria Candelaro and Coppa Nevigata) or at least using the available published data (Cave of the Guardian, Scamuso, Pulo di Molfetta, Rendina, Trasano, and Torre Sabea). It was thereby possible to enlarge the technological repertoire of the archaic impressed motifs with three other main categories and four decorative types (Figure 11), which are: *notched rocker*, obtained with a conch-serrated edge spatula or shell; *smooth rocker and microrocker*, obtained with a shell or spatula with an arched end; *sequence*, obtained with a tip end shaped triangular, oval, etc.⁴

Discussion

A new approach to technological description of impressed patterns, developed and tuned at Favella and extended to other contemporary contexts, appears particularly suitable for an analytical study of the southern Italian archaic Neolithic pottery. During this phase, in fact, decoration patterns are not

⁴ With the serrated/smooth rocker and microrocker techniques the tool is imprinted on the surface with a continuous zig-zag; with the sequence technique the tool is repeatedly and closely stamped on the surface of the vessel.

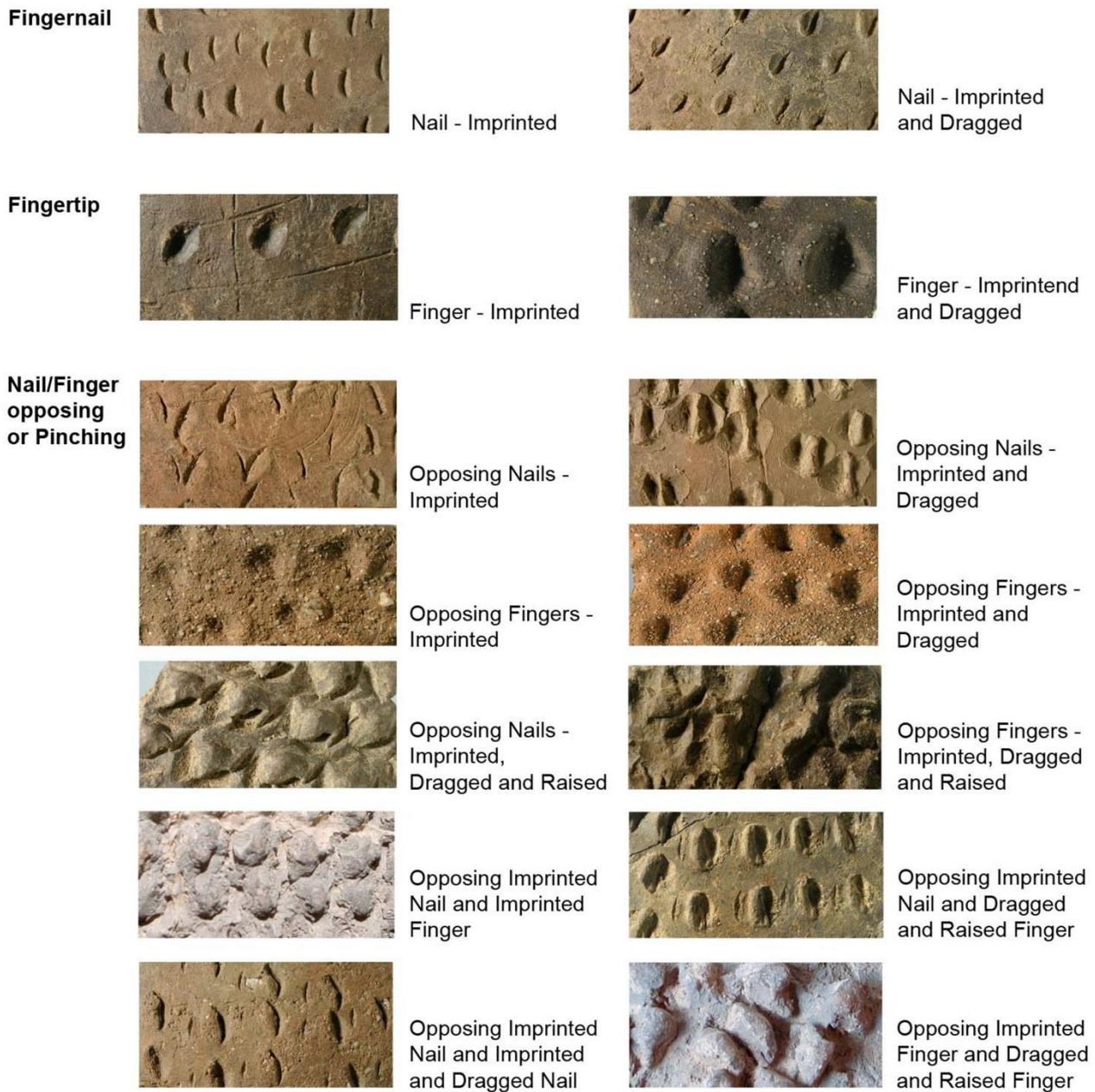


Figure 9. Decoration categories (fingernail, fingertip, nail/finger opposing) and related types documented at Favella (E. Natali).

stylistically well-structured and therefore the technology of the impressions assumes an important meaning, unlike what happens in the following phase of the evolved impressed wares, characterised by a clear articulated decorative syntax.

From a general point of view, in the archaic horizon the coarse ceramics are extremely similar at all sites. The decoration categories and types remain almost the same everywhere, including motifs obtained mainly by fingers, the jagged edge of a shell or a tool with a straight end. Between the different sites some

differences are clear in the use or not of the decorative types of rocker and sequence. These more sophisticated techniques are documented, in a small percentage, at some sites of the archaic phase in Apulia and Basilicata where they seem to appear earlier than the more typical techniques that would later be widespread in the evolved horizon of the impressed wares.

A general uniformity of the fine class is revealed by the frequent absence of decoration, which, when it appears, remains restricted to a small percentage of

Shell with notched edge



Whole Notched Shell - Vertically Impressed



Whole Notched Shell - Vertically Impressed and Rebound



Fragmentary Notched Shell - Vertically Impressed



Fragmentary Upset Notched Shell - Vertically Impressed



Whole Bivalve - Vertically Impressed



Pecten Jacobaeus - Vertically Impressed

Instrument with thin curvilinear end



Instrument with thin curvilinear end - Vertically Impressed



Arched Instrument - Vertically Impressed and Rebound

Tip



Circular Tip - Impressed



Elliptical Tip - Impressed



Tubular Pit - Impressed



Circular Tip - Impressed



Quadrangular Pit - Impressed



Double Tip - Impressed (Elliptical and Triangular)



Tool with thin rectilinear end



Straight end Instrument - Impressed

Figure 10. Decoration categories (notched edge shell, curvilinear and instrument, tip, straight and instrument) and related types documented at Favella (E. Natali).

**Conch-serrated
edge Shell or
Spatula - Impressed
with a continuous
zig zag**

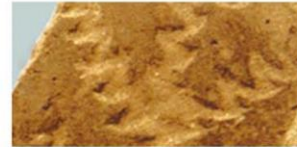


Notched rocker

**Shell or Spatula
with arched end -
Impressed with a
continuous zig zag**



Smooth rocker



Microrocker

**Tip - Impressed
repeatedly and
closely**



Sequence

Figure 11. Smooth and notched rocker, microrocker and sequence techniques (E. Natali).

vessels. The technological analysis of the specific types of decoration in this class of pottery showed possible differences between sites. Some of them clearly prefer motifs obtained by a notched edge shell (e.g. at Favella and at Guardiano Cave) and even with the so-called microrocker (e.g. Masseria Candelaro and Torre Sabea). At other sites (Rendina and Lake of Rendina-site 3) an alternative non-impressed technique appears, that of adding plastic cordons and aligned bumps to the vessel surface (Figure 12).

The differences found in the decoration of coarse and fine classes of different sites examined thus could be significant for geographical differentiation as possible indicators of regional stylistic polymorphism, but it is too early to draw conclusions. In the future the discovery and study in detail of other contexts will help to clarify these issues, shedding light on more specific cultural features of each community; it may also be of great value in terms of identification of specific cognitive attitudes, assuming that symbolic characters are a real and owned "text" – in which even these archaic decorations played a role. Apart from a few differences in the details, the general uniformity of the impressed patterns of these coeval archaic sites suggests the existence of a shared ideological background.

Developments in the evolved stage of the Impressed Ware

The technological approach to the decoration of the archaic phase allowed us to observe that the

impression modes are extremely simple and require, in most cases, the use of a single tool held upright and simply repeating imprints on the surface of the vessel. More elaborate methods are also documented, which allow rotation and dragging the tool without disconnecting it from the surface (the techniques known as rocker, microrocker and sequence) but they appear occasionally and are limited to a few sites. These techniques would develop rapidly during the next phase of southern Italian Neolithic and be particularly well-attested in Apulia and Basilicata during the so-called "Guadone facies", while they would be less common in the contemporary "Stentinello facies" in Calabria and Sicily.

While in the archaic phase only a few tools, readily found in nature and without any preparation, were in use, real punches or tools made specifically to imprint special decorative motifs were widespread in the evolved phase. In this regard, finds of small and elongated clay punches in some Calabrian sites, with typical Stentinello pottery are particularly interesting. These tools show a stencil-like ending with positive motifs that appear in negative among the local decoration patterns. Nine punches were recovered in the territory of Bova Marina, in southern Calabria, at the sites of Umbro and Penitenzeria (Robb 2003) with particular endings shaped as a "V", as a "short straight" and as "a ridge with notches" (Figure 13).

Another clay punch, not well-defined, was recovered at Romatisi, in the Acconia Plain in central Calabria (Purri 2007). Punches similar to those in clay might



Figure 12. Fine class specific decoration from: nos. 1–5) Favella (Tinè 2009); nos. 6–9) Rendina (Cipolloni 2002); 10) Torre Sabea Apulia (Guilaine and Cremonesi 2003).

have been made in wood, although there is no evidence for these yet. The presence of punches during the evolved Stentinello phase emphasises an increasing attention to vessel decoration, which also reveals itself in the structure of the decoration, now organised in elaborate and complex geometric patterns that respect the shape of the vessel (Figure 14).



Figure 13. Stentinello punches from Umbro, Southern Calabria (Robb 2003).

From a social perspective the technological characters defined above suggest a domestic

production level for the earliest ceramics of the southern Italian Neolithic (Muntoni 2003). High inter-site variability of the supply sources (related to the local availability), presence of poorly standardised shapes and a few vascular types used for a plurality of functions, along with poor control of the firing temperatures, suggest domestic-level production.

One or a few families could have produced and decorated enough pottery for the needs of the entire village, according to the author's ethnographic observations in some African contexts. This would explain, as in the case of the Favella pottery production, the repetitiveness and similarity of the decorative types (but also of the shapes) documented at the site, where they occur almost unchanged in different structures associated with dates distributed over two centuries (from 7003 ± 55 BP to 6793 ± 40 BP, Figure 2). This kind of almost standardised production suggests the partial involvement of the pottery makers at times when they were not engaged in other primary activities (agriculture, livestock, etc.), as it is the case in later early historical horizons (Vidale 1992).



Figure 14. Stentinello pottery from San Michele di Saracena Cave (northern Calabria) (E. Natali).

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