

THE CRETAN HIEROGLYPHIC SCRIPT: A REVIEW ARTICLE*

The following observations and analyses could not have been attempted without *CHIC*; and with *CHIC* it is certain that much progress will be made in understanding not only Cretan hieroglyphic but also Linear A and B. This publication ranks as one of the major achievements in Aegean archaeology since *GORILA*. With *CHIC* in hand, it is now possible to study fully the earliest Cretan writing system, to place it in context with the linear systems, and to appreciate the full sweep of the Minoan contribution to the art of writing and to the institution of administration.

This study is not so much a review of *CHIC* (I have high regards and occasional quibbles), but an attempt to lay out a basic, working knowledge of Cretan hieroglyphic and its administrative context, and to indicate some areas that need further contemplation.

The *Corpus Hieroglyphicarum Inscriptionum Cretae (CHIC)* has been promised for a long time; Evans gave the corpus a preliminary form in *Scripta Minoa* (1909) and Ernst Grumach attempted to complete it but died on 5 October 1967 before the project had assumed a shape. Since then Olivier and Godart

* J.-P. Olivier and L. Godart in collaboration with J.-C. Poursat, *Corpus Hieroglyphicarum Inscriptionum Cretae (Études Crétoises 31)*, De Boccard, Paris 1996, pp. vi & 448, 1 map, 918 figs. ISBN 2-86958-082-7 (École Française d'Athènes) and 2-7283-0366-5 (École Française de Rome). FF 1700.

Abbreviations follow those listed in the *American Journal of Archaeology* 95, 1991, pp. 1-16. Additional abbreviations include:

- CHIC*: Jean-Pierre Olivier and Louis Godart, *Corpus Hiéroglyphicarum Inscriptionum Cretae. Études Crétoises 31*; De Boccard, Paris 1996.
CMS: Ingo Pini, ed., *Corpus der minoischen und mykenischen Siegel*. Gebr. Mann Verlag, Berlin 1964 - present.
Hallager: Eric Hallager, *The Minoan Roundel and Other Sealed Documents in the Neopalatial Linear A Administration*. Liège: *Aegaeum* 14, 1996.
KSPI: Margaret A.V. Gill, «The Knossos Sealings. Provenance and Identification,» *BSA* 60, 1965, pp. 58-98.
HMs: Herakleion Museum, sealing inventory number
Yule: Paul Yule, *Early Cretan Seals: A Study of Chronology*. Philipp von Zabern, Mainz 1980.

In addition, plain *CHIC* numbers refer to signs, numbers prefaced by * refer to logograms, and numbers prefaced by # refer to documents.

I was a reader, 'Beta Tester', of a prepublication version of *CHIC* (p. 7, n. 2), and I am grateful for that early opportunity to study the inscriptions. The editors have also generously given me a copy of the hieroglyphic font for my computer.


“took up the torch”, as they say, with the assistance of Jean-Claude Poursat and the *Corpus der minoischen und mykenischen Siegel (CMS)*;¹ certainly, as the authors make clear, *CHIC* could never have been completed without the expertise of Ingo Pini and the *CMS*.

Nonetheless, the accomplishment of *CHIC* belongs solidly to Olivier and Godart, to whom we owe the corpus of Linear A inscriptions (*GORILA*), and much of the modern work on the Linear B inscriptions from Knossos (*CoMIK* and *KT5*).²

In their usual, straightforward and spare manner, Olivier and Godart present a text that introduces the hieroglyphic corpus in four major sections: the documents, the script, the various concordances, and the inscriptions themselves. Even in the small amount of time since *CHIC* went to press, however, there have been two additions to the hieroglyphic corpus, a *lame* or tablet from Syme³ and a new archives deposit at Petras.⁴

In the text that follows I shall attempt to summarize what we can know about Cretan hieroglyphic thanks to the publication of this important volume.

THE DOCUMENTS

First, it is clear that hieroglyphic signs, at least for the ‘Libation Formula’ or, as *CHIC* terms it, the ‘Archanes Formula’,  (*CHIC* 042-019-019-095-052),⁵ appeared on seals dating to MM I both by context and style. From MM IA contexts at Archanes Phournoi come the dentine seals *CMS* II.1 nos. 391, a unique bone ‘baton’ belonging to a distinctive class of dentine cubes, 393, and 394 (*CHIC* #315, #252, and #202, respectively); their designs are attributable to

- ¹ I remember Friedrich Matz discussing the fate of Grumach’s project at the first Marburg symposium in October 1972.
- ² *GORILA*: L. Godart and J.-P. Olivier, *Recueil des inscriptions en Linéaire A*, vols 1-5 (*Études Crétoises* 21; Librairie Orientaliste Paul Geuthner, Paris 1976-1985). *CoMIK*: J. Chadwick, L. Godart, J. T. Killen, J.-P. Olivier, A. Sacconi, and I. A. Sakellarakis, *Corpus of Mycenaean Inscriptions from Knossos*, vol. I (1064-4495), vol. II (1064-4495), vol. III (5000-7999) (Cambridge University Press, New York 1991, 1993, 1997). *KT5*: J. T. Killen and J.-P. Olivier, eds., *The Knossos Tablets*. *Minos* supp. 11; Ediciones Universidad de Salamanca, Salamanca 1989.
- ³ Angeliki Lebessi, Polyhymnia Muhly, and Jean-Pierre Olivier, «An Inscription in the Hieroglyphic Script from the Syme Sanctuary, Crete (SY Hf01),» *Kadmos* 34:4, 1995, pp. 63-77.
- ⁴ Metaxia Tsiropoulou and Eric Hallager, «Inscriptions with Hieroglyphs and Linear A from Petras, Siteia,» *SMEA* 37, 1996, pp. 7-46; and «A New Hieroglyphic Archive from Petras, Siteia,» *Kadmos* 35, 1996, pp. 164-167; and Metaxia Tsiropoulou, «The Hieroglyphic Archive from the Palatial Building at Petras,» *AJA* 102:2, 1998, p. 391 (abstract).
- ⁵ I. Schoep, «Ritual, Politics and Script on Minoan Crete,» *Aegean Archaeology* 1, 1994, pp. 7-25; G. A. Owens, «Evidence for the Minoan Language: The Minoan Libation Formula,» *Cretan Studies* 5, 1996, pp. 163-208.

Yule's Border/Leaf Complex (MM I, possibly MM I-II).⁶ Linear A appears at the earliest soon after, in MM IA,⁷ and continues into and throughout the Neopalatial period. The hieroglyphic script probably survives into the Neopalatial period (I date the Knossos Hieroglyphic Deposit to MM III, further discussion below) but not for very long. No inscribed Hieroglyphic material comes from a Late Bronze Age context.

Hieroglyphic documents come from four main deposits in Crete: Mallia, Quartier Mu; the Dépôt Hiéroglyphique in the Palace at Mallia; the Hieroglyphic Deposit at Knossos; and now the deposit at Petras.⁸ For three of the sites, the deposits can be securely dated: MM II late in Quartier Mu, MM IIB at Petras, and MM III in the Mallia Palace.

The Hieroglyphic Deposit at Knossos presents problems. As both *CHIC* and Hallager make clear, the deposit was found with apparently almost no other material at the end of the Long Corridor in the West Wing, in and about the *sottoscala* there; Evans also found some hieroglyphic documents and nodules in the general area and he incorporated these into the Deposit. Strictly speaking, the Deposit is therefore an assemblage (*CHIC* puts 'Hieroglyphic Deposit' in quotes), and the fact that it has little or no associated material may be due to Evans having removed all contaminants in order to strengthen the Deposit's character.

Because the Hieroglyphic Deposit at Knossos has no datable pottery, it has been dated by its sealstone impressions to MM II or III. Some authors favor MM II, including *CHIC*, relying on the analysis of early sealstone styles by Paul Yule,⁹ but the presence of numerous seal impressions from hardstone prisms makes it likely that these seals were carved after the horizontal bow lathe was introduced towards the end of MM II, and their advanced and competent techniques should mean that they were carved in MM III.¹⁰ *CHIC* cites one more

⁶ Yule 170, 209-210, first identifies the group and the script, the 'Archanes Script', and dates them to EM III-MM IA, with the possibility of a later date; John G. Younger, review article of Yule, *Göttingische Gelehrte Anzeiger* 240, 1988, pp. 188-224, especially pp. 198-201, revises the date to MM I-II.

⁷ From Knossos a Linear A tablet and one or two incised nodules have been excavated from a MM IIA context below the South West House (*AR* 39, 1993, p. 68; Hallager I: p. 57).

⁸ For a general description of the contexts at Knossos and Mallia, see Hallager I: pp. 54-62; for the hieroglyphic documents themselves, however, consult *CHIC*. The table that accompanies the French plan of Quartier Mu, reproduced in Hallager I: p. 61 fig. 21, groups the documents under general names, not by the specific terms I am using here. For Petras, see Tsipopoulou and Hallager 1996a and 1996b, and Tsipopoulou 1997 (all *supra* n. 4).

⁹ Paul Yule, «On the Date of the 'Hieroglyphic Deposit' at Knossos,» *Kadmos* 17, 1978, pp. 1-7; and *Early Cretan Seals*. Mainz: Philipp von Zabern 1981, pp. 216-219.

¹⁰ John G. Younger, *Bronze Age Aegean Seals in their Middle Phase (ca. 1700-1550 B.C.)*. *SIMA* 102, Jonseder 1993, pp. 163-166; nodules from the Knossos Hieroglyphic Deposit that were impressed by hardstone seals include *CHIC* #123, 142, 144, 145, 147, and those impressed by four-faced prisms #158-168.

reason for a MM II date: the documents from both Mallia Mu and Knossos use / to indicate 100, although two Knossos documents *CHIC* #065 and possibly #067, use O, as do the documents from Mallia Palace.

A comparison of the document classes that were found at Mallia, Quartier Mu and the Palace, and at Knossos, however, produces a more compelling argument for a MM III date for the Knossos Hieroglyphic Deposit (see APPENDIX A). From Mallia Mu (MM II) come incised cones, *lames*, medallions, and bars, and several impressed *noduli* and one impressed crescent; from both Mallia Palace (MM III) and Knossos also come medallions and bars, but also incised and impressed crescents, incised tablets, and impressed leather parcel sealings (Mallia Palace also has incised *lames*, and Knossos also has impressed *noduli*). In other words, the Mallia Palace and the Knossos Hieroglyphic Deposits contained administrative innovations, incised and impressed crescents, incised tablets, and impressed leather parcel sealings; *CHIC* also considers these last documents to date later than MM II.¹¹

The hieroglyphic deposit in Quartier Mu, by its even scatter through both buildings, may have constituted a 'living' archive on the upper floor when the area was burnt.¹² The other three hieroglyphic deposits, in the palaces at Mallia, Knossos, and Petras, however, were probably 'discards'. Favorite locations for storing 'discard' archives like these include *sottoscalas*, abandoned rooms or spaces, and in blocking walls.¹³ The mixed character of the deposits at Mallia and Knossos also qualifies them as 'discards'.¹⁴

¹¹ In noting that seal #164 impressed both a crescent HMs 185 and a leather parcel sealing HMs 195, *CHIC* wonders (p. 29) 'si l'on admet que les deux scellés ne sont pas contemporains, ce serait actuellement le seul cas où le hasard des fouilles aurait permis de retrouver deux empreintes d'un même sceau apposés à des dates différentes'. But impressed crescents and leather parcel sealings are certainly contemporary document types; an impressed crescent #097 and leather parcel sealing #154 were found in the Mallia Hieroglyphic Deposit in the Palace.

¹² For a convenient plan of the findspots of the documents, see Hallager I: p. 61 fig. 21; for a general discussion of administrative processes, see John G. Younger, «Seals and Sealing Practices: The Ancient Near East and Bronze Age Aegean,» *AJA* 100:1, 1996, pp. 161-165.

¹³ Tablet MA 10 was found in the *sottoscala* in the northeast corner of Mallia's central court; Knossos nodules HMs 250 and 251 were found in a blocking wall near the Landing on the Grand Staircase (Mervyn R. Popham and Margaret A.V. Gill, *The Latest Sealings from the Palace and Houses at Knossos*. *BSA Studies* 1, 1995, p. 44); and the massive Protopalatial sealing deposit at Phaistos was found as fill in vano 25.

¹⁴ While the Petras deposit apparently consists only of hieroglyphic documents, the Mallia deposit also contained inscribed Linear A documents, five tablets and one roundel (*GORILA* MA 1, 2, 4, 6, 9; Wc 7). At Knossos it is not known precisely which incised hieroglyphic documents were found in the *sottoscala* and which were found elsewhere, but a few nodules impressed by hieroglyphic seals (*CHIC* #139/#156, and others now apparently lost; see KSPI 65) are known to have been found with Linear B tablets in magazines 4, 12, and 13; and HMs 140 (KSPI 67, no. Pc) was included among the Hieroglyphic Deposit, but its impression seems to have been made by a seal belonging to the 'Zakros Master' group (Judith Weingarten, *The Zakro Master and*

These three deposits, moreover, were all found in concentrated areas located just inside the entrance in the northwest corner of each building; the similarity of their findspots cannot be coincidental. At Petras, the deposit was found inside a room and doorway that was blocked up later in the Neopalatial period, presumably below Neopalatial levels; at Mallia, the documents were also found below Neopalatial levels in the vestibule of pillar room III8, a room that, in the Neopalatial period, lay at the back of the polythyron III7 which opened to the northwest court; at Knossos, the concentration of documents was found in or near the sottoscala at the north end of the north-south corridor, to the north and northwest of which was probably an exterior entrance.¹⁵

It is likely then that all three deposits were discarded near the northwest entrance of their respective palace; if the act of discarding them had not moved them very far from where their final audit had taken place, it is possible that the location for this audit was conventional and that the northwest entrance had something to do with it, a place, for instance, where outside people and palatial administrators could meet and transact business.

The hieroglyphic script does not survive long into the Neopalatial period before being supplanted by Linear A; while no inscribed hieroglyphic material comes from a Late Bronze Age context, at least two sealings impressed by hieroglyphic seals come from Late Minoan contexts at Knossos: *CHIC* #125 a 'molar' (Class XIIB) from the Little Palace, and #169/#170 a jar stopper from an unknown findspot. Judith Weingarten identifies 'molars' as distinctively Mycenaean and she also characterizes as Mycenaean the revived practice of direct-object sealing;¹⁶ the jar stopper was impressed not only by two faces of one hieroglyphic prism, but also by a lentoid belonging to the Dot-Eyes group, no earlier than LM II.¹⁷ This late use of hieroglyphic seals, however, cannot be taken as evidence for a late use or knowledge of the hieroglyphic script.

his Place in Prehistory. SIMA Pocketbook 26, Paul Åströms Förlag, Göteborg 1983, pp. 2, 18), which would make it date to LM I. I. Begg, *Minoan Storerooms in the Late Bronze Age*. PhD diss. University of Toronto 1975, pp. 190-91: "The conclusion is inescapable that the scattering of the Hieroglyphic tablets in the West Wing at Knossos was contemporary with the scattering of the Linear B tablets." The deposition date for the discard deposit can still be MM III (or II) while a later destruction can be responsible for the 'scatter' of documents.

- ¹⁵ For the possibility of an entrance in the northwest corner, see S. Hood and W. Taylor, *The Bronze Age Palace at Knossos. Plan and Sections*. BSA Suppl. 13, 1981, nos. 147-149, 152.
- ¹⁶ Judith Weingarten, «The Sealing Structures of Minoan Crete: MM II Phaistos to the Destruction of the Palace of Knossos. Part II: The Evidence from Knossos until the Destruction of the Palace.» *OJA* 7:1, 1988, pp. 1-25.
- ¹⁷ Younger, «Aegean Seals of the Late Bronze Age: Stylistic Groups. IV. Almond- and Dot-Eye Groups of the Fifteenth Century B.C.» *Kadmos* 24, 1985, pp. 34-73, esp. p. 71; Ingo Pini, «Eine Tonplombe aus Knossos im Ashmolean Museum.» *Kadmos* 21, 1982, pp. 1-4.

Hieroglyphic documents consist of three main classes: clay documents that carry incised inscriptions (*CHIC* class H: #1-122), sealstones that carry sculpted *intaglio* inscriptions (S: #180-314), and clay documents that are impressed by these sealstones (I: #123-179); from Knossos comes a small group of incised clay inscriptions on crescents that are also impressed by sealstones. There is also a small but interesting miscellaneous class (Y: #315-318) of incised and painted pots, impressed clay vessels,¹⁸ and one incised stone offering table.

The first two classes are further broken down into subtypes. The sealstones are sorted according to the number of faces they carry (with a further subdivision according to how many of a seal's faces carry inscriptions): 16 uniface stamp seals ('signets' or, when elegant, 'Petschafts'),¹⁹ a couple of bifacial 'discs' (*CHIC* #202, #203) and 'cushions' (*CHIC* #205, #206),²⁰ and multifacial prisms either with three faces with rounded ends (*CHIC* #208-277) or with four rectangular faces (*CHIC* #278-312); one more prism, *CHIC* #314, is unique with eight faces.²¹

When the sealstone itself is present, there is no problem assigning it to one of these internal subclasses; but some impressions may present problems, for Oliver and Godart have subdivided them according to shape. While elliptical impressions with rounded ends should belong to three-sided prisms and elongated rectangular impressions should belong to four-sided prisms, all the circular faces are here assigned to uniface seals, as if all should be from Petschafts. Most may be, but two-sided discs are also possibilities; for instance, HMs 172 carries both an incised inscription (*CHIC* #027) and two circular seal impressions, one of which incorporates an inscription (*CHIC* #123) while the other, fragmentary, depicts a dog's head in profile. The style of the two faces is similar; the dog head is attributed to the Palaikastro Cat Group and the inscription to the Group of Cat Masks, both assigned to MM III,²² but they could belong to the same disc. Another MM III stylistic group of discs, the Group of the Mavroselio Bull Head,²³ includes one bifacial, CMS II 2.213 from

¹⁸ Inscribed pottery: seven 'Chamaizi' pots (small tankards for a special beverage, probably fermented, made at Mallia in MM II; they are usually incised but one is painted), several incised pithoi lids, a couple of vessel bases and miscellaneous handle and body sherds.




¹⁹ There are also two scaraboid seals, *CHIC* #197 and #198, two half-cylinders #199 and #200, and a cylinder #201.

²⁰ And one bifacial amygdaloid *CHIC* #204 and one flattened cylinder #207.

²¹ When publishing the sealstones in various museums, Victor Kenna and other scholars put the seals they thought forgeries into a separate section, labeled '*Gemmae Dubitandae*', at the back of the *CMS* volumes. *CHIC* confronts these seals (p. 25) and concludes that only #270 poses true problems; for me, however, the seal seems genuine.

²² John G. Younger, «Bronze Age Aegean Seals in the Middle Period (ca. 1725-1550 B.C.),» in R. Laffineur, ed., *Transition. Aegaeum* 3, Liège 1989, pp. 53-64, esp. 56; and Younger 1993 (*supra* n. 10), p. 150 and 164-165.

²³ Younger 1993 (*supra* n. 10): pp. 173-174.

Mavrospelio T. VII with a boar's head on side a and the only Linear A inscription on a sealstone on side b (*CHIC*, p. 12, n. 17:    AB 57-31-57, *JA-SA-JA*, probably a palindromic abbreviation for *JA-SA-SA-RA* meant to read both on the seal and in the impression).²⁴

Two hieroglyphic sealstones belong to the distinctive class of MM I-II dentine cubes mentioned above: simple cubes with six faces include *CHIC* #313 from Moni Odigitria and CMS II 1.64 of hippopotamus ivory from the Ayia Triada tholos; a similar cube impressed the sealing HMs 189 from Knossos, the Hieroglyphic Deposit (KSPI P70), which was also incised with a hieroglyphic inscription, *CHIC* #019. The unique 'baton', *CHIC* #315, is actually a rectangular die of bone articulated into a row of three cubes with a total of 14 faces, including the two on the base and handle; a similar 'baton' impressed another Knossos sealing, HMs 375 from the Arsenal Deposit (KSPI Vb; further discussion below).²⁵ Both the simple cube #313 and the 'baton' #315 carry the 'Libation/Archanes Formula'.

The clay documents (*CHIC* classes H and I) come in a wide variety of forms, each given its own nomenclature. In administrative terms, we can divide the documents into two major types, those that accompany commodities and those that list them;²⁶ the former types function as labels (medallions, crescents and other nodules) and the latter as tallies or accounts (bars, *lames*, tablets, cones). *CHIC*'s nomenclature, however, first classifies the clay documents by form, not by function, and while it is detailed for 'Crescents' (*CHIC* class Ha), 'Cones' (Hd), 'Medallions' (He), 'Lames' (Hf), 'Bars' (3-faces: Hg, 4 faces: Hh), and 'Tablets' (Hi), it does not distinguish formally amongst the clay nodules; only crescents are incised and/or impressed (*CHIC* classes Ha and I), while the other types of nodules are impressed only (class I). At the very end of the introduction (p. 63), *CHIC* includes a list of the nodule types; a concordance between the French terms and the English terms used by Weingarten and Hallager would have been helpful (see APPENDIX B).

We can imagine the administrative process thus: commodities arrive at the regional center and their type and amount may be recorded on the cones with incised inscriptions (*CHIC* class Hd) that were found at Mallia (*CHIC* #070-071).²⁷ Commodities may also be given incised labels (crescents, and pierced medallions, *lames*, and bars); the crescents can also be impressed by sealstones.

²⁴ There is only one seal with a Linear B inscription (*CHIC*, p. 12, n. 18): CMS V 415: *e-ko-ja* on the seal, *ja-ko-e* in impression; both are *hapax legomena*, although this too may be palindromic.

²⁵ Ingo Pini, «The Hieroglyphic Deposit and the Temple Repositories at Knossos» in Thomas G. Palaima, ed., *Aegean Seals, Sealings and Administration. Aegaeum 5*, Liège 1990, pp. 33-60, pl. 3e & f; Popham and Gill 1995 (*supra* n. 13): p. 28, pls. 16 and 31. This sealing is not yet incorporated into either *CHIC* or *GORILA*.

²⁶ For a classification of the labels, see Weingarten 1983 (*supra* n. 14) and 1988 (*supra* n. 16) and Hallager.

²⁷ Jean-Claude Poursat, «Les systèmes primitifs de comptabilité en Crète minoenne.» in Piera Ferioli *et al.*, *Archives Before Writing. Scriptorium*, Rome 1994, pp. 247-252.

A clay sealing may directly seal a chest (*CHIC* class I, #173; and nodules at Petras) or the mouth of a jar (class I, #169-#170). The most common type of direct-object sealing, however, is the crescent (class Ha: #001-028; class I: #161, #168, all from Knossos; class Ha #097 and I #172 from Mallia; and one at Petras); it seals the knot that joins two ends of a string, is pressed against an object, and almost always receives an incised inscription and an impression by at least one sealstone. There are a couple of other two-hole nodules, one from Knossos (#134) and some from Petras. One other nodule (#155 from Ayia Triada) secured the knot at only one end of a string (one-hole hanging nodule); this type of nodule, characteristic of Ayia Triada,²⁸ usually seems to have come in pairs, each securing the ends of one string that may have bound up a papyrus document.

Several other nodules sealed the threads that bound up leather strips, possibly vellum documents (#138, #151, #153, #154, #178, #179). And other nodules, impressed by sealstones, were not themselves pressed against anything, nor did they seal any string;²⁹ these are called *noduli* and may have served as dockets to pay workers or as authenticating evidence of administrative inspections—in this latter capacity they could have accompanied commodities such as textiles that were stored in boxes.³⁰

The administrative tallies are independent documents that record, by incised inscription, the storage of commodities and possibly their dispersal or consignment to personnel. These documents also come in a variety of shapes. Bars and the few tablets that have survived carry the most detailed inscriptions, and it is possible, given the fact that bars do not survive into Linear A, that tablets represent a later development—they are not found in Quartier Mu. Both types of inscriptions record what look like headings, names, and commodities.

While the cones may record incoming commodities and the tablets may record final audits, the other inscribed documents (crescents [Ha], medallions [He], bars [Hg, Hh], and *lames* [Hf]) might be ephemeral, recording transactions in progress; at least that seems reasonable since these documents were attached to cords, presumably attached to the commodities themselves, to boxes containing the commodities, or to shelves on which the commodities were stored. Crescents, as sealings, were also ephemeral documents, pressed against containers.

Because they hung from something, medallions, bars, and *lames* may have functioned similarly, but their inscriptions are different: medallions record single sign groups without logograms or numbers in Quartier Mu, but with numbers and

²⁸ Judith Weingarten, «Late Bronze Age Trade within Crete,» in N. H. Gale ed., *Bronze Age Trade in the Mediterranean*. *SIMA* 90, Jonsered 1991, p. 305.

²⁹ Judith Weingarten, «Some Unusual Minoan Clay Nodules,» *Kadmos* 25:1, 1986, pp. 1-21; and «More Unusual Minoan Clay Nodules: Addendum II,» *Kadmos* 29:1, 1990, pp. 16-23.







³⁰ Hallager I: pp. 120-133.

occasionally a logogram in the Mallia Palace; *lames* also record single sign groups but may string two or three together usually without logograms³¹ or amounts;³² the one legible bar from Mu looks like the medallions and *lames* from there, but in the Palace bars are more complicated, recording headings, sign groups (payees? payers?), and multiple commodities by logograms and amounts. The trend at Mallia seems obvious, from simple notations in Quartier Mu to more complex lists in the Palace; in fact the bar *CHIC* #118, when normalized, resembles the later linear tablets.

THE SCRIPT

For the hieroglyphic script *CHIC* records 96 syllabograms, 10 of which double as logograms, an additional 23 logograms, and 9 fractions (plus 4 in ligature);³³ in addition, there are 4 levels of numbers (units, tens, hundreds, thousands) and 2 types of punctuation, the initial X and the separator I. As *CHIC* notes, most of the signs were already identified by Evans, although he admitted more signs than *CHIC* does.


CHIC also includes a chart (p. 19) that gives the hieroglyphic signs and their probable Linear A counterparts. Hieroglyphic and Linear A share many characteristics, similarities in the shape of signs, and a shared use of the 'Archanes Formula'; even two MM documents from Samothrace have Linear A inscriptions as well as impressions by hieroglyphic seals: a nodulus (*CHIC* #137) with three signs that could be Linear A,³⁴ and a roundel (#135) with Linear A KU[.

It is tempting therefore to put Linear B phonetic values also to the hieroglyphic signs that *CHIC* suggests are linear prototypes; in fact, it is impossible to resist producing a grid (see APPENDIX C). I made dictionaries for both Hieroglyphic and Linear A, substituted the proposed AB phonetic values in the hieroglyphic dictionary, and compared the results with the Linear A dictionary (see APPENDIX C, section C). It is clear, I think, that 095  should be RA, 036  might be a second SA, 059  might be MA, and 061  may have been similar in sound to AB 065  . Finally, one trisyllabic hieroglyphic word, 042-019-031 (A-SA-RE) on the sealstone #301, has a Linear A counterpart: A-SA-RA₂ (HT 89.1)

I miss one Evans sign that *CHIC* omits, the cat mask or cat (Evans #74 and #75), although *CHIC* admits the possibility of its inclusion (p. 14, n. 37). Since the sign does appear in hieroglyphic inscriptions on sealstones (see APPENDIX D)³⁵ it may have functioned as a hieroglyphic sign, and if so it may be the prototype for Linear AB 80, *ma*.

³¹ Except *CHIC* #089.b2[?], #108a, #109a.

³² Except *CHIC* #090, #105aB, #108.

³³ Fraction *308 () now appears on the clay *lame*/tablet SY Hf 01, in conjunction with ideograms *159 and *171 which appear otherwise only on a few incised documents.

³⁴ A photograph of the inscription is published in *CMS VS 1B*, p. 312; the neat inscription reads: puncture AB 06-04, NA-TE (*hapax*).

³⁵ It is true that the Cat Mask does not appear in incised inscriptions, but neither do *CHIC* *181 or *076, *014, *095.

With this close relationship to Linear A, it is not surprising that a few incised hieroglyphic documents could be read in Linear A (p. 18), of which only one, however, has a real chance of actually being Linear A, *CHIC* #048, a 3-face bar whose only parallel is the Linear A document MA 2. The surviving inscription #048 records pairs of two apparent subtypes of the same commodity, 𐀀^* *164 and 𐀁^* *165 (perhaps a folded or half ox-hide).³⁶ The hieroglyphic logograms resemble the also rare logogram AB 180 𐀂 .³⁷ In its simple form, without any adjunct, AB 180 appears once more, on the second dentine 'baton' (discussed above) that impressed sealing HMs 375 from the Arsenal Deposit (KSPI Vb). While the signs on the Arsenal sealing and AB 180 are plain, the Mallia bar *CHIC* #048 adds either a 'cross' (*CHIC* sign *164) or 'check' (*165). Since the Arsenal 'baton' should date to MM I, its inscription may be hieroglyphic; if so, a simple form for *CHIC* *164 and *165, with its own logogram number (*165bis?), may need to be proposed.

On sealstones decorative motifs conventionally act as fillers between and around main motifs; branches, spirals, hatching, circles all commonly surround animals and geometric patterns and fill the available field of a seal's face. These filling motifs pose no problems in reading a seal, and they pose no problems when they intervene in a hieroglyphic inscription on seals, although one motif that appears at the end of four hieroglyphic inscriptions on sealstones resembles sign *CHIC* *180 on seal #305.d and Linear AB sign 50 (see APPENDIX E).

Occasionally large scale naturalistic motifs intervene in a hieroglyphic inscription, sometimes even in forms that would ordinarily be taken for hieroglyphic signs themselves. Such is the case, for instance, with the Cat Masks—are they signs or are they decorative fillers? Olivier, in a series of articles, has explored this decorative aspect of hieroglyphic inscriptions on seals;³⁸ *CHIC* has devised a neat remedy for indicating these troublesome fillers by placing them in scroll brackets.

THE CONCORDANCES

CHIC gives seven concordances. Concordance A is really a list, by *CHIC* document, of various data, including the date when each was found and their

³⁶ On the bar, sides b and c, the signs appear more sloppily written than on side a. On side a, the adjunct x is added at the bottom right; on b, the adjunct is added at the top right, though it is difficult to make it out precisely. On side c, the adjunct is also added at the top right, where it looks like a crossed-through <. If the placement of the adjunct means anything, sides b and c should record the same commodity subtype.

³⁷ At Mallia (MA 4, 6, and Wc 7) the Linear A sign AB 180 resembles the hieroglyphic half-hide logograms; similarly the unique occurrence of the sign on a Linear B document, KN U 0172. At Phaistos the Linear A sign resembles a fully displayed hide (PH 10, 12, 13, 15).

³⁸ Jean-Pierre Olivier, «Les sceaux avec des signes hiéroglyphiques. Que lire», in W.-D. Niemeier, ed., *CMS Beiheft I*, 1981, pp. 105-116; and «The Relationship between Inscriptions on Hieroglyphic Seals and Those Written on Archival Documents,» in Palaima 1990 (*supra* n. 25), pp. 11-19.



primary publications; concordances B and C usefully give the correspondances between *CHIC* signs and those previously proposed and numbered by Evans and the excavators of Mallia; concordance E lists all sites where hieroglyphic documents have been found; and concordance G arranges the hieroglyphic sealstones by material.

Concordances D by class of document and F by museum I found not detailed enough. Since the Knossos and Mallia sealings are not yet published in the *CMS*, I have had to make my own concordance by museum, museum number, and *CHIC* number; and a concordance by *CMS* publication would have also been useful.³⁹ For my own purposes I also have had to create a chart listing the documents by site and subclass to see more clearly which sites used which documents.

THE CORPUS

In its introduction to the corpus, *CHIC* explains its succinct epigraphical format and conventions. Each document, with rare exceptions, is presented over two pages, with each citation prefaced by its *CHIC* number, findspot, and class. On the left page, the preface also includes the primary publication; then come photographs of all sides of the document (most to the scale of 1:1 for the incised texts and 2:1 for the impressions),⁴⁰ then drawings of all inscriptions; and finally the document's museum number, name of its class, and dimensions.⁴¹ The right page gives the transcription, both in a conventional pictographic form and in a normalized form; notes end each citation. The format is clear and easy to use.

In addition to the standard epigraphical conventions and those special to Linear A and B, *CHIC* uses several others that are special to hieroglyphic and scholars will need to pay attention to them. Here are some that are important.

- Separate fonts are used for the incised inscription and for the impressed inscription; for example, sign group 042-054-061 appears thus  on the incised bar *CHIC* #062.cB and thus  in the seal impression #293g.

- With multifacial documents, *CHIC* starts with an arbitrary first side (a or α), often following earlier publications; for crescents, sides b-d receive the inscriptions while seals impress the ridge between b and d to create side a. The presentation of bars positions those with stringholes vertically and those without horizontally, begins with their side a (again following the earlier publications), and turns them either to the left or rolls them up; side b, therefore, is always to the right of side a; lames are presented similarly.

- *CHIC* also indicates from which document face a stringhole was pierced, from a to b \rightarrow or from b to a \leftarrow in bifacial clay documents, from a to c \rightarrow or from c to a \leftarrow in four-sided bars, or, with medallions, from left to right \Rightarrow or right to left \Leftarrow .

³⁹ Olivier has kindly provided me with such a concordance.



⁴⁰ For 37 examples other scales are used and these are specially marked (p. 60).





⁴¹ Dimensions of the seal impression are unfortunately not given, but may be deduced from the dimensions given of the impressed nodule.

- *CHIC* rightly points out that none of the *CMS* volumes has used any standardized way of recording the inscriptions on multifacial seals.⁴² *CHIC* therefore records the prisms by first placing the seal with the stringhole vertical and impressing the conventional side a in plasticine and then rolling the seal to the right (not to the left, as with bars, since it is the impression, not the sealface itself, that is assumed to carry the inscription correctly).

- In many cases, an initial X determines with which sign an inscription begins, but many others offer little or no hint where an inscription begins or even with which sign a sign group begins. *CHIC* makes a reasonable effort to determine the probable order but also marks those that could be read in either direction >< or even arbitrarily (O). Scholars who wish to compile a dictionary of hieroglyphic will need to take into account these optional readings. Arbitrarily read inscriptions may appear on circular media, such as the cone from Mallia #170 and seals with circular faces (e.g., *CHIC* #192, #193, and #243), or may occur over the several sides of a multifacial seal which presents one sign per face (#256). With some arbitrary inscriptions, however, a guess can be made as to the correct order (see APPENDIX H).⁴³

When examining the corpus, I found myself absorbed in comparing the photographs and drawings with the transcriptions of the texts and their normalizations. In very few instances can I offer different readings (see Appendix H). The hieroglyphic documents and their normalized transcriptions present information in ways that are mostly familiar from the linear documents and need no general comment. A few, however, deserve some special mention.



APPENDIX F presents the major texts that list several commodities by ideogram; I randomly selected numerically the first one and found that the others listed their commodities in more or less the same order;⁴⁴ only *CHIC* #067 places commodity *155  before *156  instead of at the end. By putting together the short runs of commodities that have survived in the Linear A tablets, I occasionally see similar orders; APPENDIX G presents two such orders that are based on the sequence GRA, FIC, and VIN except when OLIV is placed before FIC and commodity *302 shifts up from last to second place.




















One of the more interesting texts is *CHIC* #056 for which I have given an alternate normalized transcription in APPENDIX H. Two trisyllabic sign groups are listed, probably names (personal or place) and probably in two different grammatical cases (see further discussion below). Next to the first case of each pair is the number 800 followed by sign group 044-049   with a number a little more than one-tenth; next to the second case of each pair is a number considerably more than one-half of the original 800 followed by   and a number less than one-tenth.

























⁴² John G. Younger, «New Observations on Hieroglyphic Seals,» *SMEA* 28, 1990, pp. 85-94.



























⁴³ *CHIC* #125, #133, #183, #186, #193, #297.

⁴⁴ *CHIC* #122 lists the same commodities twice; and #118 first lists the commodities according to the normal order, and then lists them backwards.

How the numbers were calculated is unknown,⁴⁵ but, if they are similar to those in Linear B, 800 may represent a target and the number opposite the second case of each name may represent a receipt or an amount due or lacking. William Brice,⁴⁶ continuing from Piero Meriggi,⁴⁷ deduced that the sign group   could mean something like 'subsidiary' or 'appended' amount, like Linear A *KU-RO*. The group appears often, but in most of the other inscriptions it does not seem to indicate similar proportions of approximately one-tenth.




Sign group   also appears on sealstones, frequently by itself⁴⁸ and frequently with sign group 044-005  ,⁴⁹ as well as with other sign groups both alone and with  . Since these two sign groups are always oriented to each other when they appear on the same sealstone,⁵⁰ they should be complementary. Incised, the sign group   appears twice on documents, once on #018 in a list with no numbers and once on the bar #059 where it is associated with the number 40[; the next inscription on this bar is      400[, and it is tempting to imagine that   also signifies one-tenth, approximately what it implies on #056 as well. Perhaps   and   refer to two aspects of the same concept; Meriggi suggested *ko-wo* and *ko-wa*.



The crescent HMs 174 carries three incised inscriptions *CHIC* #018: b.    \, g1.          (i.e., b. 009-056-061, g. 020-047 044-005) and two seal impressions #140 and #158, each carrying basically the same sign group   though the two seal faces belong to two different seals. The same sign group   was impressed again by two different seals on crescents HMs 198 and 200 also to accompany incised short lists, #020 and #028, though these, unlike #140, do not redundantly include the incised  . I would have thought that if   meant something like 'subsidiary total', an official with it on a sealstone would also have written the actual amount. *CHIC* #140 with both incised   and impressed   makes it more likely that the sign group actually means something like 'received' and the impression authenticates and verifies the incised statement.


A similar situation can be inferred from two more crescents. HMs 206 carries an incised inscription, *CHIC* #013.g1-2.                          

In the discussion above of *CHIC* #056 (see APPENDIX H), I mentioned that the two pairs of words there seemed to be listed in two grammatical cases each; the first word in each pair was listed with the number 800 while the second word was listed with a number more than half the 800. The difference in the numbers and the differences in the spelling of the words suggest that they are in different cases; I can imagine both being oblique, a genitive or dative, or the first being nominative and the second an oblique case, or something similar.

A few other sign groups also exhibit changing endings. I give nine sign groups in APPENDIX I written out by sign forms for emphasis (not by their *CHIC* numbers), using the thin font for incised inscriptions and the thick font for seals and seal impressions; I have also tried to characterize the sign groups (or words) as they appear on the incised inscriptions: headings, independent words (occupying an entire side or line), words with numbers, and a possible summary word. By characterizing the sign groups in this way I hope to clarify some working assumptions: for instance, words that head documents and appear by themselves might be in grammatical cases similar to nominatives; and words that accompany numbers might be in a nominative, genitive, or dative. I should also expect hieroglyphic sealstones to give phatic statements, like 'potter' or 'Susan's' or perhaps a transaction statement like 'received' or 'due'.

A comparison of the sign groups in APPENDIX I reveals a few interesting results. First, *CHIC* makes it clear (pp. 323-324) that in all cases where the order of the sign group is certain, sign 008, the Hand sign, , begins words, perhaps as an initializing vowel or article; thus, the Hand sign appropriately prefixes sign group 6 when it heads tablet #120, and is apparently appropriate as a prefix to sign group 5 on sealstone #132. It is possible, therefore, that the Hand sign  marks the beginning of a nominative, as sign 013, the Calf Head , may indicate a nominative ending (probably also for sign group 9 on sealstone #312).

If sign group 5 preceded by 008, the Hand sign , on sealstone #132 is a nominative, its appearance on sealstone #298 with the ending 040, the Boat sign , may indicate an oblique case; the same Boat sign also ends sign group 6 on sealstone #192.

Finally, two sign groups, 5 and 7, when functioning as independent words, end in sign 061 ; and sign group 7 also appears that way on sealstone #156. Perhaps this sign also serves as a nominative ending.

If these observations are correct, it is likely that the hieroglyphic syllabograms function similarly to those in the linear scripts and that the language behind hieroglyphic had cases indicated by prefixes and suffixes also similar in some respects to those in Linear A and B.

APPENDIX A: SITES AND THEIR DOCUMENTS

Inscribed Hieroglyphic Clay Documents (by CHIC numbers)

SITE	Crescents (Ha): written, impressed: H & non-H seals ¹		Medallions (He)		Bars		Tablets (Hi)	Cones (Hd)	Lames (Hf)
	written only	H seals written+impressed by seals nonH H ⁺ nonH	impressed H ⁺ nonH	(He)	Hg 3 faces	Hh 4 faces			
MA Mu			172	072-084		095-096		070-071	085-094
Pal		097		098-104		111-118	119-120		105-110
Vil						121			
KN H	001-003			030-047	048	049-67	068-070		
	005	007/161+1	004	146/147					
	011	026/168	006	157+3					
	013	027/123+1	008	162					
	015		009	164					
	018		010	176					
	020		012						
	022-025		014						
	028		016						
	029?		019						
	124		021						
	140-45								
	158-60								
	163								
	165-68								
Little Pal			125 molar				122		
PH									
SY									
PE	I			He 4-12		Hh 1-2			Hf 01

¹ HMs 1078, a crescent from Mallia, was not inscribed, but was impressed by a non-Hieroglyphic stampseal (R30) with a circular face (two quadrupeds) which also impressed HMs 1083 which was also impressed by a Hieroglyphic four-sided prism (CHIC #172).

Impressed Hieroglyphic Clay Nodules, etc. (CHIC Class I)

SITE	<i>noduli</i>	1-Hole	Leather Parcels	Direct Object	2-Hole Vases	Roundels
KN	Kamarea Pit 178				134	
	Temp Rep 177					
	Mag 4 139/156					
	prov. ?		179	169/170 jar		
MA	Mu	126-131		173 peg	132-133	
		148-149			150	
		171				
	Pal		154			
	Vil				Yb 03	
ZA			138, 153			
PH			151			
AT		155				
PE		a few		couple peg	some	
SAM		137				135-136
PK				174 weight		
PYR					175	

Clay Nodules from Hieroglyphic Deposits Impressed by non-H sealstones

SITE	HMs/AM	<i>noduli</i>	1-Hole	Leather Parcels	Direct Object	Impression: KSPI:	Publication
KN H	126			1SRN		Pa: quadruped	Hallager II: 223
	128		S-HN (pear?)			Pb: cuttlefish	Hallager II: 289
	130			2SRN		woman	Hallager II: 223
	131	DoN				Pe: boy, sheep	Hallager II: 214
	140				leather thongs on reeds	Pc: monster?	Weingarten 1988: 2, 18
	144			1SRN		Pd: agrimi	Hallager II: 223
	170					P53/H2: papyrus	
	180				D-O (unique)	Pfa: male heads	Weingarten 1988: 18
	196			1SRN		zig-zags (EM?)	Hallager II: 223
	197			1SRN		Architectonic	Hallager II: 223
	203			1SRN		lines (EM?)	Hallager I: 305, II: 223
	1938.982			1SRN		Pa	Hallager II: 223
MA/Mu	1056	DoN				??	Hallager II: 217
	1074	DoN				spirals (Petschaft)	Hallager II: 217
	1075	DoN				??	Hallager II: 217
	1076	DoN				cat masks	Hallager II: 217
	1077	DoN				rosette	Hallager II: 217
	1081	DoN				spirals (disc)	Hallager II: 217
	1082	DoN				panels: S-spiral, lily (4RPr)	Hallager II: 217
	1089				door peg	circles (3EPr)	
MA?	CMS IV 140		DoN			spirals	Hallager II: 217

APPENDIX B: *Concordance of terms for clay nodules*

Major Class	Weingarten	Hallager	CHIC
Crescents	crescent	crescent	nodule
Noduli	<i>nodulus</i>	Disk (DiN), Dome (DoN) <i>nodulus</i>	boulette
Leather Sealings	Class I, II	Flat-Based Standing 2-seal nodule (2SSN)	scellé, pastille
	III	Flat-Based Standing 3-seal nodule (3SSN)	scellé, pastille
	IV	Recumbent 2-seal nodule (2SRN)	scellé, pastille
	V	Recumbent 1-seal nodule (1SRN)	scellé, pastille
Hanging nodules	Class VI	Two-Hole Hanging nodule (T-HN)	pendule
	VII	One-Hole "pendent" nodule (pen)	pendule
	VIII	One-Hole "pear" nodule (pear)	
	IX	One-Hole "pyramid" nodule (pyr)	
	X	One-Hole "cone" nodule (cone)	
	XI	One-Hole "dome" nodule (dome)	

APPENDIX C: *Possible phonetic grid for Hieroglyphic*

SECTION A. Values suggested by CHIC.

Note: [SIGN] = Evans sign listed in Ventris and Chadwick, *Documents in Mycenaean Greek*, but not in CHIC

	A	E	I	O	U	A ₂	O ₂	U ₂	Other
	𐀀42	𐀁94							𐀂17 AU
J	𐀃38								
M	[CatFace]		[Fish]						
	𐀄059*								
N	[𐀅]	𐀆52	𐀇24	𐀈8					𐀉6 NWA
P	[Ankh]							[𐀊/pu ₂]	
Q		𐀋75							
R	𐀌95*	𐀍31		𐀎70	𐀏92	𐀐69			
	[𐀑7]	𐀒61*							
S	𐀓19			𐀔43	𐀕35				
	𐀖36*								
T		𐀗25	𐀘93, 𐀙49						
W	𐀚41	[𐀛61]	[𐀜85]						
Z		𐀝45		𐀞50					

Miscellaneous suggested by CHIC

𐀟05 => AB 79: A 𐀠 B 𐀡
 𐀢40 => AB 86: A 𐀣 B 𐀤

SECTION B. I suggest one other possible correspondance: 𐀥46 A301 𐀦

* See below, section C.

APPENDIX G: Two conventional orders for lists of commodities in Linear A

HT 30:		303		FIC	VIN	302	
HT 100:		303		FIC	VIN	302	
HT 90:	GRA			FIC		302	304
KH 11:		303		FIC	VIN		
HT 44, 50, 59, 60:			302	OLIV	FIC	VIN	
HT 91:	GRA	304	302	OLIV	FIC	VIN	
HT 114:	GRA		302		FIC	VIN	BOS
HT 116:	GRA		302	OLIV			
HT 121:	GRA		302		FIC	VIN	BOS
cf. KH 85:		302	308	VAS	VIN		304, 303

APPENDIX H: JGY's alternative readings
























CHIC #016.g: X  ; X 056-049 (cf. 052-056-049-034 on CHIC #031.a)





CHIC #046.b: **100**

CHIC #052.c: **140 50 70**

Note: totals: a: **100**, b: **290**, c **160**, d: **710**; if **710** is a grand total, we are missing **160** (or side c a second time)

CHIC #056 (following the suggestion by Brice 1991: 100)

c.	X 			
aA-B.	X   	800	X  	85
aB-<A>	<    	540	 <  	44
b-e.	X   	800	X  	83
dA-B.	X   	483	 	46
c.	X 026-061			
aA-B.	X 070-031-019	800	X 044-049	85
aB-<A>	070-031-•	540	044<049>	44
b-e.	X 042-057-070	800	X 044-049	83
dA-B.	X 042-057-038	483	044-049	46

Note: aB-<A>: <   

CHIC #058.d: **90**

CHIC #068.rB: the normalization draws *159bis, not the correct *154.

CHIC #089.a: 044-049 *159bis

the lame could be reconfigured (see Brice 1991: 97):

X 044-049 *159bis
034-410-084 (*051+041) **3**

CHIC #125: the correct order is probably 042-034/045-052 (not 042-052-034-045); cf. *CHIC* #023.g, #031.a, #062.a, 070, #317; and the “Archanes Formula”.

CHIC #133: the correct order is very likely 028-070/041 (not 070-028-041); cf. *CHIC* #081.a, #053.aA, #060.a, #102.a, and #160.

CHIC #141: 
note: quadruped couchant regardant

CHIC #170: 

CHIC #183: the correct order is very likely 011-057-056-070 (not 070-056-057-011); cf. *CHIC* #061, #118, #132, and #298.

CHIC #186: the correct order is probably 028-049-047-061 or possibly 049-047-028-061 (not 028-061-049-047). Signs 028-049 begin several inscriptions, and even 028-049-04- occurs frequently; and sign 061 often is terminal.

CHIC #187: published as 053-008, but cf. #128: 008-053-017.

CHIC #193: the correct order is probably 019-016-056 (not 016-019-056); cf. *CHIC* #61, #112b, and #294b and d.




CHIC #241: 
X 011-036-

CHIC #242.a  AB 50
054-057-AB 50

CHIC #259: genuine: a: 018; b: 044; g: 005





































CHIC #282.a: 
008-019-068
Note: cf. *CHIC* #322: 008-068

CHIC #297.b1: the correct order is probably 008-038 (not 038-008).
Sign 008 is invariably initial in all the cases where certain readings can be made.

CHIC #302
.a:  057-034-044-049 conflates 057-034-056  + 044-049 
.b: X 046-044+*181
.g: 006-062-012-AB50

CHIC #317: 042-057-010 - 034 028 093-065
Note: There is a break between 010 and 034; 028 is written above the row; 093-065 are written at the right side of the row.

APPENDIX I: *Sign groups with changing endings*

Sign Group	1 	2 	3 	4 
Independent Word				
Word+Number	? (#317)  (#056)	(#091)  (#056)	(#072) 	[#008]  (#058)
Seal/Impr.	 (#056)	 (#307)	 (#148)	
Sign Group	5 	6 	7 	
Heading				
Independent Word				
Word+Number	(#118)  (#071)	(#120) 	(#104)  (#018)	
Summary Word?	(#059) 			
Seal/Impr.	(#061)  (#132)  (#298)	(#307)  (#192)	(#156) 	
Sign Group	8 	9 		
Seal/Impr.	(#187)  (#128)	(#312)  (#304)		