

### RESEARCH ARTICLE

# Symbols of Minoan Hieroglyphic Script and Linear A in Melos from the Middle of 3<sup>rd</sup> Millennium BC

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#### **Abstract**

Two sets of vessels of the Early Cycladic period were found in 1996 and 1997 at the Rivari site of Melos Island. These sets of vessels which belong mainly to EC III (Kastri phase) are dated to the second half of the 3rd millennium (2500-2200 BC). 18 undecorated shallow bowls from these bear graved symbols that are commonly called "potter's marks".

These symbols are somewhat similar to the Greek capitals  $\Lambda$ , M,  $\Pi$ , N, T, X, O, but after an epigraphic study presented in this paper, based on the similarity, they can be identified with Linear A by 50% and by 50% with Cretan Hieroglyphic writing. The result of this study point to a common use of Cretan writing symbols since 2500 BC...

Keywords: Minoan Hieroglyphics, Linear A, Scripts, Rivari, Melos, Symbols.

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#### 1. Introduction

Rivari is located on the south side of the large bay that opens on the west side of Melos and south of the settlement of Adamas (Figs 1, 2). At this seaside location in 1996, the marine erosion due to rising sea level, which can be estimated at 4-5 m from the Early Bronze Age to the present (Kambouroglou *et al.* 1988), revealed two circular or ellipsoidal pits dug into soft white rock (tuff). Residents of Melos noticed these cavities and some ancient vessels that had been partially discovered and they carried out illegal excavations. The 39 ancient objects were handed over to the Museum of Melos the same year, recorded and

studied by the then head of the Ephorate of Cyclades A. Sampson. Unfortunately, in a short period of time the above was transferred to another Ephorate and he was not able to carry out an excavation in this particular site.

The total of 39 clay vessels consists of various types. A total of 18 undecorated shallow bowls (Fig.3) bear a thick lustrous orange to reddish-brown slip; it is a very common type in the late EB II and early EB III periods (Caskey 1972, type C10 at Agia Irini on Keos "late phase"). Fifteen of these bowls display, near the base, incised symbols similar to the Greek capitals  $\Lambda$ , M,  $\Pi$ , N, T, X, O.

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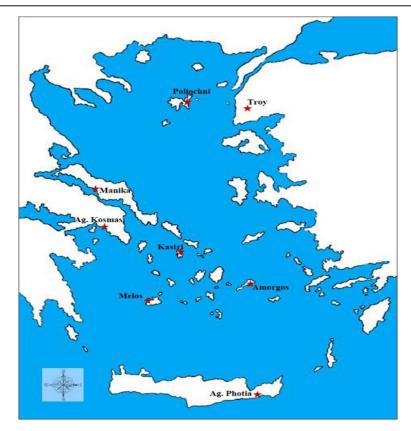


Figure 1. Map of the Aegean in the Early Bronze Age

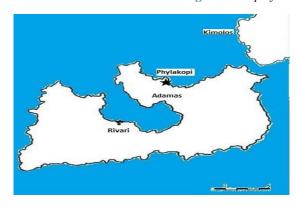


Figure 2. Map of Melos Island



Figure 3. Shallow bowls from Rivari

## 2. The Pottery from Pits 1 And 2

In addition to the numerous bowls Pits 1 and 2 yielded a large assemblage of vessels dating mainly to the EC III and the transitional phase between the ECII and III. Four beak-spouted jars (Fig.4) which

share roughly the same dimensions belong to a type characteristic of the Kastri Group (Bossert 1967, 68, Fig. 3:2). A pair of jugs with cut-away mouth ("flasks") is of NW Anatolian origin and represents a type rare in the Cyclades (Fig. 5). It is known from Troy IV (Renfrew 1972, 122-34, Fig. 8:3), Poliochni on Lemnos (Bernabo-Brea 1964, pl. 210a) and Manika on Euboea (Sampson 1985, 246, Fig. 91:51). Three closed vessels with high neck and two vertically pierced lugs on the upper body represent another type rare in the Cyclades, which nevertheless occurs with many variations on the Greek mainland during the late Early Helladic II and early EH III periods (Fig.6). Vases of this type are numerous in Manika (Sampson 1985, 1988, Fig. 90:43), Agios Kosmas in Attica (Mylonas 1959), Marathon and Eutresis in Boeotia (Goldman 1931).

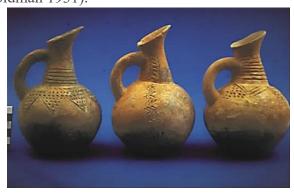


Figure 4. Beak-spouted jars

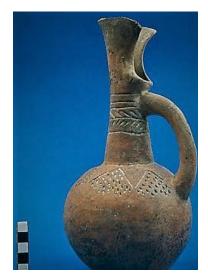


Figure 5. Jug with cut-away mouth

For the distribution of the type, see Sampson (1985, 278-9). The shape from Rivari presents similarities with the material from the Manika cemetery (Sampson 1985, 257; 1988, table 17: 6). For the type see Blegen et al. (1951, Fig. 78, Troy III), Bernabo-Brea (1964, pls. 199-201, Poliochni, phase "Giallo") and Lloyd and Mellaart (1962, Fig. P53:12, Beycesultan phase EBA 3A).



Figure 6. Closed vessels with high neck and incised decoration



Figure 7. Kernos with incised decoration

Another rare type from Rivari is a kernos (Fig.7) with compressed spherical body and four small subsidiary miniature vessels (Sampson and Fotiadi 2008, fig.

22.5). A variation of the pedestalled spherical pyxis in the Cyclades has been known since the Keros-Syros phase (see Rambach 2000, pl. 7:6 from Chalandriani on Syros). For an early example of a Melian kernos from Kapros see Bosanquet (1897, fig, 3); for another Phylakopil kernos, with incised decoration, see Renfrew (1972, 186-9, fig. 12.1:4).

The only vessel in the assemblage which is painted is another kernos (Fig. 8). It consists of two identical non-communicated vases with globular bodies. The type of decoration has certain EC II affinities. For the EC II painted decoration parallels see Rambach (2000, pls 116:4, 7, 9, 117:4, 118:2, 4). However, for the time being, care should be taken in dating this particular vase to the EC II on criteria of decoration. For the difficulty of dating EC painted wares see Renfrew (1972, 189).



Figure 8. Kernos with painted decoration

The most impressive find from the cemetery of Rivari is the terracotta house model mounted on a trumpet-like pedestal (Fig. 9). The house has an irregular, asymmetrical ground plan with a large rectangular opening and a pitched roof. The latter has incised and impressed decoration on its upper sides. It is obvious that this unique model has a lot in common with the numerous clay objects from the Rivari assemblage and dates from the same EC II to EC III phase. Instead of a flat roof, the pitched roof of the model seems at first inappropriate for the south Aegean climatic conditions.



Figure 9. Rivari, Terracotta house model

In 1997 the colleague of the same Ephorate C. Televantou (2008, 211, fig. 21.3) carried out a rescue excavation in the same place and five more pits were discovered. Most of them were empty except for the large pit 3. All these pits were located inside a circular wall cut into the natural rock. No grave goods or bones were found inside these pits except for a number of pottery sherds and obsidian blades. Further to the east an analogous rock-cut wall was found. Televantou believes that originally were two large circular rock-cut chambers, inside which existed a number of small pits that have been destroyed in ancient times.

The large pit 3 is oval-shaped with 1.80 m length and maximum width 1 m. In this pit 55 clay objects and a single bronze fibula were found in a regular circular arrangement along the pit's walls (Televantou 2008, fig. 21.6). Among them were found four beakspouted jugs, eleven collared jars without pedestal, decorated with impressed triangles in several rows, two askos-type vases, a triple kernos with incised and impressed decoration, two wide-mouthed spherical vases and two closed vases in the shape of a collared jar. The most frequently represented type was the bowl bearing lustrous, orange-reddish or brown slip. Televantou reports 17 incised potters' marks, 16 on bowls and one on a beak-spouted jug (2008, 213, fig. 21,14), while 12 different symbols are displayed (Fig. 10). The large number of objects found in pit 3 is a very rare case for an Early Cycladic grave, as even the richest burials have furnished no more than 15 grave goods (Barber 1987, 84).

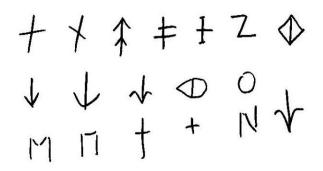


Figure 10. Signs from Rivari (Televantou 2008)

#### 3. The Chronology

The 90 objects found in the same place are dated mainly to the Early Cycladic III, while in the EC II or the ECII-ECIII transition phase a few of them are attributed. The Kastri phase is usually placed in the ECIII but its boundaries were not clearly defined as there were no radiocarbon determinations until

recently. The same happens in the earlier Cycladic phases as well as in the corresponding phases of the Early Helladic. In the settlement of Manika (Sampson 1988), despite the large extent of the excavations, it was not possible to have radiocarbon determinations and this is due to the thin sedimentation and the erosion due to intensive cultivation of the area. Only one date (2870±260 BP) comes from the settlement (Sampson 1988, 77) and another 2890-2764 BC (Clemente et al. 2021) from a skeleton of the cemetery. Both are placed in the early part of the Early Helladic II (phase Keros-Syros).

The beginning of the Early Helladic III or the Early Cycladic III is usually placed between 2500-2400 BC but its end varies between 2300-2200 BC. In Markiani of Amorgos (Marangou et al. 2008) the duration of the Phase II (Keros-Syros culture) may be set from 2800 to 2500/2400 BC based on 12 radiocarbon samples, while the duration of the Markiani Phase IV (Kastri Phase) is set c. 2500/2400 to c. 2200 BC. If we consider that the tombs' finds typologically belong to the later part of the EC II or to the transition to the EC III (Kastri phase) as well as to the mature EC III, the finds from the cemetery at Rivari of Melos date between 2500-2200 BC.

## 4. The Interpretation of Signs

Olivier (1996) grouped and codified the symbols of Cretan hieroglyphic writing. This ancient script, which is considered to have been formed around 2000 BC, appears to have 135 syllabic dots and 20 logos. The oldest find is considered a 12-sided seal from tomb 6 in Fourni of Archanes<sup>1</sup>. Godart and Olivier's five-volume work on the Linear A script (1976-1985) had already preceded the coding of the symbols of this writing. According to other researchers (Platon and Brice 1975) the Linear A symbols first appeared around the same time as those of the Minoan Hieroglyphic Script (MHS) in the 18th century BC.

Olivier (1990) later observed that the Cretan hieroglyphic symbols have an obvious correlation with about 10 symbols of the Linear A, while the inscribed excavation findings confirm the view that the Linear A and hieroglyphics coexist and were used in parallel in the palace of Malia until 1620 BC (Ruiperez and Melena 1996).

On the island of Melos three systematic excavations have been made to date in the city of Phylakopi by

<sup>1</sup> The excavator, I. Sakellarakis, in personal communication had stated that this tomb was built before MM Ia and could be dated to EM II-III phase (2400-2100 BC).

the British Archaeological School of Athens. The first between 1896-1899 by C. Smith and D. Hogarth, the second in 1911 by J. Dawkins and J. Droops and the last between 1974-1977 by C. Renfrew. Excavations in 1911 yielded a fragment of a tablet of MHS with 2 to 4 surviving syllables and a fragment of a MHS Zb1 with two symbols of Linear A writing (Fig.11) dating to the end of MM IIIB, circa 1620 BC.

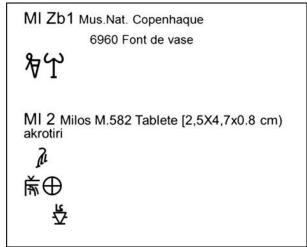


Figure 11. Symbols from Phylakopi, Melos

In Table 1, at the first 6 rows, the symbols found on swallow bowls and reported by Sampson and Fotiadi (2008) are presented, while at the rows 7-12 are presented the incised symbols reported by Televantou (2008). In the first 6 rows in the second column, representative images of Melos Museum objects are presented, while in the rows 7-12, in the second column the image of symbols reported by Televantou (Fig. 10). In the 3rd column we quote the description of symbol and the code of the Museum of Melos only for those objects reported by Sampson and Fotiadi (2008), since the museum numbers of the

objects reported by Televantou (2008) are not known to the authors. The fourth and fifth columns contain respectively the corresponding syllabic symbol with its numerical code established in the MHS<sup>2</sup> (Olivier 1990) and the Linear A script (Olivier and Godart 1976-1985).

In the epigraphic study we performed, we compared the incised symbols close to the base of 15 bowls studied by A. Sampson and the 17 incised potters' marks reported by Televantou (2008). It seems that the engraved symbols on bowls from Rivari are directly related to the symbols of Cretan Hieroglyphics and Linear A.

From the data in the table, it can be seen that about 50% of the engraved signs and symbols resemble the Linear A writing system symbols and 50% resemble the MHS symbols, a fact that is confirmed today by experts who report the coexistence of the two writing systems during the 18th to 17th BC.

Of the symbols of Table 1, there are only three (X-070, M-034 and Π-076,036) that belong to the MHS and are not found in Linear A, ie a percentage of 25%. This percentage is a strong argument of the use of MHS, in case of someone's claim that the common symbols of the Linear A script and the MHS found on the pottery finds from Rivari are symbols of Linear A script only. The study of the similarity of symbols places the common use of the two scripts from about 2500 BC according to the dating of the pottery finds.

**Table1.** The symbols from Rivari, Melos

a/a	Symbols from the Museum of Melos	Description of symbol	Symbols of MHS	Symbols of LINEAR A script
1	1	One vertical line with two horizontal (CMM¹ 929)		AB03, A315 HT, PH
2	929	Arrow (CMM 921,922,924, 933, 928, 937)	<b>↑ ↑↑↑</b> 049 & 050	↑↑↑ A 304 Hord²( <b>Hord</b> eum)
3	116	Symbol in the form of letter T (CMM 923, 926, 936)		<b>₹ ₹</b>

<sup>2</sup> Minoan Hieroglyphic Script

4		Symbol in the form of letter X (CMM 930, 931)	<b>× X</b> 070	
5		Symbol in the form of cross (CMM 932, 934)	<b>++</b> <sub>070</sub>	AB 02
6	995	oblique N (CMM 935)	<b>&gt; 2</b>	<b>4</b> AB 11
7	*	Signs from Rivari in the form of sprout	<b>३</b> ₽₽₽ 025	**************************************
8	17	Signs from Rivari in the form of the letter M	<b>∆ △ \</b> €	
9	17	Signs from Rivari in the form of letter Π	<b></b>	
10	丰	Signs from Rivari		‡ AB03
11	+	Signs from Rivari		王子子 AB24
12	$\odot$	Signs from Rivari	*153 073	<b>₽ 0 0 0 0 0 0 0 0 0 0</b>
	Total number of all symbols		Total number of MHS symbols	Total number of Linear A symbols
	12		8	9
	Total %		~50%	~50%

## 5. DISCUSSION

In conclusion, it seems that the first Minoan scripts of Crete appear from the middle of the 3rd millennium BC on an island which had a close relationship with Crete due to the supply of obsidian from the Neolithic and Early Bronze periods but probably for other reasons. It is not improbable that the "thalassocracy" of the Minoans in the Aegean islands had already begun in the third millennium BC.

Perhaps we should reconsider other burial-like finds from the Early Minoan period which may have similar symbols and have not been observed to date, because it is strange outside of Crete to have writing symbols when we consider that the source of those scripts is Crete. The syllables near the base of the vases were incised by the potter before firing and may indicate his lab or possibly were defined the use or the content of the vase.

If we make the assumption that Minoans of the Pre-Palace period had moved to Melos, applying some foreign burial practices, we should look for an installation at a relatively close distance from the cemetery. Televantou, (2008, 214), reports traces of an Early Cycladic settlement in the wider area, on the low hill of Agios Nikolaos. However, despite investigations undertaken on the island of Melos (Renfrew and Wagstaff 1982) only a small number of prehistoric sites have been recognized and, with the striking exception of Phylakopi, these are of no obvious significance. Is it possible that, on Melos as elsewhere in Cyclades, exists the well-known "Cycladic problem" of the abundance of cemeteries with an absence of their respective contemporaneous settlements? May be it is wrong to expect large settlements in the Early Cycladic period, because of a scattered habitation or of houses so inferior in construction that left very unidentified traces.

The cemetery operated for a long time and probably during its use the sea had begun to destroy the closest to the water graves. It is possible that the site users transported the grave goods from the graves to be destroyed or from already damaged graves to others higher up and placed them in small or large pits. Afterwards the pits were sealed with tuff fragments and the entire area of pits 1-7 was covered with layers of gravel.

Another problem is the absence of human bones. In pit 3 the bounties occupy the largest space and there would be no space for the placement of the dead. Televantou (2008, 214) mentions the possibility that the bones were damaged by the erosion due to the kind of rock of the area. An old argument that the rocks of the Cyclades destroy the bones cannot be valid, since, in the excavation of the Mesolithic settlement of Maroulas on Kythnos, the 6000 years' older human bones had been preserved in good condition (Sampson et al. 2010).

If finally, the Rivari area was an extensive cemetery, the sets of pottery we have so far are few to draw conclusions. It is certain that many will have been destroyed over the millennia but many more may be revealed in the future.

Another issue is how to interpret the presence of the unique housing model along with the other rewards? Its double roof, with tiles, which one would not expect in the Cyclades, is particularly impressive. But how much do we know about the architecture of the Cyclades at this time? While the cemeteries

abound, the settlements are almost absent and the few architectural remains that have survived in fortified places (Kastri of Syros, Korfi of Aroniou and Keros) refer to simple poor houses. Is this object imported from mainland Greece where in the early Bronze Age there was a double roof in the House of Tiles at Lerna (Caskey 1968)? Most likely, it does not come from Minoan Crete, whose architecture has not yet given a similar type of residence. It is a fact that in the Early Bronze Age there were movements in the Aegean area. In Central Greece and Euboea (Attica, Manika, and Nea Styra) during the EC II (Keros-Syros culture) imports of Cycladic elements (figurines, frying pans, pyxis vases etc, see Sampson 1988) have been reported and some researchers had argued about Cycladic colonies in these areas. During the same period in Crete, an invasion of cultural elements from the Cyclades (figurines, eastern-type vases) in Agia Photia, Petras and Archanes is observed, and in the past there was a discussion among researchers about the existence of Cycladic colonies on the island of Crete (Doumas 1976). Perhaps in the context of these movements we should include the introduction of writing in Rivari and Phylakopi of Melos. However, the chamber tombs in soft rock in Rivari are reminiscent of those of Agia Photia in Crete (Davaras and Betancourt 2004; Betancour 2008) as well as those of Manika in Euboea (Sampson 1985, 1988).

At the end of EC II or the beginning of the EC III (Kastri phase) there is an "invasion" of foreign pottery from the north and east in the Cyclades but also in the Greek mainland, while movements of foreign peoples are possible as the predominant pattern so far noted for this phase in the Cyclades is the fortified sites at locations distinct from those in the earlier phase (Keros-Syros culture). The mainland was at this time flooded with "Anatolian" types of pottery. Metal grave goods are plentiful in the cemetery of Manika, whereas in the Cyclades metal objects are less abundant in this period (EC III, Kastri phase) and in general there are signs of decline. Some scholars place this phase (Kastri-Lefkandi group) at the end of EH II and some in the early part of EH III. This phase has been called "transitional" for the Peloponnese (Asine, Berbati, Tiryns) and it is found to correspond with the early part of Lerna IV (Weisshaar 1982, 220).

Earlier theories emphasized the migration of population from the southwestern Anatolia (Wace and Blegen 1939, 139) but such a view should now be abandoned as it lacks convincing support in archaeological record. Evidence from Manika

shows a coherence in burial practices and the lack of a break between the EH II and EH III, while recent DNA analyzes of human bones from the central and southern Aegean show that the populations of these regions were directly descended from the Neolithic populations of the Aegean (Clemente et al. 2021). The same maybe true at other EH settlements, though very few cemeteries have been excavated.

The similarities of vases of the EC III phase with counterparts from Troy or other sites in Asia Minor is the main reason for a discussion of their eastern provenance. However, some forms (like the one-handled and two-handled cups) appear to be Aegean products distributed on both sides of the archipelago. Some other forms (beak-spouted jugs, high necked vessels) acquired their definitive form on the Greek mainland or in the Aegean basin. However, the place of origin for these types is still unknown (Sampson 1993, 161). Shapes like the beak-spouted jug and the flask with cutaway mouth, could be purely Anatolian. Nonetheless, it cannot be concluded from this that the EH III and EC III cultures were of Anatolian origin!

On the contrary, it seems more likely that there were an "opening up" of the Helladic and Cycladic cultures towards the eastern Aegean and Anatolia and direct contacts, as a result of "trade", piracy, or limited population movements to the islands from both sides of the Aegean. Trade could have been conducted mainly for very fine wares, while pottery artefacts would have been imported or travelled on account of their contents (Wace and Blegen 1939). The term "Anatolian influences" is very general and signifies that similar types are found in various places in Anatolia. However, nobody knows the exact provenance of each form from a concrete site or an area of Asia Minor (Sampson 1993). A pottery exchange could have been associated with the search by mainlanders or Cycladic people for raw materials such as tin or copper in Asia Minor, but it is not right to rely too much on the evidence of pottery to formulate theories about invasions, colorizations or advanced trading activities.

However, what is surprising is the absence of Minoan pottery in Melos and especially at Rivari in burial ensembles, where samples of the Minoan writing are presented in direct relation to the Cycladic and the "eastern inspiration" pottery.

The barley symbol (Table 1, the arrow: 049 and 050 in MHS and A304 in Linear A) appears on 6 bowls in Sampson's and Fotiadis's report (2008). This symbol

has the highest frequency of appearance, about 30% of the appearance of all Minoan scripts found in Rivari excavation. Possibly, this symbol could be indicative of bowls being used as offerings of some sort of "barley" product for the afterlife of the deceased, a fact which probably reinforces the argument that Rivari was a cemetery.

Possibly the rest of symbols appearing on the bowls of Table 1 are acrophones<sup>3</sup> indicating that the corresponding bowl was used as an container of products, such as honey, oil, etc.

Concluding, we believe that the combination of 50% Cretan hieroglyphs and 50% Linear A script early syllabic symbols found individually on the Rivari's funeral vases are considered to be the forerunner of Minoan writing, and we hope to be found in the future more excavation data in Crete or in Cyclades that will confirm our proposed view that Linear A and Cretan Hieroglyphics started from the middle of the 3rd millennium BC.

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