Toward a Decipherment of Cypro-Minoan

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The Cypro-Minoan script, used on Cyprus and at Ugarit in the Late Bronze Age, is one of the most important writing systems in the Aegean-East Mediterranean world yet undeciphered.[1] It occurs in three varieties: one found at Ugarit (Ras Shamra) on the Syrian coast, seemingly the records of the local Cypriot colony; another found on various objects throughout the island; and a third found in the last Bronze Age level at Enkomi.[2] This last represents a language distinct, in the opinion of Emilia Masson, from that contained in the other varieties.[3] The texts found so far are scanty but seem to represent literary or epistolary texts. It is this last variety which shall be discussed here.

Though the material is meager in the extreme, a number of decipherments have been attempted. Sittig reads it as Greek,[4] as does Ephron,[5] while Davis interprets it as Cuneiform Hittite (as indeed he does all the undeciphered scripts in the area!).[6] None of these attempts have achieved wide acceptance, nor are they likely to provide a basis for progress toward a reliable decipherment.

Given the fact that the Turkish Army has occupied the site of Enkomi, there is little hope for renewed excavations that will bring more of the Cypro-Minoan archives to light. We must therefore work with what we have now: two fragments found by Porphyrios Dikaios in 1952 and 1953,[7] one found by C.F.A. Schaeffer in the latter year,[8] and one by Schaeffer again in November, 1969.[9] One of these, the *grand fragment*, tablet 90 (1687), found by Dikaios in 1953, will be studied here. The other pieces can serve as independent checks on the validity of conclusions reached here.

Given the scantiness of the *corpus*, a true decipherment seems impossible, but it is the belief of the author that the value of certain signs may be deduced, morphemic elements isolated, and an educated guess made as to the language of the Enkomi tablets.

The first task is to establish the phonic value of some of the commoner syllabograms.[10] There are two ways to achieve this; they are fortunately complementary and not mutually exclusive. The first is the palaeographic method; it consists of comparing the shapes of signs in an unknown script with those in related, but well-known writing systems. This is very risky. If we attempted to read the Cyrillic alphabet in this way with the aid of the Latin we would read H as *h* and not as *n*, the true value.[11] Fortunately, however, we have not one, but two (or three) scripts to compare Cypro-Minoan with, and they are closer to Cypro-Minoan in most respects (certainly geographically and temporally) than Cyrillic and Latin. These are Linear B (and Linear A) from the Aegean, and the Classical Cypriot syllabary, probably a descendant of Cypro-Minoan.[12] If a syllabogram in Cypro-Minoan has exactly the form of a sign in Linear B *and* one in Classical Cypriot, and the latter two agree closely as to the phonic value, we are justified in attributing that value to the Cypro-Minoan sign. As a check, we can try to reconstruct the phonic value of Greek capital letters from

[1] The name Cypro-Minoan is used here for both script and language because of traditional usage, though the term Minoan should properly be restricted to Crete and vicinity.

[2] For discussion of this tripartite division see Piero Meriggi, "I nuovi testi ciprominoici," *Minos*, N.A.13, fasc. 1 (1972) 197-258.

[3] Emilia Masson, "Les répertoires graphiques chypro-minoens," *Acta Mycenaea*, 1 (Salamanca 1972) 99-111.

[4] Ernst Sittig, "Zur Entzifferung der minoisch-kyprischen Tafel von Enkomi," *Minos* 4 (1956) 33-42.

[5] H. Ephron, *Harvard Studies in Classical Philology* 65 (1961) 39-107.

[6] Simon Davis, *The Decipherment of the Minoan Linear A and Pictographic Scripts* (Johannesburg 1967) 312-27.

[7] Newly re-edited by Emilia Masson, *SMEA* 11 (1970) 73-102.

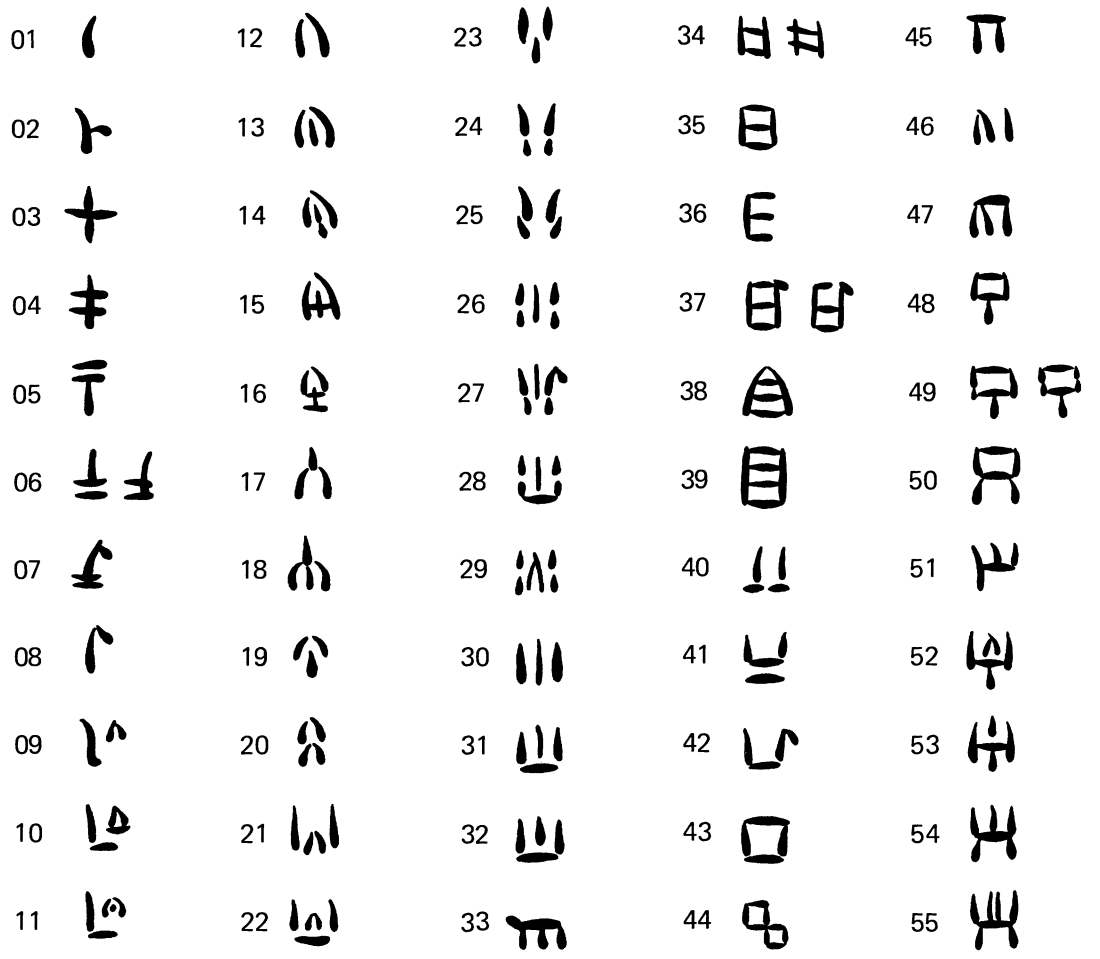
[8] Discussed by Olivier Masson, *Atti Roma* I, 421.

[9] C.F.A. Schaeffer, in survey of Cypriot archaeology by V. Karageorghis, *BCH* 94 (1970) 249-51.

[10] For the signary, see ill. 1. It is based on the list organized by Emilia Masson, *SMEA* 11 (1970) 87 (fig. 5) with emendation as suggested by Mme. Masson herself (*Acta Mycenaea*, 1, 108-109). The illustration was prepared for this article by Dottie McLaren of the UCSB Graphic Arts Division, whose careful work speaks for itself.

[11] This assumes, of course, no knowledge of the development of the scripts in question. Cyrillic H comes from Byzantine variants of Greek N; Latin H from Greek H in its original non-Ionic aspirate value.

[12] M. Ventris and J. Chadwick, *Documents in Mycenaean Greek* (Cambridge 1959, 1973) 60-66.



ILL. 1

the Latin and Cyrillic capitals. Only where Latin and Cyrillic agree exactly as to form *and* value do we identify the Latin-Cyrillic value with the Greek capital letter possessing the same form. The results are these: A, E, K, M, O, and T correctly identified; no incorrect equivalences.[13] A double frame of reference, it is apparent, will cut down the danger of false identifications to virtually zero. Therefore, Cypro-Minoan syllabograms will be given a value by this method only where there are identical forms in Linear B and Classical Cypriot with substantially the same phonic value.

The second method is the structural approach. Simple vowels such as *a, o, e* have an extreme preference for initial position in all ancient scripts which allow initial vowels.[14] In Linear B, for example, *a* occurs 568 times initially as opposed to 27 medial and 32 final occurrences; for *e* the figures are 397 initial against 87 and 59, and for *o* 219 as against 50 and 149.[15] Consonants generally pattern randomly, with medial and initial occurrences roughly equal. Signs beginning with a palatal glide /j/ tend to avoid initial position. From Linear B again, we find that the syllabogram *ja* occurs initially only 11 times in complete sign groups, as against 151 medially and 233 in *Auslaut*.[16] Similar distribution is found for the *v* sign (representing the palatal glide) in Hurrian texts written in the

[13] In addition, Cyrillic B (=/v/) corresponds exactly in shape, and fairly closely in sound, to Latin B (=/b/ in most Western languages, /b/ in Spanish).

[14] Semitic languages and Egyptian do not permit initial vowels; significantly, they are written, not with syllabaries, but with consonantal alphabets, with the vowels not represented.

[15] David W. Packard, *Minoan Linear A* (UC Press 1974) 207 (Appendix F).

[16] Ibid. 209.

Ugaritic alphabet.[17] In Greek inscriptions in the Classical Cypriot syllabary, the syllabograms containing *j* are never initial.[18] Thus it seems that we have here a pattern which holds true for any language likely to be found in the region.[19]

By the palaeographic method we can securely identify six signs whose shapes are identical, or practically so, in Linear B, Cypriot Classical, and Cypro-Minoan, and whose values are the same or very similar in the first two scripts. The equations are: *02=*ta/da*; *03=*ro/lo*; *04=*pa*; *05=*na*; *13=*ti* and *51=*se*. Two safe identifications can be made by the structural-statistical approach. *43 occurs 23 times on the *grand fragment*; of these not one is initial. In addition, the sign shows some resemblance to the Cypriot Classical *ja*, an ovoid or circle. The equation *43=*ja* is compelling. *53 is found 26 times on the *grand fragment* (including three doubtful occurrences). One example is surrounded by lacunae at the top of face B, but all the rest, including the questionable cases, are clearly initial; they come right after word-dividers at the beginning of another sign-group, or else they begin the first word of a line. *53 never occurs medially or finally; it is the ideal candidate for the vowel *a*. Further, *53 bears some resemblance to the signs for *a* in Linear B *and* in the Classical Cypriot syllabary, and a striking similarity to a variant of Linear A sign L52 (= Linear B *a*) from Palaikastro in east Crete. Therefore, let *53=*a*.

Now we have made eight identifications. These are not mine alone; Meriggi and Sittig proposed them first in the fifties.[20] They can be considered to be objective guesses with an extremely high probability of being correct. If sign-groups read with these values were to resemble words in a known language, that would be a very potent argument in favor of a relationship between the language of the Enkomi archives and that known language. It is to this task of reading the sign-groups that we must now turn.

One series of sign-groups, the commonest in fact, begins with the two signs *53-*43, by our values *a-ja*. We find:

a-ja	lines	A4.1, A10.1, A18.2
a-ja-ta	lines	A11.4, A14.4
a-ja-*27	lines	A2.1, A12.4

If we are to make a successful identification of Cypro-Minoan with another tongue, we must do the following: (1) find a root similar to *a-ja* in Language X, a root, moreover, that can stand alone; (2) prove that the addition of *ta* as suffix is an important inflectional element (it would help if something like **ajata* actually were to occur in X); and (3) explain plausibly other words containing these signs alone, to wit *ta-ja* (B12.2) and *a-ta-ja* (B7.2). This is a tall order, and if language X fills all of these requirements, then surely it is probable that a genetic relationship does exist between X and Cypro-Minoan.

Looking around the Eastern Mediterranean of the Bronze Age we find that neither Semitic languages, nor Hurrian, nor Greek provide *both* words and flections to match those above. The languages spoken to the north of Cyprus, in Asia Minor, forming the Anatolian branch of the Indo-European family, do provide us with *both* the root *and* the flections. The stem *aja-* (Luwian),[21] *aia-* (Hieroglyphic Hittite),[22] *ija-* (Hittite) has the meaning "do," "make" and is very common. In Hieroglyphic, a language found in inscriptions in various places in Cilicia just a few miles by sea from Cyprus, the following forms are found:[23]

Prs. Sg. 1.	aiă̆wa	Imperat.	Sg. 2.	aiā
2.	aās		3.	aiă̆tu
3.	aiati		Pl. 3.	aiātu
Prt. Sg. 1.	aiaha	Passive	Sg. 3.	aiāru
3.	aiata	Conjunct.	Sg. 3.	*aiă̆
Pl. 3.	aiāta	Infin. or Participle: aiāmin-		

Since Hieroglyphic possesses no *j* series of syllabic

[17] *y* is initial once, medial 9 times, final 11 times. By contrast *a* (aleph + a), is initial 33 times, medial once, and never final. See Nougayrol, Laroche, Virolleaud, and Schaeffer, *Ugaritica* 5 (Paris 1968) 533-540.

[18] Packard, *Minoan Linear A*, 103.

[19] In Akkadian, the one Semitic language written regularly with a syllabary (and the one Semitic language with initial vowels), the syllabogram A (#597) is 78% initial, E (#308) is 50%, I (#142), and U_2 (#318) is 60% initial (Packard, p. 81). In Linear A, vowels show extreme frequency in initial position; *ja* (L32) is more frequently (28.8%) initial than in other Aegean scripts but less so than most CV syllabograms.

[20] Piero Meriggi, "I primi testi caprominoici" *Athenaeum*, N.S. 34 (1956) 1-38.

[21] Emmanuel Laroche, *Dictionnaire de la langue louvite* (Paris 1959) q.v.

[22] Piero Meriggi, *Hieroglyphisch-hethitisches Glossar* (Wiesbaden 1962) 15-16. Meriggi's values are used here, though recently challenged by a number of scholars. In a forthcoming article in *JNES* (July, 1976), I express the opinion that Meriggi's *i* should be read *ja(ya)*, so we would read *ajawa* and so forth in the paradigm given above. This reading would indicate that the relationships between Luwian, Hieroglyphic Hittite and Cypro-Minoan are even closer than hitherto suspected.

[23] Ibid. 15-16. The form **aiă̆* as a conjunctive singular is reconstructed on the basis of similar forms for other verbs.

signs, it represents spoken syllables beginning with the palatal glide by means of *i* plus vowel. Thus *aia-* surely represents disyllabic [aja], not trisyllabic [aïa],[24] thus corresponding exactly to the Cypro-Minoan form. We have identified a common word in Hieroglyphic with an equally common word in Cypro-Minoan. Can the above conditions be met? *aia* stands alone, so (1) is fulfilled; *aiata* fulfills (2). What of *ta-ja* and *a-ta-ja*? For *ta-ja* the Hieroglyphic has *ta*^{5}*-a/ta-a* (Conjunctive Sg.) "step," also "go," "come," "walk." The absence of medial *j* in Hieroglyphic need cause no anxiety. Compare:[25]

Hittite *wijanas*	"wine"	>	**wajanas* > *waānas*
Hittite *ija*	"make"	>	*aja/aia* > *aās* (2nd Sg.)
Hittite *tija*	"step" "go"	>	**taja* > *taa*

Except for most of the forms of the word meaning "do," "make," Hieroglyphic Hittite has eliminated medial /j/; if the opinion here presented is correct, Cypro-Minoan is a more conservative Anatolian dialect which has preserved /j/. This is also shown by the word *a-ta-ja*, corresponding to Hieroglyphic *á-tà-à*. This latter form is probably a compound of Hieroglyphic *àtá*, "to," with *aja-* "make," "do" (the two words are frequently found separate but next to each other, as well as in the above bound form).[26] Here again, Hieroglyphic drops intervocalic /j/, but Cypro-Minoan preserves it.

We have now exhausted the possibilities of our initial, extremely cautious inquiry based mainly on the value of three signs. These signs were fixed in their value by close palaeographic parallels and/or by clear evidence from their statistical distribution. The values, themselves independent of any assumptions as to the language of this Enkomi tablet, when applied to the text, gave extremely gratifying results indicating that the language was one of the Anatolian branch of Indo-European, closely related to Hieroglyphic Hittite and Luwian, but showing consistent conservatism in one element of phonology where Hieroglyphic had innovated. Now a further attempt shall be made to test the identity of the language of the tablet.

The method shall be simply to require that a Cypro-Minoan syllabogram closely resemble either a Linear B *or* a Classical Cypriot sign in order to receive the value of that sign, instead of making the rule that it must resemble a syllabogram in *both* deciphered scripts. In addition, an identification shall be made on the basis of the assumption that Cypro-Minoan *is* closely related to Hieroglyphic and Luwian, in order to test further the value of the hypothesis itself.

An important group of words are those with the root *02-*15-: for example *02-*15(*A8.3); *02-*15-*21-*05 (A5.4); *02-*15-*38-*27 (A12.5); and *02-*15-*38-*48 (A14.1). *02=*ta/da*, as has been said. *15 resembles Linear B *nu*, and even more, its Linear A predecessor.[27] *38 is close in shape to Linear B *wi*; *21 is nearly identical with the *wa* of the Classical Cypriot syllabary. *05=*na*, as above. Applying these values, we derive the following: *ta-nu*; *ta-nu-wa-na*; *ta-nu-wi-*27*; *ta-nu-wi-*48*. Consulting Meriggi's *Glossar*, one finds the verbal root *tanu(wa)-*, "erheben," "errichten," a very common word in *Hieroglyphic Hittite*.[28] From the short form *tanu-*, we have *tanuwa* (1st. Sg. Pres., **tanuwi* in Luwian) and can postulate an imperative **tanu*. From the extended form *tanuwa-*, there is *tanuwawa* (1st. Sg. Pret.). The Cypro-Minoan words seem to correspond quite nicely. We have the short imperative in *ta-nu*, and in *ta-nu-wi-* a first person present singular (with *-wi* as in Luwian against Hieroglyphic *-wa*). *ta-nu-wa-na* is a typical Hittite infinitive in *-anna*.[29] All the forms are thus explained in reasonable fashion.

On line A12 we have the phrase *a-ja-*27 ta-nu wi-*27*. If *ta-nu-wi* by itself means "I (shall) set up/ build," then *-*27* is a suffix. Evidence for this can be found below, on line A14, where we have *a-ja-ta *33-*20-*27*, and above, on line A10, where one finds *19-*12-*09 *31-*03-*41-*27. All three word pairs have the form X Y-*27, and all three occur at the end of a line. This is very reminiscent of Latin *-que*, Classical Greek *-te*, and Mycenaean Greek *-qe*. Since the existence of such an enclitic meaning "and" had been predicted for Cypro-Mi-

[24] Indo-European **yos* is represented by forms such as *i-a-s*, the demonstrative. The fact that *aia-* can become *aa-* as in the second person singular, shows that the *i* represents a weakly articulated palatal glide.

[25] Meriggi, *Glossar*, see 115 and 148-49.

[26] Meriggi, *Glossar*, 40-41.

[27] William C. Brice, *Inscriptions in the Minoan Linear Script of Class A* (Oxford 1961) Table I, Sign L25.

[28] Meriggi, *Glossar*, 119.

[29] Laroche, *Dictionnaire*, 137f.

noan, such a role for -*27 should cause no surprise.[30]

This leaves the first -*27 yet unexplained. It would be most logical, since it cannot be enclitic (cf. lines A10 and A14), to assume that it is here a suffix of the verbal conjugation. Since we usually find parallelism here in Greek and Latin, we would expect that *a-ja-*27* would be a first person singular of some sort, parallel to *ta-nu-wi-*. Here again, we find a correspondence with Hieroglyphic Hittite, where *-ha* is the suffix indicating the first person singular preterite, and at the same time is the enclitic suffix meaning "and." If we then read *27 as *ha* we have the phrase *a-ja-ha ta-nu-wi-ha*, "I (have) made and I (shall) erect."

On face B, line 7, there is the word *a-*23-na*. *23 is read as *vo* (i.e. *wo*) by Sittig, and it resembles the Hittite Hieroglyphic *wa* (Meriggi no. 394).[31] Let us read *wo* (or *wå*) for *23, giving *a-wo-na* for the above word. In Hieroglyphic we find *a-wa-na* (Sultanhan 2A.3), "then."[32] Another correspondence between Hieroglyphic and Cypro-Minoan.

Looking about for some confirmation of these values, I found on line B15 (the next to last line), the word *a-ha-ja-wo*. Since we know (cf. page 4) that Hittite /ija/ corresponds to Cypro-Minoan /aja/ and since Cypro-Minoan *wo* occurs in the place of Hieroglyphic *wa* (in fact the two signs are close in shape), we have here what may be the Cypro-Minoan form of *Ahhijawa*, the Hittite name of a country to the West, very possibly to be connected with the Homeric *Akhaiwoi*. Since this name occurs in connection with the incursions of one Attarissiyas into Hittite territory not far from the putative date of the Enkomi tablets (end of 13th century), the perfect phonological match may have historical validity as well.[33]

The question of the historical background of this period is a crucial one, for the variety of Cypro-Minoan discussed here is sharply different from that used on the island from the beginning of the Later Bronze Age. It occurs only at Enkomi, the presumable capital of the island, and it dates to the late thirteenth and early twelfth centuries.[34] If I am correct, and the Enkomi Cypro-Minoan is an Anatolian dialect related to Hittite and Luwian, then the language of Cyprus before that was something else, and the Anatolian dialect was brought by conquest around 1200! Is there any evidence for such conquest? In fact, there is. On the tablet K Bo XII 38, obverse I, found at the Hittite capital, Hattusas, we are told of the conquest of the island by Suppiluliumas II, the next to the last King of Hatti, whose accession occurred around 1200 B.C.[35] A perfect fit exists between the evidence of the Enkomi tablet and the historical data from Hattusas.

There is some reason to believe that an Anatolian language continued to be spoken in Cyprus long after the Bronze Age. The Classical Cypriot syllabary was used not only for Greek, but for another language as well, conventionally dubbed "Eteo-Cypriot." Piero Meriggi showed some time ago that there is good reason to believe that Eteo-Cypriot is an Anatolian dialect.[36]

To summarize, I would like to point out that this is not a general decipherment, for most of the signs and most words were not given a value. The size of the *corpus* is much too meager for that, and part of it was intentionally disregarded in order to provide material from which an independent check may be made. Nonetheless, ten words were identified, *all* of them corresponding with known and attested words in Hieroglyphic or Cuneiform Hittite.[37] Where they diverged from counterparts in the Anatolian languages, they did so in ways in-

[30] In a letter of Esuwara, "Grand-Intendant" of Alasia (= Enkomi) to the King of Ugarit (R.S. 20.18), in Akkadian, *-ma* is used twice in the manner of Latin *-que*, indicating that the Alasians spoke a language where such was the usage. See *Ugaritica* 5, 83, n. 4.

[31] Meriggi, *Glossar*, 234.

[32] Meriggi, *Glossar*, 45.

[33] Emilia Masson, *Acta Mycenaea* 1, 104 for date of Enkomi tablets.

[34] Ibid. 104.

[35] For this see, for example, M.C. Astour, "New Evidence on the Last Days of Ugarit," *AJA* 69 (1965) 253-58, and Heinrich Otten, "Neue Quellen zum Ausklang des hethitischen Reiches," *MDOG* 94 (1963) 1-23. Note that in El-Amarna letter 38, thus already at an earlier period, the King of Alasia complains of Lycian raids.

[36] *Athenaeum*, 1-38, especially 30-38. He compares the *-ti* case suffix attached to nouns to the Anatolian ablatives in *-ti, -di*, e.g. in Lycian *esbedi medezdi*, "with Median horse (cavalry)." O. Masson has indicated belief in Anatolian affinities as well: "eventuellement une langue anatolienne . . ." ("Les écritures chypro-minoennes et les autres écritures chypriotes") *Atti Roma* I, 425.

[37] It is worth noting that even in the case of Linear B, where the language is now known to be Greek, a large number of rarer signs are still undeciphered, and a great many words have no known meaning. Since thousands of tablets in Linear B have been found, whereas we are dealing with a single tablet here, the degree of success here is remarkable. It can be ascribed either to chance, or to the obvious Anatolian nature of the language in which the tablet is written.

dicating that regular and predictable sound shifts had taken place. The signs were identified by palaeographic and statistical means, with one exception, yet with their values, the sign groups, when read, made perfect sense. No fantastic words, unattested save in the "decipherer's" mind, no weird meanings, and no massive homophony in the values of the signs have appeared in the course of this inquiry.[38] Though the equations of word and sign here proposed are far from certain, the mathematical probabilities are heavily in favor of their validity.[39] I hope that this work may constitute a first step toward a systematic decipherment of the Cypro-Minoan scripts.

[38] Compare the works of Ephron and Davis cited above.

[39] It is difficult to give precise quantitative expression to this, but as a general rule it may be stated that the more words that can be interpreted with a small number of known signs, the more certain the values of those signs are, for they re-occur so often. Thus *a-ja-ta* has all its syllables re-occur in *a-ta-ja*; both words are easily interpreted as Anatolian forms. In the ten words interpreted here, there are thirty occurrences of syllabograms but only nine signs are used; there are twenty-one repetitions. This lessens the probability of the results being achieved by chance to near nil. The chances that the interpretations here presented are correct correspondingly increase.

POSTSCRIPT:

Since this article was written, I have been able to read E. Masson's *Cyprominoica* (*Sima* 31:2). On the tablet RS 20.25, from Ras Shamra, published therein, the word *53-*43-*21 occurs. By the values above suggested, this is to be read *a-ja-wa*. This is exactly what would be expected from the comparative evidence of Hieroglyphic Hittite (cf. note 22), for the first person singular present of *aja-*, "make," "do." This seems to be an important bit of independent support of the thesis here presented.

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