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Mycenaean and Cypriot artefacts in Sardinia: a comparative view

FRANCESCO LUCA SPIGNO

Abstract
One of the most interesting aspects regarding the relations between Sardinia and the aegean and cypriot areas concerns the mycenaean ceramic and the metal cypriot artefacts. Specifically, there are two main types of finds, namely the mycenaean ceramics and the oxhide copper ingots, which highlight the strong link between Sardinia and the island of Cyprus. Although these artefacts appear to be largely contemporary since they can be dated in a chronological period between the 14th and 11th centuries BC, it appears completely unusual not only that they have never been found in association but also that their diffusion appears completely anomalous, since while the oxhide ingots are spread homogeneously throughout the island the mycenaean ceramics are concentrated mostly in the southern part. This data is completely anachronistic especially if one considers that the ships' cargoes were mixed, therefore it suggests a system of relationships in which the role of the local Nuragic communities appears to be crucial.

Keywords
Mycenaean; pottery; Oxhide; Sardinia; metal

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1. Introduction

The study of the relations between Sardinia and the Aegean in the Recent Bronze Age and the initial phase of the Final Bronze Age (1350-1200; 1200-1100 BC) has been one of the most animated and important themes of the island's proto history in recent decades. Initially the discussion was mainly based on the analysis of the tholos structure, present in both the nuraghe and the Mycenaean chamber tombs, which found substantial functional and chronological differences between the two types of monuments (Cavanagh, Laxton 1981, 1987, 1992; Santillo Friezel 1987; Ugas 1987a). Since the early 1980s of the last century, following the discovery of the first ceramic fragments, research has focused more on an analysis of the materials of Aegean origin found in Sardinia (Ferrarese Ceruti 1981: 605). The study of Mycenaean ceramics was joined by that of copper ingots, known as oxhide ingots because of their singular ox-skin shape, and bronze artefacts of Cypriot origin and/or inspiration (Lo Schiavo 2008a, 2008b, 2009). All of these have been found in numerous locations on the island and are particularly important for reconstructing the trade and cultural relations between the Nuragic civilization and the Aegean and Cypriot cultures (Lo Schiavo 2012). It is known that oxhide ingots have been found in numerous areas of the Mediterranean (Crete, Greece, Cyprus, Sicily etc.), which means that it is possible to identify the existence of a circuit of direct and indirect exchanges and long routes through which Cypriot copper was distributed throughout the Mediterranean. Similarly to what occurred on the Italian mainland with the local production of Mycenaean ceramics, known as Italo-Mycenaean ceramics, the reproduction in Sardinia of Cypriot-inspired metal artefacts, such as tripods and cauldrons, indicates that these contacts were not only aimed at the exchange of such products, but also the acquisition and transfer of knowledge.

The first Mycenaean ceramics were found in the 1960s in the south-west region of Sardinia, during the excavation of the Nuraghe Nastasi of Tertenia-Nuoro, as well as a handful of fragments which were found in an unknown location in the territory of Orosei, in central-western Sardinia. These were delivered to the Soprintendenza Archeologica di Sassari e Nuoro. A few years later, the discovery of a Cypriot cauldron in Cala Gonone-Dorgali confirmed the frequentation of this area by Aegean and Cypriot navigators and traders. A particularly important fact that emerged from the early research was that

the finds of Mycenaean pottery were concentrated in the southern part of Sardinia, and that no Mycenaean ceramic fragments were related to a funerary context. The only Mycenaean artefacts found in a funerary context are the faience beads found in the giant's tomb of San Cosimo-Gonnosfanadiga (Ugas 1981, 1982a), Su Fraigu-San Sperate, Perd'e Acutzai in Villa San Pietro-Cagliari (Ugas 1984, 1987b) and, recently, in the so-called "Tomb of the Sword" in Orroli-Nuoro (Perra, Vagnetti 2018: 65-66).

The first systematic excavations took place in Nuraghes Antigori and Sa Domu e s' Orcu of Sarroch-Cagliari. Conducted by the archaeologist Maria Luisa Ferrarese Ceruti, they marked a turning point in the research (Basoli 1980; Lo Schiavo, Vagnetti 1980; Ferrarese Ceruti 1981, 1982b). At the same time, in huts 17 and 23 of the Nuragic village of Su Nuraxi in Barumini-Cagliari, two locally produced Mycenaean fragments were recognised, which later should have been classified as so-called "Italo-Mycenaean" ceramics. Meanwhile, certain imported fragments found in the 1980s in the Nuraghe Corti Beccia of Sanluri-Cagliari (Ugas 1982b) gradually enriched the archaeological data.

In 1984, the discovery of the famous Mycenaean ivory head from the territory of Decimoputzu (Cagliari) was officially announced (Sanna 1986: 63-91; Ferrarese Ceruti, Lo Schiavo 1987; Vagnetti, Polpin 2005), while a few years later some fragments from the hill of "Su Muru Mannu" in Tharros and from the settlement of Monti Zara in Monastir-Cagliari were identified. At the same time, a fragment decorated with an image of a bird was found in the cave of Su Guanu near Pozzomaggiore-Sassari, although, for a long time, it was doubted that it was a Mycenaean fragment. However, archaeometric analyses have established that it is a fragment from the Greek mainland (Bernardini 1989: 285-290; Ugas 1992: 201-227). The findings of the 1990s further enriched the discussion begun in the previous decade. One of the most important findings was in the Arrubiu Nuraghe of Orroli, where what is still today considered to be the oldest Mycenaean ceramic artifact found in Sardinia was unearthed: the alabastron of LHIIIA2 (Ferrarese Ceruti 1990; Lo Schiavo, Vagnetti 1993: 121-148).

In 1994 and 1996, several ceramic sherds were found in the Phoenician-Punic city of Nora (Area Macellum) and in the Nuraghe Is Baccas in Pula-Cagliari and Duos Nuraghes in Borore-Nuoro (Botto, Rendeli 1998: 713-736; Webster, Webster 1998: 183-201; Cucuzza 2009: 4-5).

From 2006 to 2008, fragments found in the territory of Is Lais in Tratalias-Cagliari, in the Phoenician-Punic settlement of Sulky in Sant' Antioco-Cagliari, and on the island of Caprera-Sassari were displayed (Bernardini 2006: 109-149; Bartoloni 2008: 1601-1612; Pompianu, Soro 2011: 291-302; Di Fraia 2007: 323). As these ceramic fragments were found in a survey of the surface and were consequently out of context, their Mycenaean origin has been cast in doubt, even though their profile suggests an open shape, probably a deep bowl. However, they may be considered Mycenaean fragments and, next to the wild boar tusk that is part of a Mycenaean helmet found in Lu Brandali in Santa Teresa di Gallura-Sassari, some of the very few finds in northern Sardinia.
In recent years, the discovery of Mycenaean artefacts both in northern Sardinia in Santa Teresa di Gallura and in southern Sardinia in Selargius and Monastir-Cagliari further enrich the archaeological picture. In the first case, they include a fragment of a boar's tusk, part of a Mycenaean helmet, found in the Bronze Age village of Lu Brandali in Santa Teresa di Gallura-Sassari. In the second case, they include numerous shards that emerged in two different excavation campaigns in Selargius and Monastir-Cagliari (Manunza 2016, 2018; Mossa 2016: 112). News of other fragments being discovered in recent excavations in the Nuraghe Arrubiu of Orroli-Nuoro in the central part of Sardinia has emerged; some of these fragments belong to the aforementioned alabastron of LHIIIA2, others to a Mycenaean stirrup jar. Also, in this case, recent archaeometric analyses have established the Peloponnesian provenance of one fragment, while the stick processing of surfaces found in the other would suggest local production, similar to what was found in the Selargius excavations (Perra, Vagnetti 2018: 165-166; Spigno 2022: 3).

2. Mycenaean pottery in Italy

As is known, the most ancient frequentations of the Italian coast by Aegean people began in LHI and grew during the consolidation phase of the Mycenaean palaces in LHIIIA (Cultraro 2006: 231; Graziadio 2015: 342-344). From a technological point of view, the main novelty elements characterised by the production of new ceramic classes, one painted, called Italo-Mycenaean, and one worked on a lathe, called grey or pseudominian ceramics, as well as large containers, such as dolii and pithoi. This phenomenon affected

a large part of southern Italy, starting in Sicily, where the first Mycenaean materials date back to the seventeenth century BC. But it is from the LHIIIA (1370-1300 BC) that the Aegean presence intensifies especially in the south- eastern part of the island, in the settlements of Tapsos and Cannatello. Unlike what has been found in Sardinia and in the Sibaritide, or in Puglia, where both imported and imitation ceramics are present, in Sicily, Peloponnesian ceramics are in the majority, while fragments from Crete are absent; the few fragments of Italo-Mycenaean pottery come from the area of Milena, and date back to LHIIIIB-IIIC (La Rosa 2004; Jones *et al*. 2014: 228). A particularly important and interesting site regarding the relations between the Aegean area and Sardinia is the Lapigian settlement of Roccavecchia-Lecce, on the Salento coast. It is an inhabited area protected by a large fortification that has returned a considerable number of Mycenaean and Cretan ceramics from the LHIIIB / IIIC era, many of which have been found together with large quantities of animal bones, the presence of which suggests rituals that included ritual meals (Guglielmino 2005; Guglielmino, Pagliara 2006; Guglielmino, Jones, Levi 2010; Vagnetti *et al*. 2009, 2010). The Mycenaean imitations (or Italo-Mycenaean) present a decorative repertoire similar to that of Cretan Minoan vases. The other sites that have returned imported Mycenaean ceramics and imitations of the LHIIIB / IIIC era are found in the Sibaritide (west coast of Calabria) and in Basilicata; these are Broglio di Trebisacce-Cosenza, Torre Mordillo-Cosenza and Termotito-Matera (Vagnetti, Panichelli 1994; Bettelli 2002; Bettelli, Levi 2003; Bettelli *et al*. 2006; Vagnetti *et al*. 2009, 2010).

3. Results of the archaeometric analysis

Thanks to the archaeometric analysis carried out by Jones and co-workers, it has been possible to identify, both in southern Italy and in Sardinia, a ceramic class inspired by the Mycenaean vascular repertorium; it is a class of local production defined as Italo-Mycenaean. The fragments found in Sardinia that have been subjected to analysis amount to 76 units, 35 of which were local products and imitations, and the remaining 41 were Mycenaean imports (tab. 1-2); the latter coming from the Peloponnese, Crete, and a small number from Cyprus (figs. 1-2) (Jones *et al*. 2014: 298-301).

SITES	IMPORTS (MYCENAEAN)	LOCAL PRODUCTIONS (ITALO-MYCENAEAN)
POZZOMAGGIORE	1	0
OROSEI	12	0
ANTIGORI-SARROCH	24	31
SA DOMU 'E S'ORCU-SARROCH	2	3
ARRUBIU-ORROLI	2	1 (?)
OVERALL	41	35

Table 1 - Number of fragments subjected to archaeometric analysis (AAS/PE) (Elaborated by F. Spigno).

SITES	IMPORTS (MYCENAEAN)	LOCAL PRODUCTIONS (ITALO-MYCENAEAN)	DIAGNOSTIC ELEMENTS
NORA	3	1 (?)	Imports: shape, local productions/imitations decorations: background stratigraphic Very late
BARUMINI		2	Decoration and shape
SELARGIUS	8	5	Imports: decoration "pictorial style" Local productions/imitations: polished pottery, generic decoration (?)
CORTI BECCIA		1	(?)
MONTI ZARA	7		Identification of Klaus Kilian
THARROS	1		Decoration and shape
SULKY	2		Shape
SAN SPERATE	1 (?)		Shape, decorations, clay with micacean inclusions
IS BACCAS	1	1	Decoration and shape
ARRUBIU		1	Surface stick finished
IS LAIS	1		Decoration and shape
NASTASI		1 (?)	
OVERALL	24	12	36

Table 2 - Hypothesised of subdivision of fragments not yet subjected to archaeometric analysis based on diagnostic elements (AAS / PE) (Spigno 2022).

4. Function and destination

Mycenaean pottery spread over Sardinia and was reproduced locally in three different phases of acquisition and reworking. The first finds, namely the alabastron of the Nuraghe Arrubiu and the rython of the Nuraghe Antigori, dating back to a phase of the LHIIIA2/B1, seem to be related to a phase of preliminary contacts, probably characterised by the exchange of gifts, perhaps aimed at the creation of alliances using cult and ritual practices, such as libations. However, the appearance of the new locally produced class of Italo-Mycenaean ceramics indicates that the Nuragic populations gradually acquired these forms from Mycenaean potters between LHIIIB1 and LHIIIB2 when, in fact, the first Italo-Mycenaean productions appeared, and continued throughout the LHIIIC. Currently, considering both the fragments that have been subjected to archaeometric analyses (Table 1) and those that have not (Table 2), there are 65 imported (Mycenaean) and 47 locally produced (Italo-Mycenaean) fragments (Fig. 1). The origin and dating of those fragments not yet subjected to archaeometric analysis have been proposed taking into account, when possible, the decorative elements (FM: Furumark Motif), the shapes (FS: Furumark Shape) and other diagnostic elements such as the purity of the impasto and the stratigraphic context.

SITES	CRETE	GREECE (MAINLAND, PELOPONNESE)	CYPRUS	OVERALL
OROSEI		12		12
ARRUBIU		2		2
ANTIGORI	9	14	3	26
SA DOMU 'E S'ORCU	2			2
OVERALL	11	28	3	42

Table 3 - Origin of fragments recently subjected to archaeometric analysis (AAS/PE) (Spigno 2022).

To identify the function of the Mycenaean ceramic forms found in Sardinia, it is useful to apply the methods advanced by Mountjoy (1993) and Tornavitou (1992) concerning the classification of Mycenaean ceramic forms based on function. These are subdivided into five groups:

- Transport/storage: piriform jars, alabastron, stirrup jars.
- Storage/serving: neck jar.
- Canteen (eating and drinking): kalathos, basin.

- Tableware (Drinking): chalice, cup, kylix, skyphos (deep bowl), kilix, or high-stemmed skyphos (stemmed bowl), kantharos.
- Pouring: amphora, hydria,giara,rhyton,crater.

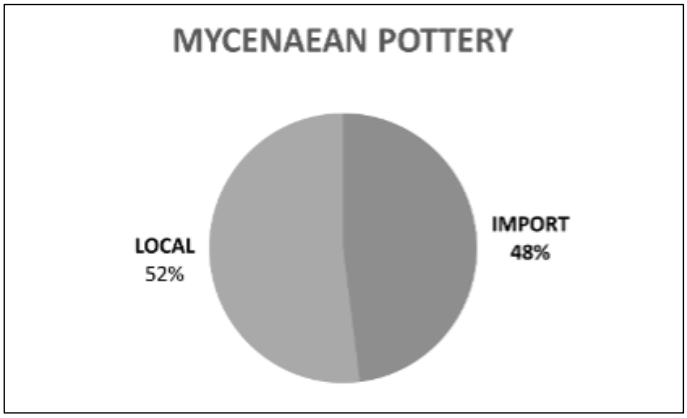

Figure 1 - Percentages of Mycenaean imports and locally produced ceramics (re-elaboration by F. Spigno, based on the count of all the published fragments with or without archaeometric analyses made by Jones *et al*. 2014).

From the general picture presented so far, it emerges that, on the one hand, imported Mycenaean ceramics would seem to have been used for storage and containment of liquids (wine, oil, perfumes), and on the other for the consumption of these substances. The first Mycenaean artefacts in Sardinia date back to LHIIIA2, a phase characterised by ceramic transport forms containing liquids and ointments (the alabastron found in Orroli) (Perra, Vagnetti 2020). Imports increased significantly during the LHIIIB and LHIIIC: these were tableware (bowls, deep bowls, kylikes, stemmed bowls), barware (rhytons, craters) and transport (piriform jars, stirrup jars, pithoi) (Jones *et al*. 2014: 415-416). Considering that most of the fragments can be framed in a generic chronological horizon of the LHIIIB/C, given the almost total absence of forms of LHIIIB1 and the presence of a few fragments attributable to LHIIIB2, it is reasonable to believe that a large part of the Mycenaean ceramic forms was imported from the initial LHIIIB2. Similarly to what was found in Mycenaean pottery, the Italo-Mycenaean forms also fall into the categories of tableware (bowls, cups, deep bowls), barware (craters), and storage (pithoi); it must, however, be taken into account that it is not possible to attribute a dating to many fragments, but only to recognize whether they are open or closed forms. As happened in other areas of southern Italy, these are standardised forms

inspired by Aegean models, which reflect some formal characteristics of the local culture (Jones *et al*. 2014; Bettelli 2020).

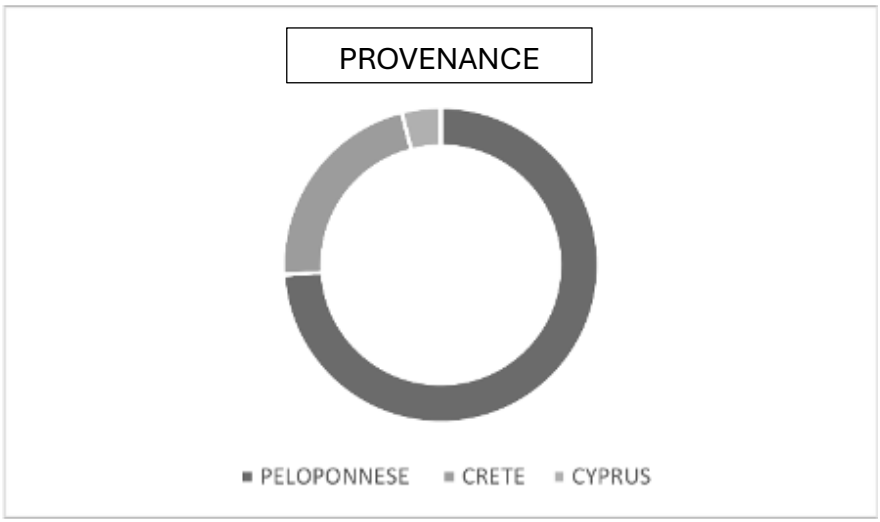

Figure 2 - Origin of Mycenaean pottery (Elaborated by F. Spigno).

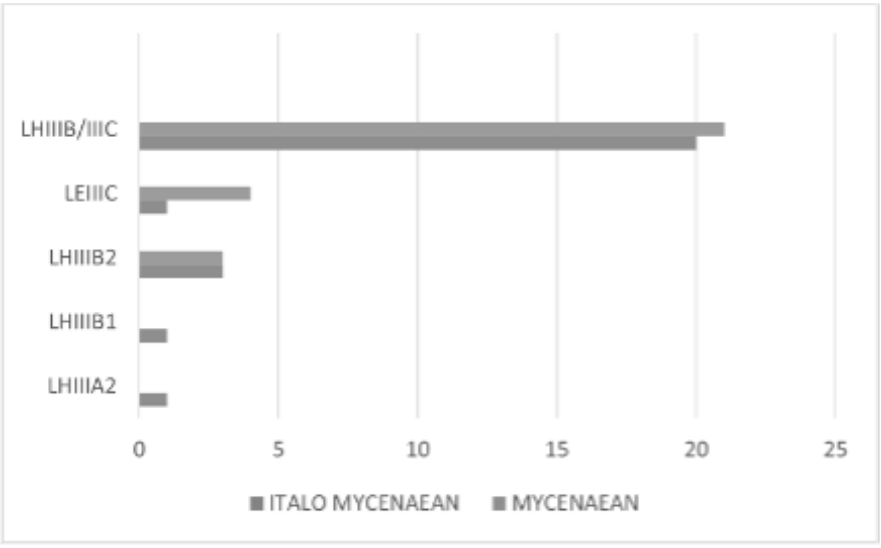

Figure 3 - Summary table of the phases of diffusion of Mycenaean and Italo-Mycenaean pottery (Spigno 2022).

5. Cult uses of Mycenaean ceramics

An aspect that has not been sufficiently studied until now is the cultic and ritual use of certain ceramic forms (Koehl 2006: 160, fig. 617; Cossu 2017). As is known from the archaeological literature, some forms such as the rhyton, the alabaster, or the

stirrup amphorae in Greece have been found inside chamber tombs or in places of worship. Therefore, since there are many examples of cultic and ritual use, it is quite probable that these artefacts could have had similar functions in Sardinia. Before analysing the main shapes that seem to have a cultic use, it may be useful to review what Renfrew proposed regarding the identification of areas dedicated to the performance of religious activities. He proposed the consideration of four elements where a context can be assumed to have sacred connotations: the focus of attention, the aspects of the luminal area, the presence of a divinity, and the presence of offerings (Renfrew 1985: 15-19). The most evident examples are the rhyton and globular flask in the Nuraghe Antigori, the alabastron of Nuraghe Arrubiu and the crater of Orosei.

The rhyton of the Nuraghe Antigori in Sarroch-Cagliari

The rhyton of the Nuraghe Antigori (fig. 4) is represented by a large painted conical fragment, classified according to the Furumark system as an FS199. A series of linear and floral decorations allow it to be dated to LHIIIB1 (Furumark 1941: 67, fig. 20; Ferrarese Ceruti 1982a: 169; Jones *et al*. 2014: 298-301). This type is usually equipped with a small loop for suspending the vase, while the bottom is perforated. These elements give the vase a highly symbolic value, since they seem to represent a connection between the offerer and the deity (Ricciardello 2018: 287-288; Spigno 2022: 9). It is not possible to establish exactly how the ritual took place, but the holes in the bottom suggest that it involved the practice of libations. Archaeometric analyses have established that the fragment in question is of Peloponnesian origin (Jones *et al*. 2014: 243-248). Although it is the only specimen found in the whole of the Central Western Mediterranean, identical specimens have been found in Cyprus and in the Eastern Mediterranean (Renfrew1985: 15-19; Koehl 2006: 160). In accordance with the useful criteria of the Renfrew model, the presence in the same room (Room A) of tableware and bar forms, a balcony-altar made of earth and stones, as well as anthropomorphic stems and a “bipenne” in the nearby Cave O, would confirm the hypothesis of a cult area inside the fortress (Ferrarese Ceruti 1986).

Figure 4 - Rhyton from Nuraghe Antigori (Ferrarese Ceruti 1983).

Globular flask from Nuraghe Antigori in Sarroch-Cagliari

The fragment in question (Fig. 5) was found in Room A of Nuraghe Antigori, and was initially thought to be the lid of a pyx (Ferrarese Ceruti 1982a: 391). However, following a scrupulous review of the graphic documentation available, based on other decorative elements with concentric circles (FM46), it is believed that this is a globular flask of the type FS188/189 dating back to LHIIIA2/B1 (Mountjoy 1986: 80, fig. 25).

Figure 5 - Fragment and reproduction of Globular Flask FS 188/189 (Ferrarese Ceruti 1983; Karetsu, Merousis 2018).

So, the fact that this fragment was found in Room A, that had a balcony constructed from earth and stones which could be construed to be an altar, and in association with a rhyton and tableware used for the transportation and containment of liquids, strengthens the hypothesis that this place of discovery had a cultic and ritual use.

The alabastron of Nuraghe Arrubiu in Orroli-Nuoro

The oldest Mycenaean artifact found in Sardinia is the alabastron from the Nuraghe Arrubiu of Orroli, dating back to LHIIIA (Fig. 6). This artefact, also commonly called a pyx or "inkwell vase", is widespread throughout the Mediterranean, and was used as a container for ointments, oil, or perfumes. It has a cylindrical shape, with a rounded and slightly convex bottom a rounded shoulder, and it is equipped with three small handles. It belongs to the type FS 95 (Furumark 1941: 45, fig. 12; Lo Schiavo, Vagnetti 1993; Lo Schiavo, Sanges 1994: 67-69; Vagnetti 2017: 161-162; Perra, Vagnetti 2018: 165-166; Spigno 2022: 8). The specimen in question was found in numerous fragments scattered in different parts of the nuraghe. The most accepted hypothesis is that it was deliberately shattered in a foundation ritual, perhaps following the pouring of the contents to the ground as an offering to one or more divinities (Lo Schiavo, Vagnetti 1993; Lo Schiavo, Sanges 1994: 67-69; Cossu 2017: 163-167).

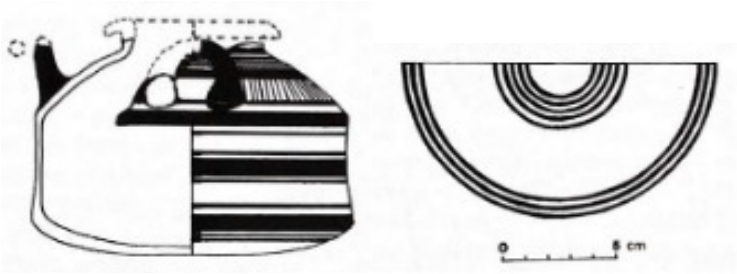

Figure 6 - Alabastron from nuraghe Arrubiu in Orroli (Lo Schiavo, Sanges 1994).

The kylix from the territory of Orosei-Nuoro

The fragment in question (Fig. 7a), which comes from the territory of Orosei, has been recognised as part of the edge of a Mycenaean crater. However, although the tricurved arch decorations (FM62:27;10:6) and the archaeometric analyses confirm that it is an LHIIIA2 vase from the Peloponnese, the reduced thickness of the wall (0.6 cm) suggests that it is not a crater but another smaller open form, such as a kylix of the FS257 type (Fig. 7a) or a crater/stemmed bowl type S305 (Fig. 7b) (Furumark 1941: 60-61, 64-65). The closest comparisons would appear in the first case to be two fragments from Mycenae, and the second, a vase probably of Rhodian origin, held by the National Archaeological Museum of Florence (Jasink, Bombadieri 2009; Jones *et al*. 2014: 268).

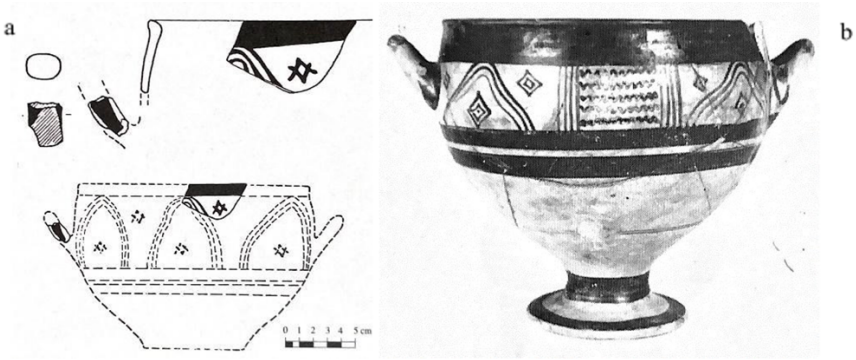

Figure 7 – a. Fragment of kylix from Orosei (Soro 2011), b. Crater from Rodi FS305 (Furumark 1941: 60-61, 64-65).

6. Oxhide ingots

In addition to the few ceramic fragments, another category of artefacts attesting to the relationship with the Aegean and Cypriot world are the metallurgical artefacts (copper and oxhide ingots). The arrival of Cypriot copper on the island is linked to the production of a variety of products such as a traditional Cypriot tripod, brackets, incense burners and artefacts related to the technology and processing of metals, such as springs and vanes. Among Cypriot metal imports into Sardinia, the copper "oxhide" ingots are very important because they were found in numerous locations throughout the island, both along the coast and in the interior. These artefacts found on the island number about 30 and some of them have marks in Cypro-Minoan script. The oldest date back to the 13th century BC, but most of them belongs to the Late Bronze Age and datesbacktothe12th and 11th centuries. Usually, oxhide ingots have been discovered in fragments inside hoards comprising vessels in Nuragic ceramics and in association with local metal materials: processing waste, Nuragic votive swords, tools, and broken tools (Lo Schiavo 2008a; 2008b; 2009; Sabatini, Lo Schiavo 2020). However, in the hoard of Sedda Ottinera near Pattada (Sassari), dated to the Late Bronze Age, seven fragments of oxhide ingots have been found along with numerous other materials, some of which are of Cypriot origin: two double axes and an axe with orthogonal cuts. The presence of artefacts from the Middle Eastern island in the same context as the discovery of fragments of oxhide ingots has further confirmed their Cypriot origin. The fragmentation of the ingots probably indicates that artisans used them and finding them near or inside metallurgical workshops could confirm this hypothesis. Archaeometric analyses, based an examination of

the lead isotopes present in the various types of copper, have shown that the oxhide ingots found in Sardinia are made of Cypriot copper. Only one appears to be composed of copper coming from elsewhere, probably Sardinian. The results of the analyses have discredited the hypotheses advanced in the past by some archaeologists who suggested that the oxhide ingots discovered in Sardinia were indigenous imitations of Cypriot models, made with local raw materials. Surprisingly, archaeometallurgical analyses have also shown that no bronze object found on the Italian island is composed of Cypriot copper, but rather from raw materials similar to those present in Sardinian deposits from which ingots were produced and found in numerous hoards (Lo Schiavo 2012).

7. Comparison between distribution of oxhide ingots and Mycenaean pottery found in Sardinia

If we take into consideration the distribution of Mycenaean ceramics and Cypriot metal artefacts (oxhide ingots, tripods, etc.) found in Sardinia, it can be seen that, except for the recent excavations of San Sperate (Cagliari), they were never found together; the two types of materials seem to have been used for different purposes in Sardinia. Moreover, while Mycenaean pottery is found mostly in southern Sardinia, metal artefacts of Cypriot origin (especially oxhide ingots) have been found across the entire island, including in the south. Considering the commercial relationships between the local Nuragic populations where Mycenaean and Cypriot trade was not always direct but was carried out by traders stopping in different ports along the trade routes, we need to consider not only commercial, but, perhaps, also diplomatic relationships, determined by the local Nuragic populations. This would partly explain the different diffusion of the Mycenaean and Cypriot materials examined, because it seems that where one component is present, the other is absent (Fig. 8).

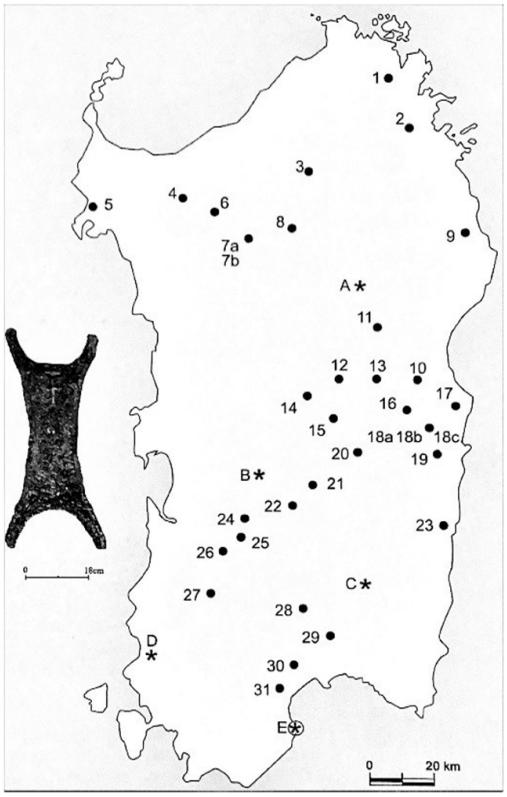

Figure 8 – Map showing the distribution of oxhide ingots in Sardinia (Lo Schiavo 2017).

I believe that the diffusion of Mycenaean pottery and Cypriot artefacts, as well as the scarcity of Cypriot pottery, would indicate:

- the Nuragic communities interacted locally with Aegean and Cypriot traders and groups in different ways, preferring the Cypriot or Mycenaean connection depending on their needs and interests.
- in agreement with Bietti Sestieri (Bietti Sestieri 1988), the existence of mixed groups of Mycenaean potters to which, from LHIIIB2 onwards, were added groups from southern Italy who settled in southern Sardinia; this date would seem confirmed by the fact that the imitations of Mycenaean pottery found in southern Sardinia is very close to the Italo-Mycenaean pottery of the Ionian area (Puglia, Basilicata), since, in both cases, the decorations are of the Cretan figurative repertoire (Ibid.).
- the Mycenaean group is flanked by other mixed groups of Cypriot artisans highly specialized in metalworking, to which were probably added groups from southern Italy who were specialised in the processing and trade of

copper. It is not easy to establish the extent of this presence, but whatever it was, it was able to support the production of metal and ceramic Cypriot or Mycenaean products. The transfer of knowledge did not take place in the same way throughout Sardinia; it probably differed from area to area and was strongly influenced by factors such as the interests of the local communities, the ease of contacts, etc. We must think of Sardinia not as a single block, but as an island characterised by different local realities which, independently, interact with the outside in different ways based on different criteria.

Conclusions

This study allows us, in the light of the findings of recent years, to understand more clearly the complexity of a heterogeneous phenomenon such as that of the diffusion and imitation in loco of exogenous artefacts. The first Mycenaean evidence found in Sardinia dates to LHIIIA2/B1; these are specimens of Peloponnesian origin with the function of transporting, containing, and pouring liquids. The limited number of such forms shows that it is a phase of first contacts, which must have mostly involved the circle of village leaders, or very circumscribed social groups. It was desirable, from the point of view of rituals such as the exchange of garments, libations, or the consumption of wine aimed at establishing hospitable relationships, that the exotic artefact was perceived for its symbolic and ideological value, as a "status symbol".
The existence of these practices is reflected in the forms found associated with the Nuraghe Antigori, since they are Mycenaean and Italo-Mycenaean open forms, decorated or not, to be used for the pouring and drinking/consumption of liquids. The scenario changes after the LHIIIB2, with the first Italo-Mycenaean ceramic products, which suggest the presence of small groups of highly specialised artisans. Following the LHIIIC, corresponding to phase 3 below, Italo-Mycenaean exceeded Mycenaean pottery, even by only a little; the very few fragments of Cypriot pottery from Sardinia also date back to this phase. Observing the archaeological data, it is possible to identify four main phases in the acquisition of Mycenaean ceramic forms, including the creation of forms.

The phases are the following:

- Phase 1: the establishment of simple commercial contacts aimed at trading and exchanging goods (LHIIIA2/LHIIIB1).
- Phase 2: the acquisition by the local populations of exogenous ceramic forms, in some cases having a strong cultic, symbolic, or ideological significance, presumably with an initial onset from LHIIIB2.
- Phase 3: the reproduction of certain shapes, mostly tableware, probably beginning at the end of LHIIIB2. This ceramic typology, termed Italo-Mycenaean, is prevalent in LHIIIC.
- Phase 4: the reproduction of hybrid shapes and use of the slow lathe.

As can be seen in figures 2 and 3, it emerges that the contacts were constant and mainly concerned the Peloponnese, from which about 74% of the analysed pottery came, and to a much lesser extent, Crete. Furthermore, as with what was found in other areas of southern Italy except for Sicily, in Sardinia there is a certain balance between Mycenaean and Italo-Mycenaean ceramics. The association of Mycenaean and Nuragic ceramics found in some Nuragic sites such as those of Bia ‘e Monti in Selargius (Cagliari) and of San Sperate (Cagliari) and the Nuraghe Arrubiu of Orroli (Nuoro) are particularly important in establishing a chronology, as the Mycenaean pottery allows us to date the Nuragic with greater precision.
In this regard, it is particularly important that, despite their geographical proximity, the archaeological data of Sardinia differs considerably from that of Sicily, which is characterised by the scarce presence of Italo-Mycenaean ceramics, while the Mycenaean ceramics appear to be exclusively of Peloponnesian origin. In contrast, it is closer to that of the Ionian region and to the Settlement of Rocca Vecchia (Puglia), in which both imported Mycenaean pottery, and Italo-Mycenaean pottery are found. The analogy of the archaeological data found in Sardinia, characterised by a good quantity of imported ceramics from Crete, with that of the Ionian region could highlight the existence of different levels of interaction between western Crete, Greece, and the communities of southern Italy, Sicily and Sardinia. In this regard, it is interesting to note what Borgna found on the circulation of Aegean artefacts in the post-palatial age, a period characterised by the presence of Cretan elites who were particularly active sailing directly from Crete to the West or

calling at the ports of the western Peloponnese, especially in Achaia (Borgna 2013). This data could partly explain the archaeological data that unites Sardinia and the Ionian region, characterised by the simultaneous presence of both Peloponnesian and Cretan imports, even if the quantitative disparity between the two areas of origin of the artefacts leaves many open questions about the nature of such traded exchanges.

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