

YUCATEC PHONOLOGY AND MAYAN GLYPH VALUES¹

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The purpose of this paper is to demonstrate that attention to phonemic facts in Yucatec and related languages can provide clues for the assignment of phonetic values to the signs of the Mayan writing system, and must be taken into account when a reading is proposed for any sign.²

I

Providing readings for collocations of signs in the codices has almost always been characterized by one of two extremes, either exclusive reference to vocabulary materials in colonial Yucatec, or on the other hand indiscriminate selection of lexicon from all the Mayan languages. Reasonable guesses about the languages spoken in the areas where hieroglyphs were in use, coupled with an examination of the phonological systems of these languages, should with greater probability provide reasonable hypotheses for the readings of individual signs.

Distribution of language communities at conquest and up to the present, along with estimates of time-depth involved in the differentiation and geographical movements of these communities, provided by McQuown (1964:73-74 and *passim*), indicate that among the languages spoken by the users of hieroglyphs were Chol, Chorti/Cholti, and Yucatec (perhaps also Chontal). While historical sources indicate that at conquest the use of hieroglyphs was concentrated in areas occupied by Yucatec-speakers, certainly during some earlier period the use of hieroglyphic writing was shared among speakers of the languages cited. Hieroglyphic writing easily tolerates such a situation, even when it

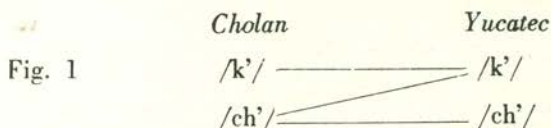
¹ I wish to thank Floyd G. Lounsbury and John Fought for valuable criticisms of a draft of this paper.

² The term 'sign' designates the minimal graphic unit, and a combination of signs forming a unit is labelled 'glyph.'

has developed to the stage of syllabic writing or the mixed ideographic-logographic-syllabic system hypothesized by Kelley (1962b:3).

Now Chol, Chorti/Cholti and Yucatec have a great many cognate words, and no doubt had a great many more 400 years ago before they were isolated from each other by the Spaniards, and when they shared features of religious and political organization. However, the phonemic systems of these three languages differ in many respects, a factor that would play an important role in the development of syllabic principles in the writing system.

One obvious difference, and a difference important to the concerns of this investigation, is that many Cholan words containing /ch'/³ have cognates in Yucatec containing /k'/. This is explained historically as a phonetic shift from Proto-Mayan *k' to /ch'/ in the Cholan languages (Halpern 1942:53), an innovation not shared by Yucatec. This shift, however, was conditioned by the phonemic environment, so that some cases of PM *k' remain /k'/' in the Cholan languages. The result of this historical change is the phonemic relationship among cognate words in the Cholan languages and Yucatec shown in figure 1.



That is, we find the correspondences Ch/k'/' = Yuc/k'/'/, Ch/ch'/' = Yuc/ch'/'/, and Ch/ch'/' = Yuc/k'/'/.

II

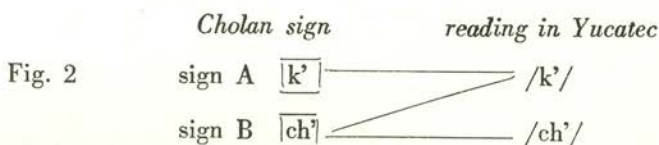
The state of current research does not permit us to specify with any exactitude when the sound shifts which differentiate among the sub-groups of Mayan languages occurred. For the purposes of this exposition it will be assumed that the division between Cholan and Yucatec occurred prior to the development of the writing system (or its adoption by speakers of Cholan and Yucatec). It will also be as-

³ Phonemic representations are enclosed in slashes, eg. /ch'/'/, and identified as Yucatec (Yuc), Cholan (Ch) or Proto-Mayan (PM). Reconstructed forms are preceded by an asterisk, eg. *k. Citations from the Motul Dictionary are given in traditional orthography (with the exception of *chh* for the "ch rayada") and italicized. The following equivalences hold between phonemic representation and traditional orthography: /ch'/' = *chh*; /k/' = *c*; /k'/' = *k*; /t'/' = *th*.

sumed that the writing system either was developed by speakers of the Chololan group or was adopted by them before its adoption by speakers of Yucatec.

If we further assume that the hieroglyphs came to be used and understood by a politico-religious class that in some sense transcended language boundaries, and that a codex written in the Chol area, for example, could be understood and used in the Yucatec area, then the phonemic values of syllabic glyphs would necessarily vary from area to area.

The following hypothesis is suggested as an attempt to correlate the existence of differing phonemic systems with the use of syllabic hieroglyphs. Given sign A for /k'/ and sign B for /ch'/ in Chololan (fig. 2), and given a large corpus of written materials, so that it is important that words continue to be written the same way, then with the adoption of the writing system, speakers of Yucatec will read sign B sometimes as /ch'/ and sometimes as /k'/, since Chololan-Yucatec cognates exhibit the correspondences Ch/ch'/ Yuc/ch'/ and Ch/ch'/ Yuc/k'/ (fig. 1). This variation will seem random to the Yucatec speaker, so that he must assign two phonemic values, /ch'/ and /k'/, to sign B.



III

I would like now to present some internal evidence in the writing system supporting the view that certain signs could have alternate phonemic-syllabic readings, and that these alternations are related to the phonemic history of the languages involved. More correctly, I will make many small hypotheses about single glyph readings that I feel support a larger hypothesis about the relationship of the writing system to the languages of its users.

The claim of this paper is that the admission of alternate phonemic-syllabic values /k'a/ and /ch'a/ for Z.166 produces apt and reasonable readings for most occurrences of Z.166 in the codices.

Landa (Tozzer 1941:170) gives the value *ka* /k'a/ to a sign easily recognizable as Z.166, the so-called "death-hand." This reading has

been widely accepted (Knorozov 1958, 1963; Kelley 1962a, 1962b) but no survey has been made of all occurrences of the sign in the codices. A complete review of collocations which include a particular sign, and a proposed reading for the majority of such collocations, must surely be a requisite for the acceptance of a phonetic value for any sign. Only one such survey is on record (Fought 1965).

The death-hand sign has fairly wide distribution in the codices, appearing in all three a total of 41 times, in 17 distinct collocations with other signs, not counting possible confusions with Z.152. Table 1 lists these occurrences.

Two collocations which include Z.166 are by far the most frequent, first with Z.75, Landa's *ma*, appearing only in the Dresden codex; and second with Z.1300, read by many investigators /pa/. And these are the two collocations including Z.166 which have received widest attention in recent publications, being assigned readings of /k'am(a)/ 'receive, accept' and /pak'(a)/ 'to set up beehives; to varnish' respectively. We find two major problems in examining these readings: 1) the reading /k'am(a)/ is given for both collocations 166-75 and 75-166, indicating that previous investigators have considered order unimportant; 2) the collocation 1300-166 is found in both the Dresden and the Madrid codices, and in the Dresden there is no obvious connection with bees, beehives, or varnishing.

III

There follows an examination of each glyph in the codices which includes the sign Z.166.

1-75-166 (D13b). If order of signs in a glyph is important, as it seems to be in most cases in the codices, this glyph should be read /u mak'(a)/ or /u mach'(a)/. There seems no reason *a priori* why the accompanying drawings, showing Gods A, E, and C holding the *kan* corn sign (Z.1324) should not just as probably represent the eating of corn as the receiving of it, and Yucatec /mak'/ is the root for 'eat without chewing.' I propose /u mak'(a)/ as the reading for the collocation 1-75-166.

75-166-76 (D14b). The reading /an/ has been widely accepted for Z.76, so that /mak'a'an/ 'a thing which has been eaten' should be the reading for this collocation. In Yucatec the /-a'an/ suffix derives adjectives from verbs, indicating completion of an action upon an object. This change of state expressed linguistically matches a calendrical passage of time in D13b-D14b.

166-75-76 (D15c). We read this collocation /k'ama?an/ or /ch'ama?an/. The accompanying drawing shows God A holding the *kin* sun sign (Z.1341a). Yucatec /k'am/ 'receive, accept' contrasts with /ch'a?/ 'take'; the cognate in Chol and Cholti for Yuc/ch'a?/ is /ch'ama/. These two stems are closely related semantically, implying 'have in one's possession.' It is difficult to choose between the reading /k'ama?an/ 'a thing which has been received' and /ch'ama?an/ 'a thing which has been taken', and perhaps from the point of view of the writing system it is not necessary to make such a choice (compare Chorti /u ch'ami/ 'be receives, accepts, takes, grabs').

1a-75-166 (D15c) begins the phrase following 166-75-76, and the inverted order of these two phrase-initial collocations, 166-75 and 75-166, has generally been ignored, it being assumed that the readings for the two orders are identical. If, however, order is significant, 1a-75-166 would be read /u mak'(a) or u mach'(a)/. This collocation is also followed by the *kin* sign, and the Motul Dictionary includes the entry *machh kin* 'pasarle el sol.' The reading /u mach'(a)/ is proposed here for 1a-75-166.

1-166-75, 1-166-63 (D2d). The readings /u k'am(a)/ 'he receives' and /u ch'ama/ 'he takes' follow from the above discussions for 1-75-166 and 166-75-76. A reading for 1-166-63 could only be a guess at this time, since no sure reading has been proposed for Z.63. The sign Z.63 does resemble a pair of Z.1342b, Landa's *e*, so that a reading /ch'a?be?en/ 'worthy of being taken' might be suggested.

166-76 (D12c), followed in each phrase by the *kin* sign (which is also held in the hands of Gods H, N, and G in the accompanying drawings) will be read /ch'a?an/ 'a thing which has been taken' (Motul *chhaan* 'cosa llevada, o traída, o tomada, o cobrada'). This reading should be compared with the reading for 166-75-76 above, since Yucatec /ch'a?an/ would be cognate with Chol-Cholti /ch'ama?an/.

1-1300-166 (M103b-106b) is in every phrase followed, except for an error on M103b, by the *cab* bee/honey sign (Z.1337), and a bee is pictured in the accompanying drawings. The reading /u pak'(a)/ 'poblar colmenas' (Motul) seems well motivated.

1-1300-166, 81-1300-166 (M101d). While the first of these collocations has exactly the same components as 1-1300-166 above, bees do not seem relevant to its interpretation. The accompanying drawing depicts an animal stretched out. The reading /u pach'(a)/ 'estar echado descompuesto, tendidos los brazos' (Motul) is proposed here. Beginning the next phrase is 81-1300-166, for which the reading /ka pach'/ 'descompuesto en dos partes, tendidos los brazos' is proposed.

Here the drawing shows the same animal, but now divided in the middle into two parts.

1-1300-166-60 (D15a, D15b-16b). Again, the same arrangement of components is found as in M103b-106b, with the addition of Z.60 as suffix. At conquest, the Yucatec root /pak'/ was the phonemic realization for a great many lexemes, instances of both polysemy and homonymy. The glosses in the Motul Dictionary for *pak* include 1) set up beehives, 2) build (walls, buildings), 3) stick things together, 4) paint with varnish, 5) plant seeds, 6) drive a pole, plant a rock firmly, 7) take advantage of, 8) wait for, await. Clearly many of these glosses are related, and all but one fall into the form class designated *ah*, *ab* in the Motul Dictionary. This is the class of Yucatec verb stems with largest numerical membership. The exception in the above list is *pak tah*, *te* 'wait for, await.' It is proposed that Z.60 is the marker for membership in the verb stem class *tah*, *te*, and specifies that 1-1300-166-60 is to be read /u pak'tah/ 'he waits for it, awaits it.' This proposed reading for Z.60 is also relevant to 1-1368-166-60 below.

1-1368-166-60, 2-1368-166-60 (D8c) both include Z.1368, the *t* of Landa's alphabet. It has been suggested that this sign be read /t'e/ (Kelley 1962a) so that its collocation with Z.166 should read /t'e k'a/. The Motul Dictionary has an entry *the kab tah*, *te* 'amparar y favorecer', which does not seem inappropriate in the context. For 1-1368-166-60, the reading /u t'ek'abtah/ is proposed. This reading suggests that Z.166 has alternate values /k'ab/ and /ch'ab/ in morpheme-final position. While no convincing reading has yet been proposed for Z.2, it can be surmised that it is either a tense prefix or (less likely) a pronominal prefix in this context.

1333a-1360-166 (D21b) has been read /ibak'(a)/ 'armadillo' by Kelley (1962a, 1962b) although the corresponding form in Yucatec is /ibach/ and in Chol /ib/. The suffix /-ach/, normally /-Vch/ in Yucatec, was in colonial times grammatically important, and the existence of a special morphemic sign for this suffix might be expected. No reading is proposed at present.

70b-38-166-51-1313 (D67a). No reading proposed.

1344-1343-28-166 (P15b). The collocations of glyphs found in the Paris codex are the most difficult to evaluate, since rarely is it possible to establish their phrase position or relate them to accompanying drawings. One of Landa's *a* signs is probably Z.28, so that the second half of this collocation might be read /ak'ab/ 'night.'

166-166 (P18b) is almost obviously /k'ak'/ 'fire' but again the reading is unsupportable within the codex. It is surprising that this

collocation is limited to one example in the codices, if indeed the proper reading is /k'ak'/.

I-166-60 (P6b) has been read /uk'ah/ 'thirst' by Knorozov (1958). The reading /-tah/ was proposed above for Z.60, suggesting that /uk'abtah/ 'hacer alguna obra de mano' (Motul) be considered an alternative to the reading proposed by Knorozov. The acceptance of this reading would entail the recognition of the morphemic value K'AB 'hand' for Z.166, in addition to the phonemic values hypothesized.

V

In summary, providing readings for collocations in the codices which include Z.166 depends upon assigning the following values to the sign:

- 1) the alternative phonemic values /k'a/ and /ch'a/,
- 2) the phonemic values /k'ab/ and /ch'ab/ when the sign represents a morpheme-final element, i.e. when the vowel is not euphonic,
- 3) the morphemic value K'AB 'hand.'

The explanation of this alternate phonemic reading involves conjecture about the history of the writing system and the relationship among the language communities which used it. One possible interpretation has been suggested here.

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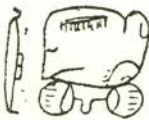





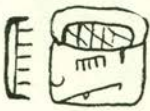

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Table 1. Collocations of glyphs in the codices which include Z. 166.

		
Zimmermann Nos. Oc- currences Reading	1-75-166 D13b (3) /u mak' (a)/	1a-75-166 D15c (1) /u mach'/
		
75-166-76 D14b (3) /mak' a' an/	1-166-75 D2d (1) /u ch' ama/ /u k' am (a)/	1-166-63 D2d (1) /ch' a' be' en/
		
166-75-76 D15c (1) /k' ama' an/ /ch' ama' en/	166-76 D12c (3) /ch' a' an/	1-1300-166 M103b-106b (14) /u pak' (a)/
		
1-1300-166 M101d (1) /u pach' (a)/	81-1300-166 M101d (1) /ka pach'/	1-1300-166-60 D15a (1) D15b-16b (4) /u pak' tah/



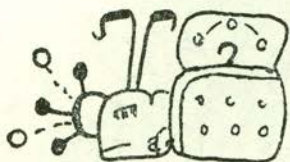
1-1368-166-60
D8c (1)
/u t' ek' abtah/



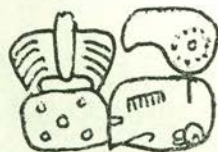
2-1368-166-60
D8c (1)
/-t'ek' abtah/



1333a-1360-166
D21b (1)



70b-38-166-51-1313
D67a (1)



1344-1343-28-166 P15b (1)
/... ak' ab/



166-166
P18 (1)
/k' ak'/



1-166-60
P6b (1)
/u k' abtah/