

A LINEAR A OFFSPRING
OR A MULTI-SOURCE CREATION?
SOME REMARKS ON THE ORIGIN
OF THE PHAISTOS DISK
AND THE ARKALOCHORI AXE

BARBARA MONTECCHI · MARIA STRECCIONI · SILVIA FERRARA

ABSTRACT · The study presented here is part of a wider research project, whose main goal is to investigate how writing came about in different parts of the world and how new scripts were invented at very early stages of literacy, including those whose languages are still unknown. In this regard, the undeciphered inscriptions on the Phaistos disk and Arkalochori axe, and their relationship with other contemporaneous scripts, namely Egyptian, Cretan Hieroglyphic and Linear A, occupy a special place. The present paper thus focuses on the origin of the graphic repertoire of the Phaistos disk and Arkalochori axe in order to reassess its connection to other Cretan and Egyptian scripts. Despite the similarity between some signs incised on the Arkalochori axe and some stamped on the Phaistos disk, it is still a matter of dispute if these inscriptions belong to the same writing system or not, and even if they are writing at all. In this paper the two artefacts are assessed in their chronological and cultural settings, and arguments in favour of their interpretation as true inscriptions are collected. Finally, the signs are analysed in order to quantify how many can be really traced back to Linear A and how many can be instead compared to other earlier and contemporaneous scripts and iconographic motives.

KEYWORDS · Arkalochori Axe, Phaistos Disk, Linear A, Cretan Hieroglyphic, Minoan Crete.

BACKGROUND, AIM, AND METHOD

THE study presented here is framed within a wider research project (INSCRIBE - Invention of Scripts and Their Beginnings) funded by the ERC, whose main goal is to investigate how writing came about in different parts of the world and how new scripts were invented at very early stages of literacy, including those whose languages are still unknown. In this regard, the inscriptions on the Phaistos disk and Arkalochori axe, and their relationship with other contemporaneous scripts, namely Egyptian, Cretan Hieroglyphic and Linear A, occupy a special place. The present paper thus focuses on the origin of the graphic repertoire of the Phaistos disk and Arkalochori axe in order to reassess their connection to Linear A.

From a methodological point of view, it is important to start by clarifying the reasons why it is highly likely that Linear A served as the model for two scripts, namely Cypro-Minoan, the script of the pre-Greek inhabitants of Cyprus, and Linear B, the script of the earliest literate Greeks (*inter al.* Davis 2010). These are basically of two kinds: chronological and graphic. First, Linear A pre-dates both, being attested since Middle Minoan IIA, if fragment KN 49 is Linear A (Schoep 2007), that is from the middle of the 19th century BC, according to high chronology, whereas Cypro-Minoan and Linear B belong to the Late Bronze Age. Second, about 80% of Linear B and 60-65% of Cypro-Minoan syllabic signs are graphically comparable to Linear A (Valério 2018). To assess the origin of the Phaistos disk and Arkalochori axe we will, therefore, assess them in their chronological and cultural settings, and then we will try to quantify how many signs can be really traced back to Linear A and how many can be instead compared to other earlier and contemporaneous scripts and iconographic motives.

barbara.montecchi@unifi.it, University of Florence, Italy.
maria.streccioni@studio.unibo.it, University of Bologna, Italy.
s.ferrara@unibo.it, University of Bologna, Italy.

[HTTPS://DOI.ORG/10.19272/202433301018](https://doi.org/10.19272/202433301018) · «PASIPHAE» · XVIII, 2024

[HTTP://PASIPHAE.LIBRAWEB.NET](http://pasiphae.libraweb.net)

SUBMITTED: 2.10.2023 · REVIEWED: 10.10.2023 · ACCEPTED: 15.10.2023

DO THE INSCRIPTIONS OF THE PHAISTOS DISK AND ARKALOCHORI AXE
BELONG TO THE SAME SCRIPT?

The Phaistos disk (FIG. 1) is a clay object from the Palace of Phaistos, with 45 different seal-stamps impressed on both faces when the clay was still moist, for a total of 242 signs. These are grouped in 61 sequences separated by vertical lines (Pernier 1908; Duhoux 1977; Godart 1994, 2009, 2023). The stamping space is designed by a continuous spiral line going from the periphery to the centre and this is also the reading direction, i.e. from right to left (Della Seta 1909, 12-14; Godart 1994, 46-60; Godart 2009, 193-194; Godart 2023, 223-232).

The Arkalochori axe (FIG. 2) is a bronze double axe from the sacred cave of Arkalochori, in central Crete (Marinatos 1935; Flouda 2015). In the centre of one of its sides, a total of 15 incised signs are arranged in three columns. In this case, the reading direction is vertical, arguably from top to bottom, as it is inferred from the orientation of the human head-shaped signs. The first column to be read is the one on the left, since the three signs on the right column are much larger in size which suggests that the scribe started from the left and he ended up with more space for the last four signs on the right (Godart 2023, 238-239). The second shape of the first column also repeats at the bottom of the third column, but here it is mirrored. If orientation were a diagnostic feature, these could be two different signs. However, orientation seems not to be a diagnostic feature in Aegean scripts. Both in Cretan Hieroglyphic and Linear A, signs can be mirrored, as for example CH 8, AB 28, A 301, etc. On the Phaistos disk, the same sign may have different orientations as well. Therefore, these should not be considered as two different signs, but rather as variants of the same sign and, consequently, the Arkalochori sign list counts 10 (and not 11) different signs (Godart 1994, 125-126).

The relationship between the inscription on the Arkalochori axe and the one on the Phaistos disk is unclear, but the similarity between five signs incised on the axe and those stamped on the disk, shown on FIG. 3, warrants applying Ockham's principle, whereby entities should not be multiplied beyond necessity. Such similarities cannot be an accident, since the two artefacts belong to the same cultural backdrop. This implies that between two hypotheses, namely 1) they represent two different writing systems, attested only on a singular inscription each; or 2) they are two instances of the same script, the latter is the most economical and, as such, preferable. We argue, therefore, that we are dealing with an invented script used very rarely (at least on durable materials) by a small number of people, since it is only known through two instances (the Phaistos disk and the Arkalochori axe).

Although some scholars believe that the symbols on the two artefacts are rather an imitation of writing that does not convey any linguistic message (Whittaker 2005 on the Phaistos disk; Godart 1994, 126-128 and 2023, 238-241 on the Arkalochori axe), in our opinion, five main reasons tend to favour the idea that we are dealing with actual written texts. First, symbols are more packed at the beginning than at the end of the inscriptions, suggesting that both scribes had a concern about the available space (Godart 2023, 226, 230, 232, 239). This in turn suggests that they had a precise message in mind, with a specific number of characters. Second, the disk also shows peculiar punctuation marks. Three, it would be strange to find the same symbols used for two pseudo-inscriptions in two different locations, relatively close to one another. Four, these symbols have a distributional pattern similar to true written language, since they have different frequencies (a few are very frequent, while others are only attested once or twice) and appear in different positions. For example, "the crested head" is the most frequent symbol on both the disk and axe, but, at least on the disk, only in word-initial position, the game piece-like symbol is the second most frequent and appears in all positions on the disk, and so on. Five, on the disk, symbols show some recurring groups with variations, such as the ones in FIG. 4. This suggests the existence of root words, prefixes, and suffixes, as already argued by Duhoux (1983) and other scholars.

The Phaistos disk and Arkalochori axe appear as artificial hypergraphic texts, i.e. texts characterised by a deliberate selection and elaboration of signs that might have induced puzzlement and awe in those who lived in a Linear A environment and happened to see them. The appearance of



FIG. 1. The Phaistos disk, Face A (left) and Face B (right) (adapted from Godart 1994, photographs from unnumbered plates and drawings from Figs. 10 and 11, p. 49-50).

several sign groups twice or three times on the disk also fits with the general tendency recognised in many different written languages: the more hypergraphic the text, the simpler or more formulaic its message (Houston, Bodel 2021, 8).

All these reasons lead us to believe that the Phaistos disk and the Arkalochori axe bear true inscriptions and that they belong to one and the same script, of limited circulation. Since out of the 10 different signs on the Arkalochori axe a minimum of 4 and a maximum of 6 match the Phaistos disk, the repertoire attested on the two artefacts currently include 49, 50 or 51 different signs, depending on the two doubtful matches displayed to the left of FIG. 3 (FIG. 5).

CONTEXT AND CHRONOLOGY AS THE TWO MAIN TIES TO LINEAR A

The disk was brought to light in 1908 in room 8 of the North-Eastern annex of the Palace of Phaistos, together with a Linear A tablet (PH 1). One more Linear A tablet (PH 54) was recently found in the same building (but in a different room, room 1). The building is very peculiar, because rooms 1 to 7 are very small (the largest one measures only 1,5 square metres) and are separated by clay walls, so they are generally understood as utility rooms. The discoverer Luigi Pernier

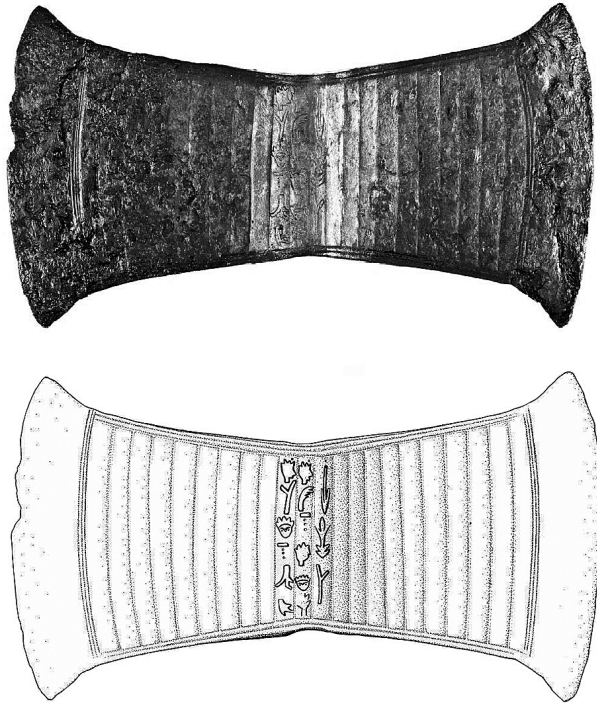


FIG. 2. The Arkalochori axe (adapted from Flouda 2015 Figs. 1a and 5, p. 44 and 49).

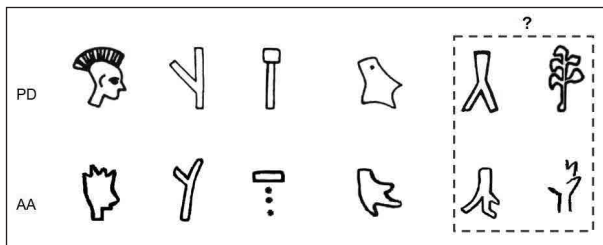


FIG. 3. Phaistos disk and Arkalochori sign shapes whose similarity suggest they are palaeographical variants of the same signs (signs are respectively redrawn after Godart 1994 and Flouda 2015).

compared them with the temple repositories of the Knossos Palace (Pernier 1908). The archaeological context has been dated to Middle Minoan IIIA by Luca Girella and Pietro Militello (Girella 2007-2008, 75; Girella 2016, 80; Militello 2014, 158 and 162) and, therefore, the disk should have been made either in Middle Minoan IIIA or before, namely in Middle Minoan IIB.

The axe was brought to light in 1935 in a cave to the southwest of the modern village of Arkalochori, in central Crete, together with numerous weapons and double axes, and a few fragments of Middle Minoan III and Late Minoan IA pottery. Such an assemblage was probably formed by the long-term deposition of votive offerings in a ritual cave. Significantly, among the offerings, there are also two miniature double axes inscribed in Linear A: one wholly preserved made of gold (AR Zf 1), and one fragment made of silver (AR Zf 2).

Therefore, we do have a contextual link to Linear A: Linear A inscriptions have been found near the disk and the axe. Moreover, some textual features of the disk, such as signs grouping and spiral arrangement, also occur in Linear A. One such example is the gold ring from Mavrospilio (KN Zf 13), whose inscription is to be read from the rim to the centre, like the disk. But this piece of evidence is not sufficient to argue that Linear A served as a template for the script.

There is an array of studies dedicated to the shapes of these signs. The earliest, among which Pernier (1908), Della Seta (1909) and Evans (1909, 273-293),

emphasise the pictorial aspect of most signs and, thus, look for comparisons primarily in highly pictorial scripts, namely Egyptian and Cretan Hieroglyphic. Among the studies that compare the Phaistos disk to Cretan Hieroglyphic we can mention the recent effort to address the issue through a computational analysis (Revesz 2020). Nevertheless, the conclusion that many sign sequences within the Phaistos disk match Cretan Hieroglyphic sign sequences basically rely on an assumed, rather than explained, similarity between sign shapes (Revesz 2020, 37, fig. 2). Most of recent studies, however, tend to see the signs of the disk and the axe either as totally unrelated to any other script (*inter al.* Godart 1994, 2009, and 2023, 236-241), or originated with Linear A (*inter al.* Neumann 1968; Nahm 1975; Timm 2004). The least cogent argumentation that brings Linear A into the equation relies on the back projection of the phonetic values of Linear B to near-identical signs on the disk and axe (Owens 2014; Davis 2018). This is unwarranted.

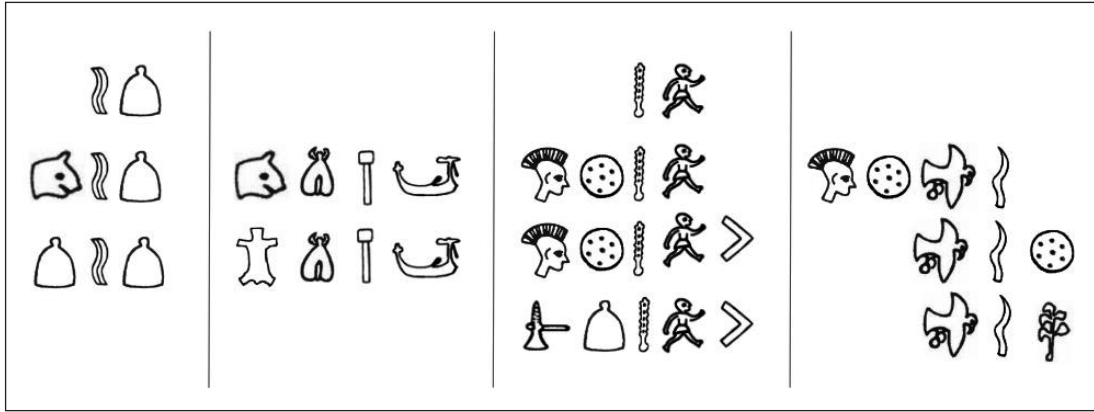


FIG. 4. Sample of sign groups from the Phaistos disk (signs redrawn after Godart 1994).

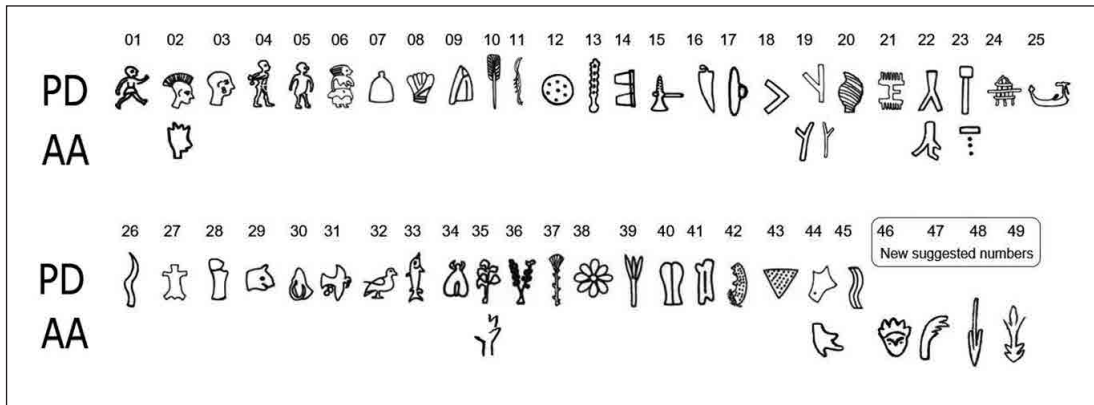


FIG. 5. Arkalochori axe and Phaistos disk script signs. Signs are oriented as they are on the inscriptions. When a sign appears under different orientations, the one that fits with its physical referent is chosen to exemplify the sign. Nos. 28 “leg of a hoofed mammal”, 30 “head of a ram”, and 33 “fish” are never stamped according to the natural orientation of their physical referents.

THE “BACK TO THE PICTORIAL” THEORY

The similarity between Linear A and the Phaistos/Arkalochori script, however, is not self-evident, as it is proven by the fact that different graphic comparisons have been suggested for the same signs. The most relevant suggestions are shown on FIG. 6. There are a few schematic signs that can be easily compared, as for example sign no. 19 coupled with sign AB 01 *da*, sign no. 23 coupled with AB 06 *na*, or sign no. 12 coupled with AB 78 *qe*, but when it comes to pictorial signs things become more complicated. First, because it is not always easy to correctly recognise the physical referent. For example, sign no. 16 of the disk has been interpreted either as a vessel, and consequently compared to AB 67 *ki* (Younger 2014; Davis 2018), or to a saw and compared to AB 74 *ze* (Timm 2004). Second, because a doubt may arise whether the similarity between two signs is due to the derivation of one from the other or to the fact that the physical referent is the same.

Examples of this are the human figures shown on the top left of FIG. 6. These examples also show that different variants of the same Linear A sign may recall different signs of the disk and the axe. Finally, because Linear A signs are generally very schematic, even when they were originally iconic, a large number of the suggested comparisons implies that they were harked back to their iconic shape either by direct link to their original physical referents, or by reshaping them without having any real knowledge of their origin.






























































































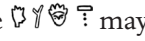
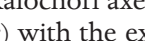
		A 100/102 Nahm 1975, Godart 1994			AB 13 Nahm 1975
		AB 46 Owens 2014			AB 86 Raison&Pope 1971, Duhoux 1983, Timm 2004, Younger 2014, Anastasiadou 2016, Davis 2018
		AB 28 Anastasiadou 2016			AB 39 Raison&Pope 1971
		A 100/102 Anastasiadou 2016			AB 180 Younger 2014
		AB 37 Nahm 1975, Anastasiadou 2016, Davis 2018			AB 80 Younger 2007, Davis 2018
		AB 28 Younger 2014, Davis 2018			A 418 ^{VAS} Nahm 1975
		AB 79 Timm 2004			AB 13 Timm 2004
		AB 78 Raison&Pope 1971, Nahm 1975, Duhoux 1983, Timm 2004, Younger 2007, Anastasiadou 2016, Davis 2018			AB 81 Pernier 1908, Raison&Pope 1971, Nahm 1975, Duhoux 1983, Timm 2004, Younger 2014, Anastasiadou 2016, Davis 2018
		AB 59 Owens 2014, Younger 2014			AB 39 Pernier 1908, Nahm 1975, Duhoux 1983, Timm 2004, Younger 2014, Anastasiadou 2016, Davis 2018
		A 305 Evans 1921, Timm 2005			AB 04 Periner 1908, Raison&Pope 1971, Duhoux 1983, Owens 2014, Younger 2014, Davis 2018
		A 363 Younger 2014			AB 30 Timm 2004, Younger 2014, Davis 2018
		A 364 Timm 2004			
		AB 67 Younger 2014, Davis 2018			AB 27 Raison&Pope 1971, Nahm 1975, Duhoux 1983, Owens 2014, Younger 2014, Anastasiadou 2016, Davis 2018
		AB 74 Timm 2004			
		A 322 Timm 2004			AB 26 or 27 Timm 2004
		AB 37 Timm 2004, Younger 2014			AB 69 Younger 2014
		AB 01 Raison&Pope 1971, Nahm 1975, Duhoux 1983, Younger 2014, Anastasiadou 2016, Davis 2018			AB 66 Raison&Pope 1971, Nahm 1975, Duhoux 1983, Timm 2004, Younger 2014, Anastasiadou 2016, Davis 2018
		AB 31 Timm 2004, Younger 2007			AB 76 Anastasiadou 2016, Davis 2018
		AB 24 Younger 2014			AB 80 Timm 2004
		AB 31 Raison&Pope 1971, Nahm 1975, Duhoux 1983, Younger 2014, Anastasiadou 2016, Davis 2018			A 304 Timm 2004
		AB 318 Timm 2004			A 312 Younger 2014
		AB 06 Timm 2004, Younger 2014, Anastasiadou 2016, Davis 2018			AB 01 Timm 2004
		AB 45 Younger 2014			
		AB 54 Timm 2004			
		A 321 Duhoux 1983			

Fig. 6. Phaistos disk and Arkalochori axe signs compared to Linear A in scholarship.

The “back to the pictorial” theory was originally developed by Neumann in 1968 and subsequently expanded upon by other scholars, who interpreted the most pictorial Phaistos and Arkalochori signs as images created from linear script signs (Nahm 1975; Anastasiadou 2016, 44-46). A very insightful example of this is sign no. 2, both attested on the disk and the axe, coupled with AB 28 *i* (Anastasiadou 2016, 45). The two shapes do not look alike at first glance, because the first one clearly depicts a human head in profile with a crest, whereas the second is a quite schematic shape. Nevertheless, we can imagine a vertical stroke transformed into a neck, a circle transformed into a face, and vertical strokes above the circle transformed into a crest. To transform AB 28 into a human head does not mean to bring back the sign to its iconic origin, that probably was the Cretan Hieroglyphic “hand sign”, number 8 (in fact, some scholars compare AB 28 to disk’s hand-like sign), but it rather means a camouflage.

Another comparison that implies a pictorial reinterpretation is the frontal human face sign incised on the Arkalochori axe understood as a reinterpretation of AB 80, that represents the frontal face of a cat (Timm 2004, 225). To sum up, we can hypothesise that some of the signs of the disk and the axe may be Linear A signs in disguise. We will not discuss here all the correspondences suggested in the scholarship, but, in the next section, we will focus on a set that can be checked against contextual evidence.

WHEN PALEOGRAPHY MEETS CONTEXTUAL AND DISTRIBUTIVE EVIDENCE: A CASE STUDY

A common deciphering strategy entails investigating ‘words’ that to a degree of probability may be attested in the undeciphered script. Michael Ventris, for example, looked for Cretan place names in Linear B tablets from Knossos, and was indeed successful in finding them (Chadwick 1992). Both the archaeological context and the type of object of the Arkalochori inscription are the same as the two Linear A inscriptions AR Zf 1 and 2: AB 28-01-80-04, a sequence that reads *i-da-ma-te* (applying the Linear B phonetic values). We can thus check if we can identify the same sequence, by using correspondences previously suggested on the grounds of the graphic comparisons (FIG. 6). The result is that we cannot find exactly the same sequence on the enigmatic Arkalochori axe. However, the sequence  may indeed resemble AR Zf 1  (*i-da-ma-te*) with the exception of the last sign, whose shape looks like AB 06/*na* rather than AB 04/*te*. This, of course, leaves us with a certain degree of uncertainty: is this a mere coincidence or not?

Some scholars, e.g. Owens (2014), argue that this is not a coincidence, since several reasons could theoretically explain an alternation between two different final syllables. Perhaps the most attractive hypothesis is that *i-da-ma* may be a word root and *-na/-te* may be suffixes, since the hypothesis that *-te* were a suffix in Linear A has been independently suggested on the grounds of other texts (Davis 2014, 263 and 265; Karnava 2016, 351). Nevertheless, following the same line of reasoning, the Linear A sequence *da-ma-te* on the stone ladle from the Minoan sanctuary on the island of Kythira (KY Za 2: FIG. 7) may rather suggest that *da-ma-te* could be the basic word and *i-* is a prefix (Consani, Negri 1999, 259; Davis 2014, 122-123).

At this point a distributive analysis may be a fruitful strategy to apply. The crested head is the most frequent sign on the disk and the axe, with 22 attestations in total, and it always occupies an initial position. Conversely, AB 28 is the fourth most frequent Linear A syllabogram and it appears in all positions, although more frequently at the beginning (as it is expected for a vowel in a syllabic script). In theory, the distribution pattern of the crested head would fit better with the one of AB 08, corresponding to vowel *a*, at least in Linear B, but their shapes are completely unrelated.

To sum up, more than one half of the disk and axe’s signs have been tentatively compared to Linear A signs in the past, but many are mutually exclusive or based on very subjective judgments. Moreover, when we then try to combine paleographical, contextual, and distributive evidence, it is difficult to find any coherent and decisive matches. This strongly invites us to be more cautious when comparing the Linear A graphic repertoire to the disk and axe’s signs, especially when their resemblances are vague.

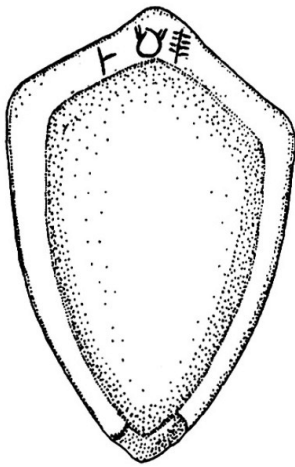


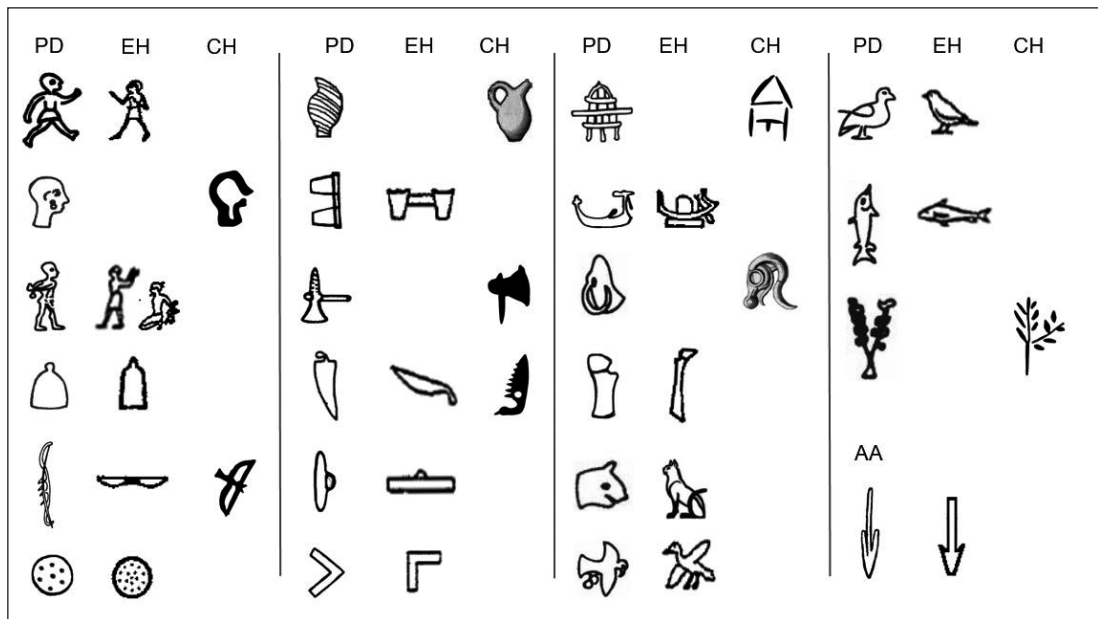
FIG. 7. Stone ladle from Kythira with Linear A inscription KY Za 2 (drawing after Sakellarakis, Olivier 1994, Fig. 4, P. 345).

CONCLUDING REMARKS: NOT JUST LINEAR A

Despite the evident contextual connections with Linear A, this was not the only writing system the designer of the disk and axe's script could have been exposed to. Graphic similarities can be found with Egyptian and Cretan Hieroglyphic too and we cannot exclude that these also served as sources of inspiration. FIG. 8 shows the most significant formal comparisons with Egyptian and Cretan Hieroglyphic resulting from our paleographical analysis, but more comparisons with Cretan Hieroglyphic are suggested by other authors (Schwartz 1959; Schürr 1973; Younger 2005-2014; Revesz 2020).

Moreover, many signs find viable parallels in Middle Minoan seal motifs and material culture (Anastasiadou 2016; Baldacci 2017; Sanavia 2014 and 2017). It is remarkable that stamping devices, similar to those used on the disk, were also used on clay vessels, especially at Phaistos and Knossos (Sanavia 2014 and 2017). FIG. 9 shows a selection of the closest correspondences between the shapes attested on the disk and the Middle Minoan II iconographic repertoire. There are also other similar shapes, but we must be cautious in the selection, because these parallels cannot be double-checked against frequency and behaviour of the signs. It should be noted that Phaistos disk signs 17 and 28 are compared to seals that date back to the

Prepalatial Period (CMS II.1 132 and 170 respectively), a much earlier phase than that of the disk and the axe, but their shapes are so similar that ignoring them would be counter-intuitive.



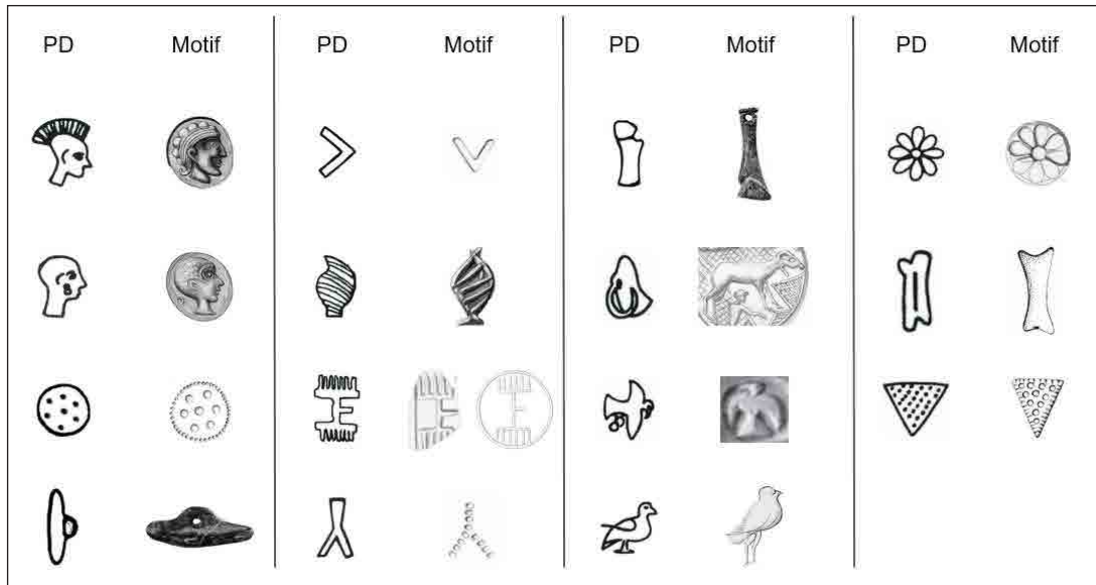


FIG. 9. Phaistos disk signs compared to Pre- and Protopalatial iconography. From top right to bottom left: PD 2 and CMS II.8 040 (from MM II Knossos); PD 3 and CMS II.8 041 (from MM II Knossos); PD 12 and impression on pot HM 14276 (also comparable to CMS II.1 235 from EM III - MM I Marathokephalo); PD 17 and CMS II.1 132 (from EM III - MM IA? Kalathiana); PD 18 and impression on pot MS 79/2 (from MM II Phaistos); PD 20 and CMS II.2 216a (from MM II Gouves); PD 21, CMS II.5 246, and potter's mark on bowl F4718 (from MM II Phaistos); PD 22 and impression on pot CMM 266 (from MM II Phaistos); PD 28 and CMS II.1 170 (from EM III - MM IA? Lendas); PD 30 and CMS II.8 033 (from MM II Knossos); PD 31 and seal PTSK12.653a (from MM II Petras: Krzyszkowska 2017, 148, fig. 4); PD 32 and CMS II.5 310 (from MM II Phaistos); PD 38 and CMS II.5 135 (from MM II Phaistos); PD 41 and impression on pot from MM II Phaistos (Sanavia 2014, 91 no. 144, Fig. E.148); PD 43 and impression on pot CMM 339 (from MM II Phaistos).

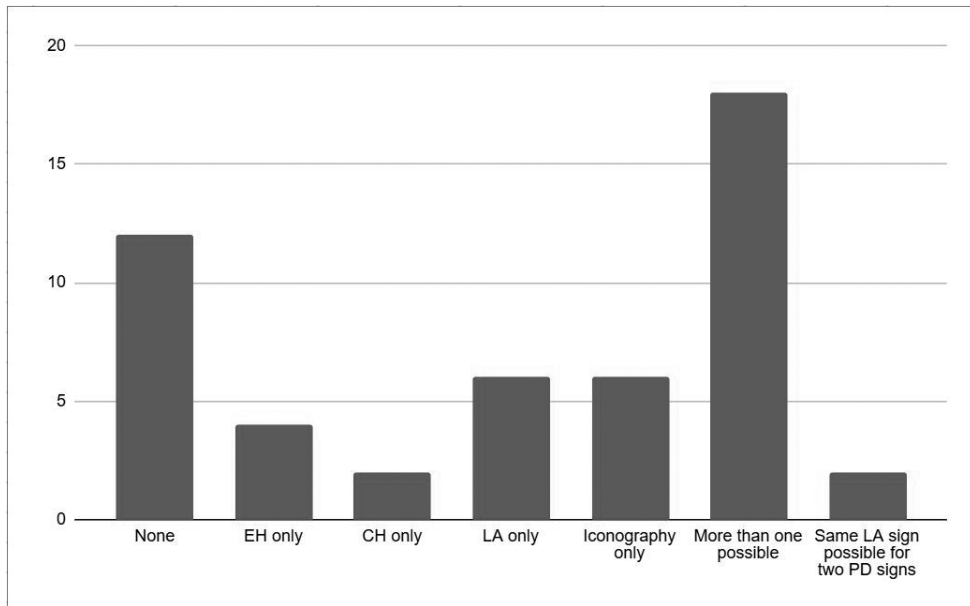


FIG. 10. Chart synthesising the results of our graphic comparative analysis. It shows how many signs attested on the Arkalochori axe and/or the Phaistos disk do not find any close graphic comparison and how many are instead closely comparable to other scripts and/or iconographic motifs.

About 30 out of 50 signs have been tentatively compared with one or more LA shapes in scholarship (FIG. 6), but many of these suggestions rely on a vague resemblance or are not straightforward. Several scholars have compared the same Phaistos disk's sign to different Linear A signs or *vice versa* two or more disk's signs to the same Linear A sign. In our opinion, it remains difficult, for example, to decide which match is the strongest between PD 1 - AB 100/102 and PD 4 - AB 100/102, and between PD 2 - AB 28 and PD 8 - AB 28. Moreover, a few signs on the disk and the axe are closely comparable to Linear A signs only (PD 8 to AB 28, 10 to AB 79, 19 to AB 1, 23 to AB 6, 34 to AB 39, and 46 to AB 80), whereas most signs may be also similar or only similar to other scripts and iconographic motives. The chart in FIG. 10 synthesises the results of our re-assessment of the graphic comparisons, by counting how many shapes attested on the disk and axe can be closely compared to those of other script signs and iconographic motifs. It has to be noted that twelve signs still lack any evident graphic derivation from any other Aegean or Egyptian scripts and iconographies (AA/PD 5, 6, 9, 13, 26, 27, 39, 40, 42, 44, 47, 49). All this suggests that the script on the Phaistos disk and Arkalochori axe is the result of a multi-source inspiration for the shapes of its signs, rather than a direct Linear A offspring.

ACKNOWLEDGMENTS

This research is an output of the ERC Project “INSCRIBE. Invention of Scripts and Their Beginnings.” The project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program awarded to Silvia Ferrara (Grant Agreement No. 771127). We warmly thank the other members of the team and in particular Miguel Valério, Roberta Ravanelli, and Lorenzo Lastilla for digitally retracing part of the Cretan Hieroglyphic and Linear A signs, originally drawn by Louis Godart (*CHIC* and *GORILA*). A draft of this piece of research was firstly presented to the “The Wor(l)ds of Linear A” Conference organised by Dr Ester Salgarella in May 2022. We are grateful for the invitation and for the insightful comments we received during the discussion. We would like to thank Dr Stella Mandalaki and Dr Georgia Flouda for their assistance at the Archaeological Museum of Heraklion and for granting us permission to study and photograph numerous Cretan Hieroglyphic and Linear A inscriptions that provided a solid base for our paleographical reassessment.

BIBLIOGRAPHY

- ARACHNE* = online database of the German Archaeological Institute and the University of Cologne: [https://arachne.uni-koeln.de/arachne/index.php?view\[section\]=objekt&view\[layout\]=search_form_category](https://arachne.uni-koeln.de/arachne/index.php?view[section]=objekt&view[layout]=search_form_category) (last access September 2022).
- CHIC* = J.-P. Olivier, L. Godart, *Corpus Hieroglyphicarum Inscriptionum Cretae*, Athens-Rome 1996 (*Études Crétoises* 31).
- CMS* = I. Pini *et al.*, *Corpus der minoischen und mykenischen Siegel*, vol. I-XIII, Berlin 1964-2009.
- GORILA* = L. Godart, J.-P. Olivier, *Recueil des inscriptions en linéaire A*, vol. I-V, Paris 1976-1985 (*Études Crétoises* 21).
- Anastasiadou 2016 = M. Anastasiadou, ‘The Phaistos Disc as a Genuine Minoan Artefact and its Place in the Stylistic Milieu of Crete in the Protopalatial Period’, *Creta Antica* 17, 2016, 13-57.
- Baldacci 2017 = G. Baldacci, ‘Low-Relief Potters’ Marks and the Phaistos Disc: A Note on the ‘Comb’ Sign (N. 21)’, *ASAtene* 95, 2017, 65-79.
- Chadwick 1992 = J. Chadwick, *The Decipherment of Linear B*, Cambridge 1992.
- Consani, Negri 1999 = C. Consani, M. Negri, *Testi minoici trascritti con interpretazione e glossario*, Roma 1999 (*Incunabula Graeca* c).
- Davis 2010 = B. Davis, ‘Introduction to the Aegean Pre-Alphabetic Scripts’, *Kubaba* 1, 2010, 43-78.
- Davis 2014 = B. Davis, *Minoan Stone Vessels with Linear A Inscriptions*, Leuven-Liège 2014 (*Aegaeum* 36).
- Davis 2018 = B. Davis, ‘The Phaistos Disk: A New Way of Viewing the Language Behind the Script’, *OJA* 37, 2018, 373-410.
- Della Seta 1909 = A. Della Seta, ‘Il disco di Phaistos’, *RAL* 18, 1909, 297-367.
- Duhoux 1977 = Y. Duhoux, *Le disque de Phaistos. Archéologie, épigraphie, édition critique, index*, Louvain-la-Neuve 1977.
- Duhoux 1983 = Y. Duhoux, ‘Les langues du Linéaire A et du Disque de Phaistos’, *Minos* 18, 1983, 33-68.

- Evans 1909 = A. Evans, *Scripta Minoa: The Written Documents of Minoan Crete with Special Reference to the Archives of Knossos (Band 1): The Hieroglyphic and Primitive Linear Classes*, Oxford 1909.
- Flouda 2015 = G. Flouda, 'Materiality and Script: Constructing a Narrative on the Minoan Inscribed Axe from the Arkalochori Cave', *SMEA* n.s. 1, 2015, 43-56.
- Girella 2007-2008 = L. Girella, 'A View of MM IIIA at Phaistos: Pottery Production and Consumption at the Beginning of the Neopalatial Period', *Aegean Archaeology* 9, 2007-2008, 49-89.
- Girella 2016 = L. Girella, 'Continuità e transizione del potere nella Messarà a Creta durante il Medio Minoico III (ca. 1750-1670 a.C.)', in F. Longo, R. Di Cesare, S. Privitera (eds), *Δρόμοι. Studi sul mondo antico offerti a Emanuele Greco dagli allievi della Scuola Archeologica Italiana di Atene*, vol. 1, Atene-Paestum 2016, 73-88.
- Godart 1994 = L. Godart, *Il disco di Festo. L'enigma di una scrittura*, Torino 1994.
- Godart 2009 = L. Godart 2009, 'I misteri del disco di Festos', *ASAtene* 87, 2009, 191-207.
- Godart 2023 = L. Godart 2023, *I custodi della memoria. Lo scriba tra Mesopotamia, Egitto ed Egeo*, Torino 2023.
- Houston, Bodel 2021 = S. Houston, J. Bodel, 'Introduction: Making a mark', in S. Houston, J. Bodel (eds), *The Hidden Language of Graphic Signs: Cryptic Writing and Meaningful Marks*, Cambridge 2021, 1-16.
- Karnava 2016 = A. Karnava, 'On Sacred Vocabulary and Religious Dedications: The Minoan 'Libation Formula'', in E. Alarm-Stern, F. Blakolmer, S. Deger-Jalkotzy, R. Laffineur, J. Weilharter (eds), *Metaphysis. Ritual, Myth and Symbolism in the Aegean Bronze Age*, Leuven-Liège 2016 (*Aegaeum* 39), 345-355, pl. CVI-CVIII.
- Krzyszowska 2017 = O. Krzyszowska, 'Further Seals From the Cemetery of Petras', in M. Tsipopoulou (ed.), *Petras, Siteia: The Pre- and Proto-palatial Cemetery in Context. Acts of a Two-day Conference Held at the Danish Institute at Athens, 14-15 February 2015*, Athens 2017, 143-157.
- Marinatos 1935 = S. Marinatos, 'Ἀνασκαφαί ἐν Κρήτῃ. Ἀρχαιολογῶρι', *Prakt* 1935, 212-220.
- Militello 2014 = P. Militello, 'Un nuovo frammento di tavoletta in lineare A da Festòs (PH 54)', *ASAtene* 92, 2014, 155-165.
- Nahm 1975 = W. Nahm, 'Vergleich von Zeichen des Diskos von Phaistos mit Linear A', *Kadmos* 14.2, 1975, 97-101.
- Neumann 1968 = G. Neumann 1968, 'Zum Forschungsstand beim "Diskos von Phaistos"', *Kadmos* 7.1, 1968, 27-44.
- Owens 2014 = G. Owens, TEDx-TALK: <https://www.youtube.com/watch?v=6Chcplx3tZ8>.
- Pernier 1908 = L. Pernier, 'Il disco di Phaestos con caratteri pittografici', *Ausonia* 3, 1908, 255-302.
- Raison, Pope 1971 = J. Raison, M. Pope, *Index du linéaire A*, Rome 1971.
- Revesz 2020 = P. Z. Revesz, 'A Vowel Harmony Testing Algorithm to Aid in Ancient Script Decipherment', in *2020 24th International Conference on Circuits, Systems, Communications and Computers (CSCC)*, Chania, Greece, 2020, 35-38, DOI: 10.1109/CSCC49995.2020.00015.
- Sakellarakis, Olivier 1994 = J. A. Sakellarakis, J.-P. Olivier, 'Un vase en pierre avec inscription en Linéaire A du sanctuaire du sommet minoen de Cythère', *BCH* 118, 1994, 343-351.
- Sanavia 2014 = A. Sanavia 2014, *Ceramiche minoiche fini con decorazioni impresse e di imitazione di prototipi metallici*, Unpublished PhD Dissertation (Ca' Foscari University of Venice).
- Sanavia 2017 = A. Sanavia, 'An Overview of the Protopalatial Impressed Fine Ware from Phaistos and some Comparisons with the Phaistos Disc', *ASAtene* 95, 2017, 81-103.
- Schoep 2007 = I. Schoep, 'The Inscribed Document', in C. F. Macdonald, C. Knappet (eds), *Knossos: Protopalatial Deposits in Early Magazine A and the South-West Houses*, London 2007 (*BSA Suppl.* 41), 131-134.
- Schürr 1973 = D. Schürr, 'Der Diskos von Phaistos und Linear A', *Kadmos*, 12.1, 1973, 6-19.
- Schwartz 1959 = B. Schwartz, 'The Phaistos Disk II', *JNES* 18.3, 1959, 222-226.
- Timm 2004 = T. Timm, 'Der Diskos von Phaistos - Anmerkungen zur Deutung und Text-Struktur', *Indogermanische Forschungen* 109, 2004, 204-231.
- Valério 2018 = M. Valério, 'Cypro-Minoan: An Aegean-derived Syllabary on Cyprus (and Elsewhere)', in S. Ferrara, M. Valério (eds.), *Paths into Script Formation in the Ancient Mediterranean*, Roma 2018 (*SMEA* n.s. Suppl. 1), 103-128.
- Whittaker 2005 = H. Whittaker, 'Social and Symbolic Aspects of Minoan Writing', *EJA* 8, 2005, 29-41.
- Younger 2005-2014 = J. Younger, <http://people.ku.edu/~jyounger/PHDisc/PHDiscSigns.html>.