

IDEOGRAMS AND SUPPLEMENTALS AND REGIONAL INTERACTION AMONG AEGEAN AND CYPRIOTE SCRIPTS*

In this paper I wish to discuss several major mysteries which still surround the development and spread of scripts in the middle

A preliminary version of this article was delivered as a paper at the 6th International Colloquium on Aegean Prehistory which met in Athens August 30-September 5, 1987. I thank Jean-Pierre Olivier, Ingo Pini and Edith Porada for reading the penultimate version and for making suggestions and corrections, particularly in regard to the sign repertoires of Linear A and B and the discussion of seals and sealings in notes 4 and 6, which have improved this final version. I am solely responsible for any shortcomings which remain. Ellen Davis kindly arranged for me to receive clear copies of photos of objects in the Cesnola Collection of the Metropolitan Museum of Art in New York. Nicolle Hirschfeld supplied a new, more accurate drawing of Enkomi 16.63, as part of her current work on Cypro-Minoan pottery marks. She also confirmed that Enkomi 4025 is a true ostrakon inscription. We both thank Drs. Vassos Karageorghis and Ino Nicolaou for permitting and facilitating this work. I use the following references and abbreviations:

Cesnola *Atlas* III²: L. Palma di Cesnola, *A Descriptive Atlas of the Cesnola Collection of Cypriote Antiquities in the Metropolitan Museum of Art, New York* III², New York 1894;

CM = Cypro-Minoan;

CS = Cypriote Syllabic Script;

Cyprominoica: E. Masson, *Cyprominoica*, *SIMA* 31:2, Göteborg 1974;

Cyprus-Crete: Acts of the International Archaeological Symposium «The Relations between Cyprus and Crete, ca. 2000-500 B.C.», Nicosia 1979;

Daniel: J. F. Daniel, «Prolegomena to the Cypro-Minoan Script», *AJA* 45, 1941, pp. 249-282;

«Development»: T. G. Palaima, «The Development of the Mycenaean Writing System», *Studies Bennett*, pp. 269-342;

Enkomi: P. Dikaios, *Enkomi Excavations 1948-1958*, Mainz 1969-1971;

GDI: H. Collitz, F. Bechtel eds., *Sammlung der griechischen Dialekt-Inschriften*, vols. 1-4, Göttingen 1884-1915;

ICS: O. Masson, *Les inscriptions chypriotes syllabiques*, réimpression augmentée, Paris 1983;

«KS»: S. Hiller, «Die Kyprominoische Schriftsysteme», *Archiv für Orientforschung*, Beiheft 20, 1985, pp. 61-93;

MEM: Acts of the International Archaeological Symposium «The Mycenaeans in the Eastern Mediterranean», Nicosia 1973;

Studies Bennett: J.-P. Olivier, T. G. Palaima eds., *Texts, Tablets and Scribes: Studies in Mycenaean Epigraphy and Economy Offered to Emmett L. Bennett, Jr., Suplementos a Minos* 10, Salamanca 1988;

and particularly the late Bronze Age Aegean and its adjacent areas. Unlike the later Eleusinian mysteries which consisted of λέγομενα, δεικνύμενα and δρώμενα which it was sacrilegious and therefore a punishable offense for the initiate to reveal, initiates in the mysteries of Minoan, Mycenaean and Cypro-Minoan writing systems can actually profit by revealing certain aspects of these scripts which are ἄδεια, either unknown or not clearly visible.

The first mystery is a simple fact, which we can declare to be so, but hardly explain, except by resorting to such notions as cultural independence or even relative geographic isolation. The Minoans, despite a considerable and by no means sporadic history of foreign contacts with Egypt, Syria, and indirectly even Babylonia from 2400 to 1400 B.C.¹, nevertheless developed and employed writing systems that were, so far as we can tell, throughout at least four centuries of use fairly independent of foreign influence in their sign repertoires, structures and operating principles². This is all the more surprising if we place the development of Cretan hieroglyphic on seals in the context of the earlier Egyptian, and Near Eastern, influence on various characteristics of Cretan seal manufacture in

Studies Chadwick: J. T. Killen, J. L. Melena, J.-P. Olivier eds., *Studies in Mycenaean and Classical Greek Presented to John Chadwick*, *Minos* 20-22, Salamanca 1987;

Ugaritica: C. F. A. Schaeffer et al. eds., *Ugaritica. Études relatives aux découvertes de Ras Shamra* series I-VII, Paris 1939-1978.

- ¹ The evidence, archaeological and documentary, for Minoan foreign contacts is neatly summarized by L. Godart, «Quelques aspects de la politique extérieure de la Crète minoenne et mycénienne», in A. Heubeck, G. Neumann eds., *Res Mycenaeae*. Akten des VII. Internationalen Mykenologischen Colloquiums in Nürnberg vom 6.-10. April 1981, Göttingen 1982, pp. 131-139, esp. 132-134 for the late 3rd and early 2nd millenium evidence. For direct Egyptian-Minoan contacts, deduced from artistic influences in the proto-palatial period and, of course, important for our understanding of the Egyptian component in the development of Minoan writing and seal use, see S. A. Immerwahr, «A Possible Influence of Egyptian Art in the Creation of Minoan Wall Painting», *L'iconographie minoenne*, *BCH Suppl.* 11, Paris 1985, pp. 41-45, esp. 44 and 48-49 with references. J.-C. Poursat, *Le Quartier Mu II*, *Études Crétoises* 26, Paris 1980, p. 234, cites evidence for considerable Egyptian influence at MM II Mallia, speaking of «une connaissance très précise et, sans aucun doute, directe de l'art égyptien».
- ² The parallels between the Linear A and Egyptian aliquot fractional systems remain the strongest evidence of the indirect influence of outside writing systems upon the Cretan scripts. The fundamental work still is that of E. L. Bennett, Jr., «Fractional Quantities in Minoan Bookkeeping», *AJA* 54, 1950, pp. 204-222.

EM II-III, an influence which continues into MM I-II³. During the fully evolved neopalatial Linear A phase, the distinctive features of Cretan writing and administrative recording become even more pronounced:

(1) The nearly total separation between script and seals in direct and stark contrast to Near Eastern practice⁴. In this the Mi-

³ V. E. G. Kenna argued most strongly for Egyptian influence on the materials, shapes and motifs of EM and MM glyptic: V. E. G. Kenna, *Cretan Seals*, Oxford 1960, pp. 21, 26, 30-31, esp. 34; and for MM I-II, Kenna, «Seals and Script», *Kadmos* 1, 1962, pp. 7 ff. His views followed those of A. J. Evans, *Scripta Minoa* I, Oxford 1909, pp. 118-135. Scholars now tend to see a strong indigenous tradition, although foreign influences are still noticeable in all three of these areas: D. S. Haviland, «The Early Group of Cretan Seals», Diss. Bryn Mawr College 1964, pp. 12-16 with references; and P. Yule, *Early Cretan Seals. A Study of Chronology*, *Marburger Studien zur Vor- und Frühgeschichte* 4, Mainz 1980, p. 232. J. Vercoutter, *L'Égypte et le monde égéen préhellénique*, Institut français d'archéologie orientale, *Bibliothèque d'Étude* 22, Cairo 1956, pp. 407-408, while recognizing the existence of button seals in Syria, Mesopotamia and Cilicia as well as in Egypt in EM II-III, nonetheless is convinced by textual evidence that Egyptian contacts provided the main influence for the Minoan adoption of the button seal at an early stage in the Cretan seal tradition.

⁴ For Near Eastern practices, see Kenna (*supra* n. 3) «Seals and Script», pp. 4, 11 n. 43: in Mesopotamia «script on seals—from the Third early dynastic period becomes an almost normal occurrence, and in the Kassite use practically fills the field—as often in the case of Egyptian scarabs the whole field is also filled». For fuller discussions of the integral role of inscriptions in the tradition of Near Eastern seals, see I. J. Gelb, «Typology of Mesopotamian Seal Inscriptions», in M. Gibson, R. D. Biggs eds., *Seals and Sealings in the Ancient Near East*, *Bibliotheca Mesopotamica* 6, Malibu 1977, pp. 107-126, and C. B. F. Walker in D. Collon, *Catalogue of Western Asiatic Seals in the British Museum. Cylinder Seals III. Isin-Larsa and Old Babylonian Periods*, London 1986, pp. 15-20.

In contrast, from the Cretan neo-palatial period only the inscribed Linear A gold ring (KN Zf 13) from Mavro Spelio, Tomb IX, possibly links writing with seals. Since the inscription on this gold ring is legible dextroverse on its surface, it undoubtedly fits more into the tradition of the inscribed silver and gold pins from Tomb IX, B 2 at Mavro Spelio (KN Zf 31) and from the modern antiquities market (CR [?] Zf 1) than into the tradition of seals and sealings where one would expect a reversed image on the seal surface. On PL Zf 1 (a silver pin with sinistroverse inscription) and the various traditions of inscription in Minoan Crete, see T. G. Palaima, «Development», pp. 309-313.

Kenna's reference (*supra* n. 3) «Seals and Script», 7, to a Linear A inscription on an almond-shaped stone found near the Little Palace at Knossos (PM I, 670 fig. 490 = W. C. Brice, *Inscriptions in the Minoan Linear Script of Class A*, Oxford 1961, p. 24, V 12, plate XXX) has proved a «ghost» and it not included in the *GORILA* corpus, being judged a doubtful hieroglyphic inscription at best. See *GORILA* IV, p. xxi. Otherwise only the sequence of 3 crudely engraved linear signs on an ivory lentoid seal from an LH III C context in one of two grave pits in tholos tomb 239 of

noan and Mycenaean practices distinguish themselves from the Cypro-Minoan wherein inscribed cylinder seals, coming from numerous sites (e.g., Ayia Paraskevi, Enkomi, Kourion, Sinda, Verghi) on the island, form an important component of the epigra-

Medeon in Phocis (*CMS* V, no. 415, chronology on p. 258) and the sequence of three other signs on side *b* of a black steatite biconvex discoid seal, a chance find from Knossos, whose *a* side has the image of a boar's head in profile (*CMS* II, 3, no. 213), provide even tenuous links between Minoan-Mycenaean linear scripts and seals.

From the proto-palatial period we have some 150 seals which have on one or several of their faces characters from the Cretan hieroglyphic system. However, J.-P. Olivier, «Les sceaux avec des signes hieroglyphiques. Que lire? Une question de définition», in *Studien zur minoischen und helladischen Glyptik*, Berlin 1981, p. 114, doubts whether these hieroglyphic «inscriptions» on seals were truly intended to be «read»: «Ce que je veux dire, c'est que ces inscriptions sur sceaux étaient, dans l'ensemble, plus ornementales que vraiment lisibles, c'est-à-dire plus de la décoration à partir des signes de l'écriture que de l'écriture elle-même; en un mot, leur fonction n'était pas, à mon sens, la délivrance d'un message bien précis et univoque». Thus in his opinion the oldest true inscriptions in Cretan hieroglyphic are clay archival documents no earlier than 1625 B.C.: Olivier, «Cretan Writing in the Second Millennium B.C.», *World Archaeology* 17:3, 1986, p. 377.

Olivier's view would create an absolutely hard and fast separation between *functioning* hieroglyphic script and seals *per se*. It is a delicate issue. Even on Cypriote cylinder seals, O. Masson, «Cylindres et cachets chypriotes portant des caractères chypro-minoens», *BCH* 81, 1957, p. 7 n. 1, recognizes that in some cases it is difficult to distinguish between true script characters employed as such and signs employed merely as symbols, decorative motifs, or devices for filling a field; and Edith Porada points out that groups of from 1 to 3 cuneiform wedges are used on 9th-8th century Neo-Assyrian linear cylinder designs not to render words, but as symbols for decoration or as devices for filling a field: E. Porada, *Corpus of Ancient Near Eastern Seals in North American Collections*, 1948, nos. 610, 611, 623, 629, 670 and 674. We can also cite the parallel of Aegean pot marks which have been influenced by, resemble, or accurately reproduce characters of formal scripts, but may be used as marks, within a system of manufacture or trade without any phonetic or even ideographic value.

Nonetheless Olivier's view may be too extreme. Other Near Eastern practices would suggest that, for example, the frequent repetition of vocabulary (sign sequences) which Olivier finds particularly disturbing within the small corpus of Cretan hieroglyphic seals, may be due to the recurrence of necessary identifying vocabulary terms —e.g., expressing familial relations, social or professional status, titles, geographical names, relation to a divinity, etc.— and would need not imply that the Cretan hieroglyphic inscriptions on seals play less of a functional role than their Near Eastern counterparts. See D. Collon, *Catalogue of Western Asiatic Seals in the British Museum. Cylinder Seals III. Akkadian-Post-Akkadian-Ur III Periods*, London 1982, pp. 6-12, 21-23, esp. 22: «In the Ur III, Isin/Larsa, Old Babylonian and Kassite Periods, the inscription was generally the most important part of the design and often the only means of differentiating one seal from another».

phical dossier⁵. Moreover, the Minoans and their linear (in terms of writing and administration) descendants, the Mycenaeans, both resist adopting and manufacturing cylinder seals for use within the related and sophisticated branch of administrative recording and control, seals and sealings. As of September, 1985 only thirty-three cylinder seals had been discovered on Crete, sixty at all Greek mainland sites (39 in a special collection at Thebes). These are all imports. With rare and isolated possible exceptions, there is no proof that any of these foreign seals were ever put to administrative use in Minoan or Mycenaean realms. Again this stands in stark contrast to the evidence from Cyprus, where, as Edith Porada has recently stressed, «the most obvious relation between Cyprus and the east is the use of cylinder seals»⁶. Of course, the practice of

⁵ Best seen in the summary overview of all available Cypro-Minoan data by E. Masson, «La diffusion de l'écriture à Chypre à la fin de l'âge du Bronze», *MEM*, p. 94, and more thoroughly in O. Masson (*supra* n. 4), pp. 6-37. See also Cl. F. A. Schaeffer-Forrer, *Corpus des cylindres-sceaux de Ras Shamra-Ugarit et d'Enkomi-Alasia*, Paris 1983.

⁶ «Late Cypriote Cylinder Seals Between East and West», *Acts of the International Archaeological Symposium «Cyprus Between the Orient and the Occident»*, Nicosia, 8-14 September 1985, Nicosia 1986, p. 289 and n. 2 for numbers of cylinder seal finds in Greece, Crete, and the Aegean islands. None of these cylinder seals plays a direct role in documented economic or administrative clay sealing. For Mycenaean and Minoan seal and sealing use as a mechanism of administrative control parallel and complementary to writing, see T. G. Palaima, «Mycenaean Seals and Sealings in Their Economic and Administrative Contexts», in P. H. Ilievski and L. Crepajac eds., *Tractata Mycenaea. Proceedings of the Eighth International Colloquium on Mycenaean Studies Held in Ohrid, 15-20 September 1985*, Skopje 1987, pp. 249-266, with references. Joanna Smith of Bryn Mawr College recently brought to my attention a single sealing from Knossos which early on was thought to be from a cylinder seal (*PM* IV, p. 598, fig. 593). The stylistic evidence is hardly unequivocal. Kenna, «Ancient Crete and the Use of the Cylinder Seal», *AJA* 72, 1968, p. 333 and plate 108 fig. 26, in disputing the original Syro-Hittite identification by proposing that the seal which produced this impression was a product of the finest period of Cypriote engraving, went so far as to base his proof on the identification of a decorative motif on the seal as a CM sign incised shortly after the original figural scene. John Betts, «Some Unpublished Knossos Sealings and Sealstones», *BSA* 62, 1967, p. 39, has proposed that this impression is from a metal ring of Cretan workmanship. However, Ingo Pini in a letter of 1 December 1988 kindly provided me with a detailed photograph and his own opinion that the sealing is «undoubtedly from a Cypriote cylinder seal [which] represents a 'procession' consisting of a *potnia theron*, a lion-man and a female figure to the right of the sign». Edith Porada (letter of Jan. 3, 1989) concurs; E. Porada, «A Theban Cylinder in Cypriote Style», *Cyprus-Crete*, p. 114, n. 9. In the photograph, the shape of the motif, which crosses the leg and tail of the lion man but does not extend upward quite so far as in Kenna's figure 26 drawing, would be consistent with

sealing tablet and bullae (clay tablet wrappers) surfaces, a chief sphragistic application of cylinder seals, is also missing from the Minoan-Mycenaean sphere. Moreover, Kenna, following Frankfort, has alluded to the importance of the materials used for writing by particular cultures in determining the choice of stamp (Egypt: papyrus) or cylinder (Mesopotamia: clay) seal; and the Minoan use of ephemeral materials for documents of communication or for records on higher archival levels certainly offers one good reason why they may have chosen the Egyptian option, the stamp seal⁷.

(2) The use of forms of tablets and sealings peculiar to Crete and Minoan record-keeping (and its direct descendant: Mycenaean). Here again it is the resemblance of the earliest Cypro-Minoan tablet (Enkomi no. 1885) to the distinctive «non-pillow» Minoan-Mycenaean shape that marks it out as special within the context of Cypriote and Near Eastern clay recording⁸.

CM 1 sign no. 7 (E. Masson's signaries), which is found incised, along with three other signs, on a steatite cylinder seal from Enkomi dated by tomb context and style to the 15th c. B.C. (O. Masson, *BCH* 81, 1957, pp. 7-8, figs. 1 and 1 *bis*). This sealing then would be extraordinary evidence for the active use of an imported cylinder seal in Minoan clay-document administration. [Subsequent work by J. Smith has identified 4 additional cylinder seal impressions in Crete; (1) on a triangular clay bar from Khania; (2) on a clay roundel from Knossos; (3) on a nodule from Hagia Triada; (4) on a unpublished clay sealing of unknown provenience. See her comments in T. G. Palaima ed., *Aegean Seals, Sealings and Administration*, *Aegaeum* 5, forthcoming.]

⁷ Kenna, *Cretan Seals*, p. 4; H. Frankfort, *Cylinder Seals*, London 1939, pp. 297 ff. The material used for the most important palatial documents would be the decisive factor in determining choice of seal method. And one might imagine that the various Minoan clay sealing devices were developed to accommodate the choice of stamp seal made on the basis of ephemeral writing materials. A note of caution, however, must be introduced here. On Cyprus, the application of cylinder seals on clay documents is extremely rare, e.g., *Enkomi* II (Inv. 1905/9), pp. 790-791 and pls. 182, 322, 324: a *scellé* similar to one from Karahöyük near Konya. And J. and E. Lagarce in J.-C. Courtois, J. and E. Lagarce, *Enkomi et le Bronze Récent à Chypre*, Nicosia 1986, p. 172, have suggested that this scarcity may be due to the use of *cylinder seals* on perishable materials.

⁸ Most fully treated by E. Masson, «La plus ancienne tablette chypro-minoenne (Enkomi 1955)», *Minos* 10, 1969, pp. 64-77; and, pointing out dissimilarities in other regards—intentional [?] firing, non-Minoan *ductus*, low percentage of sign match-ups—L. Godart and A. Sacconi, «La plus ancienne tablette d'Enkomi et le linéaire A», *Cyprus-Crete*, pp. 128-133. I discuss the problems with Godart's and Sacconi's arguments in «Cypro-Minoan Scripts: Problems of Historical Context», in Duhoux, Palaima, Bennet eds., *Problems in Decipherment*, *BCILL* 49, Louvain 1989, pp. 136-140. On the forms of Minoan sealings and their subsequent typological restriction in the Mycenaean

(3) The use of a specialized repertory of ideographic signs, so far as we can tell in a manner inherited again by the Mycenaeans, for concrete objects and materials (non-abstracts) and within a strictly defined, almost non-syntactical, role fundamentally for economic records⁹.

These major idiosyncratic features of Minoan writing and recording are ἀδεικτά in the surrounding regions of the Aegean, and in fact were only fully adopted, and subsequently adapted, by the single culture which came most directly under Minoan influence at a crucial phase of its development¹⁰, and which had been geographically remote and undeveloped enough in its economic and political systems in earlier periods to resist or quite literally to have no need for certain sophisticated forms of Near Eastern (or, for that matter, even Minoan) writing and sealing. This culture is, of course, the Mycenaean¹¹.

period, see T. G. Palaima, «Preliminary Comparative Textual Evidence for Palatial Control of Economic Activity in Minoan and Mycenaean Crete», in *The Function of the Minoan Palaces*, ActaAth-4°, 35, Stockholm 1987, pp. 301-306, with references.

⁹ Ideograms do not appear in non-economic Minoan-Mycenaean clay documents and are not absolutely essential to economic texts either, to judge by the classes of full Linear B tablets that function completely (V, Va, Vc, Vd, Vn) or nearly so (Ub) without them. See also the non-ideographic inventory entries in the Pylos Ta series: *e-ka-ra*, *ko-te-ri-ja*, *pu-ra-u-to-ro*, *qa-ra-to-ro*, *to-pe-za*, *to-no*, *ta-ra-nu* (Ta 642, 707, 709, 713, 714, 715). The Linear A documents that we possess are marked by an extreme compactness and brevity, which increases the need for ideograms and their role proportional to the phonetic element within the texts. I discuss the many factors associated with the use and frequency of ideograms in the Linear A records in «Development», pp. 323-332.

¹⁰ The connection between general cultural influence and the borrowing of script is well illustrated and cleverly used by Y. Duhoux, «Mycénien et écriture grecque», in A. Morpurgo Davies and Y. Duhoux eds., *Linear B: A 1984 Survey*, Louvain 1985, pp. 28-34, although I find that his attractive four-stage reconstruction for the development of Linear B does not provide the most economical explanation of historical, palaeographical, and systemic factors involved in the development of Minoan-Mycenaean writing. On the chronological stages of development of Mycenaean «palatial» economy and society, see the paper by Mary Dabney and Jim Wright in the forthcoming publication of the Symposium of the Swedish Institute in Athens of June 1988.

¹¹ The Mycenaeans were not only most directly under Minoan influence at a time (LM I B - LH III A) when their social, political and economic systems finally were reaching the point of requiring writing and sealing methods of administrative control («Development», pp. 335-341), but the destruction of the Minoan regional palatial system at the end of LM I B and of Knossos in early LM III A 2 left them with no practical alternative if they wanted to maintain, and maintain control of, the productive capabilities of a Cretan economy which had been controlled by such means.

What makes Mycenaean writing ἀδεικτότατον is its extreme lack of documented influence outside very limited geographical areas, areas which were defined by the hierarchical organization of the regional Mycenaean political and economic systems. Focused, so far as the available data reveal, entirely upon the narrow concerns of palatial administration¹², one would not expect Mycenaean writing to have a visible impact except within the sphere defined by those concerns. Whereas the Minoan cultural and trade presence in the Cyclades, Kythera, Laconia and Messenia in MM III - LM I B propagated Linear A or faint reflections of Linear A even to the extent of inspiring a system of pot marks in a style modelled on the linear characters of the script¹³, the Mycenaeans even during their great period of trade expansion, LH III A 2 - III B, do nothing to spread a script which they had no need or desire to employ outside the major centers and, as I think most likely, the regional sub-centers of their home territories: Pylos (and at least the major administrative center of the Further Province: the still archaeologically unidentified *re-u-ko-to-ro*)¹⁴ in Messenia; Mycenae and Tiryns in the Argolid; Eleusis (surely an important center in the late Bronze Age as attested by its inscribed stirrup jar find and architectural re-

¹² For a recent appraisal of the use of writing within Mycenaean culture, see T. G. Palaima, «Comments on Mycenaean Literacy», *Studies Chadwick*, pp. 499-510.

¹³ See A. H. Bikaki, *Keos IV. Ayia Irini: The Potters' Marks*, Mainz 1984, pp. 22 ff., and «Development», pp. 333-335. The identification by J.-P. Olivier, «Tirynthian Graffiti: Ausgrabungen in Tiryns 1982/83», *AA*, 1988, pp. 255, 262-263, of the marks on the pithos fragment TI Zb 1 (his catalogue no. 11) as a Linear A inscription is based on a strained series of rhetorical questions, an improbable identification of the first mark, special pleading about stratigraphical context, and Olivier's reliance upon a procrustean tenet, really an idée fixe too long-lived in Aegean epigraphy, that «two signs make an inscription». It should be considered extremely doubtful, although I see nothing improbable *per se* in finding Linear A inspired *pot marks* at a mainland site. In the present instance, one finds parallels for the second of the two signs in the CM repertory, most notably on the second line of the roughly contemporary sherd from Enkomi (Inv. no. 4025) discussed below, and the final sign of a six-character *pithos* inscription from Arpera (Inv. no. A 1508): O. Masson, «Répertoire des inscriptions chyro-minoennes», *Minos* 5, 1957, 17, pl. III, fig. 7. Given the occurrence of other definite Cypro-Minoan signs within the new Tiryns material (Olivier's catalogue nos. 12-14 and perhaps other like 21, 24-25), it is a more likely hypothesis that the pithos graffiti belong to the same tradition.

¹⁴ The importance of *re-u-ko-to-ro* is made particularly clear by its dominant role in the allocation of the female labor force, as recorded in the Aa (Hand 4) set. The site has a status somewhat parallel to that of Pylos in the fuller Aa-Ab sets (Hands 1 and 21). See J. Chadwick, «The Women of Pylos», *Studies Bennett*, pp. 47-48.

mains)¹⁵ and Athens (?) in Attica; Thebes and perhaps a provincial capital in its closely linked economic neighbor, Euboea (*a-ma-ru-to* or *ka-ru-to*)¹⁶, to match Orchomenos to the north; Knossos, Khania, and surely some regional recording centers in other areas of the island of Crete such as Hagia Triada (= *da-wo?*)¹⁷ in the Mesara plain. In fairness, we should also keep in mind that by the period when the Mycenaeans were pushing out into the Aegean and its surrounding area, their trade partners already would have been using familiar networks of economic activity and established systems of written communication into which there might have been quite literally no place to introduce a newcomer script. This is certainly the case at a site like Ras Shamra-Ugarit where Linear B is nowhere attested among a veritable Berlitz language school of foreign and local scripts.

In view of such relative invisibility, it may now appear a mystery that Linear B and the Mycenaeans were ever entertained as candidates for the script and culture that brought into being, even indirectly, the Cypro-Minoan script¹⁸. The historical circumstances

¹⁵ G. E. Mylonas, Προϊστορικὴ Ἑλευσίς, Athens 1932, pp. 161-162; R. Hope Simpson, *Mycenaean Greece*, Park Ridge, NJ 1981, 46, site B14.

¹⁶ On the recent textual evidence for economic relations between Thebes and outlying communities in Boeotia and Euboea, see V. Aravantinos, «Mycenaean Place-Names from Thebes: The New Evidence», *Studies Chadwick*, pp. 33-40.

¹⁷ On the importance of Hagia Triada in the LM III period, see J. Bennet, «Outside in the Distance: Problems in Understanding the Economic Geography of Mycenaean Palatial Territories», *Studies Bennett*, p. 30 and n. 41.

¹⁸ For example, before the discovery of the archaic Enkomi tablet, H.-G. Buchholz, «Zur Herkunft der kyprischen Silbenschrift», *Minos* 3, 1954, pp. 140-151, argued for Mycenaean influence in the creation of Cypro-Minoan by identifying sign parallels on Mycenaean pottery not attested in Minoan Linear A and by downdating the earliest manifestation of CM script as opposed to pot marks. A. W. Persson, *Schrift und Sprache in Alt-Kreta*, Uppsala 1930, pp. 3-18, held to the same idea, using the first clay balls from Enkomi and a Late Mycenaean vase «inscription» on a sherd rim from Asine as intermediaries between Cretan Linear scripts and later Cypriote Syllabic. S. Casson, *Ancient Cyprus*, London 1937, pp. 59-61, believed in the Mycenaean colonization of Cyprus by the 14th century B.C. and viewed the various applications of writing, from the «cursive» form on the clay balls to the painted or incised pot marks, as the result of the presence of mainlanders and their script. K. Nicolaou, «The First Mycenaeans in Cyprus», *MEM*, pp. 59-60, proceeded by pushing firm Mycenaean presence in Cyprus back into LH II and by arguing that the new CM script was introduced to represent a new language, i.e., Mycenaean Greek, both on Cyprus and at Ugarit.

It is clear now that our earliest CM inscriptions must be placed in LC I A (the Enkomi inscribed clay weight) and LC I B (the archaic Enkomi clay tablet), i.e., before

and the narrow applications of the Linear B script both weigh heavily against such a theory and furnish a sobering reinforcement of the warnings of Pope, Chadwick, Godart, Sacconi and others against placing too great a reliance on formal similarities between characters in attempting to trace the relationships among different writing systems¹⁹. Yet we do have the parallels between characters with equivalent or related phonetic values in the Classical Cypriote syllabary (and particularly the Old Paphian regional repertory) and in the Linear B syllabary²⁰ to keep bringing us around not solely to the Minoans (and, as one now seems to assume, their parallel signs of approximately equivalent phonetic values) but also to the Mycenaean who become increasingly visible in Cyprus from ca. 1425 B.C. onward, and particularly in the period 1230 and after²¹ when

the Mycenaean contacts with Cyprus begin: C. Baurain, «Chypre et le monde égéen», *BCH* 104, 1980, pp. 565-569, 580. Moreover, Mycenaean input in the formative stages of Cypro-Minoan is chronologically unlikely from the point of view of the origin of the Linear B script: «Development», pp. 269-342, esp. 331-342.

¹⁹ M. Pope, «The Origins of Writing in the Near East», *Antiquity* 40, 1966, p. 17; J. Chadwick, «The Minoan Origin of the Classical Cypriote Script», *Cyprus-Crete*, pp. 139-140; Godart-Sacconi (*supra* n. 8), pp. 129-132.

²⁰ See Chadwick (*supra* n. 19), pp. 141-143; E. Masson, «La part de fond commun égéen dans les écritures chypro-minoennes et son apport possible pour leur déchiffrement», *Studies Chadwick*, pp. 367-381. O. Masson, *ICS*, pp. 40-41. On the strong Old Paphian affinities with the Linear B system, see T. B. Mitford, «The Present State of Cypriot Epigraphy», *Akte des IV. Kongresses für griech. und latein. Epigraphik*, Vienna 1964, p. 248, and the comments by E. Masson (*supra* n. 5), p. 91 and n. 13. The Old Paphian syllabary links up well with the repertory of CM marks on pottery from Paphos: T. B. Mitford, «The Cypro-Minoan Inscriptions of Old Paphos», *Kadmos* 10, 1971, pp. 87-96, esp. fig. 3.

²¹ P. Åström's excellent quantitative breakdown of Mycenaean pottery by period, «Comments on the Corpus of Mycenaean Pottery in Cyprus», *MEM*, pp. 122-126, documents the increased Mycenaean ceramic presence in LC II A 1 and after. This material has been analyzed most recently by C. Baurain, *Chypre et la Méditerranée orientale au Bronze Récent*, Études Chyptiotes VI, Paris, 1984, pp. 263-265. H. Catling, «The Achaean Settlement of Cyprus», *MEM*, pp. 36-37, views the periods LH III A and B as a period of extremely active Aegean trade, but not necessarily settlement, while LH III C is the period in which «the Greek language first obtained its frail hold upon Cyprus». For an assessment of earlier views on the question of Mycenaean presence in LH III Cyprus, see H. J. Kantor, *The Aegean and the Orient in the Second Millennium B.C.*, *AIA Monograph* 1, 1947, pp. 79-80 and n. 3. Most recently Y. Portugali and A. Bernard Knapp, «Cyprus and the Aegean: A Spatial Analysis of Interaction in the Seventeenth to Fourteenth Centuries B.C.», in A. Bernard Knapp and T. Stech eds., *Prehistoric Production and Exchange: The Aegean and Eastern Mediterranean*, Los Angeles 1985, pp. 60-64, have sketched the shift from Minoan-

we begin the transition to an island whose inhabitants will speak, alongside Eteocypriote, the Arcado-Cypriote dialect of Greek and will write both those languages in regional variants of a syllabic script that *must* somehow be descended from (a) Bronze Age Aegean parent(s).

Yet such a transition takes place within a frustratingly complicated context. As A. Bernard Knapp has most recently and thoroughly documented, the island of Cyprus was part of a strong Near Eastern, Levantine and Egyptian trade network from 1700-1200 B.C. while becoming «thoroughly internationalized... as *the* nexus between the Aegean and the Levant in 1600-1400 B.C.»²². Still the ethnic mix revealed by a study of «Alashiyan» names in contemporary Akkadian, Ugaritic, Hittite and Egyptian documents studied by Knapp shows a decided Semitic bias (perhaps as many as 24 of 33 names are Semitic with the remainder being Hurrian or Anatolian, as we might expect from the provenience and contexts of the texts which contain these references)²³. Although such evidence may not be completely reliable so far as the proportions of ethnic mix on Cyprus, at least it gives us an indication of the significant eastern Mediterranean influence upon the island's commercial affairs and within its population. We should also keep in mind (1) the overwhelming Near Eastern influence in regard to seals²⁴, (2) the

dominated to Mycenaean-dominated trade ca. 1400 B.C. Knapp examines in detail the patterns of trade during the following period 1400-1200 B.C. in «Alashiya, Caphtor/Keftiu, and Eastern Mediterranean Trade: Recent Studies in Cypriote Archaeology and History», *JFA* 12, 1985, pp. 231-250 and esp. 241 ff., illustrating the significant level of Egyptian and Levantine trade with Cyprus even during the period of strong Mycenaean trade. This is reinforced by Shelley Wachsmann's discussion of written documentation of Cypriote trade with Egypt, the Levant and the Greek mainland in the LH III period: *Aegeans in Theban Tombs, Orientalia Lovaniensia Analecta* 20, Leuven 1987, pp. 115-117.

²² Knapp (*supra* n. 21) and «An Alashiyan Merchant at Ugarit», *Tel Aviv* 10, 1983, p. 43.

²³ Knapp (*supra* n. 22) *Tel Aviv* 10, 1983, p. 40. I have not had access to Knapp's complete study, «The Onomastica of Alashiya», *New Journal of Cyprian Studies* 1, 1981, pp. 1-30. However, one should note that C. F. A. Schaeffer-Forrer, «Commentaires sur les problèmes d'épigraphie chypriote», *Journal des Savants*, 1978, pp. 97-104, analyzes the 13th century Ugaritic tablet RS 11.857 as preserving a record of 28 households of princely personages installed in Alashiya. Of the 16 identifiable names of proprietors listed, only 3 are Semitic, while 13 are Hurrian. While further illustrating the ethnic mix of late Bronze Age Cyprus, these data cannot form part of Knapp's statistics.

²⁴ We should note that during the period of Mycenaeanization of Cyprus (LC III A), stamp seals of a peculiarly Cypriote domed shape begin to replace cylinder seals.

eventual close affinities of CM 2 and CM 3 with Near Eastern scripts, (3) the non-existence of any direct trace of the Mycenaean script—we might note that in 1973 Åström could cite 632 Mycenaean stirrup jars coming from Cypriote excavations, not one bearing a painted Linear B inscription or even a pot mark secondarily derived from the Mycenaean script²⁵—and (4) the fact that the Minoans, who did display a tendency to disseminate script in other areas, may not have had the favorable free hand in Cyprus that they did in the Cyclades and the Greek mainland. Taking all these factors into account, we might then consider it a genuine greater mystery that a script like Cypro-Minoan, with its Aegean affinities, arose at all under such circumstances. Not only did it, but Cypro-Minoan became the *lingua ceramica franca* on pottery imported to Cyprus and circulating through many points (Aegean and Near Eastern) along the trade network of which Cyprus was an integral part²⁶.

How might we explain such improbable mysteries? It is undeniable that the earliest Cypro-Minoan clay text (Enkomi no. 1885) and the entire CM 1 system of which it is the chief archaic predecessor, if not clear descendants of Minoan Linear A to the degree to which Mycenaean Linear B is, at least exhibit such similarities to Aegean linear writing that one cannot propose for the Cypro-Mi-

Again, however, the inspiration and reasons for such a change are not easy to discern. Some contemporary Palestinian sites have domed stamp seals, but of somewhat different form; and the designs of certain of the Cypriote domed seals exhibit alternately Aegean influence and Egyptian tendencies. Cf. E. Porada in J. L. Benson, *Bamboula at Kourion*, Philadelphia 1972, pp. 145-147.

²⁵ P. Åström, «Comments on the Corpus of Mycenaean Pottery in Cyprus», *MEM*, p. 125. There is, on the other hand, a lengthy *Cypro-Minoan* painted inscription on a ceramic offering vessel from the filling of a well in the late Mycenaean period at Enkomi: E. Masson, «Une inscription peinte d'Enkomi en caractères chypro-minoens», *RDAC*, 1979, pp. 210-213, pl. XX.

²⁶ See the catalogues of Daniel; O. Masson (*supra* n. 13) pp. 9-27 and n. 1 for earlier references; P. Dikaïos, *Enkomi II*, pp. 882-891; H. Döhl, «Bronzezeitliche Graffiti und Dipinti aus Tiryns II. Nach dem Brand eingeritzte und gemalte Zeichen», *Kadmos* 18, 1979, pp. 56-61; and Palaima-Betancourt-Meyer, «An Inscribed Stirrup Jar of Cretan Origin from Bamboula, Cyprus», *Kadmos* 23, 1984, pp. 65-73, with references. Kostas Gallis has recently discovered two apparently Bronze Age sherds from sites in Thessaly which fit in with the general pattern discussed here and will be published by him and me in *Kadmos*. Olivier (*supra* n. 13), pp. 255-256, 266-268, adds to this pattern three fragments from Tiryns (two from Canaanite jars, one from a Mycenaean stirrup jar) incised after firing with CM signs. The Mycenaean stirrup jar from Tiryns would seem to parallel the Bamboula stirrup jar as a non-Cypriote ware incised with CM marks in a Minoan-Mycenaean context in Crete.

noan script either other likely sources of primary inspiration or an entirely independent development. Moreover, CM 1, with its linear style of characters and its continuous history from, estimating conservatively, the mid to late 16th²⁷ to the 12th century B.C., provides the clearest link between the shapes and phonetic values of the Aegean linear scripts and the later Cypriote syllabary which is now perhaps attested in the 11th century²⁸.

I would like to take up here two points which may have a bearing on the relationships among these writing systems:

- (1) the ideographic components of the various systems; and
- (2) the innovations in the sign repertories (or the addition of supplemental signs) that took place in moving from one stage to the next in the proposed scheme of development.

The virtual absence of ideograms from all branches of Cypro-Minoan writing may seem surprising. Why would this important—although I must stress again (cf. *supra* n. 9) not essential—feature of Minoan-Mycenaean scripts either not have been taken over in a Cypriote environment or have been eliminated soon enough to leave no appreciable trace in our extant data?

In Minoan-Mycenaean writing, full repertories of ideograms are represented in the surviving economic documents:

Linear A: ca. 200 (of which 137 are composite);

Linear B: ca. 172 (of which 36 are composite).

It should be noted, however, that full text without ideograms or with ideograms in a very minor and circumscribed role do exist:

in Linear A mostly on documents of the non-administrative classes;

in Linear B both in some relatively complex texts on tablets (*supra* n. 9) and on all vases with painted inscriptions.

²⁷ On the dating of Enkomi no. 1885, see P. Dikaios, «The Context of the Enkomi Tablets», *Kadmos* 2, 1963, pp. 45-48: between floors of levels VIII-IX, halfway stage in the life of the fortress, and therefore halfway between 1600 and 1450 B.C. = ca. 1525 B.C.; and later P. Dikaios, *Enkomi* II, 882: tablet halfway between 1525 and 1425 B.C., in fortress intermediate layer between VIII and IX, with 2 fragments of LM I A cups from beginning period of fortress. The earliest full CM 1 inscription (6 signs and a word-divider) is found on the LC I A «clay weight» from Enkomi: C. Baurain (*supra*, n. 21), pp. 154-155 and fig. 22.

²⁸ O. Masson and T. B. Mitford, «The Cypriot Syllabary», *CAH*² III, 3, p. 75. E. Masson and O. Masson, «Les objets inscrits de Palaepaphos-Skales», in V. Karageorghis, *Palaepaphos-Skales: An Iron Age Cemetery in Cyprus, Ausgrabungen in Alt-Paphos auf Cypern* 3, 1983, pp. 410-415, fig. 2.

It is possible, given the nature, number and contexts of surviving CM inscriptions, that the virtually total absence of ideograms is a matter of chance. Our fragmentary tablets from Enkomi (CM 1 and 2) are contextless, coming from debris or secondary deposits²⁹. The Ugaritic CM 3 tablet material is contextualized: RS 19.01 and 19.02 (archives of secretariat 203 of the «Palais Sud»); RS 17.06 (library deposit to east of palace); RS 20.25 (in an archives of a high personage, located again to the east of the palace)³⁰. The cuneiform (Ugaritic and other) documents from these areas do not demand the presence of ideograms (numerical or otherwise) on the CM 3 tablets in order for them to be appropriate to their archival contexts. The documents from secretariat 203 do have so decidedly an economic emphasis that it is here particularly we would expect ideograms, if RS 19.01 and 19.02 were to contain precisely parallel information — an unnecessary assumption in so mixed a deposit — and if the CM 3 (or CM 1 ?) system maintained any similarity to the Minoan-Mycenaean systems in this regard. We should note, too, the opinion of O. Masson that the layout of RS 20.25 suits that of an accounting document despite the absence of ideograms³¹. The vase inscriptions and metal bowl inscriptions are brief and, like their Linear B and most Linear A counterparts, may have admitted virtually no occasion for ideograms.

Positive evidence for Cypro-Minoan ideograms consists of numerical signs. The possible examples on pottery collected by Grace

²⁹ Dikaios (*supra* n. 27). For full bibliography on the CM 2 tablets, see «KS», pp. 70-72.

³⁰ RS 19.01 and 19.02: with cuneiform texts including lists of families and their domiciles; lists of names of women; records of deliveries and accounts of grain; deliveries or disbursements of vessels, clothing, weapons, silver, copper, etc.; distributions of clothing to palatial functionaries or servants: C. F. A. Schaeffer, *Ugaritica* IV, pp. 129-131. See below n. 45, for the possibility that texts RS 19.01 and RS 19.02 actually should be classified as CM 1. This does not affect our discussion of context here. RS 17.06: in a library of legal texts, records of merchandise from various towns, a document of debt or credit, a hippiatric treatise, and even a magic ritual: *Ugaritica* III, pp. 228-229. RS 20.25: C. F. A. Schaeffer, intervention after E. Masson, «La tablette chypro-minoenne 20.25 de Ras Shamra: Essai d'interprétation», *CRAI*, 1973, pp. 53-54. [it should be noted that C. Baurain in a paper delivered at the conference on Phoinikeia Grammata in Liège, Nov. 15-18, 1989, raises doubts about the archeological contexts of the CM finds from Ugarit.]

³¹ O. Masson in *Ugaritica* VI, p. 392. Schaeffer (*supra* n. 30) also considers it, on textual and contextual grounds, an economic document recording a list of nominatives somehow relating to personnel involved in the Ugaritic economy.

and Daniel³² are unfortunately all dubious. The marks, whether on Cypriote, Mycenaean or other imported wares, are simple; they are without context; they occur generally in isolation; when the marks are multiple, they are repeated and not contrasting signs, which might reveal decimal or sexagesimal values³³; and finally they conform to the patterns of linear pot marks known elsewhere in the Aegean. Of ceramic data, only on sherd Enkomi Inv. 4025 (figure 1) is it possible to identify numerical ideograms with certainty. As Dikaios has observed³⁴, this vase fragment is also laid out in a manner reminiscent of Linear B tablet records. I would only add that it is probable that this graffito was done originally on an ostrakon, not on a whole pot³⁵. If so, the inscription here would be complete; and the signs preceding the numerals on each line (that on line 1 is paralleled on a Myc. import: Daniel Class II, no. 15; that on line 2 has approximate parallels in Daniel Class I, no. 11; Class II, no. 9; Class III, no. 5; and, as already mentioned [*supra* n. 13], on the new Tiryns pithos inscription) could function as ideograms, either pure ideograms or phonetic abbreviations, both common in Linear A and Linear B. This would then establish a clear link between CM 1 and the Aegean scripts in the important respect of operating principles. The sherd is dated, however, late enough (well deposit: consistent Myc. III B, a few III C:1b sherds) to be the result of secondary Mycenaean influence during the

³² V. Grace, «A Cypriote Tomb and Minoan Evidence for Its Date», *AJA* 44, 1940, pp. 40-43 and fig. 28. Daniel, esp. pp. 273-278, figs. 13-16. See also the catalogue of such parallel vertical or horizontal strokes occurring as Cypriote pot marks from the Early Cypriote I period onward compiled by P. Åström, «A Corpus of Pot-Marks», *Excavations at Kalopsidha and Ayios Iakovos in Cyprus*, SIMA 2, Lund 1966, pp. 154-167.

³³ In fact the idea, flatly declared by T. B. Mitford (*supra* n. 20) p. 93, that, for example, the multiple parallel linear strokes on the handles of 30 jugs of local Cypriote ware from Old Paphos function as numerals, and not simply as identifying marks *vel sim.*, is only an attractive, though as yet unproven, hypothesis.

³⁴ P. Dikaios, «More Cypro-Minoan Inscriptions from Enkomi», in W. C. Brice ed., *Europa: Studien zur Geschichte und Epigraphik der frühen Aegaeis*, Berlin 1967, pp. 80-87, plate VI B, esp. 85 and n. 22.

³⁵ This is made virtually certain by Nicolle Hirschfeld's recent observation that the right edge of the sherd is actually part of the rim of an open-shaped vessel. Thus the orientation of the inscription only makes sense if it were inscribed when the piece was already a sherd. If done on a whole vessel, the inscription would run at right angles upward toward the rim, an extraordinary procedure. Hirschfeld's observation also proves that the right end of the inscription is complete. We cannot rule out the possibility that the left edge of the original ostrakon text was further broken away.

period of most intensive Mycenaean trade contacts or even immigration into the island of Cyprus, not a continuation of practices adopted during the initial stages of use of Cypro-Minoan writing.

We should note also that the disposition of the numerical ideograms (3 bored dots in a slight crescent; 6 vertical strokes in two horizontally disposed groups of three strokes) does not conform to standard Mycenaean practice, although it does have parallels in later Cypriote syllabic inscriptions (*infra* n. 52). If this were meaningful, it would tell against the idea of secondary Mycenaean influence. However, as with all ideas about Cypro-Minoan writing, we must be cautious. We do not possess similar Mycenaean graffiti, and nothing requires that a derivative script must adhere to the principles of textual layout and arrangement of the mother-script. Linear B texts do not follow the principles of Linear A in such matters³⁶. Here, too, we have the problem of identifying the value of the dots. In Linear A alone do dots function as numerals and in all cases as *tens*. If, as E. Masson, *Cyprominoica*, 22, suggests, we ascribe such a value here —perfectly possible given their juxtaposition with vertical *digit* strokes to the right— then this would give CM a definite Minoan pedigree, bypassing Mycenaean. However, the following example of apparent CM numerals creates doubts.

Within the class of metal bowl inscriptions, there is a silver bowl from Enkomi (16.63; figure 2)³⁷ which bears a number consisting of two dots preceded by three horizontal strokes³⁸. This number follows four so-called CM 1 signs and the vertical bar of separation, itself an ideogram (punctuation mark) which occurs particularly on the Ugaritic CM 3 material (e.g., RS 17.06) and clearly derives, like the rule lines and textual spillover on CM 3 tablets, from the influence of cuneiform Ugaritic texts (e.g., RS 24.252)³⁹. On the Enkomi bowl,

³⁶ «Development», pp. 313-317, 331, 341.

³⁷ O. Masson, «Études d'épigraphie chyro-minoenne I. Trois bols de bronze du Musée de Nicosie», *Minos* 9, 1968, p. 66 unillustrated. Illustration and discussion in J.-C. Courtois, J. and E. Lagarce (*supra* n. 7) p. 100 and pl. XIX.8, and J.-C. Courtois, *Alasia III*, Mission d'Archéologie d'Alasia, Tome VI, 1984, p. 52 no. 473, fig. 16/17, pl. VI/8.

³⁸ These were not taken into account in the discussion of the value of the numerical signs on the Enkomi sherd in *Cyprominoica*, p. 22 and n. 50, because E. Masson accidentally misconstrued the clearly drawn horizontal signs of O. Masson (*supra* n. 37) as «traits verticaux».

³⁹ A similar vertical divider is found on a bronze hemispheric bowl from Enkomi: E. Masson, «Une nouvelle inscription chyro-minoenne d'Enkomi», *RDAC*, 1975, pp. 41-42, plate 5.

too, the arrangement of the horizontal line ideograms, apparently standing for 10, differs somewhat from typical Mycenaean arrangement⁴⁰. Here then the only possible value for the dots is 100. In order to be internally consistent within the CM system, we should have to interpret the Enkomi sherd numbers in the same way, as 302 and 206. This would eliminate the Minoan parallel as well.

Numerals may also occur on tablets. On the Ugaritic CM tablet RS 19.01 (figure 3), line 2 begins with five vertically aligned horizontal strokes followed immediately by a cluster of four verticals. E. Masson believes that the five aligned horizontal strokes beginning this incomplete line are simply part of a sign in the CM non-numerical repertory, number 07 in her signaries⁴¹. Thus only the following cluster of verticals would comprise a number: in this case 4. However, one should note that there is no parallel at all at Enkomi or Ras Shamra for sign 07 with this number (*five*) of detached horizontal strokes on either side of the vertical stem of the sign. It is listed in *Cyprominoica*, figs. 1-2, as occurring with three solid cross-strokes in CM 1 (and this is the only way it appears in Daniel's repertory of CM pot marks: *Prolegomena* nos. 24 and 25), but as appearing nowhere in CM 2 and CM 3. It does not show up on the main RS tablets or the clay balls, and its appearance is rare even in CM 1. Only the archaic Enkomi tablet has a version with *six* strokes alongside a central vertical, but this can hardly be used as a comparandum if the division of CM into four distinct classes, deduced by style of inscription, date, and provenience, is valid. Thus Masson's proposal lacks any convincing parallels, and it is better to see here a numerical sequence representing the number 54, with horizontals standing for *tens* as on the Enkomi silver bowl, but differing from both this Enkomi example and standard Mycenaean practice in its disposition of the five horizontal line *tens* in a single vertical column.

⁴⁰ The disposition of the rightmost horizontal *ten* stroke, as seen in *Alasia III*, VI/8, is much more ambiguous than Masson's (or even Courtois's) drawing would suggest, and the *hundreds* are clearly formed by small *punkten* rather than circles. This might simply be the inscriber's practical alternative, particularly suited to metallic inscription, to the Minoan and Mycenaean circular *hundred* sign. For it would be impossible to mistake these signs for «Minoan» dot *tens* in the context of the succeeding horizontal *ten* strokes. Identically situated inscriptions in deciphered scripts on metallic bowls from Egypt and the Near East are brief dedications or names of owners or manufacturers. The combination of syllabic and numerical signs then might fit the pattern of later CS dedicatory texts from Golgoi: *ICS* nos. 275, 285.

⁴¹ E. Masson, *Cyprominoica*, pp. 12-13, figures 1 and 2.

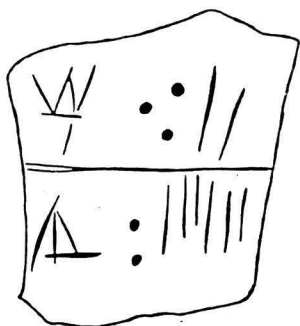


FIGURE 1. *Enkomi Inv. 4025*
(after E. Masson, *Cypruminoica*, fig. 8)

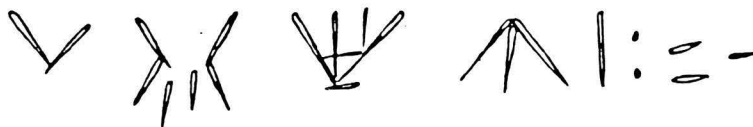


FIGURE 2. *Enkomi 16.63*
(after drawing by Nicolle Hirschfeld)



FIGURE 3. *Fragment RS 19.01*
(after E. Masson, *Cypruminoica*, fig. 9)



FIGURE 3a. *K-AD 388*
(after E. Masson, *Tractata Mycenaea*, p. 190,
fig. 1)



FIGURE 4. *Enkomi 20.1*
(after Hiller, AOF Beiheft 20 [1985] Abb. 8)



One of the five recently discovered clay cylinders from Kalavassos-Ayios Dhimitrios (fig. 3a) has on its last line a sequence of seven short vertical strokes arranged in two rows. These can only be interpreted as digits in an arrangement that is standard on Linear A tablets (HT 95a.5; HT 107.3; and most likely MA 4b and MA 6c) as well as Linear B tablets⁴². Otherwise the value of this text for our discussion is minimal.

On the CM 2 tablet Enkomi 20.01 (figure 4), according to the clever suggestion of E. Masson⁴³, an impressed dot designating 10 (cf. Linear A and the proposal for Enkomi Inv. 4025 derived therefrom) is written at the end of each section of *ten* lines. It is dangerous, I think, to follow E. Masson's hypothesis that similar impressed dots on RS 19.02 (figure 5) at the beginning of lines 1 and 2 and after the first two underlined characters in line 2 also represent the numerical ideogram 10⁴⁴.

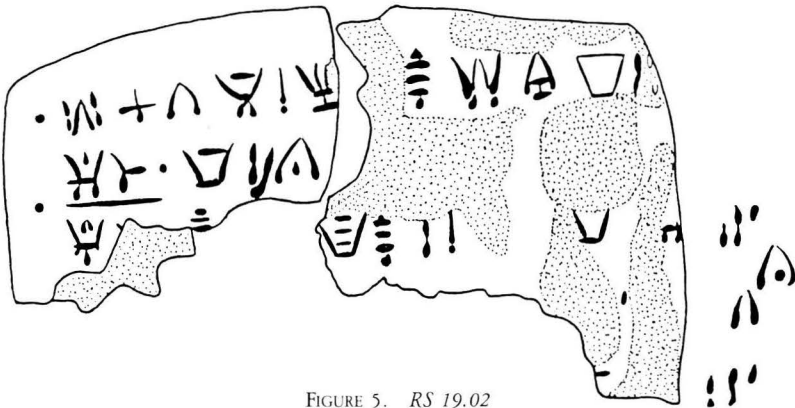


FIGURE 5. RS 19.02
(after E. Masson, *Cyprominoica*, fig. 7)

These limited data for the occurrence of ideographic numerals further confuse the genealogy of CM. We may summarize:

a) The impressed dot definitely has the value 100 on the Enkomi silver bowl; here a horizontal stroke equals 10. The bowl inscriptions are now categorized CM 1.

⁴² E. Masson, «Premiers documents chypro-minoens du site Kalavassos-Ayios Dhimitrios», *RDAC*, 1983, p. 135 and n. 11, cites only some Linear B comparanda.

⁴³ E. Masson, *Cyprominoica*, p. 22 and n. 48.

⁴⁴ E. Masson (*supra* n. 43). O. Masson's original suggestion of «une marque de séparation» of some sort is to be preferred: O. Masson, «Documents chypro-minoens de Ras Shamra», *Ugaritica* III, p. 249.

b. Unless we are deceived by extraordinary coincidence, the impressed dot has the value *10* on tablet Enkomi 20.01. This is classified CM 2.

c. Horizontal strokes have the value *10* on RS 19.01, as confirmed by the following vertical digit strokes. This is considered CM 3 by Hiller, although E. Masson notes close parallels between signs on tablet fragments RS 19.01 and 19.02 and CM 1 signs⁴⁵. (The horizontal also equals *10* on the Enkomi bowl: CM 1.)

d. The impressed dot could stand for either *10* or *100* on the Enkomi sherd. It is now classified CM 1.

We can make this discordant evidence harmonious in several ways. As mentioned in n. 40, we could ascribe exceptional case *a* to epigraphical expediency, the inscriber reducing a canonical Minoan-Mycenaean circular *100* to a dot for convenience and elegance of appearance on the surface of the metallic bowl. Thus cases *a*, *b* and *c* would all fit into a *Minoan*-derived tradition which allows either dot or horizontal strokes to stand for *10* and, of course, circle and vertical stroke for *100* and *1* respectively. This would lead us to interpret the numbers on the Enkomi sherd as 32 and 26, as E. Masson originally proposed⁴⁶. The non-Minoan-Mycenaean arrangement of these signs in relation to one another (cases *a*, *c*, *d*) would be viewed as demonstrating a greater tolerance for variation in the CM system, particularly given the fuller range of materials on which CM numerical inscriptions appear.

Alternatively, one could allow for the possibility of variation by region or class of the CM script. If the Enkomi bowl were an import⁴⁷ and if RS 19.01 is somehow to be grouped with the other Cypro-Minoan Ugaritic texts now considered CM 3, cases *a* and *c* would be consistent with the proposal that CM in a Syrian environment has values: dot = *100*, horizontal = *10*, and vertical = *1*. This would contrast neatly with case *b*, in which a formal Enkomi text (Enkomi 20.1 = CM 2) yields: dot = *10*. One could pair case

⁴⁵ «KS», pp. 72-73. *Cyprominoica*, p. 23. O. Masson, «Documents chypro-minoens de Ras Shamra», *Ugaritica* III, pp. 233-250, esp. 247, also suggests differences between the characters on RS 19.01 and 19.02 and those on RS 17.06 (CM 3).

⁴⁶ *Cyprominoica*, p. 22.

⁴⁷ See H. Catling, *Cypriot Bronzework in the Aegean World*, Oxford 1964, pp. 147-148, for a discussion of the provenience of the bowls. They seem to have been introduced from the Near East in the mid-13th century, though the number of finds at sites like Enkomi suggests that there were Cypriote centers of manufacture.

d', the Enkomi sherd, with its chronological and geographical partner case *b*: dot = 10. Thus what are now considered separate classes of CM writing, the CM 3 formal inscriptions and the CM 1 metallic bowls, would be seen to share a common element on regional lines. This is only one way in which the extremely heterogeneous, chronologically extensive, and regionally widespread—even extra-Cypriote—CM 1 class might be broken down into more refined subdivisions by careful analysis of the types and archaeological contexts of the inscriptions⁴⁸. In this scenario, one would have evidence of a continuing Minoan-Mycenaean development on Cyprus which would stand in contrast to a transformation in the more Near Eastern context at Ras Shamra. If, however, RS 19.01 is not CM 3 and if the Enkomi bowl is indeed of local manufacture, we are confronted with further problems. For cases *a* and *c*, which have strong Enkomi and insular CM associations, would stand in contrast to the Enkomi sherd and Enkomi CM 2 text in a way which does not suit the current divisions of CM script.

These alternative analyses of the admittedly scanty evidence for CM numerical ideograms at least do nothing to disprove an initial connection between CM and Aegean Linear writing. They also reinforce our collective scholarly instinct that the history of script on Cyprus is as complex as the history of the island itself. The subsequent transition to Cypriote syllabic, it now seems possibly as early as the 11th century, but well-attested by the 7th, produced a nearly completely phonetic and streamlined (55-56 characters) script. Yet, as with later Greek alphabetic inscriptions, numerals and ideograms of a very specialized sort appear:

ICS 217 Idalion (cf. *ICS*, plates XXXIV-XXXV):

lls. 6, 13 τᾱ(λαντον) | τᾱ(λαντον)
 l. 15 πέ(λεκυς) ||| πέ(λεκυς)
 l. 16 || ti-e = δι(μναῖα) ῥE(δᾱλῖα)⁴⁹

⁴⁸ Nicolle Hirschfeld of Texas A&M's Institute for Nautical Archaeology has now embarked on such work with the gracious permission, assistance and encouragement of Drs. Karageorghis, Nicolau and Masson, and supported by a grant from the Archaeological Institute of America and the Mellon 1984 Foundation.

⁴⁹ For different restorations of the phonetic abbreviations, see *ICS*, p. 242. Comparable uses of numerical ideograms and phonetic abbreviations are found on: *ICS* no. 285; *ICS* no. 224 (a weight); and *ICS* no. 350 (a graffito giving the value of a vase: κρατή(ρ) τιμᾱ |||).

GDI 81 (= *ICS* no. 290) Golgoi terracotta sherd (figure 6)⁵⁰:

line 1 pa-ta-si-o

line 2 :|||: = Φα(v)τασίω δ' (logographic use as a *noun*)

GDI 76 (= *ICS* no. 276) limestone base for statue dedication (figure 7)⁵¹:

e-te-i ||| a-ne-te-ke-| = ἔτει τρίτωι ἀνέθηκε

(logographic use as an *adjective*)

GDI 111 stone near a grave:

1o-e ||| ||| |||| = λοῦε ? δεκάκις

(logographic use as an *adverb*)⁵².

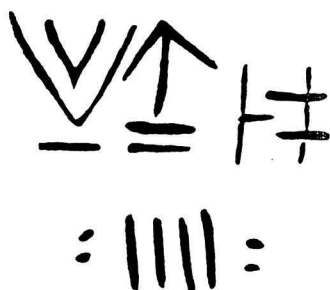


FIGURE 6. *GDI* 81 = *ICS* 290
(after MMA photograph = Myres, Cesnola no. 1884)



FIGURE 7. *GDI* 76 = *ICS* 276
(after MMA photograph = Myres, Cesnola no. 1887)

⁵⁰ J. L. Myres, *Handbook of the Cesnola Collection of Antiquities from Cyprus*, New York 1914, pp. 316-317, describes this object as a disc of red polished ware which was roughly trimmed and grooved at its edges in order to function as «a loom-weight, or a net-sinker, or other extemporized implement; or perhaps a counter from a game». Here we see an early broader application of CS writing, in this case partly as a mark of ownership and very much akin to the personal graffiti of early Greek alphabetic inscriptions.

⁵¹ See Myres (*supra* n. 50) p. 317, for description.

⁵² The triplet arrangement of the digit strokes is paralleled in *ICS* no. 299 (an obscure accounting document) and *ICS* no. 275 (a base for a dedicatory marble statuette). *GDI* 111 is recorded by W. Deecke, Cypriote editor of *GDI*, from the papers of Justus Siegismund, a younger epigraphist colleague who traveled throughout Turkey and Cyprus in 1875-76 and met an unfortunate demise in March of the latter year (see *GDI* vol. 1, p. 1).

These albeit limited examples of CS ideographic, and certainly in the last three cases logographic, numerical writing show little connection with the forms, arrangement, or applications of ideographic numerical signs in CM. *GDI* 111 may imply that a purely ideographic sign for 10 matching the earlier dots or horizontal strokes of Bronze Age scripts, as opposed to a phonetic logographic abbreviation like the Δ of later Greek inscriptions, did not exist in the CS system⁵³. The development from CM to the well-attested stages of CS nearly five centuries later discarded, or disregarded, whatever ideographic component and principles existed in the Bronze Age system. This transformation may also imply that ideograms in CM —particularly if there was a fuller repertory of so far unattested non-numerical ideograms— were used, as in Linear A and Linear B, primarily for purposes of accounting, and that the derivative CS writing system, with its broader range of applications, focused exclusively on the phonetic element of CM as a pattern script. Thus the CS non-numerical ideograms are entirely phonetic logographic abbreviations, like Mycenaean *ko* standing for coriander or κόρυς and, we assume, Minoan *NI* for figs. Only the late Enkomi graffito (Inv. no. 4025) shows a slight resemblance to later CS practices in the triplet grouping of the digit strokes and the possible use of signs, otherwise deduced to be phonetic, at the beginning of each line in a logographic or ideographic function. While its two-line layout resembles the formatting techniques of Mycenaean accounting documents, the disposition of the numerical signs is foreign to Linear A and Linear B. It is thus an interesting and exasperating hybrid, looking backward and forward, but never far or clearly enough in either direction to enable us to be certain about the stages of evolution of Cypriote script.

Finally, in regard to the origins and evolution of the Cypriote scripts, it is worthwhile to consider not only, as has been done⁵⁴, the sign and phonetic value parallels between CS and CM on the one hand and Linear A and Linear B on the other, but the group of signs added to the Linear B script in its evolution from Linear A. This may give us some chronological perspective on developments in Cypriote writing.

⁵³ However, rote tallying of digits is known even in Linear B texts, e.g., PY Ea 59 verso.

⁵⁴ J. Chadwick (*supra* n. 19) pp. 139-143; and for a survey of other attempts to match signs: «KS», pp. 75-79, figs. 13, 13a.

The signs missing in Linear A but found in Linear B fall into the following categories:

plain o- series:	*12 (<i>so</i>) *14 (<i>do</i>) *15 (<i>mo</i>) *32 (<i>qo</i>) *36 (<i>jo</i>) *42 (<i>wo</i>) *52 (<i>no</i>)
plain e- series:	*72 (<i>pe</i>) *75 (<i>we</i>)
doublet series:	*25 ($a_2 = ha$) *33 ($ra_3 = rja$) *43 ($a_3 = ai$) *68 ($ro_2 = rjo$)
complex series:	*48 (<i>nwa</i>) *62 (<i>pte</i>) *71 (<i>dwe</i>) *90 (<i>dwo</i>) *91 (<i>two</i>)
unvalued:	*18 *19 *63 *64 *83.

It is interesting to observe that none of these signs is found within the CM systems or in the CS regional syllabaries, with or without its Mycenaean phonetic value. The only possible match is *75 (*we*) the curved form of which does not really resemble closely the *capital* 'T' shape of a sign shared by CM 1, 2, and 3 and used by CS for the value *we* (Idalion, Akanthou, Paphian Old and New, but not so far Eteocypriote)⁵⁵. Of course, the labiovelar value *qo* was eliminated in Arcado-Cypriote by the time of our CS texts. Also CS, which did not distinguish between voiced and unvoiced dentals, has a sign resembling the Linear B character for the unvoiced dental *to* (Linear A AB 05) in this dental slot in its phonetic grid. Consequently CS would have had no need for *do*. However, the CM and CS systems do not borrow any of the solely Linear B doublet, complex, or unvalued signs as models for sign forms; and they freely invent shapes for the signs carrying the values *so*, *mo*, *jo*, *wo*, *no*, *pe*, and probably *we* in the later Cypriote syllabary. These belong to the phonetic series -e and -o in which the Minoan Linear A system was weak⁵⁶. Consequently, an economical hypothesis is that this pattern of missing overlaps between Linear B, CM and CS supports our earlier suggestion based on the dot 10: the CM script developed primarily out of Minoan Linear A and any influence from the Linear B script was late and secondary, affecting mainly the transition from CM to CS during the period of intensive Mycenaean settlement in the island.

Our conclusions, so far as present evidence permits, are clear. (1) There was no Linear B component in the construction of the CM script, the various forms of which, however they are to be classified, must have been well-developed and stable before the period of Mycenaean contact. (2) Any Mycenaean input into the creation of CS

⁵⁵ «KS», figs. 1 and 13; *ICS*, pp. 56-57 and figs. 1-6.

⁵⁶ M. Pope and J. Raison, «Linear A: changing perspectives», *Études Minoennes* 1, BCIIL 14, Louvain 1978, pp. 28-29.

from CM, perhaps in the region of Paphos⁵⁷, cannot have been effected with a conscious view to applying the methods of Linear B writing to the, by then, well-established Cypriote system of writing. The value and form parallels between CS and the Aegean scripts probably are to be traced back to the origins of CM under the influence, however indirect, of a Minoan script. This offers some secondary support for the still tentative procedure of applying the Linear B values of signs to their Linear A predecessors. CS had to derive those matchups it has with the Aegean scripts from some source; and the Mycenaean influence does not seem strong enough to have imposed a change upon CM signs with already long-established values in LH III C and after. A sign which Paphian CS shares with CM and the Aegean scripts (AB 27) seems to support this conclusion. In Linear B AB 27 has the value *re*; the Paphian CS sign has the value *ri*. It therefore seems likely that its true progenitor is Linear A AB 27, the value of which may have been changed in the transition from Linear A [*ri*] to Linear B [*re*] to fill out in Mycenaean the weak Minoan *-e* series. Thus the value *ri* for this sign would be preserved from Minoan Linear A through CM and into Paphian CS, while it was eliminated in Mycenaean Greek Linear B. However, scripts have peculiar lives, and much could be hidden in the Cypriote Dark Ages. Equally mysterious is the nature of original Minoan influence upon the formation of CM. Why the Cypriotes did not borrow a script wholesale from the Aegean or the Near East remains the major question to be answered in tracing the graphic connections between the Aegean and adjacent cultures.

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⁵⁷ E. Masson (*supra* n. 5) pp. 89-90, reviews the substantial connections between the Paphian CS inscriptions and the Bronze Age scripts: 2 sign parallels (*ri* and *so*) shared with CM and (*ri*) Linear B, but not with other CS regional syllabaries; dextroverse direction of some inscriptions; no representation of final *-s*; etc.