In this paper, I intend to discuss how to interpret the notion of writing in Cretan Hieroglyphic script on different supports (i.e. seals, clay documents and vessels) more comprehensively, following a theoretical framework influenced by integrational semiology. Special attention will be dedicated to the analysis of a whole series of external stimuli (from the materials and forms of the writing supports to the modes of display and the perception of writing itself) that constitute the ‘prior knowledge’ necessary to thoroughly interpret written texts, as well as to the cultural values, encyclopaedic knowledge and ideological expressions that led to the creation of this graphic system. Therefore, starting from a theoretical background which posits a multifaceted interpretation of what writing actually is, I will discuss, with reference to Cretan Hieroglyphic texts, the seven different factors indicated by Antonio Perri (1999) in his model for the description of scriptorial events, which has components corresponding by acronym to the mnemonic word ‘writing’: writers, readers, instrumentalities, textualization, interpretative context, norms and genres.
In this contribution, I will try to frame the notion of ‘writing’ in Cretan Hieroglyphic script according to a theoretical model influenced by recent discussions in the field of the anthropology of writing, reiterating some issues already addressed in previously published studies (exclusively with reference to inscribed seals1), supporting their results with new considerations, and extending the same method to the analysis of inscriptions written on other media. In fact, along with philological and palaeographical approaches to a general appreciation of the Cretan Hieroglyphic script – invaluable for our basic understanding of this still undeciphered writing system2 –, I am convinced that an approach to the act of writing that «includes all social practices that use systems of graphic (sometimes also material) signs, which are recurrent, combinable and conventionally linked to a linguistic content»3, can help us to gain a better understanding of how this special writing system was created and used. Within a recent, anthropological setting, that «moves from a flexible taxonomy, grounded on semiotic principles», the written sign is not considered a static entity (as it was according to the ‘western’ logic of the alphabet4) but a dynamic unit5. As such, it is to be assumed that written texts cannot be analysed in a comprehensive way outside of the social and ideological contexts in which they are involved and without a careful exploration of their uses and purposes.

On the contrary, as it is well known, according to the Aristotelian and structuralist paradigm, the written sign was viewed as a mere instrument meant to transcribe the phonemes of a given language, no matter its ideological, symbolic and cultural values6. However, in the last few decades, extensive progress has been made in elaborating a general – integrationist – theory of writing, resulting in an interpretation of the writing act as a mode of communication largely independent from spoken languages, whereas communication is envisaged as consisting «in the contextualized integration of human activities by means of signs»7. Therefore, it is no longer assumed that the utterance of a spoken language is the only purpose or the main purpose of any scriptorial event, but rather a whole set of cultural values, encyclopaedic knowledge and ideological manifestations of the written sign are equally emphasised8. Once the traditional, glotto-linguistic view of the scriptorial sign has been overcome, in a general reformulation of the relationships between the written sign and the meanings to which it could refer, the latter comes to be viewed as a signifier at multiple levels9. This is especially true for highly iconic writing systems – as in the case of Cretan Hieroglyphic script –, in which written signs, on specific supports (especially seals, infra), can have multiple ‘interpretants’, defined by their contexts of attestation.

5. PERRI 1999, p. 275.
9. Cfr. CARDONA (2009 [1981], p. 166), on the cultural values attached to graphic elements in a given writers’ group: «è ben difficile pensare che la vasta serie di immagini cristallizzata in un sistema come quello egizio o quello maya possa essere neutra e non dare alcuna informazione non solo su se stessa e sui suoi criteri di scelta, ma sulla visione del mondo, sui procedimenti mentali dei suoi ideatori; che la cristallizzazione dei caratteri cinesi sia un solo fatto di tecnica scrittoria, e così via». 
In this theoretical setting and in agreement with the seminal studies on this subject published by Giorgio Raimondo Cardona, Marco Mancini has recently proposed a definition of writing, *sensu strictiore*, as referring to the overall forms and material techniques of writing, analysed both in a strictly pragmatic way and in a more properly socio-anthropological one. Accordingly, Massimiliano Marazzi has stated that the written act should be analysed not abstractly, beyond its phenomenological manifestations, but always by placing it into the socio-cultural environment in which it is produced and into the socio-economic contexts to which it is closely related. Following these research paths, in the last few years a whole set of external *stimuli* (such as the materials, the execution tools, the forms of the graphic surface and the visual presentation of written text) have been analysed as regards to Cretan Hieroglyphic documentation. These external *stimuli* constitute the «prior knowledge» required to correctly understand the texts, guiding the reader’s perception before linguistically reading the inscriptions; therefore, they are significant in themselves, going hand in hand with the linguistic and cultural contents of the texts and, as such, were perceived by past actors as signifiers and played an important role in the codification of different written varieties and genres. Starting from this theoretical background, the seven different factors emphasized by Antonio Perri in his model for the description of scriptorial events will be analysed for different classes of Cretan Hieroglyphic texts. The components of the model, corresponding acronymically to the word ‘writing’, are:

«W = Writers (i.e., who are the writers? Are writing skills subjected to institutionally recognized patterns?); R = Readers (i.e., who are the readers? Is the role of the reader independent from that of the writer? Are there different reading skills, according to sociocultural or status levels?); I = Instrumentalities (i.e., what kind of instruments are used to write a message, and how are they related to keys through which scriptorial events must or should be interpreted?); T = Textualization (i.e., which are the rules governing the passage from cultural and linguistic content to written texts? Is there any distinctive pattern of “translation” between linguistic and scriptorial domains?); I = Interpretative context (i.e., what is the role played by the environmental context the written text is placed, in the interpretation of that same text?); N = Norms (i.e., are there graphic and social norms related to the writing and reading of different kinds of texts?); G = Genres (i.e., is there a ‘canon’, either implicit or explicit, through which texts are classified and hence interpreted?)».

Not all these components can be analysed with the same level of accuracy, because of the limitations of our evidence, and often we can offer only partial answers to the questions this model raises. Nevertheless, we think that such an approach to Cretan Hieroglyphic documentation can be useful for a more complete understanding of the overall implementation of this writing system and is liable to stimulate discussions with cognate scripts (for instance, Linear A).
Writers

It may be presumed that Cretan Hieroglyphic documents were written by different groups of writers, with different levels of literacy and various abilities in identifying, understanding and reproducing hieroglyphic texts. In fact, we can posit the existence, in Protopalatial Crete, of a whole spectrum of hieroglyphic text executors related to the specific graphic supports chosen for writing different kind of documents, using different tools and techniques, intended for different uses (in ritual, ideological and/or administrative contexts), and linked with specific textual contents. In addition to sealstones, clay documents and vases, the use of perishable materials as writing support may also be inferred because of the use of a special kind of nodule, the flat-based one (defined as ‘parchment nodule’ as well), in some cases impressed by Cretan Hieroglyphic seals\textsuperscript{17}. On this last kind of support, we expect that texts would have been painted.

In general terms, a basic difference between active writing (carried out in the field of administration) and passive writing (for example, the practice of impressing inscribed sealstones) can be proposed; in each case, however, some exceptions to the general rule should be signalled (\textit{infra}). A full literacy level can be confidently assigned to scribes/administrators working in palatial and palatial annexed bureaux, magazines and, probably, sanctuaries\textsuperscript{18}, who wrote different kinds of administrative hieroglyphic texts on clay, such as crescent-shape nodules, medallions, cones, 2-sided lames, 4-sided bars and tablets (fig. 1) in MM II-III.

Given the scarcity of our material (to date, 133 clay documents in total), it is not possible to delineate the role and the position of these writers within the administrative machine of Protopalatial Crete with precision. We simply do not know whether they were writers dependent on palace officials, serving on the administrative staffs of palaces and temples (thus being ‘scribes’ in the strict sense) or if they were officials themselves, charged with carrying out specific economic and bureaucratic tasks and recording an account of them on clay documents.

It is likely that, to manage the entire repertoire of hieroglyphic signs (at least 96 syllabograms, 33 logograms, numerical and fraction signs and the related orthographic norms), a training period for these writers on clay was necessary\textsuperscript{19}. This seems to be confirmed by the generally homogeneous aspect of hieroglyphic texts, both at a geographical level and in the scribal and graphic norms adopted by scribes. However, we have no evidence that this training period was institutionally planned, nor that it was held in a sort of ‘scribal school’ or even within the family environment, assuming that the craft of the scribe could have been transmitted from father to son. Finally, given that the practice of active writing in administration seems to have been restricted in distribution, we can assume that it was associated with inner-elite culture\textsuperscript{20}, making these special writers part of the upper strata of Minoan society.

Unfortunately, Cretan Hieroglyphic inscribed clay documents are too limited in number to allow suggestions regarding possible areas of specialization for scribes. In fact, it is very hard to ascertain whether or not different document formats – intended to transmit different kinds of information – were treated by the same scribes, or whether there were scribes specialized on

\begin{itemize}
  \item \textsuperscript{17} Cfr. Knossos Hieroglyphic Deposit: \textit{CHIC} \#157, \#164, \#178, \#179; Malia palace Deposit: \#154; Zakros, House A: \#138 – on three different nodules –, \#152 and \#153. See \textsc{Karnava} 2000: 227-228; \textsc{Perna} 2014, p. 258.
  \item \textsuperscript{18} See the a 2-sided lame from the extra-urban regional sanctuary at Kato Syme (\textsc{Lebessi et alii} 1995, pp. 63-77).
  \item \textsuperscript{19} \textsc{Karnava} 2000, pp. 226-227.
  \item \textsuperscript{20} \textsc{Schöep} 2010, p. 76.
\end{itemize}
specific topics, etc. A preliminary study of the scribal hands was made by Artemis Karnava\textsuperscript{21}, who evaluated the palaeography of the signs, the choices in the presentation and formatting of the texts, and the forms and dimensions of them. Only in rare cases does it seem possible to at-

tribute two different documents to one and the same scribal hand. Just to give some examples, Karnava hypothesizes that the same scribe wrote two 4-sided bars from Knossos (CHIC #052 and #054), that were incised with styli with the same thickness, list numerical entries without anything else before them on their faces γ and have some signs rendered in the same manner. Again, three 4-sided bars from Knossos (CHIC #065, #066 and #067) seem to be the work of another scribe, showing the same shapes and dimensions, having the signs in common executed with a very similar ductus and registering the same topics. Moreover, Karnava hypothesizes, on palaeographic grounds, that a 4-side bar (CHIC #115) and two tables (CHIC #119 and #120) from the Deposit of the palace at Malia were written by the same scribe, giving a hint on the possible involvement of individual scribes on different document formats (but see, infra, a discussion about Cretan Hieroglyphic tablets) and, possibly, in different phases of the administrative and bureaucratic process. Finally, it was hypothesised by their editors22 that the 12 clay medallions found in the same room of the Quartier Mu at Malia were written by two or three different scribes, whereas the two cones (the only two in the entire hieroglyphic corpus) CHIC #070-071, from the same site, should be attributed to two different scribes. Finally, as regards the archive from Petras, Tsipopoulou and Hallager23 conclude that at least three scribes were at work on this archive. However, we cannot – at the moment, at least – go any further in detailing this picture.

On the other side, a passive literacy level is generally assigned to hieroglyphic seal engravers, who are supposed to have been trained to reproduce, in a (more or less) recognisable and consistent way, different hieroglyphic sign-groups on a great variety of commissioned seals (like Petschafte, other kinds of one-face seals, two-face seals, three- and four-sided prisms etc.; fig. 2) from EM III-MM IA to MM II-III. In fact, they are commonly assumed not to have been active and literate writers, but specialized craftsmen who had specific training in carving written signs, but who produced, in the Protopalatial period, non-inscribed seals as well and, in rare cases, may not have understood what they wrote24. They made their written texts on sealstones using the same materials and engraving techniques, and choosing the same decorative motives – common in non-hieroglyphic glyptic production –, in order to accompany and/or ‘decorate’ the inscription proper, in order to arrange or frame it in a pleasant way in the glyptic field. Quite naturally, depending on the style in which each writer had been trained and the techniques he had learned to use, Hieroglyphic signs were rendered in a slightly different way. When it is was possible, inscribed seals have been attributed to specific stylistic groups, based on the abovementioned criteria (execution technique, materials, decorative motives). For example, a conspicuous stylistic group is represented by seals ascribed to the ‘Malia/eastern Crete steatite prisms’, among which different stylistic tendencies can be distinguished25. In general terms, on the soft stone three- and four-sides prisms pertaining to this group and inscribed on one (or two) faces only, Hieroglyphic signs are rendered in a very simplistic way and are accompanied by filling motives characteristic of this stylistic group, such as lines, spirals, triangles etc (cfr., in fig. 2, CHIC #246).

22. POURSAT 1978, p. 56.
23. TSIPOPOULOU - HALLAGER 2010, pp. 174-175.
Fig. 2. Sample of the most attested forms of Cretan Hieroglyphic seals (not to scale). Photographs and drawings (from impressions) are courtesy of the CMS, Heidelberg.
On the other hand, three and four-sided prisms inscribed on three sides or more, and made of medium-hard or hard stones, show a higher level of workmanship, with a correspondingly greater elaboration in the rendering of the inscribed signs and of the decorative fillers (cfr. CHIC #242 and #287, fig. 2). Different again is the rendering of the inscribed signs – among others – on another important set of written seals attributed to the ‘Archanes script group’, first identified by Yule as a subgroup of the larger ‘Border-leaf group’26. But, regardless these stylistic tendencies, the ductus of Hieroglyphic signs is generally consistent and easily recognisable. This fact has strengthened the idea that seal engravers were well-acquainted with the hieroglyphic writing system27. More specifically, some sophisticated distributions of the signs according to the so-called ‘badge acronymique’ scheme (that presupposes cross-references among signs written on different faces of a prism)28 and the manipulation of a graphic and writing repertory partially different from that employed on clay documents (infra, textualization) confirms, in our opinion, that they generally had a good level of competence in using the graphic system.

Just a few exceptions to this general picture can be seen, perhaps reflecting very specific – possibly local – writing traditions. The first consists of a group of five peculiar seals (CHIC #204, #207, #281, #294 and #307) from Malia (fig. 3), on the surface of which Cretan Hieroglyphic signs are carved in a manner very closely reminiscent of their incised versions on clay. If we suppose that the standard (and pristine) form of Hieroglyphic signs is the one attested on seals (that is, with the inner surface completely removed), given that this special writing system seems to have started on this special support29, and its signs stemmed from the emblematic repertoire of the Prepalatial glyptic, then the form of signs recurring on clay is the product of the adaptation of their forms on a different material written down using different tools (incised on moist clay with stylī and not engraved using the freehand technique or cutting wheels and different drill bits depending on the material chosen for sealstones). In contrast, in the five seals from Malia mentioned (and in this case only) it seems possible to detect an opposite process, with seal engravers imitating the way in which Hieroglyphic signs were rendered on clay. Therefore, it seems safe to suppose that the Maliote executors of these documents were trained in a different writing tradition from the great majority of the Hieroglyphic seal engravers, possibly influenced by the special modus scribendi of this writing system on clay documents30. Another possibly local writing tradition seems to be identifiable on the first inscribed seal ever found in western Crete. We are referring to a 4-sided prism with all sides inscribed (VRY S 4/4 01) in the publication of which the editors observe that none of the signs engraved on its surface is «rendered canonically»31. For this reason, they wonder if the engraver actually understood the signs he was carvings. The first possible explanation of this phenomenon may be that the seal engraver was passively reproducing a commissioned text he did not understand, but it cannot be excluded

26. YULE 1981, p. 170: «The Archanes script is defined primarily by the signs represented. Of the fifteen known seals showing this script, several motifs appear frequently: the dentate band, leaves, double axe, ewers and cuts shaped like V’s. These motifs generally appear inside a field bordered by an incision [...]». The seals bearing the Archanes script are all assigned to EM III-MM IA Border/Leaf Complex; YULE 1981, pp. 209-210.
that the special rendering of the signs written on this seal was proper to a western Crete writing tradition; that is still completely unknown to us. Moreover, we are aware of another writing tradition on metal seals, unfortunately represented by only two specimens: a silver Peschaft (CHIC #192) from Neapolis and a golden 4-sided prism from Malia (CHIC #306). As for the palaeography of the signs, the inner part of them is completely removed, indicating someone trained to engrave hieroglyphic seals in a way similar to the standard one on stone seals (but, obviously, using different tools and techniques, infra).

Finally, one last attested category of Cretan Hieroglyphic writers is that of vase incisors and painters, who composed short texts on clay and (in just one case stone) vessels. The executors of these inscriptions on pots, just like writers on sealstones, could have learned how to reproduce texts upon request, without necessarily knowing how to write in the sense of possessing an active literacy skill\textsuperscript{32}. But one exception seems to be detectable in the very small corpus of Chamaizi juglets (fig. 4), among which Karnava very interestingly attributes one inscription

\begin{itemize}
\item CHIC #204 [1] MA/M S (1/2) 01 / CMS II,3 no. 151a-b
\item CHIC #207 [3] MA/N S (2/2) 01 / CMS II,1 no. 420a-b
\item CHIC #281 [4] MA S (1/4) 02 / CMS IV no. 128a-d
\item CHIC #294 [3] CR S (4/4) 01
\item CHIC #307 [16] <MA S (4/4) 02>
\end{itemize}

Fig. 3. CHIC #204, #207, #281, #294 and #307. Photographs and drawings, not to scale, from CHIC (courtesy of Louis Godart) and from CMS (courtesy of the CMS, Heidelberg).

\textsuperscript{32} Of the same opinion, KARNAV A 2000, p. 235; \textit{contra}, SCHOEP 2010, p. 76, who claims that they were literate.
(CHIC #327), on palaeographic grounds, to a scribe who was responsible for writing administrative clay documents in the palace at Malia or, at least, to someone trained in the same way as the palace scribes:

one of the signs is executed in a manner very similar to the one used by scribes of the palace: sign 19 shows that the two ‘antennas’ do not start exactly from the bottom [...] of the sign’s stem, but a little bit before it. This detail [...] when combined with the fact that this is the characteristic way in which the sign is always attested in the Malia palace archival documents, and only there, shows that the inscription was probably written by the same persons [or by someone] who was trained in the same way the palace scribes were trained\(^{33}\).

In addition, it should be pointed out that an incomplete inscription incised before firing has recently been identified along the rim of a fragmentary potter’s wheel from Gournia\(^ {34}\). This remarkable find, proving the circulation Cretan Hieroglyphic script among pot manufacturers, seems to suggest that a probably restricted group among them was capable of properly reading a Hieroglyphic inscription. This evidence, again, seems to point to the existence of different levels in the availability of the technology of writing among different groups in ‘Hieroglyphic’ Crete.

Among inscribed vessels we can also list two sherds from unidentified pots (CHIC #320 and #321), one inscription incised before firing on the body of a pithos (CHIC #317); two incised on two pithos lids, one after firing (CHIC #319) and the other before firing (CHIC #323); one inscription incised before firing on an amphora’s handle (CHIC #330) and one incised after firing on a plate (CHIC #318). To these examples we must add a two-sign fragmentary inscription, running on the handle and the rim of an open vessel and incised before firing, from Quartier Nu (MA/V Yb 03)\(^ {35}\) at Malia. To date the most homogeneous group of hieroglyphic inscriptions on vases we have consists of 7 examples of one-sequence inscriptions incised before firing on the shoulder (in only one case on the bottom: CHIC #329) of Chamaizi juglets, found at various find-spots at Malia (cemeteries: CHIC #324; palace: CHIC #325, #327; town: #329; Quartier Mu: CHIC #316) and, in one case, in the Lasithi region (CHIC #331, Prodromos Botsanou). Only one of these inscriptions is painted (CHIC #326; fig. 4). Obviously, the chronological relationship between the inscriptions and the firing of the vessels on which they appear presupposes different incision techniques, diverse purposes/uses of the vases and (possibly) different textual contents, not explorable in more detail at the moment.

Finally, a single very long inscription (of 16 signs) carved in scriptio continua has been recognized on a libation table from the town at Malia (CHIC #328, fig. 4), on which hieroglyphic signs are neatly and competently written. Therefore, this specimen suggests the existence of a further ‘monumental’ writing tradition, entrusted to lapidary workers specialized in reproducing written texts on stone.

\(^{33}\) Karnava 2000, p. 235.
\(^{34}\) Del Freo 2017, pp. 4-5.
\(^{35}\) Schoep 1995.
READERS

The same active writers on clay we have just examined were the first intended readers of all the kinds of texts we have looked through\(^36\). They would have been capable of reading correctly the texts written on clay documents, on clay vessels (or other materials) and the impressions made by hieroglyphic seals\(^37\). In fact, lexical matches between administrative documents on clay and stone seals\(^38\) prove that hieroglyphic seals, when impressed on clay sealings, were meant as administrative tools for managing administrative/economic transactions\(^39\). Moreover, the already mentioned hieroglyphic lame from a MM IIB context at the extra-urban regional shrine at Kato Syme recording agricultural commodities\(^40\) points to the presence of literate writers (or, at least, readers), in sanctuary contexts as well. Thus, the role of the reader is not independent from that of the writer. In all the other cases, instead, the picture seems to be different.

As for the hieroglyphic seal owners\(^41\), studies made by Poursat\(^42\) and Weingarten\(^43\) clearly demonstrate that, for impressions on crescent-shaped nodules – at least – seal owners had to know what they were stamping: seal faces engraved with ‘formulae’\(^44\) or other rarer (in some case, *hapax*) sequences, with isolated signs or with decorative motives, according to the different bureaucratic transactions they were performing. For example, Poursat observes that:

The crescents from room III 16 (II/276-279) [from Quartier Mu] and the conical sealing from the same room have been impressed with the same four-sided prism. On that assumption, the same official would have used two different sides of his hieroglyphic prism for two different functions\(^45\).

Of course, because of their repetitive nature, ‘formulae’ could have been used properly (i.e. impressed on moist clay) even if the seal owners were not fully literate but only capable of recognising correctly and using appropriately some basic sign-combinations. Nevertheless, the case is different for less frequently recurring sign-sequences or for texts arranged ‘tridimensionally’ on seal faces. A famous example is the 3-sided prism *CHIC* #256, written on each face with one syllabogram only ‘accompanied’ by a ‘decorative’ motive engraved on the portion of the seal that would have been covered by the fingers, once taken in hand to make the impression. Given this special distribution of the written signs on this peculiar seal, its user must have known the correct sequence of the different faces (that means, of the different signs) to ‘compose’ (in the present case, actually ‘write’) the word he wanted to impress on clay correctly\(^46\). Conversely, the possessor of seals with two sequences engraved on each face (i.e. *CHIC* #283, #297, #298, #276, #302) would have had to understand the

---

37. For the different documents (crescent-shaped nodules, *noduli*, one- and two-hole hanging nodules, roundels, direct sealings, clay pots and loom weights) impressed with hieroglyphic seals, see KARNAVA 2000, pp. 117-135; CIVITILLO 2016, pp. 119-133, with previous bibliography.
41. For a more detailed analysis on this point, cfr. CIVITILLO 2021.
42. POURSAT 1989, pp. 221-222; 1990, pp. 28-29.
43. WEINGARTEN 1995.
45. POURSAT 1990, p. 28.
46. OLIVIER 1981, pp. 173-175.
different words engraved on them to make correct use of the seal for different transactional/bureaucratic operations. But, while it seems quite evident that the seal owners could have used their seals competently, we cannot assess that they (or, at least, all of them) were skilled in reading hieroglyphic texts written on other supports; that is to say, were fully literate. However, we cannot aprioristically exclude that scribes/administrators themselves possessed inscribed seals in order to authenticate or verify incised statements on different kind of noduli; obviously in this case they were fully literate.

Finally, we have to deal with the intended readers of inscriptions incised or painted on pots. Unfortunately, we do not have any precise clues about the meaning of these inscriptions, because they are very fragmentary (except those on Chamaizi pots) and none of the sign-groups incised on vases is ever repeated elsewhere. The only instance of the same three-sign group with a different ending comes from two Chamaizi juglets (CHIC #316 and #327), which is the only evidence of the possible connexion among the sequences recurring on these special vases, perhaps indicating theonyms, dedicatory formulae, or anthroponyms. In fact, their Maliote find-place context and the associated objects led Poursat to hypothesize that these juglets «played a role in some ceremonies or rituals»47. Analogously, the first editor of the already mentioned inscription on the stone libation table from Malia (CHIC #328), Fernand Chapoutier48, conjectured that this could have been a sort of a sacred text, containing the ritual prescriptions for the performance of the ritual libation activity connected with the object on which it was written. In all these cases, therefore, the intended readers of these inscriptions may have been found among the restricted group of those who participated to these specific rituals, confirming a picture in which reading (along with writing) appears to have been restricted to the upper-elite culture of Protopalatial Crete.

---

47. Poursat 2009, p. 76.
However, concerning ‘reading’ a Cretan hieroglyphic inscription, we have to distinguish the linguistic reading of texts, reserved to fully literate readers, from the ‘perception’ of written texts, i.e. the capacity of distinguishing decorative motives – for example, on seals or on pottery – and actual signs of writing, and attribute a special role to these distinctive sign compositions even without the ability to read them properly (i.e. linguistically). The role of writing as a prestige commodity has recently been highlighted by many scholars\(^{49}\); as such, even if not linguistically readable, we can suppose that an inscription, in itself, could have been perceived by non-literates as an indicator of status (in the case of seals) or as a sort of ‘marker’ conferring a kind of ceremonial aura to the inscribed objects (the Chamaizi juglets and the Maliote libation table). Therefore, from the picture outlined above, we think the existence of different reading skills, according to sociocultural or status levels, can be posited in ‘Hieroglyphic Crete’, with the role of writers and readers often diverging.

**Instrumentalities**

As we have already seen, Hieroglyphic texts were executed with different tools and techniques determined by the material chosen as the writing support, a situation that implies a transfer of skills and knowledge between different groups of artisans who had to learn to carve, engrave, cast and paint signs of writing. In fact, a writer who has «learnt to write using a particular technique cannot automatically transfer those skills to a technique involving different tools»\(^{50}\). As demonstrated by Leroi-Gourhan – among others – the physical characteristics of the support involved a substantially different set of motor skills and familiarity with material properties and tools\(^{51}\). The use of stone, for example, would have required learning to chisel signs into a hard surface rather than impressing them into a soft, moist one (cfr. fig. 5).

Unlike incising written signs into the moist clay, engraving hieroglyphic signs on stone implied destroying and reworking stone, by chiselling, hammering, or chipping parts away. The material dimension of the written artefacts, therefore, shaped their makers because the use of tools intended for specific graphic supports has biomechanical implications. On the other hand, the choice between two techniques of writing may give rise in itself to semiological values, because these are tied with the formulation and the ultimate content of the written message.

As regards to writing on clay, styluses with a sharp point of different thickness were probably used in different Cretan archives and bureaux. For example, by analysing the incised signs, it was supposed\(^{52}\) that the documents from the *Quartier Mu* were executed using a great variety of styluses with different thickness. Styluses have not been recognised in the archaeological record, which may be an indication that they were commonly made of wood\(^{53}\). The only exception would be a bronze stylus from Petras, while the interpretation on the manufact in question remains hypothetical\(^{54}\). Clearly, the stylus was the instrument par excellence for a rapid composition of texts whose purpose was exclusively administrative, bureaucratic and archivistic, and which were destined to other scribes and/or palatine officers, without any ideological value attached.

---

51. Leroi-Gourhan 1943; see also Pollock 2016, p. 283.
Texts on seals, inscribed on this particularly difficult graphic surface, often have very small
dimensions, indicating that miniaturization was the solution to this biomechanical challenge
most favoured by Cretan writers\(^55\). At the beginning of the Protopalatial period seals were
manufactured exclusively in soft stone and Hieroglyphic signs were engraved using the freehand
technique\(^56\). The material and the technique impacted the appearance the hieroglyphic signs,
which were rendered in a basic manner\(^57\). At the end of this period, the introduction of the fixed
lapidary lathe with a fast rotary or horizontal bow-drill\(^58\) and the inclusion of hard stones into
glyptic manufacture resulted in different, more sophisticated styles becoming used in the ren-
dering of script signs on seals faces\(^59\) that, with the use cutting wheels and different drill bits,
were now engraved with far greater virtuosity than before (supra). Moreover, different carving
techniques and tools were used for the two metal seals we have already seen. In the case of the
silver Peschaft (CHIC #192) from Neapolis, the written signs were cast; on the golden 4-sided
prism from Malia (CHIC #306), they were punched and engraved. In each case, the technique
and the tools used for writing these brief texts are of the highest level of craftsmanship (fig. 2).

Therefore, inscriptions on hard-stone seals and metals were probably perceived as more ‘monu-
mental’ (or ‘institutional’) than those incised on clay documents, since the instrumentalities and
technique used for writing them were very sophisticated and generally connected with prestige
artifacts. These different techniques in rendering written texts, of course, were connected with the social
practices in which the inscribed artefacts were used, their purposes and their textual contents.

\(^{55}\) This choice has countless examples among ancient writing systems: cfr. HARRIS 1995, p. 117.

\(^{56}\) ANASTASIADOU 2011, pp. 60-61.

\(^{57}\) FLOUDA 2013, p. 146.

\(^{58}\) KRZYSKOWSKA 2005, p. 83.

\(^{59}\) FLOUDA 2013, p. 146; KARNAVÁ 2000, p. 229.
Finally, pots incisors used mostly chisels to compose the short hieroglyphic inscriptions on vessels we have seen. We could hypothesize a difference in visual impact (and destination? value?) for painted texts on such a support in comparison to the incised ones, but unfortunately we have just one example of a Chamaizi juglet with a text made with a paintbrush (fig. 4, CHIC #322). Finally, the stone libation table from Malia seems to be the only case in which two different instruments were used to write different signs of the same inscription, possibly for sign-rendering reasons. As Karnava has pointed out:

14 out the 16 signs seem to have been executed with a thick and rather blunt instrument, whereas sign 029 () and 025 () seem to have been made with a thinned chisel. The reason for the employment of two different tools must have been the restriction imposed by the very form of the two signs, each depicting a tree branch: had the blunt instrument been used here as well, it would have been impossible to render the specific minute details of these signs, namely the ‘leaves’60.

This particular case seems to demonstrate great attention to the aesthetic rendering of the text, connected with its attached ideological and ceremonial values, destination and public.

**Textualization**

This point of Perri’s model is the most difficult to exemplify in relation to undeciphered writing systems, in general, and to Cretan Hieroglyphic script, in particular. This is essentially because many questions about the use of a number of signs on glyptic surface remain open. Some, interpreted as ‘decorations’ by CHIC’s authors61, are the object of a vexata quaestio to which a number of studies have recently tried to give new answers, but there is still no agreed definitive solution to their interpretation. For this reason, here we will only offer, here, a general outline of the problem, whilst referring the reader to the cited bibliography for further details62. With this caveat in mind, we will try to interpret ‘textualization’ in Perri’s model as the ways in which the (linguistic and cultural) message was transformed in text in Cretan Hieroglyphic script on the different kind of documents object of this paper and through which typologies of signs. It seems safe to assume, as a first characteristic, that the different purposes of inscribed seals, inscriptions on vessels and written clay documents, along with the different practices in which they were involved, the dissimilar audience to which they were destined and their differences in durability impacted not only on the material chosen and the instrumentalities used in their writing, but also on their ‘textualization’.

Seals had a double scope, being documents used in the administrative/accounting process of MM Crete and ‘markers’ of the authority of their owners, artifacts of prestige destined to upper social strata and buried with their possessors. Given these ideological contents, the rules governing the passage of the cultural and linguistic content to written texts on writing surface appears to be markedly different to the one in use on ephemeral accounting using clay documents. These latter, in fact, express linguistic contents only, with phonetic sequences often accompanied by logograms, arithmograms and klasmatograms in order to provide an accurate account of economic/administrative transactions. On the contrary, on seals, some hieroglyphic

---

61. CHIC, pp. 13-14.
signs can be manipulated to be used in a variety of functions\textsuperscript{63}. For instance, some syllabograms and logograms could have been used in ‘heraldic compositions’ or as abbreviations, depending on the context\textsuperscript{64}. Just to give some famous examples of the first use, we can observe that Cretan Hieroglyphic syllabograms can be duplicated in order to obtain, on circular or oval seal faces, a sort of ‘heraldic’ composition: e.g. syllabogram 010 in CHIC #262.β, \{\{\{\}\}\}; 036 in #282.α, \{\{\{\}\}\}; 049 in #264.β, \{\{\{\}\}\}; 092 in #262.α, \{\{\{\}\}\}; 013 in #264.α, \{\{\{\}\}\}.\{\{\}\}\).\{\{\}\}\) (fig. 6).

The repetition of these signs, of course, do not affect the reading of the text, but is specific of the glyptic support, while the accuracy of the inscription composition is another sign (along with the materials and the advanced techniques used in their manufacture) of the ideological value these written objects convey. Syllabograms 070 in #268, α. \{\{\{\}\}\}; β. \{\{\{\}\}\}; and 092 in #288, α. \{\{\{\}\}\}; β. \{\{\{\}\}\}; γ. \{\{\}\}\}; 092 in #288.α. \{\{\{\}\}\}; β. \{\{\{\}\}\}; γ. \{\{\}\}\}; (fig. 6).

The repetition of these signs, of course, do not affect the reading of the text, but is specific of the glyptic support, while the accuracy of the inscription composition is another sign (along with the materials and the advanced techniques used in their manufacture) of the ideological value these written objects convey. Syllabograms 070 in #268, α. \{\{\{\}\}\}; β. \{\{\{\}\}\}; and 092 in #288, α. \{\{\{\}\}\}; β. \{\{\{\}\}\}; γ. \{\{\}\}\}; in turn, may be interpreted as abbreviations of words inscribed in faces γ\textsuperscript{65}; this expedient seems to allow a reference to the text (an anthroponym? a title?) engraved on this face even when another side of the seal (in the case of these two seals, written with a ‘formula’) was impressed.

Moreover, aside from their basic use as syllabograms, it seems that hieroglyphic signs may have been used without any phonetic reading intended. Here, we only refer to the specific cases in which they are attested as an addition to the so-called ‘formulae’ (i.e. with sign-groups very frequently attested in the same form), but where the signs we are referring to do not have any

\textsuperscript{63}. Referring to these special uses, we can say with \textsc{Sini} (2012, p. 37), that hieroglyphic signs preserve their ‘wisdom’ on the glyptic surface; on the one hand, cultural contents that refer to shared cognitive types and on the other, possible ideological reformulation, both in addition to their linguistic contents.

\textsuperscript{64}. For a more detailed discussion on this point, cfr. \textsc{Civitillo} 2021, pp. 99-101.

\textsuperscript{65}. Cfr. \textsc{Olivier} 1995, pp. 180-181.
consistent combinator recursion, being written before, in the middle and at the end of the ‘formula’ itself\(^{66}\) (tab. 1). This is, in our opinion, the main argument for assuming a non-phonetic use of signs ‘accompanying’ these sequences. Furthermore, ‘formulas’ can be also accompanied by very rare or hapax signs not recurrent on clay documents (and, for this reason, not interpreted as phonetic signs by CHIC), that seem to have the same function of ‘adding a something’ to these special sequences. That this ‘something’ could have been of non-linguistic content, seems to be further suggested by the fact that, with only two exceptions, these ‘accompanying’ signs always recur on prisms with all faces inscribed with ‘formulas’, i.e. without any other sign-group that could have been used to indicate to the seal owner.

<table>
<thead>
<tr>
<th>Formula</th>
<th>Seal/sealing</th>
<th>Sign added</th>
<th>Attested or not on clay documents</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>\(\pi\)</code> (044-049)</td>
<td><code>{||\} ||\} \(\pi\)</code></td>
<td><code>{\{|\} \{|\} \(\pi\)</code></td>
<td>cat mask</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 013</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 042</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 065</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 031</td>
</tr>
<tr>
<td><code>\(\kappa\)</code> (044-049)</td>
<td><code>{||\} ||\} \(\kappa\)</code></td>
<td><code>{\{|\} \{|\} \(\kappa\)</code></td>
<td>triton shell</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\kappa\)</code></td>
<td><code>{|\} \{|\} \(\kappa\)</code></td>
<td>syllabogram 013</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\kappa\)</code></td>
<td><code>{|\} \{|\} \(\kappa\)</code></td>
<td>syllabogram 042</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\kappa\)</code></td>
<td><code>{|\} \{|\} \(\kappa\)</code></td>
<td>syllabogram 065</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\kappa\)</code></td>
<td><code>{|\} \{|\} \(\kappa\)</code></td>
<td>syllabogram 031</td>
</tr>
<tr>
<td><code>\(\lambda\)</code> (044-049)</td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>cat mask</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>syllabogram 020</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>syllabogram 013</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>syllabogram 070</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>syllabogram 092</td>
</tr>
<tr>
<td></td>
<td><code>{||\} ||\} \(\lambda\)</code></td>
<td><code>{|\} \{|\} \(\lambda\)</code></td>
<td>not attested</td>
</tr>
<tr>
<td><code>\(\pi\)</code> (038-010)</td>
<td><code>{||\} \{|\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>triton shell</td>
</tr>
<tr>
<td></td>
<td><code>{||\} \{|\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 012</td>
</tr>
<tr>
<td></td>
<td><code>{||\} \{|\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 073</td>
</tr>
<tr>
<td></td>
<td><code>{||\} \{|\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>syllabogram 070</td>
</tr>
<tr>
<td></td>
<td><code>{||\} \{|\} \(\pi\)</code></td>
<td><code>{|\} \{|\} \(\pi\)</code></td>
<td>?</td>
</tr>
<tr>
<td><code>\(\eta\)</code> (046-044)</td>
<td><code>{||\} \{|\} \(\eta\)</code></td>
<td><code>{|\} \{|\} \(\eta\)</code></td>
<td>spider</td>
</tr>
<tr>
<td></td>
<td><code>{||\} \{|\} \(\eta\)</code></td>
<td><code>{|\} \{|\} \(\eta\)</code></td>
<td>bird</td>
</tr>
</tbody>
</table>

Table 1. Signs with ‘formulas’.

66. And, for this reason, included in the CHIC’s category ‘décoration éventuellement signifiante non évidente’; syllabograms and logograms ‘dont nous ne pouvons pas expliquer mécaniquement la présence’. For different interpretations of these signs, as logograms, determinatives or as signs having a deictic role, cfr. JASINK 2009; DECORTE 2017; FERRARA 2018.
As I have suggested, these signs may have been used to refer to seal users, hypothetically functioning on an iconic plan as emblems (a sort of ‘badge’) without any linguistic execution intended. This phenomenon seems to fit the evolution of Cretan Hieroglyphic script on seals, from icons (possibly referring to individuals, clans, families, occupations etc.) attested on their faces from the pre-palatial period, that, through a gradual development, underwent a gradual standardization process, a tendency for orderly associations and, in a final stage, found a linguistic anchorage, becoming signs of writing. This perspective allows tracking the evolution of Cretan Hieroglyphic writing system and the intricate growth of the functional oscillations and recodifications of its signs, in a continuous tension between cognitively different planes, i.e. between an iconic and a diagrammatic polarity. In this sense – as already explained at length⁶⁷ –, it seems that some Cretan Hieroglyphic signs were used on seals as a sort of polyglyph, namely as scriptorial or pictorial signs. As icons, these signs (also when already fixed as syllabograms on a diagrammatic plan) may have led back to a complex, culturally shared, symbolic (encyclopaedic) system, and been immediately (i.e. without the linguistic medium) recognizable for their cultural values by the user community of this writing system when accompanying linguistic texts on seals. Obviously, this is just one of the possible solutions to the problem that, as already seen, remains open.

Another specific feature of the textualization on seals is that only 92 of the 96 syllabograms listed in CHIC (17) are attested on seal surfaces, while seal engravers used eight hieroglyphic signs not attested otherwise on any other written supports. These signs, defined by Olivier and Godart as «potential» syllabograms⁶⁸, ideograms and klasmatograms, are: 014 \{\S\}, 048 \{\O\}⁶⁹, 076 \{\[\}, 095 \{\|$\}, *157 \{\[\}⁷⁰, *181 \{\(\}⁷¹, *308 \{\(\} and *309 \{\}. These special signs, in our opinion, seems to point to the remarkable specialization of this writing system when appearing on seal stones, and its significant alterity with respect to its use on others written supports. It seems very noteworthy that, among these rarely attested signs, «potential» syllabograms 014 \{\S\} and 076 \{\[\} (048 \{\O\} is a hapax²² and for 095 \{\|$\} see infra), recur on some ‘atypical’ seals, partly already mentioned. For example, the potential syllabogram 014 \{\S\} – along with other attestations in hapax sequences⁷³ – is used for writing the sequence 092-019-044-050-019-028-056, \[\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\n

---

⁶⁹. On #236.a, hapax sign sequence.
⁷⁰. On #291.
⁷¹. On #305.d, hapax.
⁷². On #326.a, hapax sign sequence.
⁷³. CHIC #275.c, #300.d, #245.γ, #294.β, #306.γ.
that these special signs are attested — at least, basing on the documentations found to date — for writing *hapax legomena* only, namely very rare lexical entries, on seals generally made of semi-precious stones (except CHIC #300, made of steatite) and, in one case, of gold.

This led us to a question: could it simply be by chance that on the only golden prism we know, certainly an outstanding high-culture artefact, already strange because it does not bear any ‘formula’ as on the majority of 4-sided prisms, there were two different engraved *hapax* sequences that include two of the 4 rare hieroglyphic syllabograms we are aware of? Could they have been consciously chosen as precise graphic variants considered more suited for the content of the inscriptions, perhaps perceived as more ‘archaic’ or prestigious? As stressed by Cardona, in fact, it is not infrequent that in a writers’ community different written varieties were in use contemporaneously; this condition is «more similar to diglossia than to bilingualism» and between the two different variants there will be a difference in connotations and prestige. For sure, the choice of special graphic practices or variants is connected with conscious ideological assets.

Perhaps, an example of the existence on these kinds of assets may be detected in the use of the potential syllabogram 095 {☊}, always and only in order to write a precise sign sequence, the so-called ‘Archanes formula’ (042-019-019-095-052, ). We wonder if this special, very rare syllabic variant might have been ‘canonized’ in the redaction of this and only this word, that is the hieroglyphic longest-lived sequence, first attested on MM I on Archaes-Phourni seals and documented in Linear A as well. Finally, on the glyptic support only, texts may have been accompanied — as we have already seen — by a whole series of decorative motifs or more complex iconographic representations, referring, in this case as well, to shared contents of what we can call the ‘Minoan encyclopaedia’.

Therefore, it seems that these observations could allow us to get a glimpse of the process of specialization of the Cretan Hieroglyphic writing system for different uses, pointing to the existence of graphic variants restricted to precise writing supports, probably provided with ideological connotations.

---

74. Cardona 1987, pp. 124, 126.
INTERPRETATIVE CONTEXT

The Cretan hieroglyphic texts known to date were published by L. Godart and J.-P. Olivier in the *Corpus Hieroglyphicarum Inscriptionum Cretae* in 1996, that comprises clay documents found in archives and bureaux at Malia and Knossos along with seals and miscellaneous items distributed widely across central and north-eastern Crete and produced between MM IA and MM III. Subsequent finds have been periodically reported by Olivier and Del Freo\(^\text{76}\) and the recently found archive from Petras was published by Tsiropoulou and Hallager in 2010\(^\text{77}\). The total number of documents today is 366, distributed among 145 seals, 66 seal impressions, 133 clay documents and 22 miscellaneous items. A prominent role in the interpretation of these texts is played, of course, by the contexts in which they were used, kept and displayed; these contexts point, in fact, to their destination, to the public for which they were intended and to their economic or ideological and ceremonial purposes. As we have already seen, clay documents come from palaces and from sanctuaries\(^\text{78}\), while seals – in addition to these same contexts\(^\text{79}\) –, were deposited in graves as well\(^\text{80}\). Inscribed pots were found in ritual and domestic contexts, where they could have been involved in ritual and collective ceremonies, and themselves were buried in tombs. Unfortunately, the written libation table from Malia is a sporadic find, used to delimit a farmer’s land along the old road from Malia to Neapolis\(^\text{81}\). Nevertheless, it seems safe to postulate an original use of it in a ritual setting.

Strictly linked with find-spots, as a factor of paramount importance for the interpretation of these texts, are the forms (aside the materials) of the different supports on which they were written, that were determined by their purposes and ‘anticipate’ their textual contents. For instance, it is possible to discern meaningful differences in textual content among hieroglyphic seals according to their shapes (various kind 1 or 2-sided seals vs. 3- and 4-sided prisms)\(^\text{82}\), just like different formats of clay documents have been functional to different kinds of registrations, in use at different stages of the administrative machine of ‘Hieroglyphic Crete’\(^\text{83}\). Accordingly, it seems possible to identify, with Ferrara and Jasink \(^\text{84}\), a sort of a progression from texts engraved, at the beginning, for purposes of display and personalization on seals, to texts incised on clay for accounting purposes only. By analysing different seal forms in accordance with the texts engraved on their surfaces and sphragistic uses, in fact, we can hypothesize for 1-face seals (mainly, *Petschaftie*) a paramount use for individualizing personalities, while 3- and 4-

---


\(^{77}\) Tsiropoulou - Hallager 2010. For seals, see Krzyszowska 2012.

\(^{78}\) They were found in Palaces at Knossos, Malia and Phaistos, in a building of ‘palatial’ character at Petras (Tsiropoulou - Hallager 2010; idem, 1996; Tsiropoulou 1998, pp. 436-440), and at Malia Quartier Mu; just one document (a 2-sided lame), comes from the extra-urban regional sanctuary at Kato Syme (Karnava 2000, pp. 225-226, 236; Lebessi et alii 1995, pp. 63-77).

\(^{79}\) Two seals have recently been found on sanctuaries: a 4-sided prism (all sides inscribed) from Vrisynas (Hallager et alii 2011) and a cushion seal, bearing (part of?) the so-called ‘Archaeans formula’, from Bugada Metochi (Kanta 2018, pp. 251-263, cat. no. 305, unpublished).

\(^{80}\) Seals come from tombs, as well (prevalently, Archaeans-Phourni and Petras); unfortunately, the precise find-spot of many of them is not known, because they were acquired by Evans (or others) or collected as random finds.

\(^{81}\) Chapoutier 1938.

\(^{82}\) Civitillo 2021.


\(^{84}\) Ferrara - Jasink 2017.
sided prisms were meant to be prevalently written with administrative/economic texts, titles and antroponyms. The ‘textual divide’ between these different seal forms is the percentage of attestation of ‘formulae’: while these special sequences were engraved commonly on prisms, Petschafte were mainly meant to have only one non formulaic sign-group written on their surface, almost always hapax. If we posit as a working hypothesis that the non-formulaic sign-groups attested on Petschafte, in the case of hapax, were personal names, ‘formulae’ may have related to the different administrative access levels of the seal owners, instead, thus focusing not on specific individuals, but on the anonymity of the branches of the administrative machine. Four-sided prisms, most of all, were meant for being inscribed with as many inscriptions as possible, with texts written with a horizontal alignment, so that they were more easily readable when impressed on clay. In this respect, it is worth mentioning, again, the sporadic prismatic seal edited in CHIC as #294 (fig. 3), with its exceptional long faces measuring 0.69-0.59 x 3.95 cm, that place it almost half-way between a standard prism and a bar. Leaving aside the debated interpretation of the unusual text it bears, its proximity with hieroglyphic 4-sided bars, in fact, seems undeniable. According to Ferrara and Jasink, in fact, from prisms to bars «the step is almost natural: if the seal functioned as both an instrument of bureaucracy and as a marker of social distinction, it would follow quite seamlessly that the clay bar, humbler but re-usable, could fit the bill as a tool for recording ephemeral, transient information», with sign sequences combined with numbers and, in some cases, logograms. Taking a step forward, it seems significant that 4-sided clay bars, just like prisms, were usually pierced as well (except in four cases: CHIC #065, 118 and the two bars form Petras) and were often inscribed on all their faces. Their rectangular sides, measuring in length between 5.9 cm (CHIC #056) and 9.3 cm (#CHIC 049) and in width between 1.2 cm (CHIC #067) and 3.5 cm (CHIC #062-062), form a quadrangular section. In some cases (i.e. CHIC #053) one of the two ends is written on as well, thus resulting in an object inscribed on 5 sides (fig. 7).

86. According to Poursat (2000, p. 189), the number of the inscribed faces of a prism and the distribution of different ‘formulae’ on its surface would correspond to the different functions the owner could have performed, using them sphragistically, in the administrative chain, on attaining different administrative ‘levels’: “les détenteurs de sceaux que nous appellerons de niveau 1 (une sole face inscrite) ou de niveau 2 n’ont pas accès à certaines formules qui n’apparaissent qu’à partir du niveau supérieur; alors que les détenteurs de sceaux du niveau le plus élevé (3 ou 4 faces inscrites) peuvent utiliser toutes les formules”.
90. Another element of contiguity between prisms and bars could be that the so-called ‘formulae’, when recurring on clay, are attested on some of these documents as well, possibly pointing to a shared transactional/administrative vocabulary. ‘Trowel-arrow’ (CHIC 044-049) on #049.a, #049.b, #050.c, #056.aA, #56.b-c, #56.dB, #059.eB, #059.dA, #063.a2; ‘trowel-eye’ (CHIC 044-005) on #059.aA; CHIC 042-054-061 on #050.a, #058.a, #062.[a], #062.cB, #062.dB*, ‘trowel-arrow’ (CHIC 044-049) is attested on medallions, as well (#040.b1, #042.b1); ‘trowel-eye’ (CHIC 044-005) on a crescent-shape nodule (#018.γ); ‘throne-horn’ (CHIC 036-092) on a lame (#109.b); and (CHIC 042-054-061) on a medallion (#037.a).
Fig. 7. Four-sided prisms, four sided bars and tablets (not to scale). Photographs and drawings, from *CHIC*, are courtesy of Louis Godart.
Thus, it seems that the connection of Cretan Hieroglyphic script with tri-dimensional objects such as seals, was preserved even when it was extended to clay documents. Finally, the shape and size of clay tablets seems to have been determined by the specifics of their use and by the system of storage\textsuperscript{92}. As bars, they carried a greater amount of textual information (i.e. a major number of written sequences) than other clay documents; probably, by analogy with the Linear A and Linear B tablets, they were meant to account for more complex data that those registered on other clay formats\textsuperscript{93}. However, only a few Cretan hieroglyphic tablets have been found, to date\textsuperscript{94}, and it is very striking that the two coming from Malia have quite thick sides and, exactly like the bars, are written on three faces; those coming from Phaistos and Knossos, conversely, are thinner and written on the \textbf{recto} only. These features and the fact that tablets are so scarcely attested in Hieroglyphic corpus, seems to lead to the conclusion that they were very rarely used in the Hieroglyphic bureaucracy, possibly influenced by the most diffused document format in the (coeval) Linear A administration.

**NORMS**

Just like the choice of instrumentalities used for writing texts in Cretan Hieroglyphic script, their alignment and directionality are settled by the chosen writing supports, that determines the position of the writer\textsuperscript{95}. For instance, on circular and oval seal faces, the alignment of the individual signs is characterized by a marked variability, without any standard and recursive position (Olivier 1990: 15, n. 16). On four sided prisms as well, where the elongated faces allowed the carving of signs in a horizontal alignment, the disposition of the signs is never organically linear, nor is the text alignment consistent in all seals faces. For example, on the 4-sided prism \textit{CHIC} \#294, the inscription runs alternatively left- and right-handed; so, when impressed on clay, its alignment is virtually bustrophedic. Analogously, the signs incised on clay crescent-shaped nodules does not have any consistent orientation between one another and texts do not have a standard alignment; on these lumps of clay, probably incised while holding them (and consulted while hanging), in fact, there were neither a right nor a left, nor a coherent ‘above’ or ‘below’ for every sign and for all the inscribed faces. The same is generally true for medallions as well, which are the lentoid-shaped clay disks also pierced for hanging that we have already seen. But even on clay documents with rectangular faces, the directionality of the texts is often floating, and the signs are written with an alignment varying as much as possible in respect each other. In the case of pierced lames and bars, nevertheless, the text generally runs from the suspension hole to the lower end, on the whole width of a side. On tablets from Malia (\#119 and \#120) the text direction in sinixtroverse, while on those from Knossos (\#068) and Phaistos (\#122) is dextroverse, and in one case (\#122) two syllabograms (the second and the third on the first sequence) are rotated in respect each other at 180 degrees. In this case as well, it seems that the rhetoric of Cretan Hieroglyphic inscriptions was affected by the first appearance of this writing system on seals and, therefore, by its ‘genetic’ dependence on three-dimensional supports that

\textsuperscript{92} \textbf{Whittaker} 2013, p. 105.
\textsuperscript{93} \textbf{Hallager} 1996, p. 31; \textbf{Younger} 1996-1997, p. 386.
\textsuperscript{94} Just five, until now: \textit{CHIC} \#068-\#069, from Knossos; \#119-\#120, from Malia, Palace; \#122, from Phaistos.
did not presuppose (at least at the beginning) any linear development for the inscribed texts.

Also, on inscriptions on Chamares juglets, while the directionality of the texts follows the body of the pots, Hieroglyphic signs show a highly variable directionality. For instance, on the two pots edited as CHIC #316 and #327, in the same sign sequence (declined with a different ending), two signs (049 and 006) show a different relative position with respect to the others, being or not rotated 180 degrees. Finally, in the long inscription carved on the libation from Malia (CHIC #328), where the hieroglyphic signs were neatly engraved and aligned horizontally, some of them (034 and 019) are, again, rotated 180 degrees.

Regarding the organization of the texts, in some cases, Cretan Hieroglyphic documents are formatted with the different entries separated by the aid of partitions (i.e., medallions: CHIC #040, 042; bars: CHIC #049, 050, 052, 057, 061, 063, 112, 113, 116; lames: 089, 109) that, in just one case, are incised on a tablet as well (CHIC #120). Rarely, inscriptions on seals are divided into panels as well. But it seems significant that this special formatting is limited to the so-called ‘Archanes formula’ (Kanta 2018: cat. n. 305 – unpublished –; CHIC #197, 205); to seals engraved with logograms (FIG and VIN) and stiktograms (CHIC #206, 291), or with the combination of ‘Archanes formula’ and stiktograms (CHIC #292), or with isolated signs of unclear function (Kanta 2018: cat. n. 305, unpublished). As regards seal formats, this formatting is restricted to cushion seals and to stepped prisms, where the different ‘levels’ of the surface would have further facilitated distinguishing one sign or sign-group from another, being a sort of a ‘tactile guide’ to the use of this kind of seal. Another oddity of these specimens is that the ‘potential’ klasmatograms *308 (约占) and *309 (约占)96 are only attested on CHIC #206, #291–#292, while the latter recurs on the lame from Syme SY Hf 0197. These features give these special seals a peculiar meaning, use and destination, that even if is unclear for us, points to a special coding of texts on specific supports with the aid of precise graphic signs. Finally, lines are marked out pretty rarely on clay documents: on a medallion (CHIC #043), on four 4-sided bars (CHIC #063.a; #111; #113.b.c; and a bar from Petras, PE Hh 2.b) and on two tablets (CHIC #69, #122), in order to obtain a clearer formatting, functional to the archival consultation of the texts.

**Genres**

According to Mancini98, an exhaustive study of the functioning and the signification processes of writing systems cannot but entail an accurate study of the ‘contours’ that accompany and justify each writing act, that contribute to identifying the totality of writing styles that can be defined as the domain of a repertoire, connected to precise social and referential variables. As shown in the preceding paragraphs, the study of all the ‘contours’ of the act of writing in Cretan Hieroglyphic – such as the choice of the materials, the forms of the writing supports and their dimensions, the execution techniques of texts on specific supports, the contexts and uses –, are not a mere documentary supplement but, being related to social and referential aspects, are key factors for a deeper understanding of writing in such a specific script. In fact, they are significant from a semiological point of view, because they were determined by and, at the same

---

96. CHIC, p. 16. On this special sign, see KARNAVA 2000, pp. 45-46.
97. LEBESSI ET ALII 1995.
98. MANCINI 2014, p. 18 [my translation].
time, reflect the purposes, the recipients, the executors, and the contexts (economic, ideological and ritual) in which inscribed texts were placed, used and displayed. Therefore, to Perri’s question: «is there a ‘canon’, either implicit or explicit, through which texts are classified and hence interpreted?» we think we can answer that yes, a canon like this actually existed in ‘Cretan Hieroglyphic Crete’, although with some exceptions from the norm.

From the picture outlined above, in fact, three main purposes can be reconstructed for Cretan Hieroglyphic texts: an administrative/archivistic one (clay documents), another related to the display of the personal status of the owners and to the management of economic transactions (seals) and one last pertaining to a ritual/ceremonial sphere (Chamaizi juglets and libation table). Each of these classes of inscribed objects are characterized by different formats of the writing supports, different materials, a variety of specific techniques for manufacturing and executing inscriptions, dissimilar uses of the signary (with signs of writing accompanied or not by decorative, iconic or emblematic signs), use of graphic variants (i.e. the ‘potential’ syllabograms, logograms and klasmatograms only attested on seals), special graphic norms adopted for the composition of the inscriptions and different finding contexts. For each of these texts genres we can identify a specialized group of writers possessing different literacy skills in writing or reproducing written signs, submitted to special execution techniques depending on the material supports and the destination of the inscriptions.

In fact, major difference in the presentation of hieroglyphic texts can be observed between carved signs on clay and engraved ones on stone: more cursive and ephemeral the first, executed with wooden styli on re-usable, unbaked clay; the second, more monumental and meant to last virtually forever\textsuperscript{99}, engraved with advanced technological devices and skilled techniques on semi-precious stone often not locally available in Crete and so having a value in themselves as prestige objects, displayed to parade the personal status of their owners as well as being administrative devices – in the case of seals – or exposed to the restricted public participating in ceremonial and/or ritual ceremonies – in the case of Chamaizi juglets and the libation table from Malia –.

These differences are clearly determined, for instance, by the additional ideological values of inscriptions on seals. As we have already seen, sealstones represent the writing support par excellence where the Cretan Hieroglyphic script reveals the evocative and symbolic potential of its signs, given their double function. If it is reasonable to hypothesize that – a part, at least – of the graphic repertoire of this writing system stemmed out by symbolic/emblematic signs on Pre-palatial glyptic\textsuperscript{100}, maybe a further step backwards can be conjectured. Some Cretan Hieroglyphic signs, in fact, seems to be the bi-dimensional, graphic counterpart of some non-inscribed figurative seals, perhaps used as amulets AM III-MM I (just like the bullhead, the double-axe, the cat etc)\textsuperscript{101}. With the benefit of doubt, this possible ‘origin’ of some signs of writing from three-dimensional prestige objects used to enhance the social status of their owners, referring to a shared symbolic network, seems to suggest that, when not used linguistically, these signs could have referred to culturally shared cognitive types encoded in

\textsuperscript{99} Cfr. Gelb’s distinction between ‘cursive’ and ‘monumental’ writing (Gelb 1963, pp. 249-250). Cursive writing is defined as a «quick and superficial form of writing used for daily practical purposes» as opposed to «a careful form of writing normally found on monuments and used for official display purposes».

\textsuperscript{100} Brice 1997; Krzyszowska 2005, p. 70; Flouda 2013, p. 154; Ferrara 2015, p. 43.

\textsuperscript{101} Flouda 2013; Civitillo 2016, pp. 171-176.
Minoan encyclopaedia. Therefore, when not used in syllabic sequences on seals (i.e. when attested alone or along with a unmodified ‘formula’), these signs may have led back to a traditional, culturally shared symbolic system, recognizable by readers with different levels of literacy on the basis of shared knowledge but without necessarily a linguistic transposition. Despite a number of uncertainties on the definition of specific aspects, it seems clear that the Cretan Hieroglyphic script, when used on glyptic support, represents a semiotic system with its own, precise character, deeply linked to the communicative and ideological dynamics of the society that invented and used it.

Obviously enough, none of these special uses of signs are ever attested on transient, economic documents without any ideological and evocative values attached like administrative accounting texts on clay. The same possible origin of this writing system from tri-dimensional hanging objects seems confirmed by the special disposition of Hieroglyphic signs on the graphic support, completely (and conceptually) different, for instance, from the coeval texts in ‘Linear’ A; this could not be a case if, in Cretan Hieroglyphic administration, the most attested recapitulative document format were the tri-dimensional hanging bars and not the bi-dimensional flat tablets.

In conclusion, despite the fragmentary status and the meagreness of Cretan Hieroglyphic documentation, the unknown finding places of a large number of documents (mostly, seals), the necessity to compare inscribed texts coming from different places in different periods from EM III-MM IA to MM III (that prevents us from reconstructing the geographical and chronological evolution of this writing system more precisely) and despite all the uncertainties on the usage of this system on seals, the application of a model that tries to approach the issue of the use and the values of this writing system and that advocates an anthropological approach may help to shed more light on the functioning and uses of this writing system. In particular, the model emphasizes the relationships among text contents, the different social practices in which Cretan Hieroglyphic texts were used and factors like formats, materials and tools used for writing down inscriptions, according to their different purposes, intended durability and intended readers. As we have seen, the different writing supports we have reviewed define the choice of the instruments used for writing, that, in their turn, shapes the rendering of the signs. For different writing tools we can distinguish specific groups of writers, trained at actually writing texts on clay or at reproducing – more or less competently – written signs on stone and pottery, and thus possessing different literacy skills. Among Cretan Hieroglyphic writers, seal engravers were primary specialized artisans, who applied the techniques learned to produce non-inscribed seals (the absolute majority of sealstones we have found) to the engraving of phonetic signs as well. Given that different writing supports related to social and ideological assets, they may favor (in the case of sealstones) or not (in all other cases) the use of non-phonetic signs, decorations and/or iconographic representations in association with written texts, as well as determining formatting and general appearance. Finally, readers also may have had different literacy levels, from fully literate administrators and/or scribes active in archives and bureaux, to the illiterate population that arguably perceived inscribed artifacts (particularly seals) as markers of status. Therefore, given the recurrent and consistent links among the presumed textual contents, the materials, the formats, the employed tools, the applied textualization, the writers and the readers

102. For a general consideration on the uses of this kin of signs, cfr. Marazzi 2016, p. 1: «Il grafema, sia nella sua organizzazione e interazione nello spazio scrittorio con altre unità grafemiche discrete, sia in virtù delle proprie caratteristiche peculiari, è in grado di mettere in atto un meccanismo di rinvio ai diversi nodi dell’enciclopedia delle conoscenze proprie della specifica cultura nell’ambito della quale viene a essere utilizzato». 
or our texts, we can assume the existence of a complex and well-established writing tradition, in which Cretan Hieroglyphic appear as a very ductile writing system, used on a remarkable variety of graphic supports (a major difference in rapport, most of all, with Linear B) linked to different textual contents. Given the find-spots of the inscribed documents, their likely purposes and the social practices in which they were involved, at the end, writing in Cretan Hieroglyphic script generally appears to have been confined to the upper strata of Protopalatial Crete, comprising together writers, readers and ‘consumers’ of written texts. In this sense, writing was probably part of Minoan élite material culture, aimed at maintaining and legitimizing its elite ideology and, as such, displayed and recognized as an instrument of strong cultural identity and power. Evaluating all these factors together, we can outline an overall picture of the use of this still undeciphered writing system, establishing a starting point for a deeper understanding of specific aspects still to be investigated.
BIBLIOGRAPHICAL ABBREVIATIONS


CHAPOUTHIER 1938 = F. Chapouthier, “Inscription hiéroglyphique minoenne gravée sur un bloc de calcaire”, in *BCH* 62: 104-109, Pl. XIX.


