Preistoria Alpina
ISSN 0393-0157
homepage: https://www.muse.it/home/ricerca-e-collezioni/editoria-muse/riviste-e-collane/preistoria-alpina/

Article

Analysis of some Luco-type ceramic samples from the collections of the Museum of Natural History of Verona: preliminary investigative perspectives

Massimo Saracino[1]*

[1] Musei Civici di Verona – Museo di Storia Naturale di Verona

Keywords

- Late Bronze age
- Archaeometric analysis
- Luco/Laugen facies/culture
- Exchange models

Parole chiave

- Tarda età del Bronzo
- Studi di caratterizzazione
- Facies/cultura di Luco/Laugen
- Modelli di scambio

* Autore per la corrispondenza:
massimo.saracino@comune.verona.it

Summary

There have been few archaeometric studies of the protohistoric impasto pottery characteristic of the central-Alpine Luco culture. A preliminary paper by Marino Maggetti and collaborators (1979) on the pottery from some sites in Trentino-Alto Adige/Südtirol, Lower Engadine and Upper Rhine Valley showed that 77% of the samples examined, especially the Swiss ones, came from the Trentino and/or Bolzano area, reflecting a pattern of exchange which was probably also linked to other raw materials and other products.
Since then, the question has not been further addressed, but the recent identification of Luco-type pottery outside the canonical Luco area (mainly in Veneto and Lombardy) have both offered support for working hypotheses and a test case in which archaeometry can make a valid contribution in support of one interpretative model rather than another.
This paper discusses, some pottery sherds from sites at Molane (Monte Pastello), Verona-Via Valverde and Colognola ai Colli (in the province of Verona). Typologically, they seem attributed to the Luco facies, but it cannot be excluded that some of them are "Lucheggianti" in the sense that they are local re-elaborations of Trentino models and dated to the Late Bronze Age.
The aim of this study is to objectively discriminate local products from imports and possible attempts at copies, which are also found for other more valuable contemporary products.

Riassunto

Nell'ambito degli studi archeometrici sulla ceramica d'impasto protostorica, le produzioni vascolari caratteristiche della facies centroalpina di Luco sono state scarsamente oggetto d'indagine. Un preliminare lavoro a cura di Marino Maggetti e collaboratori (1979) sulle ceramiche di alcuni siti del Trentino-Alto Adige, Bassa Engadina e Alto Reno aveva evidenziato che il 77% dei campioni esaminati, soprattutto quelli svizzeri, risultavano di provenienza dall'area trentina e/o bolzanina riflettendo un modello di scambio legato verosimilmente anche ad altre materie prime e altre produzioni.
Da allora la questione non è stata ripresa, ma il riconoscimento, anche recente, di tipologie ceramiche fuori dal canonico areale Luco (principalmente in Veneto e Lombardia), hanno offerto da un lato supporto per ipotesi di lavoro e dall'altro un banco di prova su cui l'archeometria può dare un valido contributo a sostegno di un modello interpretativo piuttosto che ad un altro.
Il presente contributo prende in considerazione da un punto di vista archeometrico alcuni frammenti ceramici provenienti dai siti di Molane (Monte Pastello), Verona-Via Valverde e Colognola ai Colli (in provincia di Verona). A livello tipologico sembrerebbero afferibili alla facies Luco, ma non è da escludere che alcuni di essi possano essere considerati "lucheggianti" nel senso di rielaborazioni locali di modelli trentini e cronologicamente inquadrati al Bronzo tardo.
Scopo di tali analisi è quello di discriminare oggettivamente le produzioni locali dalle importazioni e da eventuali tentativi di riproduzione, come riscontrato anche per altre produzioni coeve più pregiate.

Redazione: Marco Avanzini, Elisabetta Flor, Valeria Lencioni

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Saracino M. 2022 - Analysis of some Luco-type ceramic samples from the collections of the Museum of Natural History of Verona: preliminary investigative perspectives. Preistoria Alpina, 52: 129-135

Introduction and *status quaestionis*

In the complex picture of the protohistory of the central-eastern Alpine region, among the various archaeological phenomena which are best known in the Late Bronze Age, the Luco/Laugen facies or culture is certainly the most significant and interesting one (Marzatico 2012; Gleirscher 2015).

We are not going to go into whether this phenomenon can be defined as a facies or culture (for which see Marzatico 2020); it corresponds to Halstatt periods A1, A2 and B1 north of the Alps, but may already have started during Bronze Age D, which corresponds to the Recent Bronze Age in Italy, chronologically between 1250/1200 and 1000/950 BC and marked by a characteristic vascular production (Gleirscher 2015).

Its identification, definition and contextualisation has been the topic of research since 1927, when Gero Merhart considered this facies/culture to be an emanation of the Illyrian-Venetian movements that penetrated through the Pusteria valley to the Upper Rhine during the Early Iron Age (Perini 1976).

As Franco Marzatico has repeatedly emphasised (2020 and references therein), from the 1950s to the present, research and studies have mainly focused on investigating the period and area of formation, the mode of diffusion/expansion, the chronological limits and the recognition or otherwise of a continuous process of ethnogenesis with the later Fritzens-Sanzeno cultures.

However, with the exception of more complex pyrotechnologies, such as metallurgy (most recently Bellintani & Silvestri 2021) and glass materials (Bellintani & Angelini 2020 and references therein), there have been few archaeometric studies of the impasto pottery found both in the core area and in the regions to the south and north.

The first to deal with this subject more than 40 years ago, following the suggestion of Silvio Nauli and Lotti Stauffer of the then Rhaetian Museum in Chur (Rätisches Museum), were Marino Maggetti and collaborators from the University of Fribourg (Maggetti et al. 1979, 1982, 1983; Marro et al. 1979; Stauffer et al. 1979), on the basis of Christian Marro's (1978) degree thesis.

These mineralogical and petrographic analyses focused on a total of 454 ceramic samples dating to between Phase A (mainly beaked jugs and tronco-conical jars with decoration of varying complexity) and Phase C from about 30 sites located in the Upper Rhine, eastern Switzerland, Liechtenstein and Trentino-Alto Adige/Südtirol (Maggetti et al. 1983)[1].

There were three importantresults of this research (Maggetti 2005) with regard to phase A:

1) the specific character of pottery production in the Atesina area between Bolzano and Trento, whose fabrics consist of local raw materials and are rich in volcanic inclusions, such as quartz porphyry and derivative minerals. Within this region, the fragments with this composition are also found at sites further north in areas dominated by gneissic-granitic rocks, indicating that the pottery was taken from south to north;

2) the prevalence at the three Inn Valley sites examined (Scuol-Munt Baselgia, Ramosch-Mottata, Ardez-Suotchastè) of impasto ceramics rich in quartz porphyry fragments from the Atesina area between Bolzano and Trento. This amounted to 77 per cent of the samples analysed, while a small part (6 per cent) contains local rock fragments or minerals, such as amphibolites, schists and gneiss, and the remainder carbonate-dolomitic elements of uncertain origin;

3) the local production in the Upper Rhine was circumscribed to the area, which indicates the transmission of formal ceramic models from areas further south in the Inn Valley.

Since then, there has been little attention paid to this area of research, except for works that provide a general overview of the problem (Levi & Sonnino 2003; Saracino 2011) or that examine pottery production technology through time from phase A to phase C, during which the Alps acted as both a passage and a barrier (Maggetti 2005).

In this research panorama, the recent re-examination and publication of several sites in the Italian plain and pre-Alps has shown that this type of pottery may occur at considerable distances from its core distribution, for example, at the settlements of Parre-Castello and Cascina Montecchio on the Serio river in central Lombardy or at Frattesina of Fratta Polesine along a palaeo-channel of the Po in south-eastern Veneto (Marzatico 2012; Gleirscher 2015; Pearce et al. 2019).

Almost concurrently there have been new mineralogical-petrographic analysesof samples found at two important sites in the Veneto region dating to between the Recent Bronze Age 2 and the Early Iron Age: Castel de Pedena (Angelini & Leonardi 2012) and Frattesina di Fratta Polesine (Bietti Sestieri et al. 2019).

A number of Luco A and B type fragments have been found at Castel de Pedena, which is siutuated at the edge of the Luco culture area in the middle Valbelluna and is sited on the top of a hill overlooking the valley of the Cordevole stream and the Piave river (Donadel 2012). Five of these sherds been analysed, and were found to be mostly local products, except for one fragment (M15) that seems to come from an area about 30-35 km north of the site (Tenconi et al. 2017). This is a Final Bronze Age cup, whose coarse fraction consists of numerous polycrystalline quartz and graphite phyllite, few chert, and rare monocrystalline quartz, micritic limestone, and clay pellets, while the fine fraction has predominant quartz crystals, few chert, polycrystalline quartz, rare muscovite, and opaque minerals (Tenconi et al. 2017: 970).

A fragment of a large biconical vessel with a brim lip and internal edge, bent at the end and decorated with oblique notches was found at Frattesina, a site which in prehistoric times was located on a palaeo-channel of the Po di Adria at a considerable distance from the core area of the Luco facies (Bellintani & Saracino 2015, fig. 4, 1 - FRSup). The sample analysed presents fragments of bioclasts derived from the Middle Eocene limestones outcropping in the Beric Hills (Saracino et al. 2018, fig. 3, i). The presence of these macroforaminifera, isolated from the limestone that contained them, seems to suggest that this mixture was obtained by adding to the clay a sediment derived from the disintegration of fossiliferous limestone and fragments of ground rock. This therefore indicates that the area of production of the pottery was close to the Beric area (about 40 km north of Frattesina), and is completely different from the local clay fabric used for the other pottery (Saracino 2006; Saracino et al. 2018).

The results of these initial investigations provide a starting point for further investigation of the reasons for the presence of Luco or 'Lucheggiante' type pottery (i.e., that copies the principal Luco types) along the foothills and in the Po Valley.

In view of the material published, in this first phase we wanted both to set up the work and to verify, by means of petrographic analyses, whether the results might suggest a production and/or circulation model, i.e. whether the material comes from the territory ascribed to the Luco facies between Trento and Bolzano (as in the case of the products from the Lower Engadine), whether it is imported from other areas (as in the case of the samples from Frattesina and Castel de Pedena) or whether it was produced in situ using allochthonous formal models (as in the other cases).

Overview of the sites

The samples considered here were found at a number of sites in the Veronese territory with different geo-morphologies and are preserved in the collections of the Museum of Natural History of Verona: Molane - the site called "Pozza versante Valdadige", Verona-Via Valverde, Monte Casteggion di Colognola ai Colli (Figure 1).

Rescue and field research was carried out by the Museum of Verona at the three sites during the 20th century; while at Monte Casteggion di Colognola ai Colli, after an archaeological preservation order, four excavation sectors were opened along the terraces between 1981 and 1982 (Salzani 1983).

[1] For a complete list of sites sampled, see Maggetti et al. 1979, 1983 and Maggetti 2005.

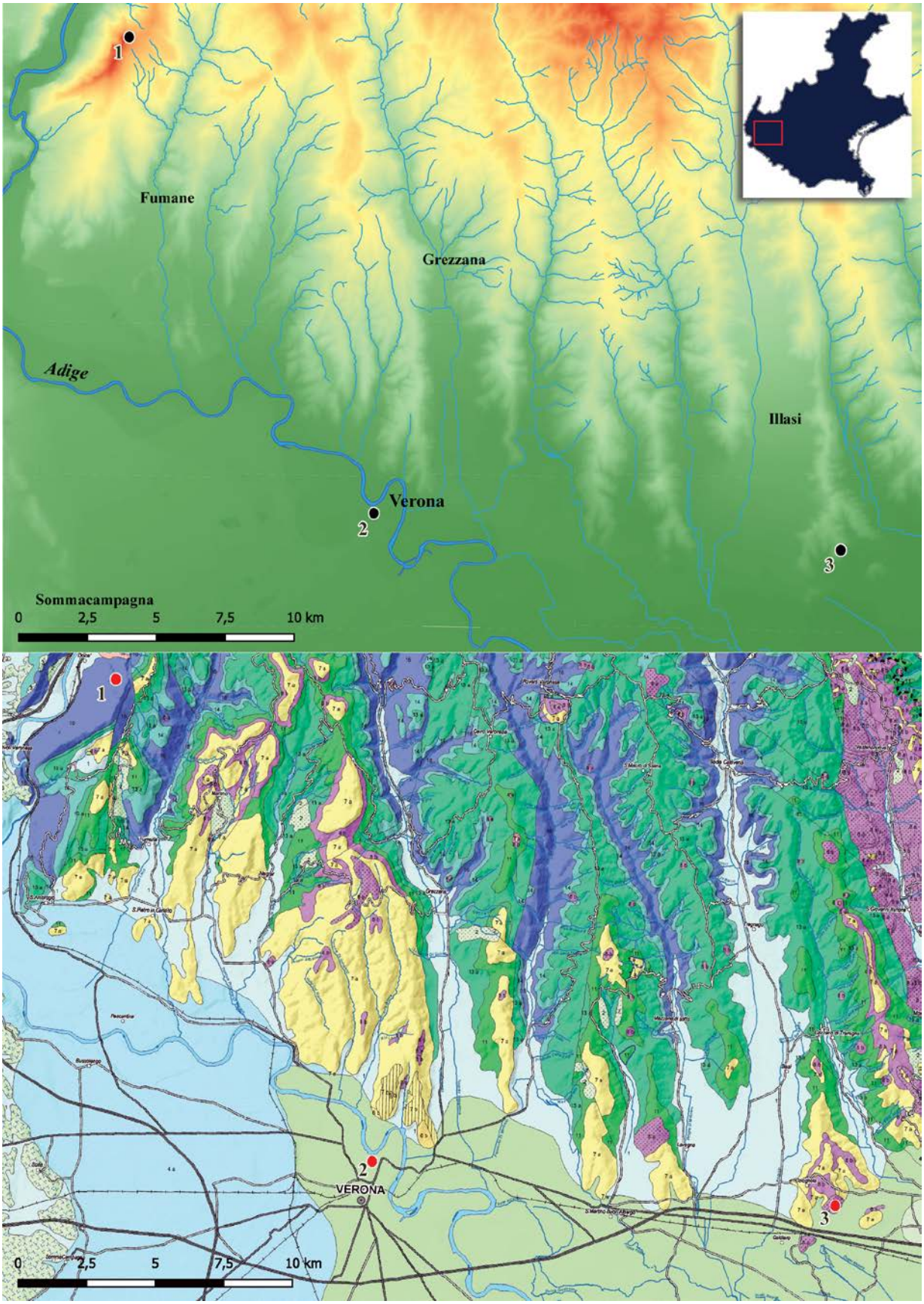

***Fig. 1**: Map showing the sites under study in relation to the DEM and lithostratigraphy. Molane (no. 1): oolitic limestones and encrinites, limestones with marly intercalations, dolomies. Lower Dogger - Upper Lias; Verona-Via Valverde (no. 2): alternations of gravels and sands with silts and clays - Quaternary; Monte Casteggion di Colognola ai Colli (no. 3): cast basalts, lava flows and lava tubes - Oligocene - Upper Palaeocene. / Mappa dei siti studiati in relazione al DEM e alla litostratigrafia. Per quanto riguarda Molane (n. 1): calcari oolitici ed encriniti, calcari con intercalazioni marnose, dolomiti. Dogger inferiore - Lias superiore; Verona-Via Valverde (n. 2): alternanze di ghiaie e sabbie con limo e argille - Quaternario; Monte Casteggion di Colognola ai Colli: colata di basalti, colate laviche e tubi lavici - Oligocene - Paleocene superiore.*

Molane is situated at approximately 900 m above sea level to the north-east of Monte Pastello, in the municipal territory of Fumane, on the eastern side of the ridge separating the Adige Valley from the Fumane Valley. The area is characterised by clayey matrix deposits, mostly with few carbonates, sometimes rich in altered flint fragments (Zorzin & Rioda 2004), and its natural history was the subject a study by the Natural History Museum of Verona between 1998 and 1999 (Latella 2004). As regards the purely archaeological investigations, survey was concentrated in three areas, and mainly lithic material was collected which indicated human frequentation during the Upper Palaeolithic, the Neo-Eneolithic and the Late Bronze Age, the latter documented by the ceramic fragment in question (Longo & Zanini 2004, 318-320).

Verona-Via Valverde 65 is located just outside the medieval city walls, an area marked by terraced fluvioglacial and fluvial alluvium of the ancient Adige cone. The site is located on the edge of a fluvial terrace bordered by the palaeo-channelf the Adige (De Zanche et al. 1977). The documentation in the Museum does not record the find circumstances, which occurred in October 1947, and the site is known as n. 65, “Casa Rabacchi” or “Casa Rabocchi” (Aspes et al. 2002, 61). In addition to the Luco pottery fragment, the site also has evidence of lithic industry, a dentalium shell and various ceramic fragments, including one with a horizontal furrowed decoration below which are thin bands of parallel incisions forming a probable wave pattern datable to the Late Bronze Age (Saracino et al. 2021, fig. 7, 5).

Monte Casteggion di Colognola ai Colli is located at the end of the ridge separating the Val d'Illasi from the Val Tramigna, on a basaltic-tufa rocky spur at the entrance to the Val d'Illasi at an altitude of about 140 m a.s.l. The ridge is part of the pre-Alpine reliefs of the Mesozoic carbonate structural platform, but most of its territory is affected by fluvial deposits of the recent alluvial plain and, at the extreme south, by mobile deposits of the present-day Adige riverbed (Balista 1983). Chance discoveries were made at the site as early as 1881, but it was not until 1967 that more detailed research began by the Museum of Natural History of Verona, and then also in collaboration with the then Superintendency of Antiquities of the Veneto (Rizzetto 1973), which conducted its own excavation between 1981 and 1982. The site was inhabited discontinuously between the Middle Bronze Age and the Middle Ages, during which phases of occupation alternated with long periods of abandonment, and deep anthropic activities on the hill have changed its original morphology (Salzani 1983). In our case, the various researches have in fact made it possible to identify materials and semi-underground structures attributable to two main phases separated by a gap in settlement: the Early Iron Age (Este I) and from the 4th century B.C. to the Roman period. In this second phase, a Rhaetic presence is particularly evident, as attested by a whole series of ceramic and metal artefacts and specific dwelling types (Salzani 1983; Migliavacca 2013).

The analysed samples

The fragment from Molane (Figure 2, MPM01) has a brim with an internally thickened corner fold, belonging to a closed vessel (a biconical form or jar). The rim has a turban-like undulation and an upward folded end, a feature that is present, for example, in the vascular repertoire of the Appiano-San Paolo sites (Leitner 1988, Abb. 53, 28-29). The specific feature of the sample is the co-presence of typological elements that are partly characteristic of the Luco area (such as the folding of the rim) and partly of the Veneto area, such as the decoration and the thickened brim. Surface porosity is particularly high.

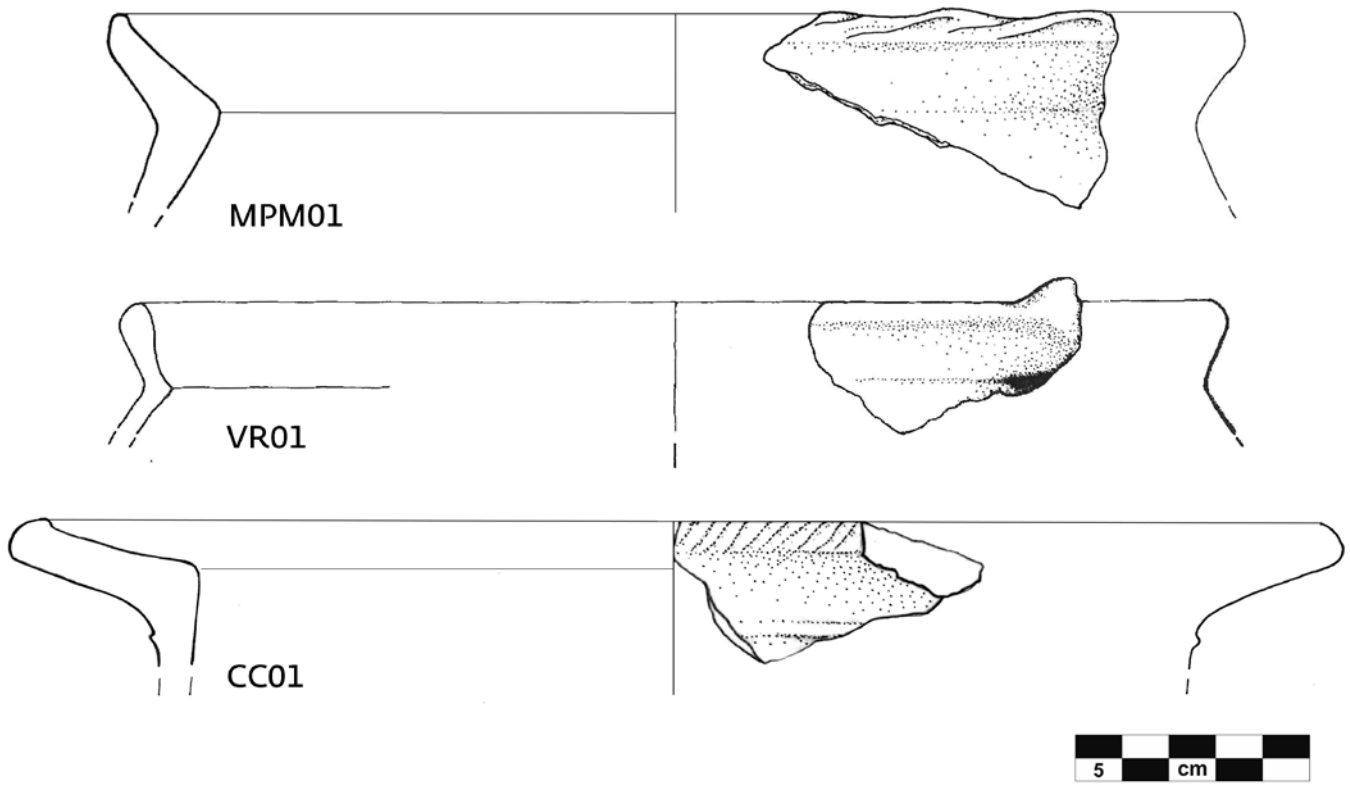

***Fig. 2**: Ceramic sherds subjected to petrographic analysis from Molane (MPM001), Verona-Via Valverde (VR01) and Monte Casteggion di Colognola ai Colli (CC01). / Frammenti ceramici sottoposti ad analisi petrografiche provenienti da Molane (MPM001), Verona-Via Valverde (VR01) e Monte Casteggion di Colognola ai Colli (CC01).*

From Verona-Via Valverde 65 (Figure 2, VR01) comes an ornamented fragment of a probable jug with an enlarged rim, with a short slightly undulating brim and an accentuated internal fold. The specimen has a fragmentary protuberance above the rim, referable to a spout, comparable to similar types from, for example, layer F of the excavation at the Ciaslir site of Monte Ozol in Valle di Non (Perini 1970, fig. 24, 36), Salorno-Dos de la Forca (Pisoni & Tecchiati, 2019, table 17, 8), and Appiano-San Paolo (Leitner 1988, Abb. 58, 10 with oblique notches on the rim). Clear signs of heat exposure are present on part of the rim, while the rest of the greyish surface is well smoothed.

The sherd from Monte Casteggion di Colognola ai Colli (Figure 2, CC01), erroneously drawn and published in the past (Rizzetto 1973, Tav. III, 15), belongs to a probable tronco-conical vessel with straight wall and brim with internal fold and sharp edge; on the rounded and recessed rim there is a decoration with oblique notches and under the throat there is a smooth cord. The type can be compared with similar fragments with or without decoration from several sites, including Ganglegg/Sluderno (Steiner 2007, Taf. 73, 13), Ciaslir - Mount Ozol (Perini 1970, fig. 22, 7), Appiano-San Paolo (Leitner 1988, Abb. 43, 8 without notches on the rim and Abb. 53, 22 without decoration) and Tuiflslammer - Pianizza di Sopra/Caldaro (Steiner 2015, Abb. 20, 6: Luco A: Ha A1-B1/BF).

The sherd, a surface find, is part of a ceramic corpus with formal and decorative features that can be dated between the Final Bronze Age 3 and the beginning of the Early Iron Age.

On the whole, the samples belong to the Late Bronze Age and Early Iron Age.

Method and preliminary results

The results of the petrographic analyses conducted by Lara Maritan at the laboratories of the Department of Geosciences of the University of Padua are presented in a preliminary and summary form, and will be the subject of a later detailed study (Saracino et alii forthcoming). Observations of the thin sections under optical microscopy have shown the heterogeneity of the fabrics of the three samples with some qualitative and quantitative differences. Those from Colognola and Verona (Figure 3, a e b) are particularly rich in rounded inclusions, while that from Molane (Figure 3, c) is finer. In the first two cases, we are certain of a local provenance: as regards Colognola, microscopic observation showed an excellent degree of compatibility with a very carbonate-rich clay from the nearby Mesozoic platform, while in the case of the Verona sample, both in terms of texture and composition, the use of alluvial clays from the Adige is certain. In the third case, we are quite certain of a non-local provenance due to the presence of inosilicates and metamorphic rocks that not present on the eastern slope of Monte Pastello where the sample was found.

Discussion and open conclusions

This preliminary study, based on a very limited number of samples, aims to be the starting point for a broader project that will also involve other contexts that have yielded similar types of pottery. In fact, their wide distribution in the territory of northern Italy will have to be contextualised from a chronological and cultural point of view, both in relation to recent absolute dating (Pearce et alii 2019) and to our understanding of the different forms of and reasons for interaction that the Luco populations undertook with the different actors (socio-economic and/or cultural) situated in different environmental contexts since the later Bronze Age (Pearce & De Guio 1999; Marzatico 2007, 2021, 2022; Leonardi 2010; Bellintani 2014; Bellintani et alii 2021: 310-315; Reitmaier 2020).

The integration with mineralogical and chemical data, including clays, and an implementation of the samples could certainly clarify certain aspects that are highlighted here.

What we can argue at this stage of the research is that the samples from the collections of the Verona Museum do not fall into one of the three case studies highlighted by Maggetti and collaborators

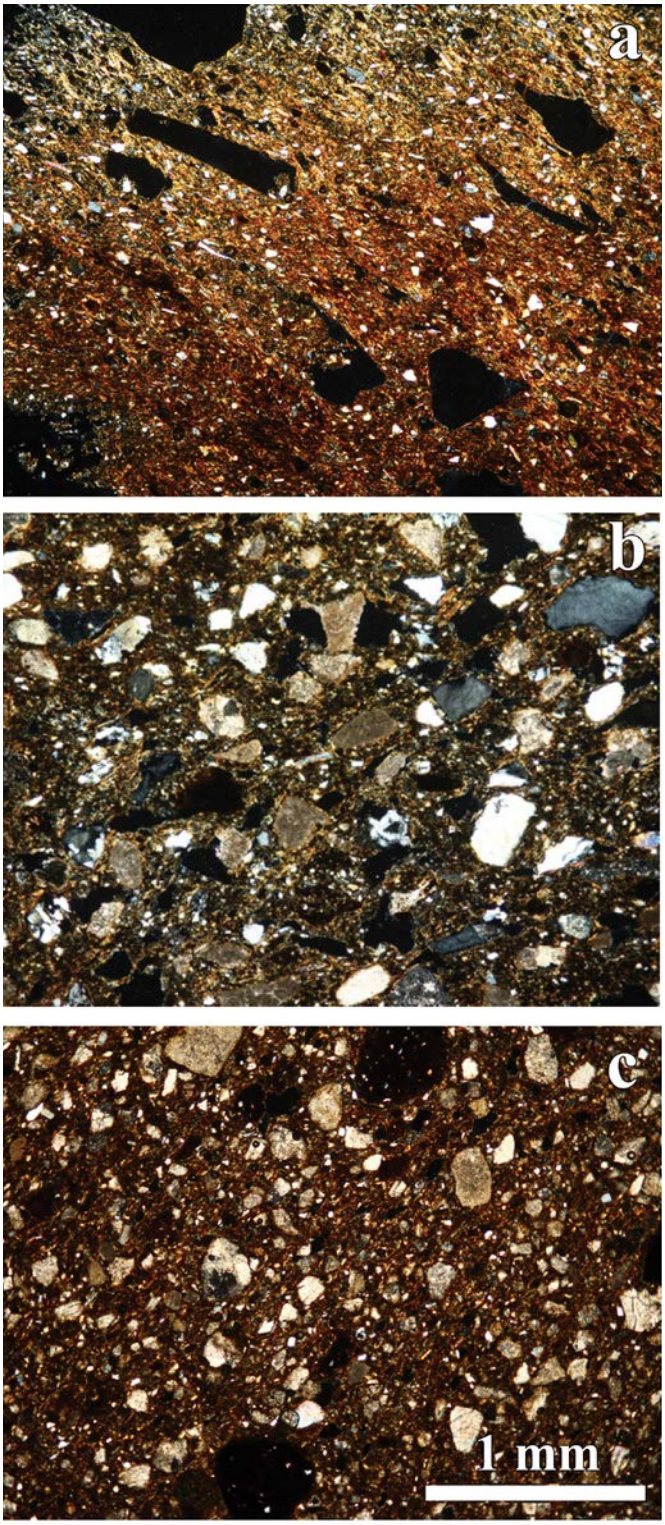

***Fig. 3**: Thin sections images recorded with a optical microscope using transmitted polarised light (crossed nicols) relating to samples from: a) Monte Casteggion di Colognola ai Colli (CC01) notably rich in rounded inclusions relative to a carbonate-rich clay; b) Verona-Via Valverde 65 (VR01) related to alluvial clays of Adige river; c) Molane (MPM01) with inosilicates and metamorphic rocks fragments. / Immagini a sezioni sottili registrate al microscopio ottico mediante luce polarizzata trasmessa (nicoli incrociati) relative a campioni provenienti da: a) Monte Casteggion di Colognola ai Colli (CC01) particolarmente ricco di inclusioni arrotondate relative ad un'argilla ricca di carbonati; b) Verona-Via Valverde 65 (VR01) relativa alle argille alluvionali del fiume Adige; c) Molano (MPM01) con inosilicati e frammenti di rocce metamorfiche.*

(1979, 1982, 1983). In particular, for these three samples we can certainly exclude a provenance from the Luco-Atesine area, as those markers of an acid effusive nature, such as the quartziferous porphyry which is found in the contexts between Trento and Bolzano, are not present.

As regards the samples from Colognola and Verona, we are certain that they are artefacts of local origin made with clays from the Adige basin and consequently we may suppose the presence of Luco people/potters at these sites. This presence may also be corroborated by the discovery of other artefacts: in the case of Colognola, more than 2 kg of smelting slag, scarcely analysed and undatable, and a local stone slab with cup-marks that has been lost; while at Verona, a fragment with thin horizontal and parallel grooves under which bundles of incisions forming a probable wave motif can be glimpsed (Saracino et alii 2021: 334, fig. 7,5), indicating a common decorative pattern with the Alpine area along the Adige basin and with the area of plain between the rivers Adige and Mella (Marzatico 2012: 186-187).

In the Veronese territory, to the left of the Adige, other interesting sites from the recent Bronze age (such as Montidon, Parona and Via Moschini-Verona) are worth mentioning, where the presence of ceramic material of the "lucheggiante" type could indicate a particular form of cultural influence or "information exchange" between Veneto and Trentino South Tyrol (Bagolan & Leonardi 1999) and/or the increasingly frequent sharing of aesthetic, technologies and ideological trends. For this last issue, the Brandopferplätze of Custoza and Castellon di Marano in the sub-Alpine and Veronese plain territory, datable to the later Recent Bronze Age and Final Bronze - Early Iron Age, respectively (Salzani 1996-97, 2015a), are particularly interesting examples. Pottery of Luco types was found at the former site, but not at the latter. In both cases, the remains of cultic practices consisting of the lighting of ritual fires more or less similar to those in the Alps have been archaeologically recognized (Marzatico 2014), and it could also be suggested that these may be central cultic places (Salzani 2015a, 2015b: 64).

Both the sites of Colognola and Verona also featured an important Rhaetic component in the more advanced phases of the Iron Age, as in other contemporary sites in the foothills of the Verona and Vicenza areas.

Finally, as regards the Molane - Monte Pastello sherd, found isolated at an elevation of 900 m a.s.l. and perhaps linked to a transhumance route or episodic frequentation, we are certain that it is a non-local product, as there are no rocks with metamorphic quartz, pyroxenes and phyllites on the eastern orographic slope of Monte Pastello. Its typological peculiarity referable to both the Trentino and plain areas raises further motivational questions about its presence in this mountain context.

Acknowledgements

Brunella Bruno and Gianni De Zuccato (Soprintendenza Archeologia, Belle Arti e Paesaggio per le province di Verona, Rovigo e Vicenza), Lara Maritan (Dipartimento di Geoscienze, Università di Padova), Nicoletta Martinelli (Musei Civici di Verona, Museo di Storia Naturale di Verona), Laura Longo (Università Ca' Foscari, Venezia), Umberto Tecchiati (Dipartimento di Beni Culturali e Ambientali, Università di Milano), Mark Pearce (University of Nottingham).

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