TECHNOLOGICAL APPROACH OF CERAMIC PRODUCTION AT THE END OF THE IRON AGE AT I PALAZZI (NORTH-EASTERN CORSICA)

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Introduction

We propose to present here some technological aspects of pottery production at the archaeological site of I Palazzi, located on a plateau dominating the south part of the coastal plain of low-Casinca, in north-eastern Corsica. This region was occupied during the second and first centuries BC, during the early Roman colonisation of this part of the island. This study illustrates the development of pottery technology from before Romanisation until the end of the Middle Ages (Istria 1995; 2007). In this sense, it is one of the final exemplars provided by the Mediterranean protohistory before the colonialist and imperialist unification process.

The I Palazzi location and the end of the Iron Age: ceramic pottery in Corsica

The site of I Palazzi/Venzolasca is on the summit of a plateau (79 m high) where the view opens to the east, to the Tyrrhenian Sea, the coastal bays and Island of Elba (Figure 1). It has been excavated intermittently since 2001, in advance of a residential development that will affect the archaeological structures. The site was occupied between approximately 150 and 80 BC. The decline of this native site may have been due to the development of the Roman colony of Mariana, 8 km to the north, founded in 99 BC and populated by veterans of the campaigns of Caius Marius.

I Palazzi is, to date, the main source of information on the end of Iron Age societies in Corsica, particularly as to domestic organisation and production spheres, pending the detailed publication of Castellu/Luri (Nebbia and Ottaviani 1976), Carcu-Modria/Catteri (Weiss 1974), San Paolo/Meria, Sant'Anghjelu/Ajaccio and Mutola/Ville-di-Paraso (Figure 1); these three last sites are currently under study. The ceramic collections from the excavations in 2001 and 2010 at I Palazzi have recently been published (Arcelin and Chapon 2014; Peche-Quilichini and Chapon 2014) and contextualised across the northern Tyrrhenian (Piccardi and Peche-Quilichini 2013).

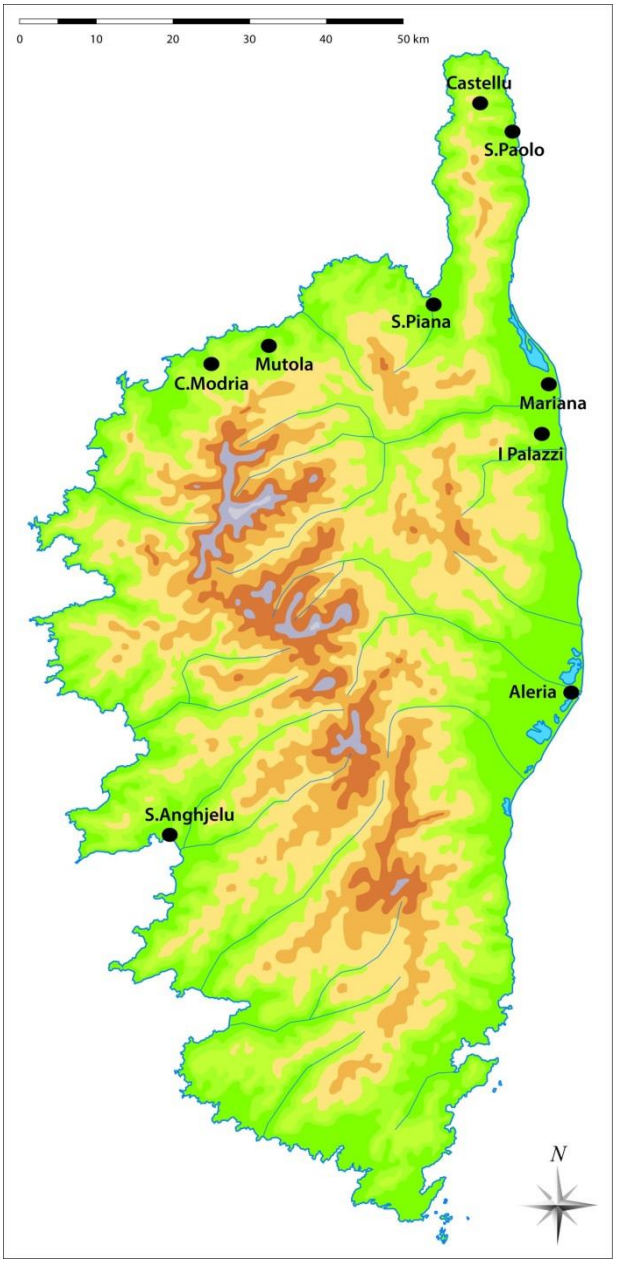

Figure 1. Location of Corsican sites mentioned in the text.

In 2014, the overall corpus of vessels of the end of the Corsican Iron Age was integrated in the DICOCER program: http://syslat.on-rev.com/DICOCER/d.index.html as part of post-doctoral work performed within the UMR 5140 ASM (Labex ARCHIMEDE, "Future Investment" program ANR -11- LabX - 0032-01), which has produced a typology of these assemblages (Figure 2). Technological aspects, frequently but superficially discussed in the archaeological bibliography, remained to be described accurately. They will be the subject of this article, which is based on the analysis of the artifacts of the 2013 campaign,

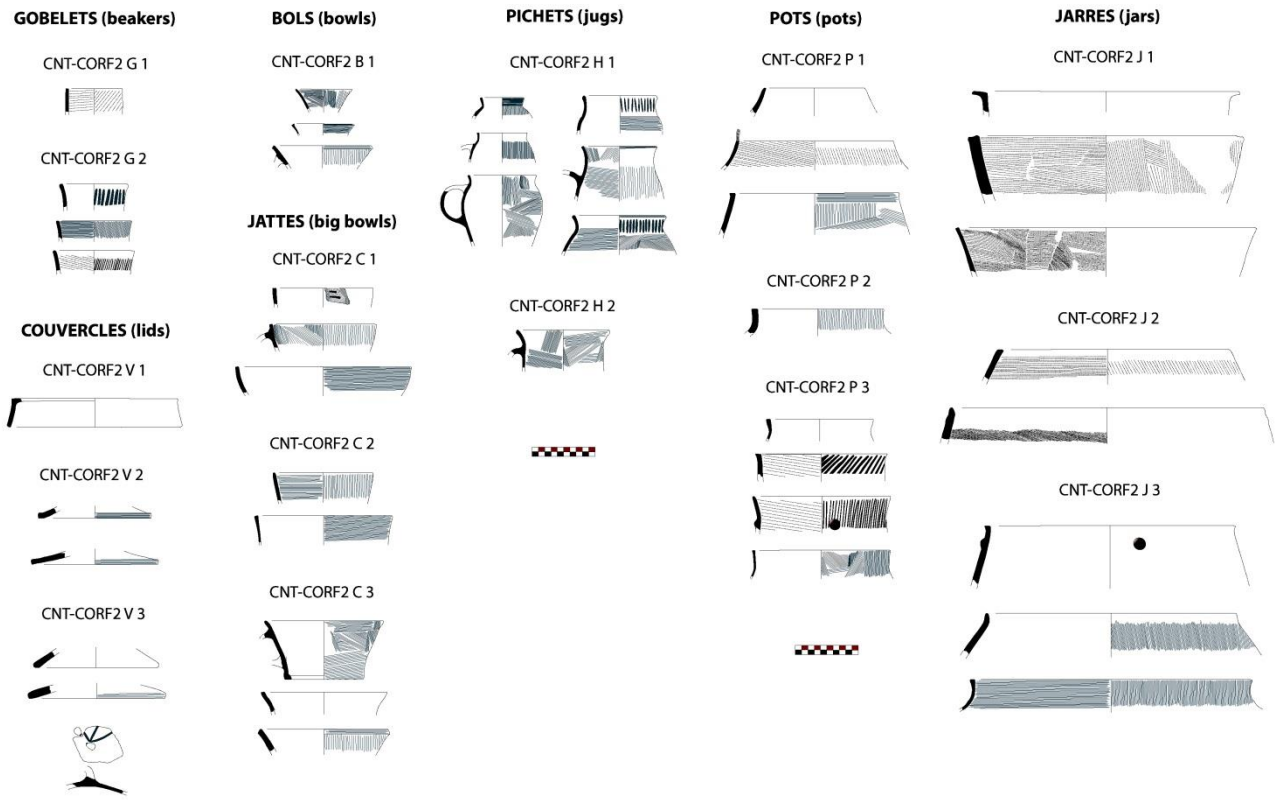

Figure 2. Typology of vessels from the end of the Iron Age of Corsica (DICOCER program).

including 260 sherds, of which 77 are diagnostic (rims, handles, studs, tabs, bases, lids, decorations and atypical pieces). At least 30 different vessels are represented (Figure 3).

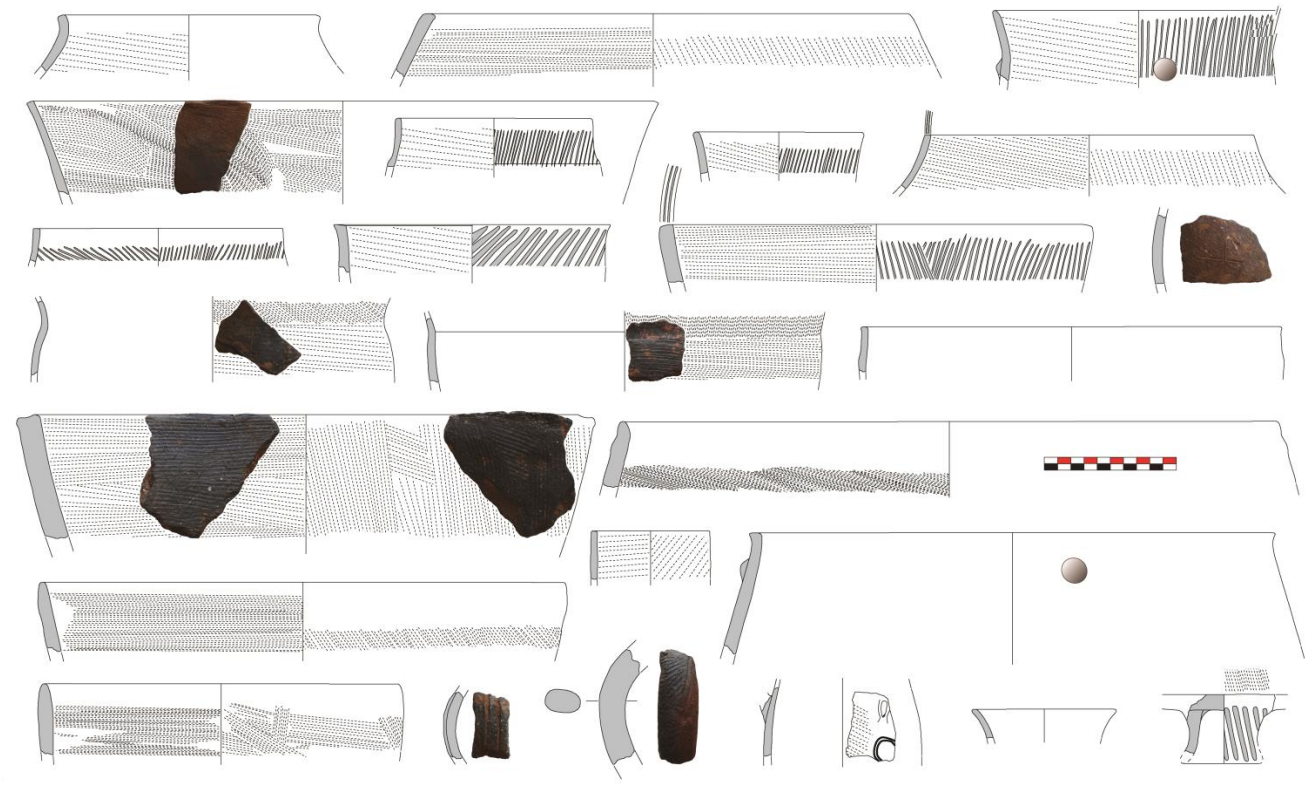

Figure 3. I Palazzi: characteristic ceramic vessels from the 2013 campaign.

Method and clay composition

Macroscopic analyses were carried out on the ceramics from I Palazzi using a magnifying glass. On the basis of the preliminary results, we would like to carry out petrographic analysis in future.

The clay bodies almost always contain a powdery or fibrous form of asbestos (Figure 4), deliberately included as temper.

Figure 4. I Palazzi: outer wall of a combed sherd with asbestos temper.

The use of asbestos is a typical characteristic of ceramic fabrics from north-eastern Corsica from the third century BC (Paolini-Saez 2012; Peche-Quilichini and Chapon 2014, fig. 3), which indicates that it was exploited as temper only in areas where this material was locally available. On the basis of macroscopic analysis of the thick body walls at I Palazzi, the proportion of these silicates in the plastic matrix is estimated at 12-15%. Non-plastic elements also include mica and mixed sands, composed of feldspar, quartz and mica schist, with highly variable proportions and sizes. It is possible to observe the use of different or poorly mixed clays in the same vessel (Figure 5).

It is likely that asbestos comes from deposits located a few kilometers south of the site (see Peche-Quilichini and Chapon 2014). Other inclusions in the ceramic fabrics, such as schist fragments and serpentinite, are from nearby alluvial contexts; in addition, the metamorphic clay is also local (see Gauthier 2006).

The function of asbestos is still unknown: it could have been used with symbolic meanings, or for the mechanical (e.g. strengthening the paste with a flexible mineral structure) and/or thermal properties (i.e. asbestos has refractory properties).

Figure 5. I Palazzi: inner surface of a sherd showing the use of differently tempered clays.

Shaping

All indigenous pottery at I Palazzi was made by hand-modelling of bulk clay and coils. These processes are documented by a large number of positive and negative joints, as well as the characteristic ripple of the surface of the inner walls (Figure 6). The base of the vessel was made by continuous pressure or the percussion of a flattened clay ball. Special care was given to the treatment of the joining of the wall and the base, whose junction is consistently effectively erased by smoothing.

Figure 6. I Palazzi: inner surface of a sherd showing the characteristic undulation of coiling.

The wall thicknesses are not always constant. Sometimes, in the case of involuntary thinning, the potter resorted to the use of "patches" of paste

(Figure 7). Any diameter and curvature asymmetries contribute a kind of coarseness to these vessels.
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Figure 7. I Palazzi: outer wall of a sherd bearing a patch.

The added features (banded handles, studs and tabs) are applied by simply pressure moulding of the clay. In the case of handles, clay reinforcements were frequently added inside (and more rarely outside) of the loop to strengthen the addition (Figure 8).

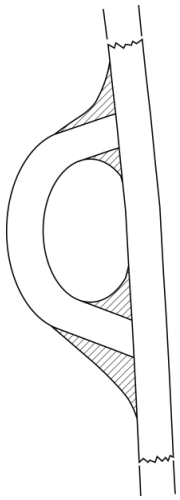

Figure 8. Schematic diagram of a handle observed in section; the hatched area corresponds to paste additions during fixing.

Surfaces and decoration

The surface treatment protocols were quite consistent; 87% of the pots were finger-smoothed before being rubbed with a comb on one or two walls. This is a technical innovation of Corsican production and has been recognised throughout the island (Piccardi and Peche-Quilichini 2013). These traces are usually shallow, implying special attention not to apply too much pressure with the teeth of a rigid comb or, more simply, they indicate the use of a flexible tool. These protocols also apply to the flat base and the rim. On the outer wall of the upper part of certain pots, combing is deeper and directed vertically, using a tool with wider-spaced teeth. The recurrent combination of techniques may reflect their use as decoration rather than surface finishing, if indeed the two concepts can be separated. On these bases, comb-marks are generally circular, and parallel to the circumference (Figure 9). Plastic additions have longitudinal comb-marks. In rare cases, these different types of superficial scraping are partially erased by subsequent smoothing.

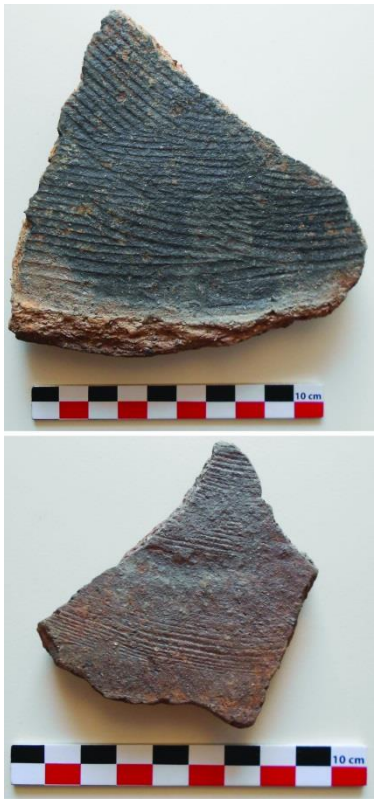

Figure 9. I Palazzi: two examples of combing treatment on the internal surface of the bottom.

The sherds have been classified into four categories corresponding to the location of these surface wall treatments:
- Category A: combing/brushing on both external and internal walls;
- Category B: combing/brushing on external wall only;
- Class C: combing/brushing up on internal wall only;
- Category D: combing/brushing missing.

The proportion of these different categories is given in Figure 10. It shows the predominance of category A, about 41%, closely followed by category B with 37%. Class C, with 9%, is the least common, while 13% of the examined fragments do not carry any type of combing/brushing surface treatment (class D). Morphological analysis (Figure 3) shows that the shape and position of the treatment are not correlated with the container profiles. The same pattern was seen in finds from the 2010 campaign, except that "S" profile vases which, more often than others, had wide vertical and parallel lines in the upper part (Peche-Quilichini and Chapon 2014, fig.4,

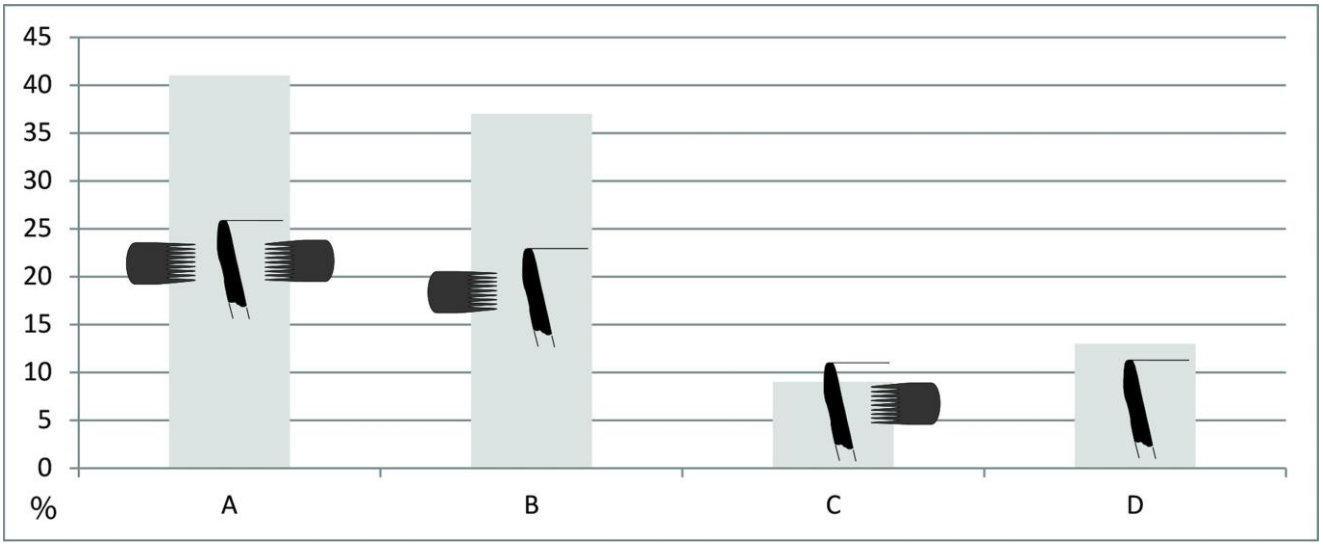

Figure 10. I Palazzi: 2013 campaign, proportion of the different categories defined by the combing treatments position.

no. 1, 2, 5-7). It is also on this kind of profile that the orientation of the external combing changes at the maximum curvature line, located at the base of the neck (Figure 11).

Figure 11. I Palazzi: outer wall of the constricted area at the base of the neck, showing a change of the direction of the combing treatment.

Among other trends, it should be noted that class B vessels have undergone a more superficial treatment than that accorded to categories A and C. For category A vessels, external combing is generally shallower than that on the inner surface. It is remarkable that the surface treatment orientation is always different between the two walls. In 95% of cases, the internal combing is sub-horizontal. On 57% of these vases, external combing has a difference of 40 to 45° in orientation, and in 43%, the difference is 80 to 90° (the internal and external comb-marks are perpendicular to each other). The recurrence of these trends shows that a standardisation of the treatment exists, which can therefore be summarised in two choices for category A. The internal combing is also sub-horizontal for Class C. Class B is characterised by greater diversity and changes of inflection in the gesture of the potter. It should also be noted that this finding is complicated by the practice of mixed combing (multidirectional and sometimes consecutive comb-marks) (Figure 12).

This kind of surface treatment could have been done only using a tool positioned transversely to the wall. Comb treatment inside vases with narrow openings shows the use of tools less than 10 cm long, such as combs from the contemporary site of Scaffa Piana (Figure 13; J.C. Ottaviani and J. Magdeleine pers. comm. 2009). The recurrence of horizontal combing of the internal walls is also due to the pot curvature, which prevented uniform surface treatment (known combs all have a straight active edge).

Also noteworthy here are decorations, mostly grooves (made by a blunt or angular section tool) defining simple geometric shapes, such as isolated or doubled lines, circles, rectangles, wavy, etc. The rim, the upper wall of the lids and the handles are the most commonly decorated areas; the body of the containers is rarely decorated using these techniques. These decorations are always made after the comb decoration.

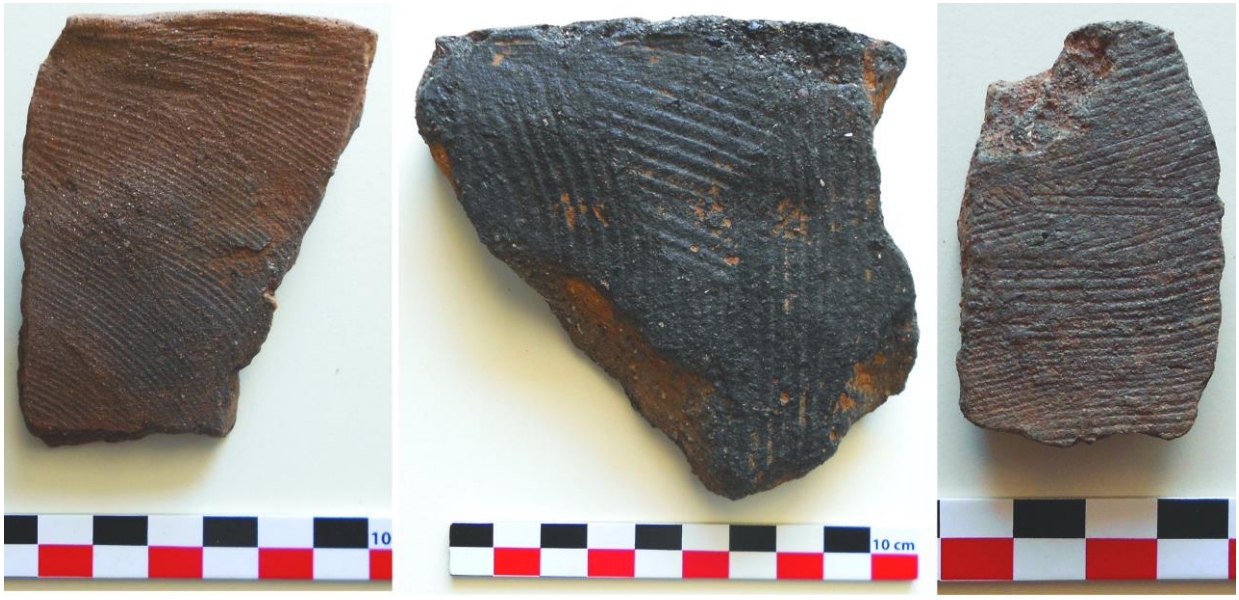

Figure 12. I Palazzi: left) unidirectional combing; centre) multidirectionnal combing; right) superimposed combing.

Figure 13. Scaffa Piana: bone combs (photo: Museum of Sartene; work: J.-C. Ottaviani and J. Magdeleine).

Firing

The firing mainly took place in an oxidising atmosphere, even if the colour of a wall changes from red to black or grey over a few centimeters, indicating localized contact with the fuel (Figure 14). Several vessels carry oxidised metal traces on their inner surface: these appear to be related to a function of storing iron objects, rather than a specific treatment before or during firing.

Chronological and cultural meanings

As often reported in the literature, these ceramic productions have a dual technical originality with the use of asbestos temper and the codified use of comb-decoration (e.g. Camps 1988; De Lanfranchi and Weiss 1997). However, recent studies show that these technical features are typical aspects of part of the Iron Age period and not found everywhere in the island.

The presence of asbestos actually suggests a certain determinism related to raw material availability. These productions, with the exception of a few pots distributed to the south of Corsica (Paolini-Saez 2012) and the Tyrrhenian coasts (Piccardi and Peche-Quilichini 2013), are found only in the asbestic areas of the north-east of the island (Peche-Quilichini and Chapon 2014, figure 3). Chronologically, the use of this type of temper is occasional at the end of the Early Iron Age and becomes dominant towards the end of the third century BC, lasting until the Augustan period when it disappears. The pottery wall combing technique covers the entire island. It seems, initially, to have developed in the South of Corsica, from a reorganisation of incised decoration towards the end of the Early Iron Age (Peche-Quilichini 2014). This is a hypothesis that should be proved to support the integration of ceramic typological sequences of the fifth/fourth centuries BC, which remain poorly documented. Therefore, the combination of these two criteria cannot be regarded as the defining markers of an Iron Age perceived as a techno-stylistic block, but as a material expression with geographical and chronological aspects.

Vessels identified as being manufactured in Corsica have been found on coastal sites on Elba, in Tuscany and in Liguria and date between the third and the first century BC (Figure 15; see comprehensive

Figure 14. I Palazzi: chromatic differences from the atmosphere during firing; left) handle; right) inner wall.

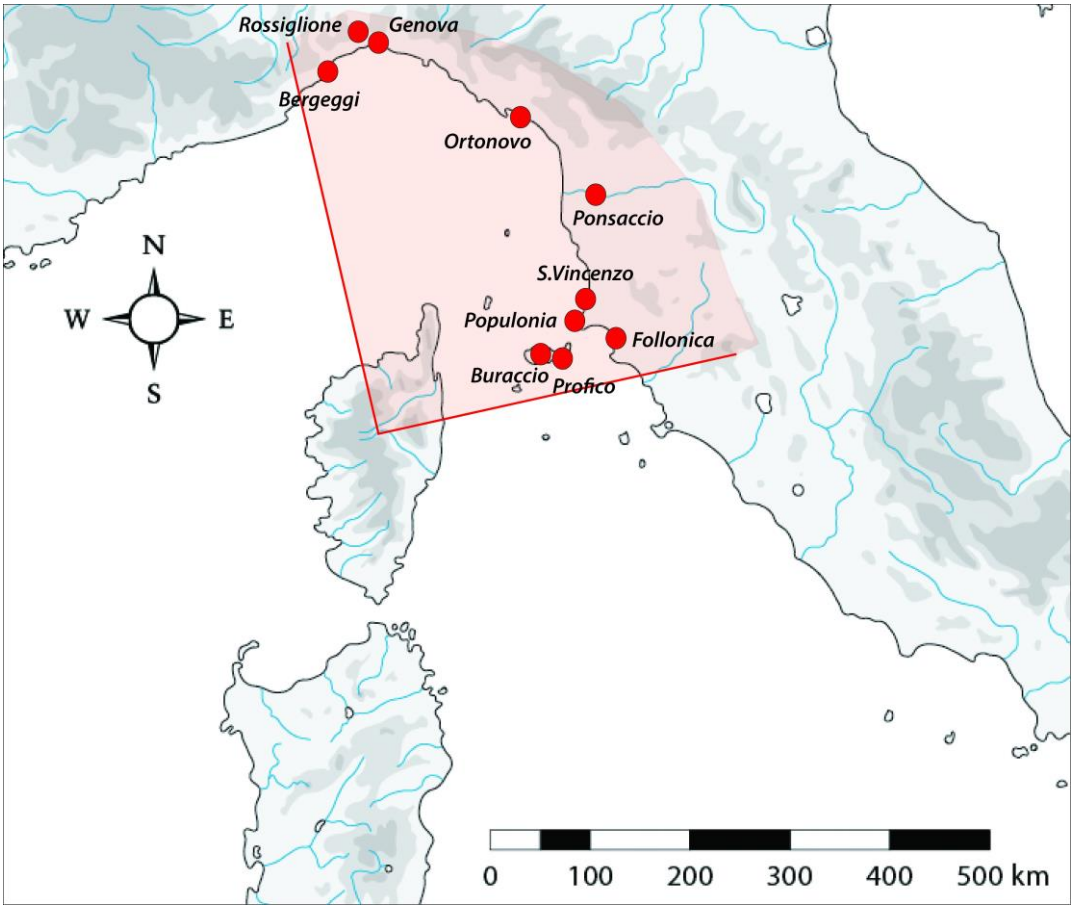

Figure 15. Diffusion area of mono-handled Corsican jugs abroad.

bliography in Piccardi and Peche-Quilichini 2013, and Peche-Quilichini and Chapon 2014)[1].

This consideration demonstrates the reliability of these remains as a point of reference, both for the definition of production sites and for the ethnicity of the potters and functional use of the pots. Heterogeneous data provided by the Italian bibliography (see Pallecchi 2001; De Tommaso and

[1] This discussion has recently been enriched by a discovery made on the beach of S. Vincenzo near Populonia (L. Giannoni pers. comm. 2014).

Figure 16. Mono-handled jugs from Alalia/Aleria necropolis, fifth/fourth century BC (photo: Aleria museum).

Romualdi 2001; Grandinetti 2000; Mordeglia and La Terra 2012) show that four criteria are systematically used to define a Corsican jug (*boccale corso)*: manual shaping, asbestos presence, combing macrotraces and a specific shape ("S" profile jugs with one handle). Consequently, as these characteristics are only associated with certain vessels, in certain areas and at a certain time, it is likely that we do not yet recognise a significant part of Corsican exported products. As it stands, the artifacts identified as such are typical from the area (North Cape, Marana-Casinca, Castagniccia Aleria plain) nearest to the importing regions (Elba, Tuscany, Liguria, Lazio and even eastern Provence), which may only express local links. This pessimistic assessment is further complicated by the discovery of Corsican-style ceramic workshops on Elba (Pallecchi 2001). These vases are quite similar to the Corsican ones, except that they do not include asbestos in their clay, either because this mineral is absent from Elba or due to divergent technical traditions. We could even develop this last hypothesis, imagining potters working in the same way as their counterparts in the south of Corsica, which use "classical" temper. The most likely option is the settling of Corsican groups in Elba and Populonia, with artisans more or less involved in maritime trade linking Corsica to Etruria in the aftermath of the Second Punic War.

Finally, it remains to define the function of these Corsican jugs in the context of expanded trade. It seems likely that the movement of these products reflects the value of their contents, not the container itself which is admittedly coarse for people daily handling black glaze vessels. Italian archaeology, which is in this instance, based exclusively on written sources (e.g. Titus Livius 40, 34-12), has systematically proposed a role as a honey container for these mono-handled jugs (Figure 16). The hypothesis is plausible and reinforced by the porosity of these vases, which could obviously not contain liquids, but this theory remains to be tested by biomolecular analysis (e.g. GC-MS).

At the dawn of Romanisation, the north-eastern Corsican Late Iron Age ceramics illustrate one of the last protohistoric traditions on the island. Our knowledge of these ceramics has improved significantly over the past ten years, and will again soon, thanks to the 2014-2015 excavations. These achievements, however, will not be enough to mask poor geographic coverage (southern and western Corsica remains are still not documented) and chronological questions (e.g. the beginning of the Late Iron Age is almost totally unknown). The research opportunities are therefore numerous. It is through their development that we can take a fresh

look on the last protohistoric societies throughout the western Mediterranean.

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