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THE SO-CALLED KLASMATOGRAMS ON CRETAN HIEROGLYPHIC SEALS

Summary: The paper presents a new interpretation of four symbols listed in CHIC among the klasmatograms and attested on seals as well, i.e. 302 “hook”, 307 “cross”, 308 “rectangle with prolonged side”, and 309 “spiral”. The possibility is discussed to place them, whenever they appear on seals, among the syllabograms and/or the logograms, while they maintain their fractional value on the incised documents of palatial administration. The fractional value may be a later and secondary use of the signs imported from the contemporary Linear A script. The primary use of the same symbols on seals perhaps characterizes individual administrative units.

In the table of the Cretan Hieroglyphic signs presented in CHIC, four symbols¹ listed among the “klasmatograms” are attested on seals as well, i.e. 302 “hook”, + 307 “cross”, 308 “rectangle with a prolonged side”, 309 “spiral”². It is perhaps too restrictive to classify these symbols exclusively as fraction-signs since it is difficult to accept such a typology of signs on the seals; numbers and fractions have a significance only within administrative documents.

The purpose of this work is a careful analysis of the contexts in which these symbols appear on the seals, with the aim of deciding whether it is possible to place them among the syllabograms and/or the logograms, while maintaining their fractional value whenever they occur in the incised documents of palatial administration.

1. The 309-spiral

This sign is undoubtedly the most interesting of the four because it appears relatively frequently and in a variety of contexts, so that it is possible to propose a history of the sign.


¹ Downloadable fonts of the Hieroglyphic signs used in this work can be found at the web site <http://dbas.dssg.unifi.it>.

² Actually, only three of them appear also in administrative documents: the hook and the cross, already identified as such in CHIC, and the rectangle with prolongation, attested on a two-sided lame, which was discovered in the sanctuary of Syme Viannou (Olivier in Lebessi-Muhly-Olivier 1995, pp. 63–69), after the publication of CHIC. See Karnava 2001, pp. 45–51, for an overall study on fractions and measurement units in Cretan Hieroglyphic script.





For our discussion it is appropriate to start with the two seals #292 (CMS II 2, 217) and #206 (CMCG, no. 124). They belong to a particular group, for which we could adopt the convenient term of “matrices”, in the sense that the various symbols carved on a single face cannot be connected to form a readable sequence but are rather to be considered separately, as it can be easily argued from the seals themselves: the faces either have a terrace structure showing the signs at different levels – “step-sided seals” #291 β . δ , #292 β . δ – or they are divided into more sections by single carved lines (partition bars) – #206 α - β , #263 γ ³, #291 γ (this seal has also two “stepped” faces), #298 δ ⁴, #305 α . δ ⁵, #310 γ ⁶.









The seal #292 [Fig. 1] comes from Gouves and is of uncertain date⁷. It is of interest that the ‘Arkhanes formula’, the use of which seems to trace back to preceding periods, is carved on the two “un-stepped” faces (α 042-019 and γ 019-095-052). Possibly, the four symbols carved on the two remaining faces (β and δ) were also included in the inventory of the Cretan Hieroglyphics at its start, in a period preceding their use as fraction-signs in administrative documents.

As to the second seal, #206 [Fig. 2] (of unknown provenance), its shape, a flattened cylinder, is interestingly similar to that of another seal, #205 (CMS VII, 35, also of unknown origin) which again shows the ‘Arkhanes formula’ (α_1 042-019 and α_2 019-095-052) on face α , divided into two parts by a horizontal carved line. The two seals are both of hard stone, onyx and agate respectively, and thus are unlikely

³ I believe that in this case trowel and eye do not constitute the “canonical” group .

⁴ See Olivier 1995, p. 176, on the likely use of the central sign, the trowel, together with one or the other sign, the arrow and the eye, by its side.

⁵ In CHIC two groups are recognized, on face α  and on face β ; but the two symbols, diversified by the authors as a “double bar” (066) and a “single bar” (stiktogram), seem to me the same sign, that represents the dividing bar. Therefore both the double axe (042) and the two symbols  (*181)  (*180) may be considered individually and not as part of a group.

⁶ The central sign, the trowel, is separated with a carved line from the two symbols by its side, the winder and the spider (). In CHIC the group  is recognized, but I think that the three symbols are carved by the engraver with an independent value, and are divided individually by the carver line. On the value of the symbols found on “matrices” –       –, all used elsewhere as syllabic or logographic signs (maybe with the exception of the “spider”), see Jasink 2006.

⁷ The material itself is uncertain: Younger 1993, p. 46, suggests “yellow steatite(?)”, while in CMS it is defined as “gelblichweißer Marmor”. It seems, in any case, soft stone. The only suggested dating for this seal is MM IB–II (Yule 1980, p. 102, where the material is defined simply as “marble”).

to date to a period preceding MM II (or even IIB)⁸, but possibly the same argument applies as to the previous seals. In addition to the four klasmatograms on face α , two logograms can be recognized on #206 β , namely Υ *155 and $\overline{\text{P}}$ *156⁹, separated again by a carved line. This could be taken as a first hint that the signs we are discussing should be also considered as logograms.

A similar hint comes from the third “matrix”, #291 (CMS II, 2, 315) [Fig. 3]: on face δ it is possible to recognize the Z -spiral (actually only the two C -scrolls/J-spirals are evident with the connecting line lost), separated by a step from the hook-symbol L . On both faces β and γ , one next to the other, are a logogram and a klasmatogram ($\overline{\text{P}}$ *157 / L 308 and Υ *155 / L 307): the question arises if in this case, too, we are actually dealing solely with logograms.

As far as the spiral is specifically concerned, it recurs as one of the most common decorative motifs from the late Prepalatial period¹⁰ onwards, which strengthens (rather than rules out) its later use as a writing symbol to be included among the Hieroglyphic signs. Moreover, it has been suggested¹¹ that the spiral in the center of the seal face – without any additional decoration and surrounded by a circle and by an outer circular edge of rectangles – on a group of seals of conoid shape [Fig. 4] from several sites in Crete and, like those presenting the ‘Arkhanes formula’, of AM III – MM I date, could indicate already in this period a well recognizable symbol referring to a specific entity, perhaps identified with an administrative office rather than with a person. If we accept Weingarten’s proposal¹², too, that the dating of all these seals, found in graves still in use after MM IA, could be associated, in fact, with the rise of the palaces, their use in the palatial administration appears less questionable.

⁸ According to Younger 1993, XXI–XXIV, hard stones could not be engraved before the introduction of a new tool, the horizontal bow-lathe (bow drill), that is dated not before MM IIB. For a new carving technique represented by a new abrasive medium (emery) see Evely 1993, p. 153. This same dating is given in CMS, as for the second seal.

⁹ On the value of these two symbols see § 4 and n. 59.


¹⁰ The earliest known Z -spiral appears on a seal from an EM II–III context in Mochlos necropolis, CMS II 1, 472 (cf. Evans 1921, p. 94; Kenna 1960, p. 18; Yule 1980, p. 160). In this seal “two S-spirals run the length of the ellipsoidal field and interlock on one end with a C-hook (the scroll)” (Yule, loc. cit.).

¹¹ Vlasaki–Hallager 1995, p. 264; Hallager 1996 I, p. 106.

¹² Weingarten 2003, pp. 286–288, and oral communication, believes that the use of sealing in Crete before the Protopalatial period was occasional and not systematic, not yet integrated in a formal administrative structure.

The spiral also continues in MM as a decorative element¹³, easily recognizable as such, at least for contemporaries, since it is of smaller dimensions, or in a heraldic position, or as part of other decorative motifs. Significantly, it is no longer used as a decorative symbol in the Late Minoan period¹⁴, while it maintains a role in the other two scripts: as a fraction (A 703 / D) in Linear A and a syllable (*75/we*) in Linear B. In addition, in the period of the Second Palaces, when Linear A is the only writing system used in administrative documents, in the Temple Repositories of Knossos, a group of roundels¹⁵ is stamped in some cases with seals that closely resemble earlier Hieroglyphic seals in shape, style and motif. These have been dubbed “administrative seals”, since the symbols that are represented suggest that they relate to some sort of administration office. Unsurprisingly, one of these symbols is precisely the spiral [Fig. 5].



The above examples are all earlier or later than the canonical period of the Hieroglyphic script. This indicates that, since its earliest use on seals, the spiral has a role which extends beyond simple decoration and which cannot be limited to that of a mere fraction sign. With the following examples, all from the Protopalatial period, I shall try to demonstrate that the spiral was used in the Hieroglyphic script first as a logogram but also likely as a syllable. On the contrary, its use as a fraction sign cannot be demonstrated at present.


The spiral sign is mainly associated with the “trowel+arrow” group ¹⁶; in three/five cases, it precedes the trowel sign (#161, #188, #217, #285?¹⁷, #209?¹⁸), in three cases, it follows the arrow (#278, #293, #295) and in three cases, it is in an intermediate position (#300, #301, #314). In my opinion, the changes in position do not


¹³ On this motif and its recurrences see Yule 1980, pp. 160–161 and Pl. 26; Younger 1993, pp. 71–73.

¹⁴ Kenna 1960, p. 31.

¹⁵ These roundels are defined “multi-seal-impressed roundels” (Hallager 1987, p. 64; 1996 I, pp. 105–108) and recall the sealing system in the Hieroglyphic Deposit of Knossos, where Cretan Hieroglyphic seals and decorative seals were impressed on the same clay document (on this Deposit see Weingarten 1995, pp. 285 sgg.). For an embryo of the multiple sealing system in MM II Phaistos see § 2 and n. 37.

¹⁶ Karnava 2000, p. 47 and Tab. 5, has already pointed out the presence of the “decorative motif” -spiral in various positions with regard to canonical sign-groups, and its possible use in the writing system. For the moment she inserts the symbol in brackets – {} –, within the sign-group.

¹⁷ The seal is in a very bad shape and it is possible to hypothesize the -spiral sign, with only a bend maybe clear.

¹⁸ On this seal as well it is only a hypothesis to recognize a -spiral sign near the trowel sign: we can actually see only a scroll.

weaken its meaning as a writing symbol but only an interpretation as syllabic sign. If it is an ideogram, with its own autonomous value, such a varying position can simply be due to the inspiration of the artist. A more fundamental point is its preferential relation to this group. Such an assertion can be strengthened also by analyzing two other typologies of occurrences:

- where the spiral appears associated with the trowel even when it looks like a probable “filling” element (and, therefore, I believe such a definition reductive!): in #220.α two spirals¹⁹ in smaller dimensions²⁰ are to the right and left of the trowel (in its turn, above the arrow); in #293.δ, beside the spiral possibly intended as the initial symbol of the group (see above), two other, smaller spirals flank the trowel;
- where the spiral alone occupies one face of the seal, with the “trowel+arrow” group on an adjacent face: #219.α (with “trowel+arrow” on face β) with two spirals in succession²¹, #226.α (with the signs-group on face α)²², #209.β (with the signs-group on face α) and perhaps #278.α (with the signs-group on face δ)²³ where, however, the spiral is included in a complex decorative motif with two palmettes and so it probably lacks an autonomous function.

On the basis of these examples and exactly because the spiral was already used by seal engravers in the period preceding the beginning of writing, I am inclined to see in it a symbol that, early on, assumed a precise value in writing as well. It may be that this sign had an ideographic role in the first place, indicating (in the same way as the other three signs appearing in the Gouves’ “matrix”) a clear-cut element characterizing some entity probably already having an administrative character. It could have been the identification “mark” of a specific personage or office.


That entity is also likely related – even if the nature of the relationship remains obscure – to some of the sign-groups to which it is











¹⁹ The two spirals are not in heraldic position, as it is more frequent for these smaller symbols that the engravers often add to the major signs.




²⁰ We merely note an analogous use of the “hook” sign in #213.α and 216.α; this symbol, as we shall see in the following, presents traits similar to the spiral (it is one of the four “klasmatograms” as well).













²¹ On face γ two 6-scrolls tête-bêche appear, in axial symmetry; on face β a secondary sign similar to the hook sign is visible beside the trowel.

²² Face γ shows two arrows which meet at and are separated by a perpendicular line.







²³ The signs-group is represented by .








joined. This is the case, first of all, of the group already discussed  . Above all, its “correlation” with the trowel-sign is likely to be at the origin of the spiral’s having been engraved either as a filling element on both sides or as a decoration next to the trowel, even when it is not actually needed in the written document or the trowel is not the first element of the group  : for instance, in #309.α, where two spirals flank the trowel, first element of the group “trowel(+cat)²⁴+eye”   , in a heraldic position; or in #255.γ, where two spirals, again in heraldic position, engraved to the sides of the group 046-044  , likely represent a decoration enclosing the group (cf.: #257.γ with two double -scrolls in an analogous position).



While the -spiral is most frequently associated with  , there are at least two other occurrences²⁵ where it is possible to assign an ideographic or syllabic value to this sign:


- in the seal-impression #165, the only clearly visible sign is the “eye” in central position: only a pommel remains of the sign at its right which is likely to be a part of the trowel; only a scroll is still visible of the sign at left, which is likely a part of a -spiral. We can hypothesize a sequence trowel-eye-spiral   , with the spiral either representing the same ideogram as with the group  , given the repeated relationship between these two sign-groups²⁶, or the spiral is the final syllable of a group of three syllables, formed exactly by    and different from the more common   ;²⁷

²⁴ On the two symbols of “cat” and “cat-mask” and their probable meaning inside Hieroglyphic script see Jasink 2006.

²⁵ In the present work we will not take into consideration other doubtful recurrences like, for instance, on #192, where the sign-group identified in CHIC as x   (X 019-013-040) actually includes a symbol similar to the spiral, that could have a syllabic value as well, leading to a hypothetical reading x   . Alternatively our symbol may not be the -spiral but, in the same way as the smaller symbol on the other side of the “ship”, a simple filling motif. For a discussion of this and other doubtful recurrences see Jasink 2006.

²⁶ This hypothesis could be confirmed by #266, seal of which only an Evans’ drawing remains, showing the sign-group   on the first face,   on the second,   on the third. The recurring motives are the -spiral and the trowel, the latter flanked by the eye or by the arrow, in one case with the insertion of the vegetable spray.

²⁷ There is, at least, another attestation where the sign-group   is completed by another sign: on the quoted above #309.α, that presents the sequence trowel-cat-eye, in which, however, the “cat” could be a decorative motif that, with the two spirals, surrounds the first sign, the trowel.







- in the impression #136 (on roundel SA Wc 2 from Samothrace) [Fig. 6] the sequence spiral-double axe-cuttlefish  is clear²⁸: this is the only case where the ‘Arkhanes formula’ on a seal starts with a symbol other than the simple double axe. It may well be significant that the Linear A ‘Arkhanes formula’ on ‘libation tables’ shows an initial alternation between the signs 08 and 57 (with the possible phonetic value of *a* and *ja*). It is probably more than a coincidence that the first attestation of the spiral as a symbol by itself on a Hieroglyphic seal occurs in the stepped seal from Gouves that bears the ‘Arkhanes formula’ as well. Unless we only consider the spiral on the seal that stamped SA Wc 2 as a purely decorative symbol – unlikely, in my opinion, given its presence in the matrices –, we could propose for it a syllabic as well as an ideographic value within the Hieroglyphic script since its origins²⁹.




2. The cross 307 (cf. ‘croix pommée’ 070)

The cross symbol on face β of the Gouves’ seal (#292) is separated from the spiral by means of the step. It does not show the canonical pommels but they do occur on the cross engraved on another matrix, #206.α, again alongside the spiral and two other klasmatograms, a good indication that we are dealing with the same symbol. Their presence on the matrices clearly separates the cross as a klasmatogram, as used in administrative documents³⁰ – where it differs graphically from the ‘croix pommée’ – from the cross on the matrices; the latter, in my opinion, should be identified with the ‘croix pommée’, for which I propose a double logographic and syllabic value³¹.

²⁸ I refer to the picture and the drawing of the seal impression found in CMS V. IB, 325, which is more complete than the one found in CHIC.

²⁹ At a speculative level, the *i* vowel sound may be suggested on the basis of the very hypothetical *ja-sa-sa-ra* lecture in Linear A.

³⁰ While the attestations of the cross with a fractional value are numerous in Linear A, this klasmatogram is only attested on the unique Phaistos tablet – two sure occurrences and a hypothetical one –, PH Hi 01 (#122), in which three logograms,  *153,  *158,  *154, are followed by numerical entries (25 , 25 , 25  respectively).

³¹ In addition to the ‘croix pommée’  and the klasmatogram , a third cross-symbol is attested, , defined as “stiktogram” in CHIC, which is used not only in order to indicate the beginning of a sign-group – even if this is not always the rule on the seals – but also to isolate specific signs, perhaps when used as logograms (Grumach 1958, pp. 171. 175; Alexiou 1963, p. 82). See Orgeolet 2001, p. 33, for a brief analysis on the ambiguity of the ‘initial crosses’. The X-cross is also in nonsensical positions on seals, being used by the engraver as a filling or decorative element. Probably the habit of carving crosses on ‘talismanic’ seals, dating between MM

The ‘croix pommée’ motif, as single element and not included in more complex motifs, arises and develops only within the Cretan Hieroglyphic script, although it undoubtedly derives from, and is related to, the centrally radiating four arms motifs³². It is likely, however, that the sign of the simple cross, with the cross-bar shorter than the upright stem, as found in Linear A and Linear B with a syllabic value (AB 02, read *ro* in Linear B), represents an evolution of the same symbol³³. As with the spiral, the cross symbol³⁴ is found on the roundels from the Temple Repositories of Knossos (KN Wc 3-Rg; KN Wc 30-Rn1 and 2; KN Wc 41-Rh)³⁵. It has been suggested that this sign too could represent a kind of link between administration in the First and Second Palaces, pertaining to some specific administrative office³⁶. For the Protopalatial period, in Phaistos (MM IIB), Judith Weingarten has pointed out some evidence for an elaborated

III and TM IB, is derived from this last typology of crosses (on these seals see Onassoglou 1985, pp. 117–133; Karnava 2000, pp. 94. 202–208).

³² Weingarten 1989, p. 46 and Pl. III; 1992, p. 32, identifies the so-called leaf-quadrafoils with cross-variants, in the nodules of MM IIB Phaistos. Other examples may be the numerous seals of the MM IB–II Malia workshop, which “show a cross with a lily or so-called leaf-spray in each of the four fields” (Yule 1980, p. 155 and Pl. 23, Motif 36, 1–3); Tzigounaki 2001, p. 42, just referring to these seals and to two sealings from Phaistos and Monastiraki, declares that the croix pommée represents “un des motifs qui semble jouer un rôle primordial dans le système des relations entre les motifs”.

³³ In parallel, the fractional sign represented in Linear A by a cross (702 B) could derive from the +-klasmatogram attested on the above-mentioned administrative Phaistos tablet, clearly distinct from the croix-pommée.

³⁴ It is not a problem that the cross is represented without the canonical pommels of the Hieroglyphic attestations – an anomaly that we already noted on the two “matrices” #292 and #291; moreover, in Wc 3 both arms have the same length, while in Wc 30 (that curiously Hallager considers as coming from the same seal impression) and in Wc 41 one of the arms is longer: this could be evidence of the lack of interest of the engraver for the cross shape.

³⁵ Hallager 1996 II, pp. 159. 164–167.

³⁶ Hallager 1996 I, pp. 105–108. Hallager (1996 I, p. 107 and II, p. 37) takes also into consideration the “rondelle” (it is an unusual shape!) from Kea KE Wc 2 (MM III Period) that, while presenting a seal impression(?) forming a branch-like sign – in my opinion similar to ¶ (025) Hieroglyphic sign (but also to AB 04!) – has an incised 2-spiral on one face and two crosses incised on the other. Hallager hypothesizes that in this it is case the incised inscription that provides administrative information, similar to that supplied on the “multi-seal-impressed roundels” from Knossos. An analogous ‘impression’ from a MM IIA clay sealing Deposit at Knossos (Deposit E) is now recognized (Weingarten, BSA Suppl. forthcoming): «no seal impression, but incised lines (one deep and four shallow) forming a leaf-like pattern». Weingarten notes the striking resemblance of the ‘leaf’ to ‘palm leaves’ on CMS II 8, 10, an early MM cylinder-seal impression from Knossos.

administrative cross – cross or cross-based motif – on 9 of the 15 nodules with two different seal impressions (an embryonic Multiple Sealing System)³⁷.

The cross on face γ of the “step prism” #291 (mentioned above for the spiral) is of a rather peculiar form³⁸, and is not presented as a single element but joined by another symbol of equal, if not larger dimension; in CHIC, the latter sign is not transcribed, even though it is quite similar to an undoubted sign of writing present on other seals. Most likely, the decision of CHIC is due to the fact that the four symbols defined as “klasmatograms” always appear elsewhere as single elements³⁹. However, in this case, the engraver might have had a specific reason to carve a second symbol next to the cross, the more so as its large size cannot be confused with a simple filling element (cf.: the small symbol repeated on this face and, once, on face δ , next to the hook). This symbol can, in fact, be compared with two Hieroglyphic signs: † 063, “the pin with an eye in the middle”⁴⁰ and † 050, the “lance”, known both from seals and administrative documents⁴¹. The lance also occurs as a logogram (*176) on two administrative documents. Unfortunately, the sign-group of the cross and either 063 or 050⁴² is not found elsewhere and therefore it is impossible to grasp its meaning on our matrix. Hence, we can only acknowledge its occurrence.

³⁷ Weingarten 1989, p. 45, Table 4; 1990, p. 72; 1992, p. 32. An analogous MSS system may be found also in MBA Karahöyük (ca. 1750) in Anatolia; there, four round-faced seals impressed on crescents present cross-based motifs (Weingarten 1990, p. 71; 1992, pp. 32–33).

³⁸ This cross does not present two well defined and perpendicular crossing-bars, but the four sides have a triangular pointed appearance. This shape recalls the same symbol when it is used as a filling sign, in a smaller dimension.

³⁹ Really, on the matrix #206 we find a small symbol near the four “klasmatograms” and the two logograms. It is formed by two bars which end in pommels and meet to form an acute angle. In my opinion this sign represents a sort of engraver’s “mark”, completely independent from the other symbols and not connected with the writing system.

⁴⁰ The sign is defined in this way by Evans 1909, p. 229 (Nr. 135), on the basis of its recurrences in administrative documents, adding however that «the meaning of this sign is uncertain». He proposes to recognize the same sign on a face of a «small prism-seal in the Candia Museum recently published by Dr. Xanthudides»; see now CMS II 2, 230. In the comment to the same seal (#229), only the two central signs of face α are read as the sign-group **Λ**ϣ (036-092) in CHIC, while neither our symbol, preceding **Λ**, nor the other symbol – or two symbols – which follows ϣ, are taken into consideration as Hieroglyphic signs.

⁴¹ See Jasink 2006 for a discussion on both symbols.

⁴² There is only a sequence †ϣ (050-070) inside three longer sign-groups, in #112.c, #113.b1, #119.v, respectively.

On seals other than the matrices, the ‘croix pommée’ looks like a syllable inserted in various groups. In only a few, questionable, cases, can one hypothesize an ideographic value.

#198 – On a chalcedony theriomorphic seal, said to be from Mirabelo, the ‘croix pommée’ appears alongside a much discussed sign: the “circle made with a tubular drill”⁴³, which is identified in CHIC with the number 073, making the sequence on the seal 070-073 **ΧΟ** and playing a syllabic role. Both signs 070 and 073 occur in other cases, sometimes alongside and sometimes intermediate between groups already recognized in themselves. CHIC offers the hypothesis that we are simply dealing with mechanically repeated signs, and thus they are not taken as signs to be read⁴⁴. Another solution would be to recognize a more meaningful value for this type of symbols (and for the spiral as well)⁴⁵, whose presence on the seal could imply, for example, a specific relationship to a given administrative sector or to a single functionary.

#268 – On a jasper three-sided prism [Fig. 7], said to be from Lakonia, a cross appears on all the three faces but is read in CHIC only on face γ, as part of the group 006-070 **ΧΧ**; on the remaining faces, CHIC reads only 044-005 **Δ*** and 038-010 **Π**, respectively. On face γ, there is a perfectly clear third symbol, with the same dimensions as the other two, between the crossed arms and the cross; this should be identified either with 092 **Φ**⁴⁶ or with Evans’ “fleur-de-lis” (Evans 1909, Nr. 90 **†**), a sign not recognized as script by CHIC⁴⁷. If, however, we take this sign as a component of the group, with 006 as its first syllable (**Χ**+**Φ**/**†**), the ‘croix pommée’ could have the same role on all three faces with a possible ideographic value.

#263 – On the first face of this jasper prism, CHIC recognizes the group of two signs 036-092 **ΑΦ**; however, a third sign is visible between the two signs, which could be identified as a cross⁴⁸. Given the frequency of the group 036-092 – sometimes followed by 031 **Υ** –, the cross could be explained as the engraver’s choice to present

⁴³ This symbol, in this and other Hieroglyphic documents, has become a script sign; more generally, it belongs to the “tubular drill ornament” (Yule 1980, pp. 143–144 and Plate 15).

⁴⁴ See CHIC, p. 14, with reference to Olivier 1995, pp. 169–181.

⁴⁵ See CHIC, p. 14, for all the other symbols recurring in analogous situations.

⁴⁶ In CHIC, p. 261, in the commentary to #268, the authors are inclined to reject this hypothesis: «γ probablement pas 092 médian».

⁴⁷ See Jasink 2006 for a discussion on this symbol and its probable ideographic value.

⁴⁸ See Younger 1990, p. 91.

the same “word” with the addition of a further specification, which suggests that the cross has an ideographic value.

3. The hook 𐀓 302 (cf. hook 𐀔 059)

This symbol is engraved on face δ of the matrix #292, separated from the ‘klasmatogram’ 𐀓 308 by the step. The same signs appear again on #206. α (see above) beside the spiral and the cross. This sign on the matrices, too, can be distinguished from the fraction-sign on administrative documents – parallel to the identical fraction in Linear A (704 E); i.e., it is to be considered as a logogram. While the hook is well documented as a syllable in Hieroglyphics, its ideographic value is poorly attested – appearing only on the two seals mentioned above and on the other matrix #291. δ , where the hook is well separated from the spiral (?), again by a step.

Two additional cases, however, strengthen our interpretation of the hook as an ideographic symbol.

First, the hook symbol appears on two steatite three-sided prisms, #213 and #216, both of unknown provenance, but quite similar to each other, with “decorative” motifs⁴⁹ on the faces β and γ and the group 𐀓𐀔 on face α . Two hooks are engraved at both sides of trowel, in heraldic position. This could be a simple decorative motif, but the alternation in this position with the 𐀔-spiral symbol (with, as we have argued, ideographic value and administrative significance), suggests an analogous role for the hook.

Secondly, the hook symbol cannot always be distinguished from that of the 𐀔-scroll, another symbol not taken in CHIC as script, but which, I believe, may also, like the spiral, represent both a syllable and an ideogram in Hieroglyphics. It is significant that the 𐀔-scroll is linked to the trowel, as is the hook, in several cases. 1) On a three-sided steatite prism, not included in CHIC, but catalogued by Evans⁵⁰ as P. 3 [Fig. 8] and again on CMS XI, 233 (MM II–III): on face b, the trowel is surrounded by two 𐀔-scrolls in heraldic position⁵¹. 2) On the impression #158, the initial trowel in the group 𐀓𐀔𐀔 is flanked by a 𐀔-scroll and by the X-cross (stiktogram). Moreover, compare the two three-sided prisms #244 and #246, where the initial trowel

⁴⁹ These motifs, in my opinion, are not selected by the engraver by chance, but have a specific role in the glyptic of this period (see Jasink 2006).

⁵⁰ Evans 1909, p. 189.

⁵¹ Two ‘hippocamps’ (Evans) or, better, «Vorderteile von Vierfüßlern, die in Spiralknoten enden» (CMS), in antithetical position are carved on face a, two 𐀔-spirals in sequence on face b.

of the group $\uparrow\uparrow$ is, in the first case, associated with two \mathcal{C} -scrolls in antithetical position, one quite similar in shape to the hook, and, in the second case, is preceded by a \mathcal{G} -scroll⁵² that, given that its size and depth are identical to the other two signs, can hardly be a decorative element. It may well be that the volute and the hook were initially a single symbol, adopted into the Hieroglyphic script as an ideogram referring to some specific (administrative) entity, which later evolved into two separate symbols, in turn becoming the basis for other composite signs. As to the hook, this symbol acquires also a syllabic and a fractional value, and some more complex syllabic/ideographic signs appear to be derived from the first (the logograms *179, *180, *181, *182)⁵³, others from the hook as fraction (303Θ, 304Λ, 306Π)⁵⁴.

4. The rectangle with a prolonged side \perp 308

This symbol is recognized in CHIC only on the three matrices #206.α, #291.β, #292.δ, but has now been found on a two-sided bar fragment ('lame à deux faces') from the Sanctuary of Syme (SY Hf 01)⁵⁵ where its value as klasmatogram is undoubted [Fig. 9]. However, it is worth repeating that, as above, the engraver of the matrices most likely did not carve fractions but symbols which had a logographic value within the Hieroglyphic script. Present evidence does not allow us to go further, but there are two hints to be considered:

1. On #291.β, the symbol is drawn in a manner clearly recalling the gate-sign, \perp 038, in the variant with horizontal strokes on the inside. NB: this sign has the same value whether the internal strokes are vertical or horizontal or from one to three in number. In addition, the external stroke beyond the rectangle is not always elongated on both sides; a single external stroke appears⁵⁶, in the same way as its rendering as \perp 308. Such a connection between the two signs may not be accidental (arising from the similar shape)⁵⁷, but actually may be the same sign, which acquires a logographic value on the matrices. I would speculate that this value might be derived from some occur-

⁵² This scroll is slightly different from the more common \mathcal{C} -scroll. Evans 1909, p. 230 has divided the same sign, Nr. 137, in *a* and *b* type.

⁵³ Only two among them, \uparrow *180 and $\uparrow\uparrow$ *181 are attested on seals.





⁵⁴ None of these symbols is attested on seals.

⁵⁵ Olivier in Lebessi-Muhly-Olivier 1995, pp. 63–69.

⁵⁶ Clearly on #312.α, doubtfully on #212.α, #218.γ, #270.α (the authenticity of this seal is questionable), #299.δ.



⁵⁷ This is the hypothesis by Olivier, cit., p. 67.

rences of the sign in the initial position in sign-groups composed of two or three syllables, as seems to be the case for the spiral, the cross and the hook.

2. A quite similar symbol is Linear B sign 140, translated as AES and clearly distinct from the syllable *ja*/AB 57, that in CHIC is compared with the gate. I do not think that a derivation of the sign 140 from the symbol on the matrices should be ruled out, a derivation which is not only formal but perhaps of analogous ideographic value. We venture to hypothesize that the Hieroglyphic sign  308 refers to an administrative entity concerned with bronze objects. NB.: it is engraved on #291.β together with the sign  *157 – a cylindrical container with a curved handle and a conical lid – recognized as a logogram in CHIC, comparable to the sign 123 of Linear B, where it is translated as AROM⁵⁸; as such, it could indicate an administrative entity in charge of spices and the like. Furthermore, the presence on face #206.α of four symbols identifying, as I have suggested, single sectors of the administration (cross, hook, spiral, rectangle), together with two analogous symbols on face #206.α – i.e. the logograms  *155 and  *156, which could indicate entities connected to the production of figs and wine (giving them their Linear B values)⁵⁹ – is well suited to this interpretation.

From the sum of this analysis, I am inclined to distinguish between the so-called klasmatograms as fractions – as undoubtedly used on some administrative documents, which may be a later and secondary use of the signs, perhaps imported from the contemporary Linear A script – and a primary use of the same symbols on seals, having a more substantial value and perhaps characterizing individual administrative units. If this could be demonstrated with certainty, it would allow us to assign to the syllables (also, in my opinion, represented by these signs), a pronunciation derived from the acrophony of the words indicated by the same symbols as ideograms. In any case, it would now be appropriate to add these four signs to the list of logograms presented in CHIC and eliminate them, in their form “en gras”, from the list of the klasmatograms.

⁵⁸ This same symbol is attested in Linear A as well (123 AB) with a syllabic value (cf. Olivier, cit., p. 69, n. 17).

⁵⁹  *156 looks like AB 131 VIN; it seems possible to identify  *155 with B NI (“figs”). This second symbol is used also with a syllabic value in the three scripts: 024 in Hieroglyphic script (only in the “maigre” version on incised documents) and AB 30 (*ni* in Linear B).

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Source of Figures. Figs. 1, 2, 3, 6a and 7 are reproduced from CHIC; Fig. 4 from Vlasaki–Hallager 1995; Fig. 5 from Hallager 1996; Fig. 6b from CMS V s.1B; Fig. 8 from Evans 1909; Fig. 9 from Lebessi–Muhly–Olivier 1995.

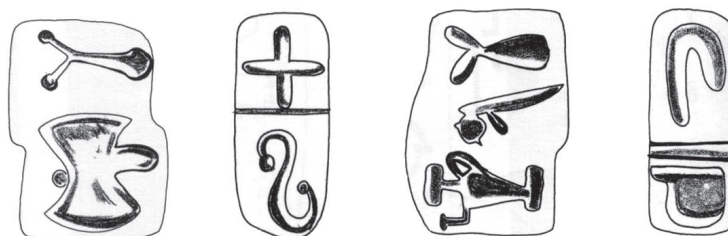


Fig. 1 CHIC #292 ("matrix")

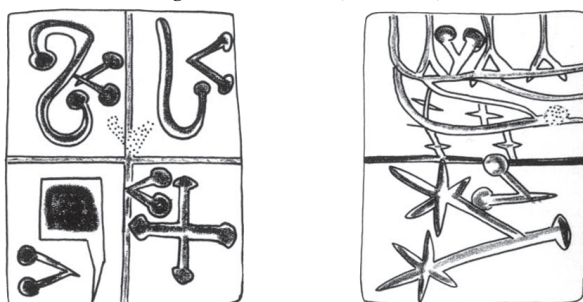


Fig. 2 CHIC #206 ("matrix")

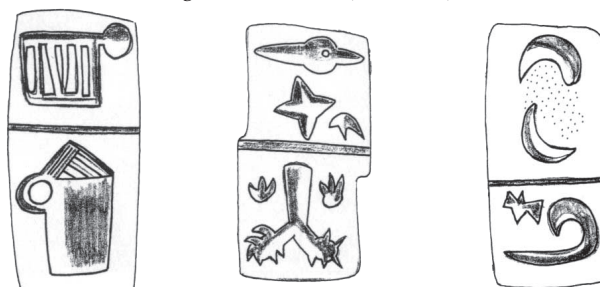


Fig. 3 CHIC #291 ("matrix")



Fig. 4 Prepalatial seal from Lenda



Fig. 9 Two-sided bar fragment from the Sanctuary of Syme – SY Hf 01

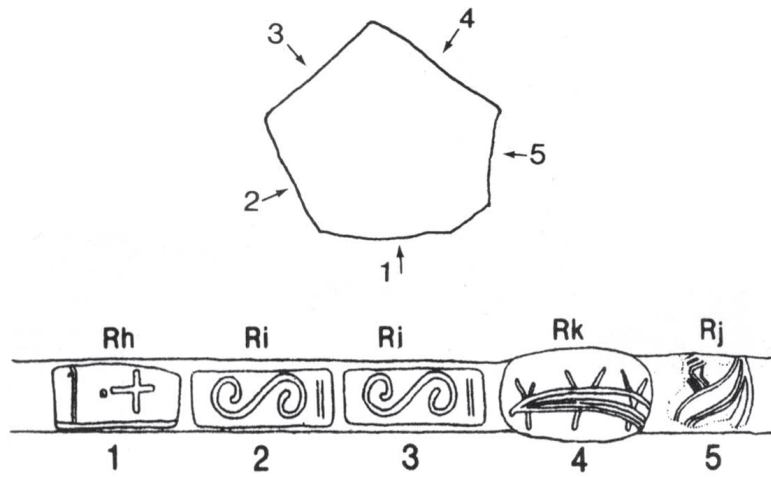


Fig. 5 Roundel from the Temple Repositories of Knossos – KN Wc 41

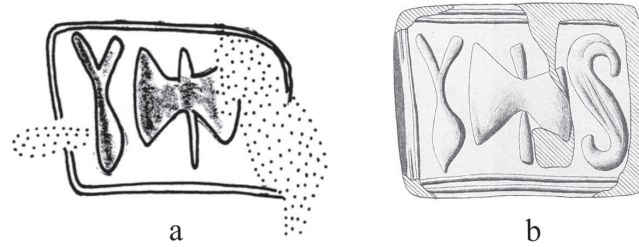


Fig. 6 Impression on roundel SA Wc 2 from Samothrace
a: CHIC #136 b: CMS V Suppl. 1B, 325



Fig. 7 CHIC #268

Fig. 8 Three-sided steatite prism (Evans 1909)